Regional economic resilience in Europe : 1988-2018

Andreas Hummler

UNIVERSITÉ DE STRASBOURG

ÉCOLE DOCTORALE Augustin Cournot

Bureau d'Economie Théorique et Appliquée

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Andreas Hummler

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THÈSE dirigée par :

M. Emmanuel Muller	Professeur des Universités, Université des Sciences Appliquées Kehl et Université de Strasbourg

RAPPORTEURS :

M. Richard Shearmur	Professeur des Universités, Université McGill
M. Hansjörg Drewello	Professeur des Universités, Université des Sciences Appliquées Kehl

AUTRES MEMBRES DU JURY :

Mme. Andrea Zenker	Directrice-adjointe de département, Fraunhofer ISI
M. David Doloreux	Professeur des Universités, HEC Montréal
M. Thierry Burger-Helmchen	Professeur des Universités, Université de Strasbourg
M. Jean-Alain Héraud	Professeur émerite, Université de Strasbourg

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Nom : Hummler **Prénom :** Andreas

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Laboratoire : Bureau d'économie théorique et appliquée (BETA) – UMR 7522

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For all questions regarding the content of this thesis please contact the author at:

andreas.hummler@gmail.com

To Maia and Katerina

Summary

1. Introduction

The observation at the core of this investigation is that economic performance during and after economic shocks and recessions differs widely between regions. While some regions recover easily and might even profit from a crisis, other regional economies experience a prolonged downturn in their fortunes (Davies 2011; Giannakis and Bruggeman 2017a). The present analysis follows an evolutionary perspective on spatial economics and focusses on the process of *(regional) economic resilience* in explaining this divergence (Simmie 2014; Dubé and Polèse 2016; Martin et al. 2016; Briguglio et al. 2009). More specifically the inquiry is focused on the *measurement* of the phenomenon of regional economic resilience and the search for explanations of regional divergent *resilience performance* in the face of adverse economic circumstance. Simply put, the central question asked is: What makes some regions perform better than others in the face of economic crisis?

To offer a sufficient base for such explorative research, the subject of the empirical investigation is set as broad as feasible. Instead of focusing on individual countries, regions, or individual shock events as previous studies on resilience do for the most part, the discussion and analysis of the phenomenon of economic resilience presented here is conducted over a time span of 30 years (1988-2018) across 15 different European countries at the smallest regional division generally available.

2. Theoretical approach and methodology

Three overarching steps towards attempting the exploration of European regional economic resilience are set out: First, to identify shock events of relevance at different levels of the economy and to measure the extent of their immediate impact. Second, to create a method of measuring the elusive phenomenon of resilience in a way which makes regional economic resilience performance observable and, especially, comparable in an objective way unbound by restrictions of individual crises or geographic locations. Third, to explore the reasons which make some regions thrive, perish, or just reflect the general economic trend in the aftermath of a crisis – i.e., the explanatory capabilities regions possess (or do not possess) to improve their economic resilience performance.

To lay the groundwork for these steps, an in-depth discussion of current theoretical approaches on the phenomenon of (economic) resilience is conducted (section 2 and section 3). After the

discussion of several interdisciplinary approaches, the theoretical framework of *adaptive resilience* proposed by Ron Martin and his co-authors is deemed as most appropriate for the regional economic context (Martin and Sunley 2020, 2015a; Simmie and Martin 2010). This approach describes regional economic resilience as a dynamic process during which regional economies to not only bounce-back, but potentially adapt and change in an evolutionary fashion throughout the process. Thereby the resulting assessment of the relative quality of resilience outcomes goes beyond simple, binary, *engineering resilience* (Simmie and Martin 2010).

Using this approach as a theoretical blueprint, the outline of a methodology to identify, assess, and measure the resilience process and its outcomes is defined (section 4). The methodology, settled upon after discussing several different approaches, is built on the work of the work of Hill et al., who conducted a similar large N study on US metropolitan region (Hill et al. 2012). Their fundamental work is amended substantially by the author to take account of the concept of adaptive resilience as outlined by Martin, as well as to adapt it to the special circumstances of the European theater. The result is a dynamic approach capable of identifying different shock and downturn types and measure resilience performance in two continuous dimensions – i.e., *the recovery of the development level* and *the growth trajectory retention* – across a long time series and a wide geographic scope[1].

3. Empirical analysis

This new method to measure multi-dimensional and intertemporal comparable resilience performance is subsequently applied to the European NUTS 3 level, based on data on regional gross value added (RGVA) as well as regional employment (section 5). The decision to use these two measures of economic performance is based on the consideration that, for the level of local constituents and actors, both factors matter with regards to economic wellbeing. While testing the methodology for robustness, the results of the application offer an in depth look at the regional resilience performance across 30 years[2] of (Western) European history at a level of geographic resolution so far not achieved in the literature to the same extent.

The resulting measures of resilience performance are then analyzed in two separate steps. The first of these mainly concerns the geographic, temporal, and typological distribution of resilience performance among the observations (section 6). The results of this step of the

[1] Additionally, this approach is theoretically scalable to any level and flexible enough to be applied in different scenarios and geographic areas if a substantial database can be provided.
[2] Though the actual number of years for whom the full measure of resilience performance can be applied is lower due to methodological restrictions.

analysis consist of four main findings[3]: First, that resilience, or rather resilience performance, is highly dependent on timing – e.g., observations falling in the phase from 2000-2003 regularly preformed worst by comparison. Second, the nature of the shock causing a regional economic downturn is a major determinant – e.g., national economic downturns result in better resilience performance if measured by RGVA, while (local) industry shocks have the same effect if measured based on employment. Third, country association and country level effects have an outsized influence on resilience performance at a regional level. Last, the urban-rural regional cleavage is less significant than often assumed, at least in context of regional economic resilience[4].

The second step of the analysis concerns the exploration of potential regional characteristics enhancing regional economic resilience performance – i.e., the regional resilience capabilities. As a guideline for this explorative analysis a literature review on the explanatory factors of regional resilience performance is conducted, the results of which were translated into testable hypotheses and measurable indicators (section 3 and section 7.1). These hypotheses and indicators are then subjected to quantitative analyses across all observations collectively (section 7.2), as well as along several categorical sub-samples (section 7.3). The main conclusions of this analysis are the following:

1. Across all measures, high levels of microeconomic market efficiency, especially in the form of liberal and flexible employment markets, have a major positive effect on regional economic resilience performance.
2. A positive reaction of regional economic resilience measures to deficit spending hints at the effectiveness of anti-cyclical spending and Keynesian politics in response to economic shock events[5].
3. Specific to RGVA-based resilience performance are the positive effects of low regional economic concentration, a regionally large public sector, high levels of regional social capital in the form of organizational membership, and of a large economically active population.

[3] For a more detailed summary cf. section 6.5.
[4] Though there persists a slight positive bias towards rural and intermediate regions, which however is not constant throughout the time series.
[5] This is further underlined by the analysis along the different periods of the time series where, for example, the crises of 2008-2009, with its more or less Keynesian response, performed regularly better than the measures related to the crisis period from 2000-2003 which is often associated with neo-classic responses.

4. Specific to employment-based resilience performance, are the positive effects of labor productivity and related to this economic concentration and specialization, as well as the very strong positive effect of a high national current account surplus.

Of these main findings only two are potentially mutually exclusive. The effect of regional economic concentration seems to affect RGVA- and employment-based resilience in different ways. However, as discussed in section 7.3.1 and 7.4, the extent of this effect is, in turn, affected strongly by country association. This last observation underlines a general pattern found throughout the analysis: The circumstances of a regional economic shock and downturn, be they through the regional country association, the timing of the shock event, or the specific shock type, are major decisive factors influencing the results of the regional resilience process, far beyond the individual influence of any single observed resilience capability or their indicators.

Similar to other long-run studies like the work of Cellini and Torrisi, who in their 120-year analysis of Italian regional economic resilience could not identify any significant regional specificities influencing post-shock recovery, the present analysis offers no simple recipe for regional economic resilience (Cellini and Torrisi 2014). However, just because there is no simple 'one size fits all' solution to regional economic resilience or even a kind of universal resilience function as in some natural sciences (Gao et al. 2016), this does not inherently undermine either the theoretical concept or its empirical investigation.

As the application of the proposed methodology on resilience measurement shows through the resilience patterns it reveals, the empirical phenomenon of regional economic resilience is undeniable. One might argue about the position of (regional) resilience in the greater economic discussion on growth and development related theories, as well as its value as a stand-alone subject of investigation, however, that resilience makes a difference on a very material and physical level and matters to firms, decision makers, as well as citizens is beyond doubt. As such, and for the very real consequences a low regional economic resilience performance has on a population, the phenomenon deserves further study. The method proposed in this study to measure regional resilience performance offers a blueprint for such investigations which, through its scalability and flexibility, can be applied to a diverse set of scenarios and at all levels of the economic investigation. Therefore, it can be a tool in future investigation into more conceptually guided, detailed, and focused (i.e., country or crisis specific) explorations into the research subject.

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1. Introduction

Regional economic development and its trajectory often tends to be associated with relatively fixed, path dependent factors such as a region's natural and human resources, regional climate, geography, and demographics. This "territorial capital" is further shaped by a region's interaction with wider economic, historical, and political or institutional contexts and trends, which are often seen as explanatory for regional economic prosperity (Perucca 2014; Fratesi and Perucca 2018). The theoretical approaches explaining the causal mechanisms can differ significantly. They range from the idea of regions and nations with a historically well-developed institutional framework tending to do economically better than their less institutionally developed contemporaries (Acemoglu and Robinson 2013), to more materialist approaches focusing on the easy access to various natural resources which may shape a region's economy, trade and even cultural outlook by giving it, depending on interpretation, a competitive advantage, or a path dependent lock-in (Gunton 2003; Innis 2001; Mackintosh and Dales 1964). Other important factors and approaches contributing to the explanation of regional economic development include, without making the claim to a comprehensive list, human capital, social capital, cultural heritage, competitiveness, level of urbanization, geographic centrality, and innovative capabilities (Kebir and Crevoisier 2008; Porter 2008; Sycheva et al. 2019; Evenhuis 2017; Putnam 1992). While not all regional economic divergence can be explained by these and similar regional factors and their interaction, they evidently have a strong collective explanatory power for the spatial distribution of economic development within and across nations (among others Perucca 2014; Fratesi and Perucca 2019; Zeibote et al. 2019)

This thesis concerns itself less with the factors leading towards certain regional economic successes (or lack thereof), but instead with the mechanisms and factors allowing a regional economy to maintain its existing level of development and general development trajectory in the face of uncertainty, economic shocks, and economic downturn. The goal of the present investigation is first, to analyze the effects of such events. Second, it aims to measure and describe how well, or poorly different regional economic setups handle the stress of such shock events. And third, it poses, and attempts to answer the question of which factors make regional economies thrive, plateau, or decline as the result of such disruptive events.

The underlying phenomena related to these questions and therefore the concept central to this analysis is *regional economic resilience.* This term describes regional economic development from an evolutionary perspective on spatial economics, which postulates mechanisms of natural

selection as the cause of a region's retention, change, or adaption of its fundamental characteristics throughout and beyond a crisis event (Martin and Sunley 2020).

The determinants of these mechanisms are termed, for the present purposes, *regional resilience capabilities* and they can allow a region's economy, under favorable circumstances, to not only soften the negative effects of a crisis but even thrive in the aftermath. Regions with these capabilities can *bounce back* quicker than others after a crisis event and potentially recover faster than their contemporaries. Consequently, they might find themselves on an improved growth trajectory and, in the mid-term, change their economic development to higher levels than before the crisis event. Alternatively, depending on interpretation, certain regional resilience capabilities might enable a regional economy to establish a completely new economic equilibrium based on a changed economic structure better adapted to new circumstances in the wider economic environment. Meanwhile regions with reduced resilience capability might for example be caught in an economic negative cycle, perpetually lowering their economic growth and development, neither adapting to the changing times nor compensating for the negative effects of an initial shock event (Modica and Reggiani 2015; Christopherson et al. 2010; Simmie and Martin 2010).

In their fundamental nature, regional economic resilience capabilities can resemble the diverse factors driving general regional economic development often summarized as 'territorial capital' (Fratesi and Perucca 2018). However, the causality of their effect on regional economic resilience potentially differs significantly from their general effect on long-term economic development. For example, some types of natural resources might have been beneficial to a region's economic development in the past (for example coal or metals), but in the times of an economic shock upsetting the general economic structure, they might create a lock-in through overspecialization, just when regional economic flexibility might be needed most. This in turn can decreases the region's ability to withstand and recover from a shock event and might result in a regional economy permanently lowering its overall development level and leading to a different, declining growth trajectory. Conversely, a region with a strong social development but weak overall economic performance might suddenly find itself in a position of being able to adjust quickly to new economic circumstances due to the microeconomic flexibility of its citizenry or firms. As a result, this region might experience an economic boom in the aftermath of a shock event (Simmie and Martin 2010; Fratesi and Perucca 2018; Perucca 2014).

To investigate regional economic resilience, as well as how it is influenced by regional resilience capabilities, this thesis will focus its analysis on the *regional economic resilience*

performance of the western EU15 states in the time between 1988 and 2018 on the NUTS 3 regional level – i.e., the smallest geographical unit within the standardized data gathered by the EU statistical office (Eurostat) across its members[6]. With regard to the European regions, this contribution is not unique – several papers have studied the resilience of European regions, or at least regions in individual European countries, with different methodologies in the recent years (i.a. Fratesi and Perucca 2018; Giannakis and Bruggeman 2020, 2017a; Davies 2011; Brakman et al. 2015; Oprea et al. 2020; Di Pietro et al. 2020; Webber et al. 2018; Martin 2012). However, the present investigation differs in substantial ways from these previous investigations.

First, while other investigations for the most part focus on specific shock events and mostly on the Global Financial Crisis (GFC) from 2008-2009[7] and its aftermath (e.g. Fratesi and Perucca 2018; Sensier et al. 2016), the present research attempts a study of the patterns of resilience across a relatively long time series covering 30 years[8] from 1988 to 2018. The intent is thereby to isolate patterns of resilience (and their variations) in response to various crises, as well as the effect of a changing economic environment on regional economic resilience.

Second, with their nearly exclusive focus on the effect of great economic depressions of the national or European business cycle, most existing works present a potentially very narrow viewpoint of regional economic resilience. In fact, not all shock events are of an extra-regional nature – i.e., caused by a national economic downturn, a financial crisis, or global recession – but can be regionally focused events which might have their origin, for example, in the foreclosure of a big regional employer or a wider downturn to an industrial sector of only regional importance (Hill et al. 2012; Martin and Sunley 2015a; Foster 2012). It is the goal of this study to address this by covering the resilience to shocks of regional origin and those originating on higher levels equally.

Third, many interpretations of the process of resilience and subsequent measures of resilience performance focus solely on 'bounce back' scenarios and less on resilience as a dynamic

[6] The nomenclature of territorial units for statistics (NUTS) consists of four levels of statistical regional units: NUTS 0 corresponds to countries themselves; NUTS 1 consists of regional units containing between three and seven million inhabitants; NUTS 2 consists of regional units containing between 800.000 and three million inhabitants; NUTS 3 consists of regional units containing between 150.000 and 800.000 inhabitants (European Commission 2003).

[7] The author is aware that the GFC technically begun in 2007. However due to the nature of the methodology chosen in this work the period of interest in regard to the effects of the GFC is centered on the years 2008-2009 (cf. Chapter 6.1). To avoid confusion the author maintains the dating for the GFC from 2008 to 2009 throughout the text.

[8] Though the actual number of years for whom the full measure of resilience performance can be applied is lower due to methodological restrictions.

process which potentially changes the prospective development of a region (Hill et al. 2012; Martin 2012; Modica and Reggiani 2015). There are notable exceptions of course (Sensier et al. 2016; Fratesi and Perucca 2019), however the methodology to measure and understand resilience as more than static simple *engineering resilience* is in need of amendment.

Fourth and finally, by expanding the analytical horizon on resilience performance and its causes, i.e., the regional resilience capabilities, this work attempts to be more than a one-size-fits all general analysis as often results from a narrow scope. By having a detailed look at the resilience processes across three decades and 15 European countries, the discussion on resilience is not bound to one event and place but allows a comparative look at the changes as well as the constants determining regional economic resilience across space and time. This explorative approach might result in a lower explanatory power for regional economic resilience performance for each discrete observation, but also allows for a more transferable perspective on resilience than given by a more singular focus.

To achieve these goals and answer the stated questions, the author will first discuss the theoretical origins of the concept of resilience, its different interpretations, as well as the general state of the field (Chapter 2). Due to the somewhat transient nature of resilience within the fluctuations of regional fortunes, as well as a certain arbitrariness in the use of the term 'resilience' in the wider literature, this discussion must include the definition of the term itself. This concerns the timing, duration, and nature of regional economic resilience as well as the attempt to draw the boundaries of such a definition relative to other concepts. Another focus of this discussion will be the exploration of different approaches to the determinants of the resilience capacity of regional economies (i.e., different resilience capabilities), from which hypotheses will be derived to be tested (Chapter 3).

Next, the author explores different methodologies to make regional economic resilience measurable – including preceding shock events, their causes, and their nature (Chapter 4). The merits and disadvantages of several approaches will be contrasted, finally focusing on an approach to measure resilience based on the works of Edward Hill et al. who analyzed the resilience performance of American metropolitan regions in a large-N study (Hill et al. 2012). This approach will then be amended substantially by factors tailored towards the goals of this study – namely the observation of subsequent growth and developmental trajectories in a comparative framework – which in turn is inspired by other, more recent, authors on the topic of regional economic resilience. The method derived will allow this work to distinguish between observation of the resilience of regional development levels focusing on short-term

equilibria and the more long-term adaptive changes to the regional growth trajectory as the result of overall resilience process.

The outlined methodology then forms the basis of the further empirical measurement of regional economic resilience performance in a time series analysis (Chapter 5). This quantitative investigation will consider not only the whole time series from 1988-2018, but also look at different spatial and temporal sections of the data set to draw conclusions about the regional resilience performance of specific countries, types of regions, as well as the potentially effects of different shock events and their timing (Chapter 6).

Subsequently, using these observations and the measures made of European regional resilience performance, the author will investigate the explanatory power of a framework of determinants of regional economic resilience capacity. This means to test for the effect of diverse resilience capabilities hypothesized to be of beneficial or detrimental nature to regional economic resilience performance (Chapter 7). The goal is to identify factors shaping the immediate resilience performance of regions in response to crisis. Finally, the results of these steps will be discussed and the consequences for regional economic resilience research and potential implications for policy will be explored (Chapter 8).

2. Theoretical outlines of regional economic resilience

To define regional economic resilience, the first step is a theoretical distinction to establish a clearer picture of resilience: This analysis is focused on *resilience performance*, meaning that when speaking of resilience in general terms, it is understood as a *process* which can lead to positive or negative outcomes, i.e., performance, for a region. This distinction is important since within the literature the term resilience is often understood as a fixed *regional capacity* that determines the recovery and growth trajectory after shock events (among others Briguglio et al. 2009; Evenhuis and Dawley 2017; Brooks et al. 2005; Chay Brooks 2017; Capello et al. 2015; Fratesi and Perucca 2018). When discussing this regional capacity, this thesis will instead speak of a region's *resilience capacity*. Meanwhile the individual factors determining this capacity will be termed *resilience capabilities or determinants* (Martin and Sunley 2020; Sensier et al. 2016). Both terms are used interchangeably. Obviously, the discussion and analysis of regional economic resilience must include both the consideration of resilience performance itself, as well as the factors determining a region's resilience capacity (Bristow and Healy 2015; Bristow 2010).

A general definition of *regional economic resilience* is relatively easy to come by, e.g. this concise definition by Kathryn Foster who describes regional resilience as the "ability of a region to anticipate, prepare for, respond to, and recover from disturbance" (Foster 2012, p. 29). However, the exact definition, role, and especially the processes behind regional economic resilience have been fervently discussed in recent years, and a number of, sometimes contradicting, concepts and research designs have emerged (Modica and Reggiani 2015; Palekiene et al. 2015). In their meta-analysis of the literature on resilience in the field of regional economics for example, Modica and Reggiani identify at least seventeen main trends for definitions and descriptions of resilience within the field (Modica and Reggiani 2015).

The concept of resilience derives from ecological science and concerns the description of complex biological systems in an evolutionary context (Modica and Reggiani 2015). From this biological and evolutionary perspective, the long-term survival of complex ecological systems – and by extension all complex dynamic systems including socio-ecological and socio-economic systems like regional economies – depends on their resilience, i.e. the capacity to change (adapt) continuously while remaining within certain thresholds (to survive) (Carl Folke et al. 2010; Holling 1973). As such, and here all interpretations agree, resilience relates to the response of a system to shock and other extraneous pressures disturbing existing equilibria and (perceived) stable states.

Therefore, the first important distinction must be between the *vulnerability* (or positively *shock resistance)* and *resilience* of a system itself. As Seelinger and Turok state: "Resilience is the responsiveness of the system, i.e., its elasticity or capacity to rebound after a shock, indicated by the degree of flexibility, persistence of key functions, or ability to transform. Vulnerability is more about the susceptibility of the system or any of its constituents to harmful external pressures" (Seeliger and Turok 2013, p. 2119). Hence a system's vulnerability or conversely its ability to resist shocks of diverse kind is a quality which determines whether, or to what extent, a shock affects a system in the first place and as such exists *before and during* a shock event. Meanwhile resilience relates to the ability, type, and quality of a system to respond *after* a shock when the negatively affected system is experiencing an environment of increased uncertainty, scarcity, and other pressures. With regard to country level economic resilience, Briguglio et al. describe this as the distinction between exposure to shock (vulnerability) and the coping ability (resilience) of a region: "[E]conomic vulnerability is ascribed to inherent conditions affecting a country's exposure to exogenous shocks, while economic resilience is associated with actions undertaken by policy-makers and private economic agents that enable a country to withstand or recover from the negative effects of shocks" (Briguglio et al. 2009, p. 230). As will be made

clear later, this distinction is important for the empirical analysis of resilience. Since systems showing a low vulnerability or which prove highly shock resistant cannot show their resilience performance in an empirical analysis due to it not being realized (Martin and Sunley 2020). Therefore, despite potentially having a high capacity for resilience, regions with low vulnerability and high resistance will only play a minor role in the empirical parts of the present investigation

Beyond the distinction of vulnerability and resilience, there are two classic conceptual approaches to the analysis of resilience. One is generally known as *engineering resilience,* the other one as *ecological resilience* (Modica and Reggiani 2015; Martin and Sunley 2020). The first approach, alternatively often called "equilibrium resilience", stems from Stuart L. Pimm and his work on the complexity and stability of ecosystems, and defines resilience as "[h]ow fast the variables return towards their equilibrium following a perturbation" (Pimm 1984). This definition assumes the existence of a single stable state for a system and describes resilience as a measure of the extent and speed of return to this stable equilibrium after a shock event. This is akin to what material or engineering sciences and economics refer to as 'elasticity' (Martin and Sunley 2020). This interpretation of resilience is widespread in defining economic resilience, as it refers to the ability of a (regional) economic system to return to a stable state after a shock, similar to the general equilibrium model (Norris et al. 2008; Christopherson et al. 2010; Martin and Sunley 2020). Beyond simple single stable state equilibrium models, expanded versions of engineering resilience can encompass notions of adaptation in an economic system, such as the reorientation of a knowledge-driven industry at the end of an innovation trajectory in a Schumpeterian sense, or the adaptation of a regional economic structure necessitated by a changing environment (natural, legislative, or economic). To a certain extent, this extended approach reflects the concept of multiple equilibria within economics (Simmie 2014).

However, the basic concept of engineering resilience takes no specific account of the ongoing capability of a system to remain within the critical thresholds of survival. Yet, in the science of ecology, the survival of complex, ecological systems under non-equilibrium circumstances, i.e., situations of prevailing uncertainty (Knight 1964), is seen as central to their long-run success. Because an uncertain environment is far more common in nature than a prevailing stable state, such survivability is fostered by continuous system change which allows for flexible adaptation to new environments (Holling 1973). Regarding regional economies, this survivability component of resilience cannot be ignored. Like most complex biological systems, socio-economic systems exist under the constant selective pressure of their inherently uncertain

natural, social, and technological environment (Holling 1973). And while the literal 'survival' of regions and their economies is rarely in question, maintaining the quality of life within a region and allowing its inhabitants to prosper under prolonged macroeconomic uncertainty is, arguably, no less a feature of economic survival.

The closest concept in economics to this ecological approach is the idea of multiple equilibria approaches, mentioned earlier. As Martin and Sunley state, a shock to a regional economy can be strong enough to "change economic structures, behaviors and expectations" resulting in a permanent shift towards a new equilibrium state – usually perceived as less desirable and prosperous than the old equilibrium (Martin and Sunley 2020, p. 13). Therefore, like biological systems, socio-economic systems must be able to retain their general shape and function during periods of environmental pressure, under which no stable equilibria are discernable or even exist, until a stable state can be achieved again (Beckert 1996; Berkhout et al. 2013). Furthermore, unlike simple engineering resilience, this ecological resilience includes, for the first time, the possibility of a permanent shift of regional economic trajectories through regional adaptation, albeit a usually negative one (Holling 1973; Modica and Reggiani 2015).

To get a realistic picture of the complex system of a regional economy, any analysis needs to cover aspects of both concepts of resilience – engineering as well as ecological resilience. Hence any approach taken must be able to: first, identify the capacity of a system to bounce back to a stable state, as well as the change to a new stable equilibrium; and second, describe the process of this return – i.e., the capacity for endurance, change, and elasticity that give a system time to adapt or alternatively retain its shape and function. This dual conception of resilience for social systems is best summarized by Cutter who states that "[r]esilience is the ability of a social system to respond and recover from disasters and includes those inherent conditions that allow the system to absorb impacts and cope with an event, as well as post-event, adaptive processes that facilitate the ability of the social system to re-organize, change and learn in response to a threat" (Cutter et al. 2008).

Therefore, economic analysis cannot simply view the resilience of regions as either the product of their adaptability (i.e., their movement towards a new equilibrium) or elasticity, but must consider factors which keep socio-economic systems stable in the absence of a clear adaptive solution i.e., aspects enhancing their 'survivability'. This necessitates observation of the resilience performance of regions not only in the short run but also over longer timeframes, to evaluate the sustainability of adaptations and re-established equilibria, as well as the underlying changes to those systems. The approach best suited to fulfill these demands for a concept of

regional economic resilience is the approach outlined by Ron Martin and other authors in the concept of *adaptive resilience* and its extension *transformative resilience* (Martin 2012; Martin and Sunley 2020; Folke 2006; Folke et al. 2002)

According to Martin and Sunley, adaptive resilience describes "the ability of a system to resist external and internal disturbances and disruptions if necessary by undergoing drastic change in some aspect of its structure and components in order to maintain or restore certain core performances or functionalities" (Martin and Sunley 2020, p. 14). This interpretation builds strongly on concepts of organizational theory and psychological sciences and finds parallels in the area of evolutionary economics and encompasses both elements of engineering and ecological resilience (Martin and Sunley 2020).

Originally Martin described this approach to adaptive regional economic resilience as a path-dependent process by which regions react to shock (Martin 2012). According to him, this process can result in multiple distinctive outcomes which can be identified by observing the extent to which a region is affected by a shock, measured by selected economic performance indicators, and how its recovery is achieved – Martin uses a sensitivity index for these purposes. The process itself then relies on a region's economic endowment (as in pre-existing regional capacities and resources) and on its ability to realign growth trajectories by adapting its economic system's composition and function through the process of "hysteresis" (Martin 2012). Hysteresis or a hysteretic shift, according to Martin, describes the process through which a one-time shock-event, which negatively influences the growth path of a regional economy, has a severe enough impact on the economy to change the behavior of both economic agents and the composition of the economy as a whole (Martin 2012). As a concept, hysteretic shifts are similar to the adaptation to different equilibria described by ecological resilience (Martin and Sunley 2020).

Classic adaptive resilience focusses mostly on hysteretic shifts as an adaptation towards a "bounce back" understanding of resilience – implying that a former stable state can be achieved through realignment of a regional economy. In this sense hysteresis, while describing the adaptation of a region's economic system to the shock and its causes, leads only to a recovery of a region's former status while generally maintaining the system's performance (Martin 2012; Martin and Sunley 2015b, 2020). By contrast *transformative resilience* goes further and covers the notion that a shock can be of such scale and impact that the original system cannot be made sustainable through relatively minor adaptation to organization or structure, but has to change fundamentally, leading to the "redeployment of resources and the reorientation of system

dynamics and performances to achieve a more sustainable and viable state of the system in question" (Martin and Sunley 2020, p. 15). The difference between both approaches is basically one of scale. It can be imagined as the difference between shoring up the foundations of a building damaged in an earthquake but otherwise keeping things in place, and completely tearing down the structure to build a new and potentially fundamentally changed building with the rubble as well as new materials.

Despite the difference in scale between these approaches, for the purposes of this work both are treated as components of a wider evolutionary concept of resilience and the term *adaptive resilience* will be used to cover both approaches. Like Martin and Sunley, this thesis therefore defines resilience as: "The capacity of a regional or local economy to withstand or recover from market, competitive and environmental shocks to its developmental growth path, if necessary by undergoing adaptive changes to its economic structures and its social and institutional arrangements, so as to maintain or restore its previous developmental path, or transit to a new sustainable path characterized by a more productive and equitable use of its physical, human and environmental resources" (Martin and Sunley 2020, p. 15).

2.1 Patterns of resilience performance

Continuing to follow Martin's and Sunley's approach, the resilience of a regional economy – i.e. the process shaping resilience outcomes – is determined by four steps*: Risk, resistance, reorientation and recovery* (Martin 2012; Martin and Sunley 2020).

Risk describes the chance of a shock influencing a system in the first place and thereby concerns the nature of *shocks* which will be discussed below in further detail. Meanwhile, *resistance* is related to a region's initial vulnerability to shock events or, alternatively, its shock resistance. It describes the initial sensitivity of a regional economy to a shock event and takes account of the fact that some regional economies have the capacity to withstand shock events without them having a significant effect. As such, resistance is not a direct dimension of regional resilience, however it remains an important concept to distinguish (cf. the discussion on vulnerability in Chapter 2). Furthermore, the *level and duration* that a shock influences a region is a determining factor in the evaluation of the region's subsequent resilience performance (Martin and Sunley 2020). For example, this means that a region which suffers a short one-off economic downturn and then recovers must be evaluated differently to a region which had poor past economic performance, then suffered a severe long-term shock but subsequently recovered despite these negative prior conditions. *Re-orientation* describes the extent of adaptation of a regional

economic system, or lack thereof, as a reaction to a shock event. This in turn is directly linked to *Recover(ability)* which describes either a measure of classic engineering resilience as the "speed and degree of recovery of [a] regional economy from a recessionary shock" (Martin 2012), or the extent of change to a region's growth path, i.e.. a hysteretic shift towards a new (higher or lower) trajectory and overall development (Martin 2012; Martin and Sunley 2020). Since it is the goal of this research to measure the comparative resilience performance of European regions, the focus of this investigation lies on the last step of the adaptive resilience process – i.e., recoverability. The extent of re-orientation, i.e., the (adaptive) change of the economic system, will only be discussed in so far as the regional growth trajectories diverge from the pre-shock trend.

According to Martin, recovery can lead to five different outcomes distinguished by their respective recovery of the overall *level of the development* (based on absolute economic measures like total economic output or employment projected over time, i.e. trend paths) and the direction and extent of the regional (*post-)recovery growth trajectory* (Martin 2012; Martin and Sunley 2020, 2015b). Two of these outcomes are described as negative (though the negativity is somewhat debatable) and two are positive according to Martin, while the last corresponds to the classic understanding of the "return to equilibrium" engineering resilience (cf. Figure 1). Common to all resilience outcome scenarios is the existence of an initial negative effect of a recessionary shock temporarily lowering the level of development in an economy (e.g. increased unemployment or decreased regional total production) (Martin 2012; Martin and Sunley 2020).

The two negative scenarios assume that the level of development is permanently lowered – i.e., in a counter-factual comparison, the actual level of development stays permanently lower than the projected level without a shock event occurring. The difference between both negative scenarios is the (post)-recovery growth trajectory.

In the first case, the growth trajectory recovers to its pre-recession levels, but on a lower trend path. This could be the case in a region where the employment or productive base is destroyed by a recession to a severe extent but the capacity to compensate (a component of resilience) allows the regional economy to continue or adapt in a way that it at least achieves similar growth rates as before the crisis (Martin 2012; Martin and Sunley 2020). Despite the negative impact – a permanently lower employment or economic development level compared to a counterfactual no-downturn scenario – in this scenario a region shows a certain degree of resilience performance as it at least recovers its pre-crisis growth rates (cf. Figure 1b). In this

work, regions following this pattern will be termed *stable underperformers*[9] (i.e., an overall lower level of development, but recovery of a stable growth trajectory).

The second negative scenario is more severe than the case of stable underperformers since it assumes that both the level of development as well as the post-recovery growth trajecotry are permanently lowered. This corresponds to regions which after a recessionary shock not only have a lower employment or production base but also see a permanent decline in growth rates. In such cases the local economic system has neither the capacity to recover its former growth rates, nor to adapt to potentially new economic realities. This trend is made permanent through knock-on effects, such as reduced local demand, a smaller local labor pool (through emigration), and reduced attractiveness of out-region investment (cf. Figure 1c). All this leads to a permanent contraction of the regional economic system and a negatively changed growth trajectory (Martin 2012; Martin and Sunley 2020). Subsequently, regions showing this pattern will be called *declining underperformers*.

The two positive scenarios focus on situations where a hysteretic shift leads to an increased level of development. This means that the mid- to long-term effect of the shock is not only negated but the regions manage to 'profit' from the change of exogenous variables and the endogenous adaptation of economic processes. Both scenarios describe regions where the initial negative effect of a shock is more than negated by a higher initial post-downturn growth rate (compared to the pre-crisis growth rate), resulting in a region with an overall higher economic development than before. This can be imagined as a region where a crisis opened opportunities for firm and job growth, new technologies, process adaptations, and opportunistic or optimistic investments tapping into unused potential (Martin 2012; Martin and Sunley 2020).

The two positive scenarios are subsequently distinguished by the sustainability of these initially high growth trajectories. In one case the initially high post-downturn growth rate flattens off to pre-crisis levels because the region was not able to find the resources, investment, or labor forces etc. to sustain it. This results in a region which has similar levels of growth but a higher-level development than before the crisis (cf. Figure 1d). These regions will be termed *stable overperformers* (Martin 2012; Martin and Sunley 2020).

If a region can sustain the higher post-crisis growth trajectory by drawing in more resources – labor, investment etc. – then the result will be a booming region with not only a higher level of development but a permanently higher growth trajectory (i.e., higher growth rates than before

[9] The names for the different scenarios are by the author, they do not reflect the original articles quoted.

the shock event). Regions such as this manage to become centers of investment, migration, innovation, and firm growth and therefore become permanently better off through the opportunities offered by the crisis (cf. Figure 1e). For the purposes of the present work, regions showing this pattern will be termed *growing overperformers* (Martin 2012; Martin and Sunley 2020).

Lastly, there are the regions which bounce back in the classic sense of engineering resilience (cf. Figure 1a). According to Martin this is not a result of hysteretic processes but "classic" engineering resilience. These are regions which manage to recover from the negative effects of a recessionary shock through a short phase of higher growth rates, but do not exceed their pre-downturn level development and simply return to the old level of development and growth from before the crisis (Martin 2012). These regions will be termed *adequate performers.*

Martin's (and Sunley's) classification of resilience as a multi-dimensional adaptive process with not just a binary outcome (resilient or non-resilient), serves as a foundation for the further analytical work on regional economic resilience. The great advantage of this approach is that it offers a framework for classifying resilience outcomes and performance (*stable underperformers, declining underperformers, stable overperformers, growing overperformers,* and *adequate performers*). This allows a more differentiated picture of the effect that shocks, and the subsequent regional resilience performance have on regions. Furthermore, the inclusion of hysteresis within the concept of resilience takes account of first, the elasticity of systems with different development trajectories, and second, the ability of systems to adapt and change. Both factors are demanded by the concept of ecological resilience and allow the model to encompass the elasticity assumptions of classic engineering resilience.

Consequently, this work attempts to translate this classification system of resilience outcomes into a quantitative empirical analysis of the resilience patterns within the Western European Union NUTS 3 regions. Therefore, the methodology to measure regional economic resilience outlined in Chapter 4 focusses on the two resilience dimensions determining the different resilience patterns outlined in this chapter (i.e., the regional level of development as well as the growth trajectory during and after the recovery phase). While a strict classification in the different patterns of resilience performance as outlined by Martin is not the direct goal of this analysis, both dimensions still form the foundation for the present analysis of resilience performance based on the concept of adaptive resilience.

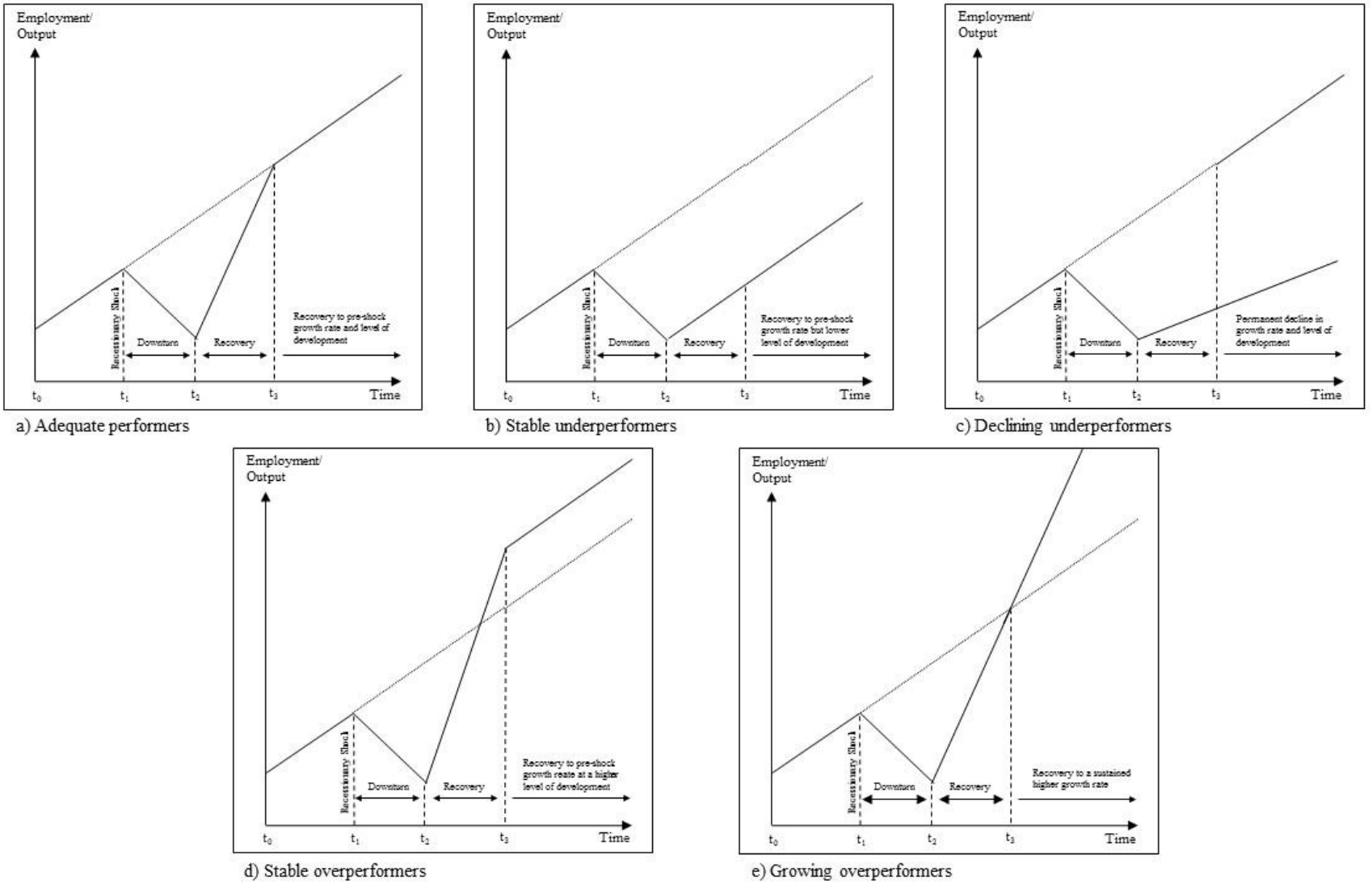


Figure 1: Different resilience scenarios. Figure by author, based on Martin 2012.

2.2 Shocks and the comparative context for resilience performance

The specific goals for the empirical analysis of the resilience performance of the NUTS 3 regions need to be discussed, as they set the framework for the choice of methodology. This includes a short discussion on the nature of shock events, the question of timeframes for different components of the resiliency process, as well as a discussion of the value of relative and absolute resilience measures.

Nearly as important as the definition of the underlying concept of regional economic resilience is the nature of the shock itself, as without a shock regional resilience cannot be made observable. As Martin and Sunley state "it is only when a shock occurs that we can ascertain whether, and to what extent, the evolutionary development (ongoing adaptation or major transformation of a region's economy) has imbued it with resilience" (Martin and Sunley 2020, 19).

Much of the literature on regional economic resilience is focused on specific, mostly national or even worldwide phases of economic downturn (among others Davies 2011; Doran and Fingleton 2016; Dubé and Polèse 2016; Fingleton et al. 2015) or alternatively on the long-run historical resilience performance of specific regions in managing the ups and downs of the regional business cycle (i.a. Martin 2012; Fingleton et al. 2012; Paolo Di Caro 2017; Foster 2007). Significantly fewer authors attempt an analysis of resilience of a wide spectrum of geographic entities while at the same time allowing for different geographic levels of economic shock events, and even fewer of those expand the temporal framework beyond a single event (among others Sensier et al. 2016; Hill et al. 2012; Foster 2012; Fratesi and Perucca 2018; Giannakis and Bruggeman 2020; Crescenzi et al. 2016; Cellini and Torrisi 2014).

From a theoretical perspective, Martin and Sunley distinguish between four general types of shocks classified along two dimensions: Their scale (local to global), and their speed and duration (sudden to 'slow burning'). Sudden shocks range from localized effects like the closure of major regional producers or localized natural disasters, to the national and global effects of recessions and economic crises or even global events such as the COVID-19 crisis ongoing at the time of writing. These scenarios all have in common that the original shock causes a relatively sudden downturn of regional economic fortunes. Meanwhile, the 'slow burning' long-term type of shock includes factors like regional loss of competitiveness, adverse policies on a national scale and slowly developing global shocks like global warming. This latter group of factors usually affects a regional economy only slowly by reducing growth trajectories and the general level of development across longer time scales (Martin and Sunley 2020).

Since the present analysis aims to include a wide variety of shocks across a wide geographic area (EU15) over a relatively long timeseries (1988-2018), the method chosen to identify shocks must work on all geographic levels. On the one hand, it must be able to identify different national shocks based on the respective national business cycles that are often but not exclusively related to global shocks, e.g., a global financial crisis. On the other hand, it must be able to identify events of mainly local relevance like the foreclosure of a large-scale employer or a regional economic downturn caused by natural disaster (Sensier et al. 2016; Martin and Sunley 2020; Pendall et al. 2010).

With regard to the duration dimension of the shocks analyzed, this thesis will follow the approach of several authors working on the empirical measurement of resilience performance, and focus solely on sudden shock events (Martin and Sunley 2020; Foster 2012; Sensier et al. 2016; Hill et al. 2012; Hill et al. 2008). As Martin and Sunley point out, slow burning shock pressures are, in the context of an adaptive conceptualization of resilience, to be seen more as determinants and symptoms of the regional resilience capabilities than as good starting points to evaluate the resilience performance of a region itself (Martin and Sunley 2020).

This distinction between sudden and slow-burning shocks is of further importance considering the variety of regional long-term development paths. Even the restriction to the Western European EU15 countries includes a wide spectrum of regional development trajectories. In the first ten years of the 21st century one can find economic trajectories ranging from low to negative average growth in regions in France or Italy, to comparatively quickly expanding regional economies in Germany or Spain (Postoiu 2015). This picture becomes even more varied across a longer time span and diverse measures of economic performance other than simple GDP growth, like employment, or even explanatory indicators like capital formation (Capello et al. 2011; Capello et al. 2015).

The point is that one cannot ignore the fact that some regions, or even whole countries, seem to be on inherently different long-term trajectories than others. Which begs the question: what does this mean for resilience? Does one judge a high-growth region which recovers slowly to its relatively high levels of development after a shock differently to a slow-growth or even shrinking economy which nevertheless managed to return quickly to former trajectories after a shock? And should one judge a low-growth region as more resilient if it improves its overall growth trajectory post-shock and recovery, even if it is still lower than a contemporary region with habitually high levels of growth?

These questions inherently complicate cross-regional and particularly cross-national comparisons of resilience performance (Sensier et al. 2016; Foster 2012; Fingleton et al. 2015; Doran and Fingleton 2016). However, the focus on sudden shocks in the form of regional economic downturns, caused by national or regional events, can to a certain extent mitigate this issue. Assuming that sudden shocks can affect both high- and low-growth regions equally relative to their previous growth trajectories and development levels, only the respective post-shock resilience performance matters for relative comparisons, not the pre-shock overall level of development (Sensier et al. 2016; Hill et al. 2012).

This last point relates to a further issue which must be discussed: Should resilience performance be measured relatively or in absolute terms? Simply put, should a region's resilience be measured as a binary state (resilient or non-resilient relative to a chosen threshold) (Hill et al. 2012), or should different levels of resilience be based on certain threshold assumptions of recovery and trajectory development (Sensier et al. 2016; Giannakis and Bruggeman 2020), or can resilience be best evaluated in a relatively continuous fashion with some regions being more or less resilient than others (Briguglio et al. 2009; Martin 2012; Fratesi and Perucca 2019)?

These questions become even more important if one considers what benchmark or reference states are chosen to declare whether a region is resilient or not – or relative to which one measures continuous, non-categorical, resilience performance. Some authors choose, for example, to use a national, or European reference as a benchmark. In simple terms, this means that they choose to define a region as resilient if and when it equals or exceeds some national reference value of growth or development (Fingleton et al. 2012, 2015; Martin 2012; Giannakis and Bruggeman 2020). Other authors choose various counterfactual regional scenarios as a reference point – i.e. a what-if scenario for regional growth or development under the assumption of a no-shock scenario (Sensier et al. 2016; Hill et al. 2012; Foster 2012; Capello et al. 2015; Fratesi and Perucca 2019).

Having set the goal to consider as many different types of shock as possible and to make resilience performance comparable across a relatively long timeseries under widely varying national economic contexts, this thesis will propose a relative measure of European regional economic resilience performance based on region-specific counterfactual reference scenarios as benchmarks for continuous resilience measures (cf. Chapter 4). The argument for this approach is that the comparison to a region-specific counterfactual scenario measures a region against its own past performance and therefore allows the comparison of various regions independent of their different backgrounds (high- or low-growth regions are only compared

against their alternative selves) (Sensier et al. 2016). Furthermore, a relative resilience measure – i.e., a continuous cross-regional comparison in different variables – will allow the comparison to go beyond simple binary or categorical statements about resilience. This in turn allows for a deeper discussion of the effect of different capabilities of resilience and their relative contribution to a region's overall resilience (Martin 2012; Briguglio et al. 2009).

In summary, the methodological focus of this thesis is based on relatively sudden shock events as the causal event for the analysis of the subsequent regional economic resilience performance. In this the direct cause of the respective sudden shock event affecting a region can be either in form of a high-level economic event (like a national recession or a global financial crisis) or of a more local or industry specific type (like the foreclosure of a local industry or the general decline of an economic sector). Furthermore, the measures of resilience performance in the two dimensions of regional resilience patterns as outlined in Chapter 2.1, will be based on a quantitative approach which puts a regions economic performance in the aftermath of a downturn into a self-referential comparison with either its past performance (in the case of the growth trajectory) or a counterfactual scenario (in case of the regional development level). The resulting methodology described in Chapter 4 allows thereby for a relative comparison of different regions resilience performance even if the underlying regional economic development level and long-term growth trajectory differ widely, and the external economic circumstances diverge significantly.

2.3 Mechanisms of regional economic resilience

While the previous chapters focused for the most part on the theoretical underpinnings of the phenomenon of regional economic resilience itself, this chapter will discuss the processes determining a region's resilience outcomes and reaction to a shock event itself, i.e., its capacity for resilience. Therin this discussion will focus at the present point on the general theoretical approaches explaining the mechanisms behind a region's regional capacity for resilience. The subsequent Chapter 3 by contrast will focus on specific factors – i.e., individual resilience capabilities – increasing said capacity and derive testable hypotheses.

Starting, as before, with Martin's thorough investigations on regional economic resilience, the capacity for resilience of a regional economy – i.e. the sum of the effects of regional capabilities influencing regional resilience outcomes – can be described by four general categories, namely a regions (cap)ability for *resistance, recovery, renewal and reorientation* (Martin 2012). This approach of course harkens back to different steps in the resilience process outlined by Martin

and described in Chapter 2.1. In the wider field of resilience research, especially in the area of ecological studies or disaster management, other authors add several further broad categories of resilience capabilities, including *robustness, redundancy, resourcefulness,* and *rapidity* (Palekiene et al. 2015; Norris et al. 2008; Sherrieb et al. 2010; Bruneau et al. 2003). Robustness describes the "resource strength" and a region's "probability of resource deterioration". Redundancy – as the word implies – describes the extent to which elements of a system are substitutable by other system components, e.g., the ability of a region to compensate for job losses in one industry by growth in another industrial sector. Resourcefulness describes a system (or rather its actors') capacity to "identify problems, establish priorities, and mobilize resources". Lastly, rapidity describes a system's capability to achieve its recovery "in a timely manner in order to contain losses and avoid future disruption" (Bruneau et al. 2003, p. 737). However, the advantage of using Martins four-step approach to describing the role of resilience capabilities in explaining regional resilience processes and regional resilience capacity, is that these dimensions are tailored specifically towards the spatial economic resilience process as outlined in Chapter 2 and encompass components of the additional dimensions previously mentioned as best applicable.

Resistance is related to the concept of vulnerability of a regional economic system to shock events and the possibility of initial shock resistance outlined above. It describes the initial sensitivity of a regional economy to a shock event and takes account of the fact that some regional economies have capabilities that increase their capacity to withstand shock events completely, or at least significantly reduce their potential immediate negative impact. As such, resistance is not a direct dimension of regional resilience, however, as mentioned before, it is an important concept to distinguish (Martin 2012). *Recovery* corresponds to the measures of classic engineering resilience and describes the "speed and degree of recovery of [a] regional economy from a recessionary shock; [and the] extent of return to [a] pre-recession growth path" (Martin 2012, p. 12). Therefore, this describes the extent and capacity of a regional economy to resume its pre-shock economic equilibrium. *Renewal* concerns the extent of change to a region's growth path, e.g., following a pre-crisis growth trajectory or a hysteretic shift towards a new (higher or lower) trajectory (Martin 2012). Finally, *re-orientation* describes the extent to which regional capabilities enable (or prevent) the adaptation of a regional economic system as a reaction to a shock event (Martin 2012).

In describing these dimensions of regional resilience capacity Martin underlines that, despite the focus on dynamic adaptive processes, the capabilities determining these dimensions can be both "ad-hoc" – i.e., spontaneous responses to a shock event like a change in the behavior of

economic actors, the formation of new networks etc. – and path dependent, i.e., determined by extant factors acquired in the past or inherent to a region (Martin 2012). The latter implies that the pre-existing properties of a region, such as a "region's industrial legacy and the scope for re-orientation skills, resources and technologies inherited from that legacy", matter significantly with regard to its resilience performance (Martin 2012, p. 11).

Expanding on this, another distinction of resilience capabilities again focuses not so much on the specific effect individual capabilities can have on the resilience process, but on their respective mode of operation. Here resilience capabilities are divided into *inherent* resilience abilities and *adaptive* resilience abilities (Rose 2004, 2007). This distinction by Adam Rose is compatible with Martin's approach and gives definition to resilience capacities which are path-dependent (i.e., inherent) and derive from "ad-hoc" changes of actor behavior (i.e., adaptive). Rose defines inherent resilience capabilities as a regional "ability [existing] under normal circumstances (e.g. the ability to substitute other inputs for those curtailed by an external shock, or the ability of markets to reallocate resources in response to price signals)" (Rose 2004, p. 308). This corresponds to Martin's pre-existing properties of a region that give it the ability, to resist, to adapt and reorient. In contrast, adaptive resilience capabilities correspond to the ability for system change, which in turn derives from the behavior and reactions of regional economic actors, policy makers etc. These are defined as a regional "ability [realized] in crisis situations due to ingenuity or extra effort (e.g. increasing input substitution possibilities in individual business operations, or strengthening the market by providing information to match suppliers without costumers to customers without suppliers)" (Rose 2004, p. 308).

As a becomes clear by the description of those two broad categories of resilience capabilities, the inherent capabilities are far easier to measure empirically than their adaptive equivalent. While existing accumulated resources like regional capital, infrastructure, industrial base, or accessibility (among others) are relatively easy to observe, adaptive capabilities are capabilities 'in being' which only are realized (or not) during the resilience process itself. As such, indirect indicators must be used to catch the potential of local actors for such 'ingenuity and extra effort'. The present study therefore will include several 'soft' indicators like human capital and innovation indicators, as well as even softer social factors like social capital.

In addition to this distinction between inherent and adaptive capabilities, Rose outlines the level at which resilience capabilities manifest: the *microeconomic level,* i.e. individual behavior of firms, households or organizations; the *mesoeconomic level,* i.e. changes in, and effects to specific markets or economic sectors; and the *macroeconomic level,* i.e. the combination of

above levels including interactive effects (Rose 2007). The conceptual combination of the approaches and classifications by Rose and Martin of the factors contributing to regional economic resilience performance allows the construction of a framework in which an empirical assessment of capabilities determining a region's potential capacity for resilience can take place.

Obviously, there are a wide number of hypotheses, theories, and models about diverse resilience capabilities, the direction and nature of their effects, and how their interactions can lead to higher or lower regional resilience capacity and performance. A short but incomplete summary of these different approaches is offered by Simmie and Martin, who outline four general models on the interactions of various determinants of regional resilience performance. They describe these different resilience concepts as *Generalised Darwinism, Path Dependency, Complexity Theory, and Panarchy* (Simmie and Martin 2010).

Generalised Darwinism centers on the idea of variety, novelty, and selection as the drivers of resilience within regions. Of special importance within this framework are variation in sectoral and firm behavior (towards signals, innovation, and adaptation). This model mainly focusses the *innovative or adaptive ability* of firms, institutions and other local actors, and their *openness towards signals*, i.e., the local ability to access and use new information and (re)act on this information. These factors are related to inherent abilities on a microeconomic level and concern the dimensions of renewal and re-orientation, however this should not imply they are completely detached from higher level capabilities (Simmie and Martin 2010).

Path Dependency in contrast approximates the idea of "lock in" of certain trajectories of regional development (Simmie, Martin 2010). However, this is not necessarily as negative as this term implies, since path dependency also refers to the "*pre-existing resources, competences, skills and experiences* inherited from previous local paths and patterns of economic development" (Simmie, Martin 2010, p. 32, italics by the author). Therefore, path dependency as a process generates regional ecological resilience through past accumulation of resources, skills, and capital. These factors are by their nature inherent to a region and are strongly, but not exclusively, connected to the dimensions of resistance and recovery on a macroeconomic level. As a result of past development resulting in a region's endowment with such factors, path dependent approaches and such explanatory variables can be treated as factually exogenous variables among regional resilience capabilities.

Complexity Theory describes adaptive systems by their functions and relationships across the individual components of a system, e.g., a *system's connectedness and connectivity* – i.e., the

density and frequency of connections among regional economic actors. Related capabilities favor the emergence of self-organization and spontaneous formation of new macro-level organizational structures from micro-level behavior (Simmie, Martin 2010). As such, capabilities contributing to a higher level of system connectedness and connectivity are adaptive features acting mostly on a microeconomic level by enhancing a region's capacity for renewal and reorientation from the bottom up. While the level of connectedness and connectivity are highly determined by past events, the mechanism by which they contribute to resilience are more ad-hoc, i.e., a regional problem solution mechanism centered around the dynamic adaptation through individuals and their networks to challenges posed by shock events (Simmie and Martin 2010).

Panarchy describes a four-phase model of continuous adjustment of social systems either in response to external change or internal pressure. This dynamic model takes a somewhat different approach towards some of the factors of resilience mentioned above (specifically compared to the complexity theory). While in the case of the complexity theory and to a lesser extent in the other models, system diversity and specifically connectedness and interdependence are positive factors for a region's resilience (due to increased innovative and adaptive capacities caused by them), Panarchy sees the relationship between those factors and resilience as potentially negative. As Simmie and Martin write, Panarchy is based on the assumption "that there is a trade-off or conflict between connectedness and resilience: the more internally connected is a system, the more structurally and functionally rigid and less adaptive it is" (Simmie and Martin 2010, p. 33).

As such Panarchy concerns resilience capabilities which are primarily of adaptive nature, and how these capabilities are employed during the "adaptive cycles" as described by Simmie and Martin (Simmie and Martin 2010, p. 33). These adaptive cycles reflect Panarchy's nature as a phased resilience model and divide the economic recovery period post shock into a reorganization phase, an exploitation phase, a conservation phase, and a release phase. The main assumption is that, as the recovery process of a region proceeds, connectedness increases to the detriment of resilience (Simmie and Martin 2010).

As Pendall et al. outline, a severe economic shock causes a region to enter a *reorganization phase* in which the regional economic system's connectedness and interdependency is initially reduced – i.e., the previous regional economic equilibrium and mode of production is in disarray – and new pathways of regional economic development can be explored. During the following *exploitative phase*, comparative advantage leads to regional growth, which expands the capital

base, know-how and individual skills. As Martin writes, this is a period of "growth and seizing opportunities" (Simmie and Martin 2010, p. 41; Pendall et al. 2010).

During this phase, connectivity is low, and the resulting low level of interdependency increases resilience. As connectedness increases due to economic development of complex interdependent production and social processes, a system shifts into the *conservation phase*. The conservation phase is marked by high capital accumulation and concentration. Combined with the business cycle, this leads to the 'release phase', which marked by the increased employment of the accumulated capital to counter recessionary forces. In this phase, the resilience of a regional economy is lower due to higher rigidity caused by the increased interdependency of actors and institutions in a regional economy. Only when the business cycle again enters a phase of severe recessionary shock, strong enough to dissolve this connectedness, will resilience increase once more due to loosened connectedness and a reorganization of markets and regional industry – i.e. the *release phase* (Simmie and Martin 2010; Pendall et al. 2010).

Therefore, following the Panarchy approach, a region's capacity for resilience and its subsequent resilience performance are determined less by a specific resilience capability, but by the phase the region is in at any given time in this cyclical model. A regional potential for high connectedness and connectivity can be a positive feature during the reorganization and expansion phase and lead to a positive resilience performance should a shock event occur. However, the very same features can have a negative effect during the conservation and release phases and reduce regional economic resilience. In effect, this means that a uniform relationship of resilience capabilities to a region's subsequent resilience performance cannot be expected in every case – especially relating to resilience capabilities of an adaptive nature.

In a summarized fashion, these four approaches cover the most common explanations of the interactions of resilience capabilities in determining a region's economic resilience performance. As a result, they can serve as a foundation for the future analysis of regional resilience patterns by drawing conclusions from their shared patterns.

First, the extent of *innovative abilities* and *signal openness* of regions and their actors matter as they can be seen as an adaptive, microeconomic aspect of resilience. This includes the abilities and openness of individual actors, like firms or individual employees, as well as the wider society, its institutions, markets, and policy-making mechanisms.

Second, the (pre-)existence of *resource and skill endowment* of a region, as well as the importance of *past developments, institutions, and trends,* can be interpreted as positive

macroeconomic factors since they increase adaptive abilities and offer 'buffering' resources (both material and social). However, these path dependent factors can have negative impacts, since obviously they can produce a lock-in situation resulting in non-adaptation in face of crisis.

Lastly, as expressed by complexity theory and Panarchy, the nature of a system's *interdependency and connectedness* matters immensely. As a social microeconomic factor, interdependency and especially connectedness can be positively associated with regional resilience by enabling the identification of problems and the generation of microeconomic solutions on the level of individual actors, with respective positive effects on a macroeconomic level. However, as shown by the idea of Panarchy, as a cyclical long-term dynamic property of the overall economic structure of a region, connectedness and specifically interdependency can have a negative influence on resilience by reducing the redundancy of a system and increasing the danger of economic lock-in of that system.

To summarize, the varying potential mechanisms explaining a regions resilience capacity mean that the causal link between resilience capability and resilience performance is not necessarily always uniform. Depending on which resilience process and mode of interaction between the different capabilities is seen as valid – be it Panarchy, Path Dependency, Complexity Theory, or Generalized Darwinism – the effect of different capabilities on a region's resilience capacity and subsequent performance can vary significantly in direction and interpretation. This potentially strong variation on the causal link between resilience capability and performance underlines the importance of a study of resilience across an extended timeline and wide geographic area, thereby allowing testing and isolation of regional resilience 'behavior' under different environmental frameworks.

3. Capabilities determining regional resilience capacity

While the approaches by Simmie and Martin and others outlined in the previous chapter are helpful to understand the mechanics of resilience and give a framework for the classification of resilience capabilities, such a high-level discussion is rarely directly applicable to an empirical investigation. By contrast, other works and authors provide a more grounded basis for the discussion of resilience capabilities and their arguments will be introduced in this chapter[10]. Using their work is necessary because the goal of this analysis is a quantitative study of

[10] This is not to mean that Simmie, Martin etc. are not more concrete about cause and effect at other times as well.

European regions, their economic resilience performance over time, and a deeper look at potential explanatory factors for the divergent performance across regions (i.e., the effect of different regional capabilities for resilience). As such, this chapter will look at the different, mostly quantitative, investigations and derive variables and factors of importance describing the capabilities which shape the regional capacity for resilience[11].

To organize this discussion, the present work will structure diverse resilience capabilities and their theoretical origins according to a generalized classification system. This follows Cutter et al. (2008) who, despite being focused on regional catastrophe resilience, offer a useful classification system for different resilience related indicators. Their classification of resilience variables is based on the dimensions of ecology, society, community competence, economy, institutions, and infrastructure (Cutter et al. 2008). While the ecological dimension as outlined by Cutter et al. is of less interest here – since it is highly specific to resilience against natural catastrophes – the other dimensions outlined have a significant impact on resilience considerations across different fields of resilience analysis.

Another resilience model with a useful classification of resilience indicators, with a focus on national economic resilience, comes from Briguglio et al. 2009. In their work on the resilience of the economies of relatively small states – Singapore, Hong Kong, Costa Rica etc. – Briguglio et al. outline a country-level equilibrium resilience index which includes components on macroeconomic stability, microeconomic market efficiency, good governance, and social development (Briguglio et al. 2009).

Other authors again focus on diverse sets of regional resilience indicators, many of which are commonly referred to as territorial capital (Fratesi and Perucca 2018). They can range from regional economic variables, to demographic, cultural and social features, all the way to geographic regional markers (Hill et al. 2012; Foster 2012; Simmie and Martin 2010; Christopherson et al. 2010; Crescenzi et al. 2016; Fratesi and Perucca 2018; Folke 2006).

To structure this multitude of capabilities and theses on the origins of regional economic resilience capacity, this chapter will follow the example of Cutter et al. and Briguglio et al. and divide the discussion into four broad categories: *Structural capabilities*, *institutional capabilities*, *social and demographic capabilities*, and *endowment and path dependent capabilities*.

[11] While the respective variables will be introduced in this section, their detailed operationalization and sources will be discussed alongside their analysis in section 7.

These categories are obviously not strictly exclusive and placement within these categories has no normative evaluation attached. The categories simply serve to structure the discussion and keep an overview of the general discussion, as well as the variables and hypotheses derived[12].

3.1 Structural resilience capabilities

This chapter will summarize approaches to explaining the differing capacity for regional economic resilience based on the structure of a regional economy itself, i.e., capabilities concerning factors such as sectoral economic composition, specific types of industries, capital endowment, and other defining 'material' factors.

The first thesis in this category is relatively simple and concerns regional economic concentration. The basic assumption is that regions with a higher economic diversity – i.e., less sectoral concentration and higher diversity in firm characteristics – show a stronger economic resilience performance. The logic behind this approach is twofold. First, diversity makes a regional economy less vulnerable to downturn, or as Hill et al. put it: "Just as a financial portfolio with all its eggs in one stock basket leaves the investor vulnerable to market shocks, so does an industrial portfolio that specializes in or on a limited few industries leave a region open to economic vulnerabilities in times of economic downturn" (Hill et al. 2012). Second, and this concern is more central to economic resilience itself, it is assumed that a diverse regional economic structure allows a region to shift resources, employment, and productive capacity more easily towards alternative markets or a new growth trajectory. Thereby, a diverse sectoral structure creates economic redundancy and allows industries, individual firms, and individuals to make up for the downturn in one specific economic area, and, as a result, to compensate for regional economic loss and facilitate a return to a new growth trajectory more readily (among others Hill et al. 2012; Simmie and Martin 2010; Crescenzi et al. 2016).

This latter assumption that economic diversity can have a positive effect on regional resilience beyond reduced vulnerability is supported by several studies. For example, in their study on the economic resilience – specifically the resilience of regional employment – of Ohio counties (US), Brown and Greenbaum find a significant positive connection between industrial diversity and regional economic resilience (Brown and Greenbaum 2017). They suggest "that while counties with higher industry diversity tended to experience higher unemployment rates when

[12] A summary of all categories, hypotheses, and corresponding indicators can be found in table 1 at the end of section 3.5.

the national economy was doing well, they had relatively lower unemployment rates when the national economy experienced employment shocks" (Brown and Greenbaum 2017, p. 1360). Similar conclusions have been drawn for diversity in firm size, as shown in the paper by Garmestani et al. on the resilience of different industries in South Carolina. This paper found a strong relationship between the employment trends of different industries and their functional and size diversity (Garmestani et al. 2006). These findings on the positive connection between economic diversity and regional resilience performance are supported by several authors, including Foster, Martin, Hill et al. among others (Foster 2007, 2012; Hill et al. 2012; Christopherson et al. 2010; Cutter et al. 2008).

Despite these findings, economic diversity as an explanatory factor for resilience seems to have its limits. As Garmestani et al. and Brown and Greenbaum both point out, the effect of economic diversity varies significantly depending on regional size (smaller regions profit less from diversity with regard to resilience) or dominant industry type (Garmestani et al. 2006; Brown and Greenbaum 2017). Additionally, Navarro-Espigares et al. hint at the potential positive effect of specialization in the service sector on regional economic resilience in their analysis of the resilience of Spanish regions (Navarro-Espigares et al. 2012). Furthermore, as Tainter and Taylor point out in their historical analysis, one result of economic or social diversity can be higher economic and social complexity (Tainter and Taylor 2014). While this complexity can be both a product and source of immediate problem-solving, in the long run it can undermine a society's resilience capacity through increased interdependence and resource competition, as postulated by the concept of Panarchy (Tainter and Taylor 2014; Simmie and Martin 2010). However, for the purposes of this study, the hypothesis will be that a higher economic diversity (i.e., sectoral heterogeneity and varying firm characteristics) contribute positively to a region's economic resilience capacity.

From a methodological perspective, the diversity of a region will be operationalized by two variables. With regard to the sectoral economic diversity, the analysis will make use of the Herfindahl-Hirschman Index (HHI) as a measure of regional economic concentration based on the sectoral shares of the regional gross value added (RGVA) (Rhoades 1993; Fahrmeir 2004). The diversity of firm characteristics is operationalized by the average number of employees, with a smaller average indicating a higher diversity among firms as well as a lower concentration in general. Additionally, as pointed out by Navarro-Espigares et al., increased labor productivity can be an indicator for regional specialization through the "convergences of regional productive structures" (Navarro-Espigares et al. 2012, p. 573). Hence, this indicator will be used as an additional approximation of specialization.

The thesis about diversity concerns mostly how a regional economy is organized and what effect this mode of organization has on resilience. The next logical question is what the economy comprises – i.e., its nature or the regional economic structure. This means looking at the type of industries forming the dominant regional sources of employment and/or value generation, and what effect different regional structures have on a region's economic resilience. The central idea behind this thesis is neither new nor especially revolutionary; it assumes that different industries or sectors react differently to economic shocks. Therefore it is safe to assume that economic sectors and their share of a region's economy also have significant influence on the economic resilience of a region (Hill et al. 2012; Foster 2012; Christopherson et al. 2010; Malizia and Ke 1993; Crescenzi et al. 2016; Giannakis and Bruggeman 2020; Pendall et al. 2010). As to the effects of different economic sectors on regional resilience performance, the literature identifies several different hypotheses.

An assumption often made is, that regions which have an employment or production base dominated by construction and manufacturing industries (machines, car making etc.) tend to be more susceptible to the effect of initial shocks (vulnerable) but also faster in their recovery, compared to regions based on service industries (banking, insurance, trade etc.) (among others Angulo et al. 2018; Lagravinese 2015; Hill et al. 2012; Giannakis and Bruggeman 2020). The idea itself is based on simple assumptions about the relationship of national and global demand for manufactured goods and the movements of business cycles in general. As Edward Hill et al. point out "[j]ust as cyclical demand for durable goods makes [manufacturing] susceptible to downturns, so too does the eventual uptick in demand allow it to be resilient" (Hill et al. 2012, p. 16). Similarly, the construction sector is assumed to be more vulnerable to a shock than other sectors, especially if the shock is caused by or coincides with a shortage of capital, but can show a positive effect on resilience performance in the recovery phase, especially in more urbanized regions (Giannakis and Bruggeman 2020).

With regard to the role agriculture and service industries, their effect on regional resilience is judged somewhat ambivalent in the literature and empirical studies (Faggian et al. 2018; Giannakis and Bruggeman 2020; Martin 2012; Navarro-Espigares et al. 2012). Generally, it is assumed that service industries (especially foodstuffs, and health and social care services) and, to a lesser extent, agriculture are less vulnerable to the immediate effect of shocks. That is, that humans need certain services and agricultural goods to a similar extent no matter the general health of the economy. However, the same stable demand for such goods and services also prevents a region with a strong service or agricultural focus from profiting from the subsequent economic recovery.

Hill et al. outline this logic for health and social services: "Because [service industries are] not especially cyclical, health care and asocial assistance employment makes a region less susceptible to downturns […] but makes it more difficult for the region to recover from downturns once they occur" (Hill et al. 2012, p. 17). The potential difference in resilience performance between manufacturing and services with regard to resilience may be amplified by the fact that goods produced by manufacturing can generally seek new extra-regional markets with greater ease, while services offered by the direct-to-consumer service industries (i.e., health care, gastronomy, social services etc.) are significantly more place dependent and cannot simply seek 'greener pastures' of demand.

The operationalization of composition of the regional economy is rather straight forward and relies on simple relative shares of the different economic sectors by NACE[13] definition of the RGVA or regional total employment depending on the underlying economic indicator used to measure regional resilience performance (i.e., total employment or RGVA). Due to data restrictions, only the top-level sectoral distinctions will be used for this purpose[14].

The next point about the structural capabilities of regional economies focusses on resilience as an adaptive process. This is summarized by Simmie and Martin in the "Generalised Darwinism" model, which centers on the idea of variety, novelty, and selection as drivers of resilience generation. Of special importance within this framework is variation in sectoral and firm behavior (towards signals, innovation, and adaptation). This model concerns the *innovative ability* of firms and local actors and their *openness towards signals*, i.e., the local ability to access and use and react to new information. The factors named in this model relate to inherent abilities on a microeconomic level and concern the dimensions of renewal and re-orientation (Simmie and Martin 2010). A similar view on the importance of regional innovativeness and infrastructure supporting innovation is advocated by several other authors, such as Hill et al. who name the existence of knowledge or technology industries as one of the most important characteristics of a regional economy for regional economic resilience (Hill et al. 2012; Clark et al. 2010; Boschma 2015). Furthermore, innovativeness is acknowledged to have positive effects on employment and firm survival (Piva and Vivarelli 2018; Smith and Romeo 2012).

To reflect these and similar views about the importance of innovative capabilities of local firms, it is common to operationalize such factors through variables concerning private patent

[13] The "Statistical Classification of Economic Activities in the European Community" which establishes the statistical classification of economic activities in the European Union and therefore European databases on GDP, GVA, sectoral employment etc. (European Commission 2006).
[14] Further details on the treatment of these indicators can be found in section 7.1.

applications, as well as private research spending and personnel. The basic assumption is that the prevalence of these indicators indicates a higher innovative ability and openness towards signals of firms and thus a higher regional economic resilience (Clark et al. 2010). Due to the lack of firm-level data for the whole time series, regional expenditure on research and development as a share of regional GDP and the employment share of research and development personnel will serve as a proxy. While rightly criticized as simplistic measures of regional innovative ability with significant shortcomings, a better solution was not possible given the data constraints (Katz 2006). To amend this, other variables like regional social or human capital and societal development can be used to support assumptions about the capability for regional adaptiveness, as these related variables can also contribute positively to firm-level innovative capabilities (Dakhli and Clercq 2004; Landry et al. 2002; Wu et al. 2008; Mihaela and Ţiţan 2014).

Other structural regional resilience capabilities are of a more prosaic economic nature. One feature – especially related to path-dependent approaches to resilience – concerns the capital endowment of a region. The importance of accumulated past resources on an aggregate and individual level is underlined by many authors and reflects possibilities for regional redundancies, firm flexibility, the resilience of local labor against unemployment among other attributes (Fratesi and Perucca 2018; Christopherson et al. 2010; Martin 2012; Giannakis and Bruggeman 2017a). To reflect this, two indicators are added to approximate this regional capability: Gross fixed capital formation (GFCF) and the real GDP per capita (corrected for purchasing power to allow for comparability). The first will serve as an approximation of how much of a region's generated value is invested instead of consumed, thereby generating accumulated resources which a regional economy can draw on in times of crisis (Giannakis and Bruggeman 2017a). The second indicator serves a similar purpose for the individual level of a region's citizens and their well-being (Giannakis and Bruggeman 2017a). Both variables align with the basic assumption that "more is better" when it comes to regional resilience performance. However, there are also counterarguments to this, depending on the type of downturn observed – i.e., RGVA or employment downturns. For example GFCF could, through increased investments in labor-saving methods, have a negative effect on employment resilience performance in the aftermath to employment shocks and downturns (Piva and Vivarelli 2018).

In summary, the resilience capabilities covered as regional structural features of a regional economy – though the term could be stretched further – include the extent of regional economic concentration, the nature of the regional economic structure, the regional actors' innovative

capabilities and signal openness, and the regional economic endowment. Extensive regional economic concentration, mainly in the form of sectoral specialization and a tendency to larger firm sizes, is generally, though not exclusively, conceived as a negative capability. High economic concentration is assumed to reduce a regions resilience performance by lowering regional economic redundancy and increasing the dependency on few core industries. The potential influence of the regional economic structure as a resilience capability is viewed more nuanced. For the most part a stabilizing effect of service-related industries is hypothesized, while a strong manufacturing sector seems to contribute to a quick recovery of the regional growth trajectory. Regional innovative capabilities and the general signal openness of regional actors are often thought to be able to further regional resilience through increased adaptability and flexibility. Meanwhile, regional economic endowment is discussed regularly in the context of past accumulated resources. Such a regional endowment can have the theoretical potential to increase regional economic 'endurance' throughout a crisis, thereby furthering a quicker and more sustainable recovery.

3.2 Institutional resilience capabilities

This chapter summarizes the discussions about the effect of the regional institutional framework (i.e., government, law, market structures and organization) on resilience performance. As such, the resilience capabilities addressed here vary in their type and causal relationship to resilience.

The approach to measuring national economic resilience proposed by Briguglios et al. focuses on the relationship between institutional framework, resilience capacity and performance. As mentioned previously, this model includes four central variables determining resilience capacity: *macroeconomic stability, microeconomic market efficiency, good governance, and social development* (Briguglio et al. 2009). All of these, except social development, refer to the framework of institutions prevalent in a country or region.

According to Briguglio et al., *macroeconomic stability* relates to the "interaction between an economy's aggregate demand and aggregate supply" (Briguglio et al. 2009, p. 7). They follow the assumption that a balanced economy with low inflation, sustainable fiscal deficit, an external trade balance, and an unemployment rate close to the natural rate, can be considered relatively resilient to adverse economic shocks (Briguglio et al. 2009). Similar arguments about the importance of the macroeconomic level are made by several authors, and are often summarized as providing a contextual framework for regional resilience and shock vulnerability (Martin 2012; Martin and Sunley 2015a; Crescenzi et al. 2016; Lane and Milesi-

Ferretti 2011). Martin and Sunley also point out the importance of these factors in relation to the effect of shocks – and subsequent resilience – on urban and metropolitan regions (Martin and Sunley 2015a). The shared assumption of all these authors is rather straightforward: they postulate that a stable macroeconomic base will result in lower vulnerability and an increased resilience to adverse shocks, while economies in disbalance are more likely to be negatively affected by an economic shock in the first place and subsequently prove less resilient. Furthermore, it can be assumed that a stable economic foundation makes government interventions and stability programs as a response to a crisis more likely (Martin and Sunley 2015a; Gylfason et al. 2010; Burda and Hunt 2011; Gehrke et al. 2019). With regard to regional – i.e. sub-national – resilience, these factors are to a certain extent 'out of the hands' of regions (Crescenzi et al. 2016). This means that many of them must be seen as part of the external framework of a region imposed from above – i.e., the national level. As will be discussed later, the influence of the national level on the regional economic experience is further considered in the context of different shock types as well as through a region's national association (cf. Chapters 4, 6, and 7).

Additionally, many variables concerning macroeconomic stability are simply hard to estimate as variables for a small sub-national entity and will therefore be derived from data on the national level – specifically the fiscal and trade balance. Despite these restrictions, macroeconomic stability on a national level may undeniably be a big factor for regional resilience and will be treated accordingly. Therefore, this investigation will employ data on the national current account balance and the government deficit, each as a share of national GDP as indicators for macroeconomic stability. Both are measures commonly chosen in the literature on the topic and strongly indicative for macroeconomic stability of a country (among others Crescenzi et al. 2016; Sutherland and Hoeller 2012).

Microeconomic market efficiency with regard to resilience follows the logic that when "markets adjust rapidly to achieve equilibrium following an external shock, the risk of being negatively affected will be lower than if market equilibria tend to persist" (Briguglio et al. 2009, p. 8). Therefore, this resilience capability is of interest in relation to the adaptive capacities of a region, as it counteracts the assumed (and potentially negative) effect of lock-in postulated by Martin (Martin 2012).

Following this approach, a flexible market environment allows for easier adaptation to new or changed externalities and economic pressures than a rigid market framework. According to Briguglio et al. and Hill et al., who refer to the same concept as 'microeconomic flexibility',

this resilience capability decreases recovery time and enables new growth equilibria to be found via flexible institutions in employment and financial markets. Microeconomic market efficiency also reflects aspects of the General Darwinism approach proposed by Simmie and Martin with regard to firm behavior and adaptability in response to a shock event (Simmie and Martin 2010). Conversely, as is underlined by the findings of Hill et al., high microeconomic flexibility can be positively correlated with regional unemployment (Hill et al. 2012). This is not unexpected since, as the authors postulate, higher flexibility leads to a faster decrease during the immediate shock event (vulnerability), but also facilitates a faster recovery afterwards (Hill et al. 2012; Briguglio et al. 2009; Duval et al. 2007).

Like macroeconomic stability, microeconomic market efficiency is difficult to operationalize on a regional level as it encompasses numerous framework conditions, such as the efficiency of bureaucratic processes, the legal framework of employment and credit markets, or the level of unionization and worker protection (Briguglio et al. 2009; Caballero et al. 2013; Formosa 2008). Birguglio et al. use the "Economic Freedom of the World Index" to indicate the functioning of the banking industry (dominance of private banking institutions, competition by foreign banks, credit supplied by private sector and control of interest rates) and the set-up of the labor market (level of unemployment benefits, dismissal regulations, minimum wage, centralized wage setting, unionization etc.) (Briguglio et al. 2009, p. 8). Similarly, Hill et al. use the existence of "right to work laws" (which restrict the extent and level of unionization and other forms of collective bargaining) in different American regions as a proximate indicator for a high microeconomic flexibility (Hill et al. 2012, p. 12). Since regional and national jurisprudence on the topic of employment varies widely between and even within European states, this analysis will use several proximate indicators for the microeconomic flexibility and efficiency of markets. Again, due to the lack of sufficient data on a regional level, national level indicators have to be utilized. These consist of the "ease of getting credit" compound indicator from the World Bank's "Doing Business" data set (World Bank 2020), and data on national unionization density and an index on multi-level labor bargaining supplied by the ICTWSS data base from the Amsterdam Institute for Advanced Labour Studies (Visser 2019). The cost of labor will also be taken into account (through data on standardized and purchasing power corrected labor compensation)[15].

[15] Additionally, the cost of labour might also be interpreted as a structural factor as well as a part of the human capital dimension.

Conceptually, *good governance* is the hardest variable to catch reliably and in an unbiased measure. But since Briguglio et al. refer to good governance simply in relation "to issues such as law and property rights" and the analysis presented here concerns exclusively European regions with a stable tradition of law and protection of property, good governance in this wide sense can be assumed to be equal in all concerned cases (Briguglio et al. 2009, p. 9; Freedom House 2020). However, in a wider sense, good governance can also refer to the type and quality of actions taken by a government for its society and economy (Weiss 2000). Because governmental actions are hard to quantify across a time series, even for economic stabilization policies and monetary actions, this element of good governance will be only discussed based on qualitative evidence in connection to specific events and observations.

However, good governance can also be evaluated by the closeness of a government to its subjects (Kyriacou and Muinelo-Gallo 2015). This is more important with regard to regional resilience from an institutional and governance perspective. 'Closeness of government' in this case implies the relative ease of access to policy makers, administrative institutions, and (state) fiscal resources. As such it constitutes, from an constitutional point of view, an element of decentralization or at least devolution of central governmental power in varying policy fields (Ivanyna and Shah 2014; Kyriacou and Muinelo-Gallo 2015).

This is important for two reasons. First, since this thesis looks at regional economic resilience in Europe, the institutional structure of these countries can vary widely, ranging from politically and fiscally relatively centralized countries like France, to constitutionally highly decentralized countries like Germany. Different levels of decentralization of political power can influence a wide range of areas, ranging from cultural and economic diversity to fiscal autonomy and can have both positive (higher redundancy and stability) and negative effects (higher economic specialization) on resilience (Jeffery et al. 2014; Malizia and Ke 1993; Carniti et al. 2019). Furthermore, the connection of decentralization and government closeness to regional resilience becomes more important when taking into account the works of Elinor Ostrom and others on polycentric institutions and the problems of collective action, trust and cooperation (Ostrom 1990).

According to Algica and Tarko, polycentric decentralized systems increase regional economic resilience by "(1) creating the conditions for bottom up experimentation and competition and providing public goods at the appropriate levels set up by economies of scale; (2) creating safeguards against error by allowing local governance systems to rescue the system when higher-up agencies mess up and allowing the higher governance levels to help local

communities when they are affected by disproportionate (endogenous or exogenous) shocks; and (3) creating safeguards against corruption and exploitation by, on the one hand, preventing 'local tyrannies' and, on the other hand, keeping the authority of the central government in check by the authority of the local levels" (Aligica and Tarko 2014, p. 73). This idea is similar to the functions of complex adaptive systems, i.e. complexity theory, described by Simmie and Martin in connection to adaptive resilience, where the advantage of such systems lies in their "tendency for macroeconomic structures and dynamics to emerge spontaneously out of microscale behaviors and interaction" (Simmie and Martin 2010, p. 32). Following this interpretation of Ostrom's work by Aligica and Tarko, high levels of decentralization and the existence of lower level economic and social centers increases regional resilience capability through increased adaptability. To operationalize the extent of decentralization within regions, or rather the countries in which the regions are based, this analysis will employ the government closeness index as conceived by Ivanya and Shah based on World Bank data on factors including fiscal and political decentralization (Ivanyna and Shah 2014).

Lastly, a further factor not yet mentioned with regard to institutional resilience factors, is the existence of research institutions and knowledge networks. The argument behind this approach is similar to the logic behind the argument for the innovative potential of private firms (i.e. increased innovative capability strengthens the adaptive resilience capacity of a region), as outlined in Simmie and Martin's Generalized Darwinism (Simmie and Martin 2010).

With regard to institutions able to shape the innovative capacity of regions, there exist of course many approaches. These include considering the balance and existence of firm networks (clusters), dominant or satellite players in innovation, and the existence of innovative central non-business players of innovation (i.e. universities or research NGOs) (Clark et al. 2010; Pike et al. 2010; Boschma 2015; Porter 2008; Simmie and Martin 2010). Without going to deep down the rabbit hole of regional innovation policies, two aspects of these innovation institutions will be tested in the present analysis. The first centers on the existence of regional knowledge networks. To assess the existence of such networks, this analysis will use data from the European Cluster Observatory, which define clusters as "regional concentrations of activities in groups of related industries" (European Cluster Observatory 2015). These have corresponding positive effects and spillovers among firms leading, among other positive effects, to the increased regional exchange of knowledge and innovation growth (Ketels and Protsiv 2016). The disadvantage of this approach is the short timeframe covered by the Observatory, as it consists mostly of one-off data from the early 2010s. However, the indicators used to assess firm and actor-level openness to signals (cf. Chapter 3.1), can also be used to

indicate the existence of knowledge networks, hence they form the pillar of the second aspect to approximate the existence of regional knowledge networks. This particularly concerns the regional share of research and development personnel who would be part of any such network. The standard thesis, based on most of the literature on the topic, assumes that in both cases 'more is better' with regard to regional resilience capacity.

This chapter laid out the arguments for the effect of a diverse set of capabilities on a region's resilience capability generously summarized under the term 'institutional resilience capabilities'. The first of those, macroeconomic stability includes classic aspects on the macroeconomic 'health' of a (national) economy. As discussed, it is assumed that a balanced macroeconomic environment – here in form of national deficit and the trade balance – contributes positively to regional economic resilience by providing a stable economic environment and by increasing the potentially availability of resources and market access. Similarly, high microeconomic market efficiency in the form of flexible regulations as well as liberal employment and financial markets, is often considered to have a positive influence on regional resilience capacity by facilitating a fast recovery through adaptation. Conversely, however, microeconomic market efficiency might also contribute to the initial effects of a shock being more severe than in a more stringent and regulated framework. Good governance in the form of government closeness postulates an increase in regional economic resilience through higher institutional accountability, increased local governmental resources, and a potential for flexible regional solutions to challenges posed by a crisis. Meanwhile the existence of knowledge networks reflects the assumptions about the adaptive benefits of increased innovativeness and signal openness, but also takes account of the existence of regional industrial networks and clusters as a potential source of regional resilience capacity. However, as postulated through the idea of Panarchy outlined Chapter 2.3, negative effects through high levels of firm level connectedness cannot be excluded.

3.3 Social and demographic resilience capabilities

This chapter will investigate a wide field of capabilities with potential influence on the resilience capacity of regions. Summarized as social and demographic resilience capabilities, they include properties related to the demographics of a region, as well as the general framework shaped by the society within a region – i.e., this chapter covers a combination of hard and soft factors about a region's population in a general sense.

Many elements in this chapter concern a region's capacity for problem solution and shock compensation through the individual abilities and networks of its population. Of the four resilience dimensions discussed by Briguglio et al. in Chapter 3, only *social development* has so far been excluded. According to them, social development is a major factor in regional economic resilience since it "indicates the extent to which relations within a society are properly developed, enabling an effective functioning of the economic apparatus without the hindrance of civil unrest" (Briguglio et al. 2009, p. 10). This means social development can serve as an indicator for "social dialogue [taking] place in an economy which, in turn, would enable collaborative approaches towards the undertaking of corrective measures in the face of adverse shocks" (Briguglio et al. 2009, p. 10). As such, social development is for Briguglio et al. a stabilizing factor which helps to prevent an already bad situation – caused by the economic shock – from becoming worse and allows a region's economy to find new and innovative solutions to the challenges posed by an economic downturn. The factor of social development as outlined by Briguglio et al. reflects the ideas described by Simmie and Martin in their resilience approach called Generalized Darwinism, where they put specific focus on the openness of firms in a given region to signals and innovative abilities. However, in the case of Briguglio et al., these abilities are made a property of the population itself, while Simmie and Martin refer to these abilities mainly in the context of firms (Simmie and Martin 2010, p. 31).

Similar conclusions about the social dimension of regional economic resilience are drawn by Kathlyn Foster, who relates individual educational attainment to "the notion that persons with higher education are more flexible and options-rich in the face of regional stress" (Foster 2012). As an empirical indicator for this factor, Briguglio et al. and Foster propose the use of a series of variables on education and human capital, such as the ratio of educational attainment levels, adult literacy rates, school enrolment etc., as well as general indicators for population health and health standards as an approximation of social development (Briguglio et al. 2009). This approach is also reflected in works by Foster, Hill et al. and others (Foster 2012; Hill et al. 2012; Pendall et al. 2010). Other authors use similar variables relating to human capital or social development (among others Fratesi and Perucca 2018; Crescenzi et al. 2016). Similar indicators will be used in this analysis. In addition to the already mentioned indicators on human capital in research and development, these mainly include data on sub-national human development. Specifically these indicators entail the use of the sub-national human development index (SHDI) as calculated by the Global Data Lab project of the University of Radboud (Netherlands) (Global Data Lab 2020). The advantage of this index is the combination of data

on public health, educational attainment, and income which offers a good picture of regional human and social development in general.

Furthermore, with Complexity Theory and Panarchy there are two approaches proposed by Simmie and Martin which explain regional economic resilience through the micro-level functioning of societies themselves (Simmie and Martin 2010). Both models concern the density (connectedness) and intensity (connectivity) of interaction in a regional economic and social system, though the conclusions for the interplay of these factors with the phenomenon of regional resilience differ. Complexity Theory sees an inherent advantage in a strongly interconnected region and society as a possible source for adaptive solutions to shocks through micro-level interaction. Meanwhile, Panarchy proposes potential negative effects resulting from increased levels of interdependency between different parts of a regional economy and society.

Within the sphere of the social dimension discussed here, connectedness and connectivity can be seen synonymous to the widely discussed concept of *social cohesion or social capital.* According to one of the foremost theoreticians of the concept, Robert D. Putnam, social capital "refers to connections among individuals – social networks and the norms of reciprocity and trustworthiness that arise from them" (Putnam 2000, 19). The development of social capital is strongly related to the level of civic engagement of a population and in particular the horizontal engagement with other members of a society. In Putnam's study on Italian civic traditions for example, social capital is at least partially seen as a result of a tradition of membership in civic associations, stable cultural institutions, and civic participation – and can be regarded "as the density and vitality of existing horizontal associations in a community" (Sabatino 2019, p. 31). Due to its long-term accumulation through civic interaction, social capital has to be seen as an exogenous or path-dependent variable which can nonetheless decline (Putnam 1992; Sabatino 2019; Putnam 2000).

Social capital in this sense can function as both a private and public good. With regard to resilience, social capital as a private good of individuals can increase those individuals' resilience (e.g., through personal connections) and can lead to positive spillovers to other individuals (i.e., they can ask for help and expect and receive reciprocity from others). As a public good, the existence of social capital can stabilize systems by creating trust and accountability throughout a society, in particular towards office holders and economic decision makers (Putnam 1992). Thereby social capital enables decisions, investments, and other measures impossible without these mechanisms.

As Putnam and other authors have shown, there is a strong connection between the existence of social capital on the one hand and economic performance and well-being on the other hand (Putnam 2000, 1992; Helliwell 2001; Sabatino 2019). As Sabatino finds in his study on social capital and regional resilience, "[t]he presence of a climate of trust and solidarity helps to find a path of development after an economic shock" (Sabatino 2019, p. 32). To operationalize social capital, this analysis will follow the approach taken by Francesca Parente, who uses selected items from the European Value Survey data set to approximate the extent of social capital in Europe. Of specific interest are items relating to the social network aspect of social capital, approximated by civic participation in groups, parties, and organizations (Parente 2019).

In her study on the resilience capacity of American metropolitan regions, Kathryn Foster draws a connection similar to Birguglio et al. and Simmie and Martin on the social cohesion of societies and resilience. However, instead on focusing on somewhat intangible indicators like social capital or connectedness, she additionally proposes the use of income inequality as an indicator for social cohesion, specifically a regional Gini coefficient. This follows the assumption that high income inequality is an indicator for a lower social cohesion resulting in decreased resilience. This applies the same logic as the other authors mentioned above in the context of social capital (Foster 2012). Additionally, Foster makes the argument that general income levels can influence regional resilience by postulating that higher individual income increases microeconomic resilience (e.g. an individual experiencing unemployment might prevail longer within a region without reducing their individual demand), thereby helping to stabilize a region's aggregate demand (Foster 2012). As data on income inequality or poverty rate is not reliably available on a regional level for most of the observed timeline in the empirical analysis, standardized regional income per capita (corrected for purchasing power parity) is used as an approximate indicator to at least cover differences between regions if not within them.

Lastly this analysis will look at fundamental demographic variables within the observed regions. Some basic demographic variables relating to social development and composition of the labor force have already been mentioned. Others will be included at later points especially regarding population density and geographic distribution, which will be covered in the context of urbanization in Chapter 3.4. The focus here is on *age demographics* as well as *interregional migration*.

Similar to the argument about higher educated or wealthier individuals being more options-rich during regional stresses, Foster argues that a higher share of population in working age (and able to work) results in a "greater capacity to efficiently respond to a crisis mentally, physically, or materially" (Foster 2012). This causal connection is also referred to by other authors like Hill et al. or Simmie and Martin and has a seemingly logical causal link to resilience (Hill et al. 2012; Simmie and Martin 2010). Additionally, a younger population is often associated with a higher productivity, innovativeness, and economic adaptiveness – all features positively associated with regional economic resilience (Lovász and Rigó 2013; Dixon 2003).

However, one argument counter to these assumptions, is the phenomenon that older generations (specifically in countries experiencing a severe demographic shift in age distribution) may have access to more accumulated material and financial resources, than younger populations (Taylor et al. 2011; Afman 2020; Ihle and Siebert-Meyerhoff 2017). This could have a positive effect on regional aggregated demand and thereby, as can be argued following the same arguments as brought forward by Foster, might have a somewhat positive effect in some resilience scenarios. Conversely, as Ihle and Siebert-Meyerhoff as well as Afman show, the same phenomenon can increase potential inequalities in a society and therefore also influence resilience negatively (Ihle and Siebert-Meyerhoff 2017; Afman 2020). Hence, the direction that the effect of age has on regional resilience performance is by no means clear and must be investigated further in the empirical analysis of the phenomenon.

The indicators employed in this investigation will be the regional share of the potentially economically-active (civilian) population (15-64) and an 'aging index' i.e. the number of persons above retirement age (65+) relative to the number of people younger than 15 years of age (Preedy and Watson 2010). The reason for this approach is simply that indictors like regional median age were not available to the extent needed for the intended purpose.

As with population age, the effect of *migration* and even its causal relation with resilience is inconsistent within the literature. This reflects the general inconclusiveness of studies on the economic effect of immigration, which range from negative effects on labor markets and wages (especially the low skilled sectors) and increased cost for social services to positive implications as a driver of growth and even innovation (Johnson 1980; Ben-Gad 2004; Bratti and Conti 2018; O'Connor 2020). For regional economic resilience, Foster summarizes that migration, and specifically international migration, can be seen as a shock event in itself. Large migration movements might potentially cause financial stresses, straining public services and add a badly integrated, low-income population, which is competing with already existing vulnerable native

populations for scarce resources and thereby might decrease overall social stability (Foster 2012; O'Connor 2020). With regard to resilience, immigration, specifically of non-native speakers, can additionally have a negative effect through a "reduction in social solidarity", i.e. a reduction of social capital and cohesion of a region (Foster 2012).

However immigration can also be immensely positive for a regional economy by adding to a (potentially scarce) labor force, rejuvenating an ageing native population, increasing consumption, leading or necessitating innovation, contributing to the tax base, and by immigrants becoming job generators themselves (Foster 2012; Pastor et al. 2012; Bratti and Conti 2018). Furthermore, if integrated properly into the job market in a diverse manner across a wide variety of occupations and spatially distributed, immigrants can contribute to the diversity of the labor base and thereby increase the resilience of regions, especially with regard to employment (Lester and Nguyen 2016). Lastly, there is a causality problem with (internal and external) migration as a factor contributing (positively or negatively) to resilience, since it is not clear if a region becomes more, or less, resilient because of migration, or if an already resilient region attracts a lot of migration specifically because it is resilient or at least economically successful (Van der Gaag et al. 2008).

Since this analysis concerns the resilience of *regions* – i.e., sub-national units – migration obviously is not restricted to only international migrants, but also includes domestic migration from one region to another. This consideration is of importance for two reasons. First, one can assume that the argument about lowering social cohesion and average qualification level does not hold in this case, since one can feasibly assume a certain homogeneity of populations in inter-regional migration movements within one national entity. Second, since one can assume that the mobility of native populations for inter-regional migration – especially from geographically close regions – is comparatively high, their movement patterns may have significant influence on regional resilience, especially with regard to regional labor shortages and lack of skilled employees (Foster 2012; Hill et al. 2012). In this context, a strong regional pull factor for inter-regional migration can be seen as a positive factor in resilience considerations.

However, as with international migration, the problem of cause and effect of migration remains. As Hill et al. point out, migration from a region is often caused by a lack of resilience, since the lack of recovery (due to a low regional resilience) can cause mobile laborers to seek job opportunities in other regions, thereby depleting the regionally available labor pool (Hill et al. 2012). As a consequence, even if such a region recovers to pre-shock growth levels, it will do

so from a permanently lower level of aggregated employment, while the smaller available labor force will make reinvestment in such regions less attractive for potential employers (Hill et al. 2012). Hence outward migration can be interpreted as both a symptom and a cause of low resilience performance. A similar argument can be made for highly resilient regions whose very resilience becomes a pull-factor for inward migration by strengthening labor markets and regional consumption. Because of this ambivalence about the cause-and-effect relationship between migration and resilience, it is hard to preconceive a hypothetical relationship between the two. Therefore, this matter must be relegated to the empirical investigation where regional migration will be investigated based on the regional annual net migration rate preceding the respective shock events.

The resilience capabilities discussed in this chapter included for the most part characteristics of the regional society and its demographic factors, all of which can be seen as fundamental aspects of any regional economy. The idea of social development as a resilience capability centers mostly on the positive effect of a highly developed level of regional human capital and the general socio-economic wellbeing of the populace. While the former is often assumed to contribute positively to economic adaptability, the latter is seen as a stabilizing factor during crisis phases on an individual level. Social cohesion ties into the idea of regional networks and a high level of connectedness and connectivity furthering micro-level interaction and thereby the facilitation of new macroeconomic solutions (adaptation) as postulated by Simmie and Martin. Though, as described in their idea of Panarchy the effects of high levels of connectedness and connectivity might not always be beneficial (Simmie and Martin 2010). Regional age demographics can, as outlined in this chapter, have potentially positive and negative effects on the regional resilience capacity. On the one hand a younger population might be more adaptable and handle underlying changes to the economy easier. On the other hand, the accumulated individual resources of an older population can potentially be a significant source of economic stability too. Of all factors discussed in this chapter migration is potentially the most volatile capability, potentially fluctuating quickly. The effect of migration on regional economic resilience, and economic development, is highly contested in the literature. Arguments can be made for positive effects through, for example, an increase in the regional labor pool or consumer base. Similarly negative effects could be caused through factors like a depression of wages or a lowered regional social cohesion. Regardless, the controversy around migration by itself already justifies a closer investigation in an empirical analysis.

3.4 Resilience capabilities of geographical endowment

Most of the resilience capabilities described thus far are, in a certain way, a product of regional endowment and determined by a certain path dependent regional development trajectory. In this sense they are all types of exogenous variables determined by developments of the past. This includes capabilities that can lead to increased resilience performance through adaptive responses, like knowledge networks, social networks, or human capital. Neither the regional economic structure of industry types, a region's human capital, or the extent of regional social capital can change overnight. Instead, they are the product of years, if not decades, of developments. The most flexible resilience capacity factors described so far are probably those concerning government policies, certain aspects of demographics (e.g., sudden surges of migration) and, to a certain extent, firm structure and economic concentration (such as the closure of a big employer or producer, which can significantly change the regional balance of sectors and the average numbers of employees). This chapter, however, will look specifically at resilience capabilities which are, to a certain extent, permanent as in they relate to actual geographic or fixed regional features.

The first of these regional geographic features is the level of urbanization and, relatedly, population density. Generally, the assumption in the literature is often that resilience is higher in more urbanized and well connected areas (Capello et al. 2015; Reggiani et al. 2011; Reggiani et al. 2002; Holl 2018; Giannakis and Bruggeman 2020; Capello et al. 2011). However, the picture is not always as clear.

For example, in their study of the influence of cities on the resilience of European regions after the 2008-2009 financial crisis, Capello et al. identify several positive effects of urbanization on regional resilience processes and performance (Capello et al. 2015). While initial losses after the shock event (i.e., the recessionary shock of the financial crisis) were felt most strongly in urbanized regions characterized by smaller "second rank cities", followed by metropolitan and agglomerated regions (i.e., regions with a population density of between 150 and 300 inhabitants/km² and a center with at least 300.000 inhabitants), rural regions (populations less than 100 inhabitants/km²) were affected relatively little. However, after entering the recovery phase of the business cycle after 2009, this order reversed (Capello et al. 2015).

Metropolitan areas and regions with high population agglomeration grew significantly faster than mid-density urban regions and low density rural regions (Capello et al. 2015). As Capello et al. state: "This result is in line with the expectation that, because cities are the loci of productive activities, they lose more than other areas during the crisis period, but are the first

to gain in the recovery period" (Capello et al. 2015, p. 15). Furthermore, they find that metropolitan areas[16] outperformed even agglomerated areas of similar density during the recovery. Since these metropolitan areas are characterized by "the quality of the activities hosted and of the production factors, the density of external linkages and cooperation networks and the quality of urban infrastructure", they conclude that these factors are central to the metropolitan resilience performance (Capello et al. 2015, p. 15).

However, the results from Capello et al. stand in contrast to other studies which find indicators for a higher shock resistance and higher post shock resilience performance for rural and intermediate regions (Giannakis and Bruggeman 2020; Ženka et al. 2017; Ženka et al. 2019; Holl 2018; Giannakis and Bruggeman 2017b). Often the results for the different performance along the urban-intermediate-rural typology are not quite clear and depend on underlying measures (economic or employment growth), nature of regional industries (especially the role of agriculture), and levels of connectivity (Giannakis and Bruggeman 2017b; Holl 2018; Faggian et al. 2018; Ženka et al. 2017; Ženka et al. 2019).

To investigate the nature of regional economic resilience performance and the urbanization level of regions, this study will employ the regional classification method employed by the European Union for its statistical analysis. This approach classifies European regions into rural, intermediate and urban regions based on their population density and the existence of urban agglomerations (Eurostat 2021f)[17]. As such, this approach is more nuanced and detailed than simple reliance on indicators like population density or built area per km² and will replace such indicators for the subsequent empirical investigation.

Due to the category-based and descriptive nature of the urban-rural typology as a variable, it and its relationship to regional economic performance will be discussed together with other regional categorical distinctions[18] (country association, timing of shock, and shock type) in Chapter 6 separately.

Related to the importance of urbanization is the question of the geographic location, or rather, a region's centrality. In general this concerns the location of a region relative to trade and economic hubs, as well as the spatial neighborhood of a region, and the effect these features have on regional economic resilience (Östh et al. 2015; Capello et al. 2015; Fratesi and Perucca

[16] In the terminology of Capello et al called "MEGAs", which are defined as large population centres with high density fulfilling certain economically, socially, or political core functions (2015).
[17] For details on the methodology see section 6.3.
[18] Though not further discussed here, since they do not qualify as regional resilience capabilities per se, each of the regional categorical descriptive variables which will be discussed in section 6 are, by themselves, obviously potential explanatory factors of regional resilience performance as well.

2018; Giannakis and Bruggeman 2020). As Capello et al. write, national and regional shocks and their impacts can have severe spillover effects across regional and national borders – e.g. a regional employment shock caused by the closure of a big manufacturing firm might affect demand in a neighboring region specializing on services and trade (Capello et al. 2015).

Similarly, there might also be growth spillovers where a very resilient region effects the neighboring regions positively by generating demand for labor or products (Fratesi and Perucca 2018; Östh et al. 2015). In this sense, inter-regional accessibility, defined as the "relative ease of reaching a particular location or area" (Östh et al. 2015, p. 150) , can be a major contributor to a region's resilience by offering the opportunity for interaction. As Östh et al. write: "In the event of a shock to the local economy (a down-sizing, closing of a major plant or something similar), both employers and employees may find alternative solutions without relocating outside the community. However, if accessibility is low similar shocks to the local economy can be devastating" (Östh et al. 2015, p. 153).

The importance of accessibility is further underlined by its relation to modern physical infrastructure. The importance of the physical regional infrastructure for resilience has been pointed out by several authors, as it serves as base for the functioning of regional firms and labor markets and increases accessibility of new resources and markets (Rose 2004; Simmie and Martin 2010; Palekiene et al. 2015; Norris et al. 2008). As Capello et al. point out "the density of external linkages and cooperation networks and the quality of urban infrastructure, are all factors giving greater economic resilience to cities and to the regions that host them" (Capello et al. 2015, p. 4). Furthermore, as Martin points out, public spending (and the possibility thereof) on physical infrastructure can form an important part of fiscal stabilization measures taken by government (Martin et al. 2016).

To approximate accessibility and its related effect on resilience performance, this analysis will use data on the multimodal accessibility of NUTS 3 regions gathered by the European Spatial Planning Observatory Network (ESPON). The advantage of using multimodal accessibility instead of individual indicators like road density or number of airports is that it attempts to capture all important infrastructure within a region, as well as the size of potential markets reachable through that infrastructure (or rather, a comparative estimate of the time needed to access them). As such, it is more reliable than individual indicators which might for example overlook the importance of water transport or railways for a region or disregard the existence of transport hubs in neighboring regions.

As mentioned in the introduction to this chapter the resilience capabilities described herein are of the most permanent nature as they concern nearly constant regional features (or at least regional characteristics evolving relatively slowly). The first capability discussed here concerned the regional level of urbanization and population density. Generally, higher levels of urbanization are seen as positive influences on the regional economic resilience capacity. The central arguments for positive effects of urbanization center for the most part on the assumed increased levels of interaction (i.e., connectiveness and connectivity) and better access to regional resources (including human capital) in urbanized areas. That said, as was discussed above, arguments can be made in favor of a higher resilience in rural regions as well. The second capability whose effects on regional resilience capacity were discussed concerns the levels of regional accessibility. Different to urbanization, however, higher levels of accessibility are nearly exclusively seen as a positive feature for regional resilience capacity by increasing the access to markets and resources. Furthermore, another 'fixed' factor whose discussion was omitted at this point, is the national association of a region (i.e., the country a specific region is part of). Due to national association being pretty much its own category in the observation of European regions, this will be discussed separately in Chapter 6.4 and 7.2.4.

3.5 Summary of resilience capabilities

As identified in the previous chapters, the discussion of potential resilience capabilities and their indicators presented here does not make a claim to completeness. Similarly, the directions of individual effects on (and sometimes even causal relationship to) regional resilience performance are not always clear. This reflects the relative youth of the field of (regional) resilience investigations in economics, uncertainty about appropriate methods, and the occasionally unclear definitions of regional economic resilience presented by researchers concerned with the phenomenon (among others Modica and Reggiani 2015; Giannakis and Bruggeman 2017a; Martin and Sunley 2020).

Instead, the resilience capabilities discussed in the previous chapters and summarized in Table 1 are purposely intended to provide a wide sweep of potential relations between regional characteristics and regional economic resilience performance. The goal in this is twofold: first, to test and demonstrate the usefulness of the novel approach to measuring resilience performance outlined later. Second, to form the basis of further investigations on the origins of resilience performance and to formulate tentative policy recommendations for regional economic resilience.

Towards this goal, the next chapter will outline the methodology used to identify shocks and downturns on a regional economic level and to measure regional resilience performance in a meaningful way. This method will then be applied to a 30-year timeseries across a wide geographic space (EU15) to analyze different resilience capabilities outlined here. The focus on this long timeseries and wide data set will enable evaluation of the origins of resilience capacity and performance in a dynamic European setting. This approach, with its wide scope, contrasts with other studies centered on a far smaller number of resilience capabilities and individual shock events like the financial crisis from 2008-2009 (i.a. Giannakis and Bruggeman 2020; Fratesi and Perucca 2018; Sensier et al. 2016; Crescenzi et al. 2016).

The research does not aim to identify a clear-cut cause-and-effect relationship between a few specific regional features and economic resilience performance, as is often the goal of other studies, but instead to offer a general perspective on the phenomenon of regional economic resilience performance. While detailed study of regional economic resilience has value, one central assumption of the present study is that, as a phenomenon, regional economic resilience is not yet understood well enough to derive generalizable explanatory models. As such, a narrow focus, taken too early and centered on a few recent shock events, might lead the field to overlook potentially important avenues of investigation. It is the goal of this work to contribute to the avoidance of such a blind spot.

Category	Resilience Capability	Hypothesis	Indicator*
Structural resilience capabilities	**Regional economic concentration**	Higher levels of diversity increase regional resilience through redundancy	a) Sectoral concentration, measured by HHI based on sectoral GVA weights (HHI) b) Average firm size by employees (Avg_bus) c) Labor productivity (PROD) as an indicator of specialization
	Regional economic structure	Manufacturing and construction sectors are more vulnerable to shock and downturn but recover faster in recovery period. Conversely, the service sector and agriculture are less vulnerable but show a lower performance in the recovery phase.	Relative weights of sectors measured by RGVA and regional employment respectively (Agri_GVA/EMP, Manu_GVA/EMP, Const_GVA/EMP, Serv_GVA/EMP, Pub_GVA/EMP)
	Innovative capabilities and signal openness of regional firms and actors	High innovative resources and signal openness allow firms and local actors to quickly adapt to and profit from changes in markets and economy leading to increased resilience performance	a) Research and development spending as a share of RGDP (RnD_GDP) b) Research and development employment as a share of local employment (RnD_EMP)
	Regional economic endowment	Accumulated past resources increase potential economic redundancies and individual actors' endurance during downturns and thereby increasing resilience performance	a) (Standardized) Gross fixed capital formation per capita (GFCF_PC) b) (Standardized) GDP per capita (purchasing power corrected) (GDP_PC)
Institutional resilience capabilities	**Macroeconomic stability**	A stable macroeconomic environment results in lower regional vulnerability and higher regional economic resilience performance	a) National Current Account Balance as share of GDP (Cur_blc) b) Government deficit as share of GDP (Gov_debt)
	Microeconomic market efficiency	Flexible legislation, government institutions, and market framework potentially increase vulnerability, but also allow regional economies to recover faster post-shock	a) "Ease of getting credit" index from "Doing Business" data set (EoC) b) Level of national union density (Union) c) M-Level index of multi-level bargaining (ML_barg) d) (Standardized) Regional average labor compensation (purchasing power corrected) (Lab_comp)
	Good governance	High levels of decentralization/government closeness increase resilience through redundancy, accountability, and facilitation of regional ad-hoc problem solutions	Use of government closeness index conceptualized by Ivanya and Sha (2014) based on World Bank data set on fiscal decentralization (Gov_close)
	Existence of knowledge networks	Like innovative capabilities of firms, the existence of regional knowledge networks and nodes is assumed to increase the regional adaptive qualities	a) Existence of regional cluster networks based on data from the European cluster observatory (Clu) b) Regional spending on and employment in research and development (see above) (RnD_EMP)
Social and demographic resilience capabilities	**Social development**	Highly developed social factors (education, income, and health) increase regional stability and the innovative ability on a microeconomic level	a) Sub-national Human Development Index (SHDI) b) Share of research and development personnel (see above) (RnD_EMP)
	Social cohesion	A high social connectedness and connectivity increases the probability for macroeconomic solutions through micro-level interaction thereby (usually) increasing regional economic resilience performance	a) Items from the European Value Survey connected to social capital (civic engagement, club/party membership) (SC_Org) b) GDP per capita (see above) as a proxy for interregional inequality (GDP_PC)
	Age demographics	A younger population has a greater capacity to respond to a crisis and recover from it. Conversely, an older population often has access to more accumulated resources (wealth).	a) Ageing index (Pop_age) b) Share of potentially economically active population (15-64 years of age) (Pop_work)
	Migration	General effect inconclusive, a positive connection to resilience can be inferred from effect on labor market, economic growth, and the consumer base. Negative effects could be expected through effect on wage levels and the potential for deteriorating social cohesion.	Regional net-migration rate (Mig_net)
Resilience capabilities of geographical endowment	**Level of urbanization and population density**	Cities and more densely populated regions show a higher resilience due to higher-levels of interaction possibilities and resources	Urban-rural typology of regions by Eurostat (cf. section 6.3)
	Regional accessibility	A high accessibility to neighboring markets and resources increases resilience	Multi modal accessibility item provided by ESPON database (MM_Ac)
*Details on the specific data, sources, and methodology used behind each indicator can be found in section 7. Codes in brackets refer to the respective indicator.			

Table 1: Overview of resilience capabilities

4. Methodology: Observing shock, resilience, and resilience performance

Given the continual change in regional economic resilience as a process in flux, it follows that any empirical investigation of the phenomenon must at least partially rely on a time series analysis to identify specific turning points in a region's development. Using Martin's work outlined in Chapter 2.1 and the further provisions outlined in 2.2 as reference points, any empirical approach to regional economic resilience performance must be able to:

1. Measure the overall level of development and a region's growth trajectory right before a crisis,
2. identify significant shock events of different nature and their scope,
3. observe whether such shock events result in an *economic downturn* or if a region proves *resistant,*
4. determine the extent and duration of the immediate economic downturn caused by the shock event and mark the beginning of an eventual recovery period,
5. measure the extent of the recovery post-downturn relative to a counterfactual no-shock scenario,
6. and to measure the level of development as well as the growth trajectory and its sustainability in a (post-)recovery phase.

In the literature on resilience and specifically the empirical measurement of resilience performance, there are several approaches which come close to satisfying major parts of the conditions set out above. One such approach is by Edward Hill et al. (Hill et al. 2012) who, in their study of metropolitan regions in the United States, outline an approach to measuring regional economic resilience which is noteworthy for its ability to identify shocks of different origins and geographic scales relatively easily. Their approach allows the identification of shocks relatively independent of a region's comparative development by identifying shock (and resilience) only in relation to a region's own past growth trajectory – subsequently defining a region as resilient if it reaches pre-shock growth rates within a defined time period. While covering a majority of the requirements set out above, their approach falls short in several areas:

- First, their resilience measure is of purely binary nature (resilient/non-resilient);
- Second, it does not take into account the absolute level of recovery but only focusses on the growth trajectory;

- Third, by excluding the absolute level of recovery and a relative evaluation of resilience in general, it does not allow for a deeper comparative investigation or ranking of resilient and non-resilient regions (Hill et al. 2012).

The second approach which comes close to the demands set out above is outlined by Sensier et al. in their 2016 paper on the measurement of regional economic resilience in European regions (Sensier et al. 2016). Their study has the inherent advantage that it is already applies to European regions (however at a higher geographic level than this work). Additionally, it targets the adaptive or evolutionary concept of resilience outlined in chapter 2.1, and described first by Ron Martin, by allowing for multiple resilience outcomes (Sensier et al. 2016; Martin 2012).

However, the approach by Sensier et al. has two inherent disadvantages: first, its measure of shock events is based on a concept of regional business cycles, which while admirable in its descriptive purposes, leads them to automatically identify any economic downturn as an economic shock – irrespective of how sudden or "slow-burning" the downturn was. Furthermore, in contrast to the trajectory-based approach of Hill et al., their approach only uses the absolute recovery of a region's economy as a measure of resilience performance, and hence has the disadvantage of not being able to make predictions about a region's post-shock and recovery trajectory (Sensier et al. 2016; Hill et al. 2012).

Other approaches are also promising. For example, the approach by Giannakis and Bruggeman is based on labor market data which derives a category-based evaluation of regional economic resilience of NUTS 3 regions, in turn derived from a comparison of regional employment losses and relative losses on the European level (Giannakis and Bruggeman 2017a). The problem with this approach, for the present purposes, is that it only works for a specific fixed period of shock and recovery and cannot be used in a dynamic fashion across a longer time series. Furthermore, this approach cannot identify and observe different types of shock and the corresponding regional economic resilience patterns on a solely regional level. Lastly, the focus on a specific point in time, their category-based distinction of resilience, and their choice of a European reference benchmark restricts them, and other similar approaches, from generating a general comparative, continuous measure or resilience performance, which was set out as a goal of this present investigation.

Another series of approaches is exemplified by the work of Fingelton et al. who – using employment data from UK NUTS 1 regions – identified five national recession periods and measured engineering resilience based on the relative actual performance of regions compared to a counterfactual scenario (Fingleton et al. 2012). This method was also used by Cellini and

Torrisi to measure the resilience performance of Italian regions over an impressively long period from 1890-2009, a feat possible thanks to the thoroughness of Italian record keeping (Cellini and Torrisi 2014).

While this type of approach delivers impressive results, it has the disadvantage, like many other approaches, of focusing only on previously identified national level recessions. This begs the question of whether the business cycles in Europe are harmonized enough to use this approach across several countries in parallel to produce comparable data. Additionally – despite attempts by Cellini and Torrisi to amend this – this approach is not sufficient since it is aimed only at measuring the elasticity of regional economic development levels along a presumed growth path, thereby remaining focused on the presumptions of classic engineering resilience (Cellini and Torrisi 2014; Fingleton et al. 2012).

The last approach worth mentioning at this point is by Fratesi and Perucca who, using a counterfactual non-shock scenario based on autoregressive moving averages, derived five different measures of resilience based closely on the model of Ron Martin outlined in chapter 2.1 (Fratesi and Perucca 2018; Martin 2012). While this approach, which generates self-referential and therefore comparable resilience performance indicators for European regions on NUTS 3 level, is very close to what is intended in this investigation, it again has the shortcoming of being bound to singular large recessionary shocks and needs pre-defined dates for the initial shock and the end of any subsequent recovery period (Fratesi and Perucca 2018). As the authors point out, this is restrictive and can reduce the validity of results, especially in regions where a shock leads to a protracted long-term crisis due to the artificial end date set a priori[19] (Fratesi and Perucca 2018).

All approaches also lack in one point which is significant, especially with regard to the potentially transformative nature of the resilience process: They do not allow for an evaluation of whether and how a region changes its economic pathway in a sustainable long-term fashion. The notable exception to this can be found in the works of Fratesi and Perucca, and perhaps Cellini's and Torrisi's amended method based of Fingelton et al.'s approach (Fingleton et al. 2012; Cellini and Torrisi 2014; Fratesi and Perucca 2018). Furthermore, the binary or category-based evaluation of approaches of a region's resilience, like Hill et al., Giannakis and Bruggemann or Sensier et al., severely restricts the deeper comparative analysis of determinants of resilience (i.e., resilience capabilities) with quantitative or qualitative methods.

[19] A persistent problem to any approach chosen, even the one proposed in the present work.

The approach to the measurement of regional resilience performance outlined in the subsequent chapters therefore will attempt to tackle the shortcomings of these approaches. While many elements, especially the methodology for shock and downturn identification, are based fundamentally upon Hill et al. and amended by components from Sensier et al. and especially Fratesi and Perucca, the proposed method is more ambitious than any of these approaches.

Like the approach of Fratesi and Perucca, it will measure resilience in more than one dimension. But, instead of five dimensions, it will attempt to reduce them to the more manageable number of two resilience performance measures, i.e., the recovery of the level of development, as well as the change and retention of the recovery phase growth trajectory. The goal is to open a way to estimate the future direction and sustainability of development for a regional economy post-shock and allow for a relative comparison of regional economic resilience performance across Europe.

Due to the complexity of this approach, the following sub-chapters will outline the proposed methodology in detail and discuss its merits and disadvantages compared to (and inspired by) the alternatives. The subsequent main chapter then presents the results of the described baseline approach accompanied by a discussion on the robustness of the underlying assumptions of the approach. Only once these observations and discussions of resilience performance have taken place, can the investigation of the effects of the different potential resilience capabilities commence.

4.1 Identifying shocks

As mentioned above, while the overall goal remains to identify the different resilience scenarios outlined by Martin along multiple continuous dimensions (Figure 2.), the initial steps of the analysis are inspired by the work of Hill et al. and their study of the economic resilience of metropolitan regions in the United States (Martin 2012; Hill et al. 2012). This approach is of special interest because, as will be shown, it allows for the identification of shocks at different levels (national and regional) and even of different nature with regard to the broad economic sectors concerned. Their approach is divided into three broad methodological steps:

1) The identification of economic shock events;
2) the observation of the effect of these shocks on a regional economy, i.e., the vulnerability of a region to a shock event; and
3) a binary distinction between resilient and non-resilient regions (Hill et al. 2012).

The identification of economic shock events and the subsequent steps are based on data on regional sectoral employment, as well as sectoral production. As such, this approach is able to cover two areas of measurement of resilience: employment and regional production.

Economic resilience to the effects of *national economic downturns,* i.e. general national level shock events like recessions, is the most analyzed pairing of shock and resilience within the literature across all levels – i.e. at national, regional, and even microeconomic levels (Gylfason et al. 2010; Rocchetta and Mina 2019; Webber et al. 2018; Sensier et al. 2016; Hill et al. 2012; Doran and Fingleton 2016). National economic downturns are the easiest to observe type of shock and therefore central to the observation of resilience patterns within the literature (Martin 2012). This holds true irrespective of whether they are in the form of one-off extreme sudden external events – like severe recessions as caused by a financial crisis, exchange rate, or commodity price shocks etc. (Pendall et al. 2010) – or the potentially endogenous regularities of rise and fall across the business cycle.

National economic downturns have the advantage of serving as a commonly agreed upon marker for the beginning of an economic shock. They set a defined framework (i.e. financial crisis, oil crisis etc.), and allow for a methodically stable analysis across a large set of regions affected, since the (valid) assumption is that all regions under observation are affected at approximately the same time (Sensier et al. 2016; Martin 2012). Hence, since the present methodology aims to analyze a relatively long time series across different countries, a main feature here, naturally, must be the observation of the national business cycles and national or even global economic shock events. Different to some approaches which focus on one individual event, the goal here is to make any significant national economic shock events visible across the observed time series. This is similar to the works of, for example, Fingelton et al. or Cellini and Torrisi (Fingleton et al. 2012; Cellini and Torrisi 2014).

Following the approach by Hill et al., such national economic downturns are methodologically defined by a one-year downturn of the growth rate by more than two percentage points compared to the average annual national growth rate (approximated by measuring the slope of the logarithmic regression of production or employment over the last eight years) (Hill et al. 2012). This approach is based on a method originally derived by Hausmann et al. and their work on growth accelerations. It employs a logarithmic regression to estimate average growth rates[20].

[20] The growth rate $g_{t,t+n}$ at time *t* over horizon *n* is defined to be the least squared growth rate of GDP per capita (*y*) from t to *t+n* defined implicitly by: $\ln(y_{t+i}) = a + g_{t,t+n} * t, i = 0, \dots, n$. Change in growth rate at time *t* is the change in the growth over horizon *n* across that period: $\Delta g_{t,n} = g_{t,t+n} - g_{t-n,t}$. (Hausmann et al. 2005, p. 306).

This approach takes additional measures to account for high-growth countries, defined as countries with an average growth trajectory above four percent, by defining an economic downturn in these cases as a yearly drop in growth equal to at least half the average pre-shock levels (Hausmann et al. 2005; Hill et al. 2012). This identification of national economic downturns is employed without changes, i.e., the unit of reference remains the average growth rate on the country level, not at the European level[21], despite analyzing the whole range of EU15 regions.

The advantage of this approach for the purpose of the study of European regions is twofold: first it allows the identification of different national economic downturns across European countries. This is of central importance since the synchronicity of the national business cycles is not necessarily given, and can potentially vary widely across the observed time series and countries covered (Degiannakis et al. 2014). This is even more important, considering that this study involves two underlying economic performance indicators: regional production measured by RGVA and regional total employment. Second, in contrast to approaches which focus on tipping points in the absolute level of output or employment (cf. Sensier et al. 2016; Cellini and Torrisi 2014), the identification of negative change in the overall growth trajectory defined by a set threshold (i.e. the two percent - or more - drop compared to the eight-year average) holds certain advantages, despite seemingly being less flexible.

One advantage is that a fixed threshold more easily allows testing of the robustness of the model by varying its value and observing the changes to the outcome[22]. More importantly however is the focus on the change in growth trajectory itself. While an approach focused on the absolute level is great for identifying general business cycles, a method based on the growth trajectory allows identification of sudden one-off shocks and enables them to be distinguished from slow-burning events more easily. Furthermore, an approach focused on the absolute level of growth has problems identifying shocks in high-growth nations and regions – as long as the absolute level of output or employment doesn't drop, a shock will not be identified – as well as in times when a long-term downward trajectory prevails (Sensier et al. 2016). For both scenarios it must be underlined that an unexpected strong drop of the growth trajectory in a high-growth region, or a sudden change to an even lower growth trajectory, are arguably both as much a shock to

[21] The effect of using a European reference for the national – then European – shocks will be discussed in chapter 5.1.

[22] As mentioned in footnote 21, these variations will be discussed in chapter 5.1. In general, all assumptions on which the model is based will be tested in section 5, in addition to the base model.

an economic system as a shock identified by a drop in the absolute level of development in a 'normal' region (Hill et al. 2012).

Below the high-level national economic downturns come *industry shocks*, in the terminology of Hill et al. (Hill et al. 2012). According to these authors, such industry shocks are specific to economic sectors and industries of high regional importance (Hill et al. 2012). These types of shocks are of a narrower geographic and/or sectoral scope than overarching national economic downturns. This idea follows the very simple argument that not all shocks to regional economies are of global or national origin, but can have very local causes, potentially unique to a region (Martin and Sunley 2020).

Such local shocks can be relatively sudden – e.g., caused by the closure, or significant downsizing, of a large regional employer, a natural catastrophe of regional scope, or the result of local decision making in politics or administration. That said, they may also include long-term slow-burning processes of fundamental change to a regional economy which eventually reach a final tipping point – e.g. a structural shift in a region focused on mining and heavy industry or the slow development of new industries leading to a point where the loss of comparative advantage or competitiveness have finally become unsustainable (Pendall et al. 2010; Foster 2007; Sensier et al. 2016; Hill et al. 2008).

As with national economic downturns, this analysis will focus mainly on sudden industry shocks and follow the original approach by Hill et al. According to them the first step towards measuring industry shocks is based on the identification of industrial sectors of regional importance – which they term *export industries*[23] (Hill et al. 2012).

An economic sector is defined as an export industry if its sectoral share[24] of regional total employment or by regional gross value added[25] is equivalent to at least one percent of the respective total and exceeds the same sector's share of national production or employment[26] by at least 80 percent in a given year (Edward Hill et al. 2012). Hill et al. argue that this definition helps to isolate the parts of the local economy which are of specific regional importance and

[23] Arguably the term export industry is somewhat misleading as the method basically describes industries of outsized regional importance. Despite this the original expression is maintained to provide for continuity.
[24] The original work by Hill et al. used a 3-digit level for sectoral distinction according to the North American Industry Classification System (NAICS), which roughly corresponds to European NACE level 2 divisions. As will be discussed later, due to a lack of data at a regional level, the analysis of European regions had to be moved one level higher (i.e. summarized level 1 divisions).
[25] Originally gross metropolitan product (GMP) and employment were employed. For the purpose of this analysis, regional gross value added (GVA) was used instead of GMP, consequently sectoral weights are calculated based on their respective gross value added.
[26] For the purpose of the research presented here, the national average corresponds to the European average (EU15). The consequences of this switch will be discussed in section 5.1.

add disproportionally to the regional economic base. As such, a disruption to these industries and economic sectors has a direct and disproportionate detrimental influence on a regional economy (Hill et al. 2012).

Such a sectoral disruption is identified, once such an export industry experiences a one-year annual decline equivalent to at least 0,75[27] percent of the total regional employment or production. As a result, the corresponding region is defined as experiencing an industry shock[28]. These sectoral shocks are then further distinguished by their geographic scope (Hill et al. 2012).

If a sector is in shock at the national[29] as well as the regional level, this shock is termed a *national industry shock* (Hill et al. 2012). The underlying idea of a national industry shock relates to overall sectoral shifts in the economy – e.g., a shift of an economy away from manufacturing towards a focus on the service sector. Such a shift, while on national level potentially a slow-burning trend with a short-term impact too small to trigger a national economic downturn, might nevertheless have a severe localized influence in regions with a high density of that sector. This harkens back to the distinction between the slow-burn pressures – in this case the general economic shift – and the sudden regional effect of these pressure, i.e. a (national) industry shock with a strong regionalized effect (Hill et al. 2012; Pendall et al. 2010; Martin and Sunley 2020).

Meanwhile, industry shocks of purely regional significance are termed *local industry shocks* (Hill et al. 2012). While national economic downturns and national industry shocks signal a general economic shock or sectoral change which might potentially influence several if not all regions within a country, a local industry shock, as the name suggests, is a region-specific event.

This distinction of shocks is not only conceptually useful, but also offers analytical insight as it allows evaluation of resilience outside the context of easily observed "big" crises. Furthermore, as stated by several authors, not every crisis and shock event are the same or even necessarily similar (Sensier et al. 2016; Simmie and Martin 2010; Pendall et al. 2010). This means that not only is the identification of different levels of shocks useful, but the possibility of identifying shocked economic sectors – even in a broad, sweeping fashion – is potentially of an even higher

[27] As with the other assumptions made in this section, variations on these and other thresholds will be discussed in chapter 5.1.
[28] If two or more export industries exist in a region and all experience a decline by at least 0,75% of total RGVA or employment, the industry with the biggest share of the total loss in RGVA or employment is defined as the cause for the industry shock.
[29] Identified in the same fashion to a national economic downturn, i.e., if the growth rate of national sectoral employment or sectoral GVA declines by at least two percentage points (half the pre-shock growth rate in high-growth sectors) compared to the eight-year sectoral average growth trajectory. The same provisions for high-growth sectors are taken as for national economic downturns.

value, since it allows identification of additional long-term determinants (i.e., the slow burning pressures of economic change and adaptation). Consequently, the analysis of the wide variety of European regional economies and their resilience will profit from a more fine grained resolution when it comes to shock events (Hill et al. 2012; Pendall et al. 2010; Sensier et al. 2016).

To summarize, the methodology proposed here and originally described by Hill et al. uses pre-determined loss-thresholds to identify three different types of sudden shock events (national economic downturns, national industry shocks, and local industry shocks) (Hill et al. 2012). While national economic downturns are triggered by a decline of the annual national growth rate compared to the average national past growth trajectory, industry shocks of both kind focus on annual losses in regionally dominant economic sectors (in case of national economic shocks the concerned sector is in shock on a national level as well). The result of this approach is the ability to distinguish between higher-level economic events and geographically focused shocks, as well as general downturns of the business cycle and sector specific events.

4.2 Economic downturn and recovery

Within the methodological framework Hill et al. describe the shock event itself is distinguished from its effect. This means that while a shock is causally linked to a *regional economic downturn* within this approach, the shock does not inevitably cause such a downturn every time (Hill et al. 2012). This stands in contrast to other approaches, for example Sensier et al. who equate shock and downturn directly and thereby make it hard to distinguish resistance to a shock from the actual resilience of a region – i.e. they treat the resilience of all regions within a country as if a national shock would affect each region equally (Sensier et al. 2016).

By distinguishing between shock and downturn, Hill et al.'s method allows clearer distinction between vulnerability, resistance, and resilience (Hill et al. 2012). Following this approach, the event and identification of a shock and its effect are divided.

In Hill et al.'s methodology a shock leads to a regional *economic downturn* only if in the aftermath of a shock the annual growth rate of a region, measured by total employment or RGVA, drops significantly compared to the average growth rate over the previous eight years[30] (i.e., a regional economic downturn is measured in the same way as a national economic

[30] As before approximated by measuring the slope of the logarithmic regression of production or employment over the last eight years.

downturn). Thereby a region is defined as experiencing an economic downturn if it shows a comparative reduction in the yearly annual growth rate of at least two percentage points within the two years after the shock event. In the case of subsequent shocks preceding a downturn within two years, the first shock is seen as the causal event for the downturn. Parallel to the identification of national economic downturns, in high growth regions with an average eight-year growth rate of four or more percent, a drop in the yearly growth rate equivalent to at least half the number of percentage points of the average regional growth rate is necessary to constitute an economic downturn. Regions not experiencing a downturn are termed *shock resistant* and hence their performance is not further evaluated with regard to resilience (Hill et al. 2012).

As mentioned above, the advantage of this approach is that one can easily distinguish between regions in which a shock has little or no effect, regions which negate the shock's effects very quickly, and regions which prove vulnerable to a specific shock and experience a severe sudden shift of their fortunes. For example, while one region may manage to compensate easily for the closure of a big regional employer because it is immediately replaced by an alternative, another region might have trouble compensating for the lost employment opportunities and experience a serious economic downward spiral caused by such a local industry shock. This distinction is of even greater importance when consider national economic downturns, which by their very nature as 'global' shocks potentially affect all regions within national or European borders. The question of why some regions are more vulnerable than others to such inclusive shocks is worthwhile considering all on its own.

This focus on regions which experience an actual downturn is justified since, as underlined by Martin and Sunley, resilience is a process that only begins once a region undergoes a shock with a severe regional economic effect (i.e. an economic downturn) of sufficient scope and duration (Martin and Sunley 2020). Therefore, only regions which have experienced a downturn – i.e., have not proven shock resistant – merit investigation of resilience performance.

From this point onwards, the methodology applied in this work will differ from the approach chosen by Hill et al. While the binary measure described below is the endpoint for their approach to describe the resilience process, the methodology outlined here takes this point as the actual starting point for the description of the mechanics of resilience.

According to the original approach by Hill et al. the *resilience or non-resilience* of regions affected by a downturn is determined by the return of a region's annual growth rate to its average pre-shock rate within four years of the last downturn. This means that, if a region

achieves a onetime annual growth rate equal or greater than the eight-year average within those four years, it is deemed resilient (and non-resilient if not). The final product of this step of analysis by Hill et al. is a binary evaluation of resilience based purely on the one-time return to pre-shock event growth rates within a defined timeframe (Hill et al. 2012).

If a region experiences several shocks and downturns within these four years, the four-year timeframe for the recovery of the previous growth rate is shifted to begin after the last downturn. The comparative value (i.e., the average eight-year growth rate) however remains based on the period before the very first shock event in a series. As will be pointed out later, this approach of measuring recovery from the last downturn relative to the growth trajectory before the first downturn, is the reason why the further investigation will focus on first downturns in a series only (Hill et al. 2012). This is also one of the reasons why the resilience of some regions is occasionally hard to evaluate since subsequent shock-downturn cycles have pushed them beyond the observable timeseries covered by the data. This problem is common to many other approaches, such as the analysis of Greek regions in the approach demonstrated by Fratesi and Perucca (Fratesi and Perucca 2018).

While the method described by Hill et al. has distinct advantages – namely the ability to distinguish between geographic and sectoral origins of an economic shock – it lacks subtilty in its analysis of regional resilience. First, aspects of their approach have a certain axiomatic rigidness to them. For example, instead of using flexible arrangements to measure the duration and severity of shock events (cf. Sensier et al. 2016), they rely on fixed timeframes for the measurement of pre-shock growth trajectories and a fixed four-year upper timeframe for recovery back to these pre-shock growth levels. Furthermore, the identification of national and regional economic downturns, export industries and industry shocks all depend on threshold 'trigger' values, mostly related to relative annual growth changes. Some of these values are based on standard assumptions and definitions. For example, the eight-year measure of the pre-shock average growth trajectory and the four-year maximum timeframe to return to that growth rate, correspond roughly to standard historic assumptions about the length of business cycles and contraction phases respectively (Hill et al. 2012). Both of these mostly hold up in American and European contexts (Bergman and Jonung 2011; Degiannakis et al. 2014; NBER 2020; Koopman et al. 2016).

Despite this rigidity, the present work will rely on the fundamental assumptions made in Hill et al.'s work in this regard. That said, the effects of changes to these thresholds will be subject of several robustness tests with the goal observing potential consequences (cf. Chapter 5).

However, with regard to the goals of this research, a more severe problem looms in Hill et al.'s simple dichotomous distinction between resilient and non-resilient regions. This can be extended to a fundamental critique of Hill et al.'s binary resilience understanding tailored towards an engineering interpretation of resilience (Hill et al. 2012).

In summary, it is the goal of the present work to amend the approach by Hill et al. by incorporating the ideas of hysteresis, adaptive, and transformative resilience as described by Martin and others. Towards this goal the approach developed in this thesis will – after some tests on the robustness of the underlying assumptions – retain Hill et al.'s definitions of shock events and the idea of the post-shock growth trajectory as a significant indicator. However, instead of focusing solely on the recovery to the pre-shock growth trajectory in a narrow post-downturn period, the presented approach will use this point in time as a marker from which the analysis of resilience performance can meaningfully begin in the first place. This means instead of being the point of division between resilience or non-resilience, the return to the pre-shock growth trajectory will mark the beginning of the recovery period (cf. Chapter 4.3).

4.3 A comparable relative measure of resilience performance

Following Martin, the return to pre-shock growth levels is only the beginning of the *recovery-phase* of the resiliency process in the empirical approach presented here (t_2, Figure 2.). Hill et al. identify this point easily with their approach since it is signaled by a return to or even excess of the regional pre-shock average growth levels. However, while Hill et al. see this return as a sign of a resilient region (cf. Chapter 4.2), in the resilience process described by Martin, this point only marks the end of an economic downturn – i.e., the extent of the immediate negative effects of the shock event itself (t_1 - t_2, Figure 2). Meanwhile, according to Martin, the quality and outcome of the resilience process, i.e., the resilience performance, only become apparent during and after the recovery phase (t_2 onwards, Figure 2). Only starting with this phase can one begin to evaluate the sustainability of the post-downturn growth rate and the overall recovery of developmental levels compared to pre-shock levels (cf. Figure 1 for details on the different resilience scenarios a-e).

This interpretation also fits better with the conception of resilience as defined by Holling and others, who in their ecological conception of resilience include the notion of a system surviving, at least with regard to its functional essence, during prolonged periods of uncertainty (Holling 1973; Folke et al. 2002). In line with this interpretation, the proposed methodology will use the

return to pre-shock growth levels as measured by Hill et al. as the starting point for the recovery period and therefore the subsequent measures of regional economic resilience performance. In the case of regions that do not return to their pre-shock growth levels, the four-year cut-off set by Hill et al. will serve as the fixed latest starting point. A similar however less flexible approach (as it is bound to pre-defined fixed dates) is taken by Fratesi and Perucca, who set a general four-year deadline for the downturn phase after the financial crisis in 2008-2009 (Fratesi and Perucca 2018).

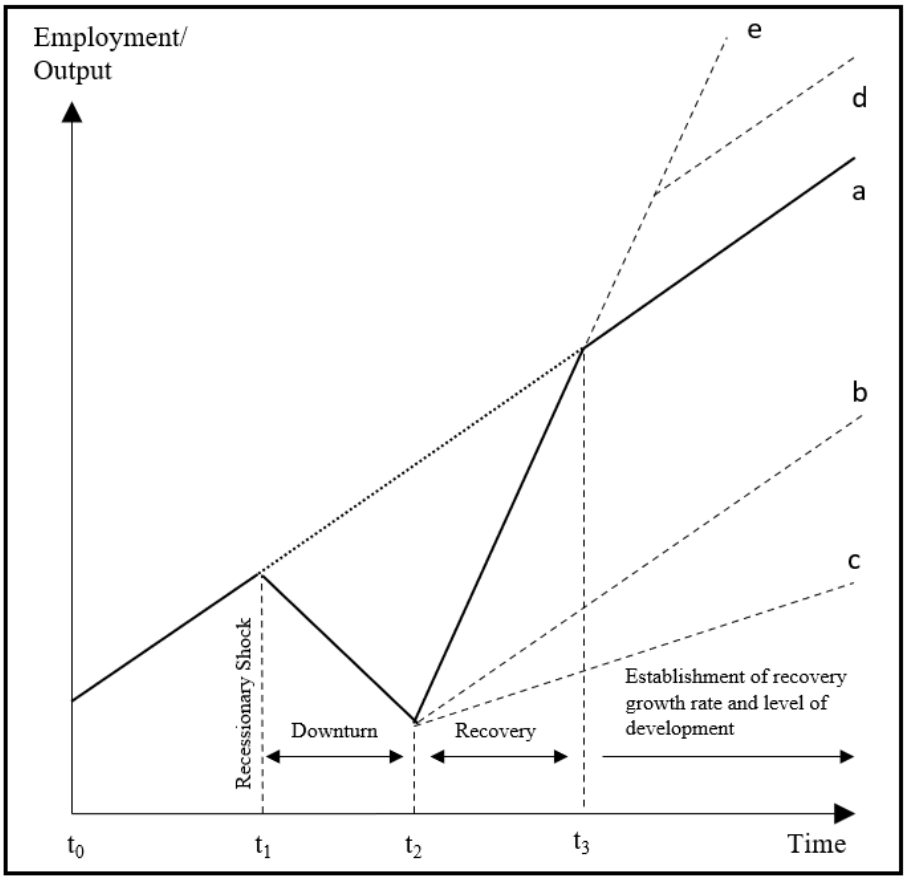


Figure 2: Summary of resilience scenarios (figure by author, based on Martin and Sunley 2020)

Treating the return to a previous growth trajectory as the starting point of the recovery period has several advantages beyond an improved theoretical fit:

First, it expands the observation of resilience beyond the most severe and immediate effects of shocks. The alternative approach of Sensier et al. for example, measures the time from the trough to peak of the business cycle as the recovery period and determines absolute resilience performance based on the relative absolute recovery of employment or production compared to the previous peak (Sensier et al. 2016). While a valid approach, this has the inherent disadvantage that regional economies which do not actually experience a drop in the absolute level of development as a result of a shock, will not be analyzed with regard to their resilience

– despite potential lost growth opportunities or a slower overall rate of growth in the aftermath of the shock event.

Second, and related, such a peak-to-peak comparison as proposed by Sensier et al. does not allow for a detailed evaluation of changes in the development trajectory, especially with regard to a potential hysteretic transformation. This is especially true for regions which correspond to the stable underperformer model (cf. Figure 1 or Figure 2b). While it is possible, by following Sensier et al.'s approach, to identify regions which are worse or better off in comparison to pre-crisis absolute levels, this does not account for lost growth potential, nor does it evaluate prospective growth trajectories and shifted development paths. A high-growth region affected by shock that managed to return to previous levels over many years would, by this method, be equally as resilient as a low-growth region which went through a hysteric shift and came out of the crisis not only recovered to previous levels of development but entered a much-improved growth trajectory.

Conversely, defining a recovery period using the parameters set by the approach from Hill et al. as the starting point of this period (between t_2 and t_3 in Figure 2) means, that a detailed analysis of the subsequent regional growth trajectory during recovery can take place – which potentially can be extrapolated beyond (i.e., t_3+ in Figure 2). Meanwhile, an observation of the recovery of the comparative level of development similar to Sensier et al.'s approach is still possible as well.

As stated in Chapter 2.1, Martin's and Sunley's conception of adaptive resilience is based on two dimensions: the *recovery of the absolute level of development* and the *retention of the post-downturn growth trajectory* and by extension the sustainability of both[31] (Martin and Sunley 2020; Martin 2012). To measure these dimensions, the start date of the recovery period is employed as the starting point for analysis of both dimensions (cf. t_2 in scenario a, b, d, e in Figure 2). As mentioned, in cases where there is no return to pre-downturn growth levels (e.g., in a case of non-resilience in Hill et al.'s approach), the fourth year of the four-year timeframe will serve as the starting date for measurements of the recovery period (scenario c in Figure 2).

This means the latest point at that a recovery period will be assumed to have begun (i.e., t_2 in Figure 2), lies four years after the last downturn occurring in a region. As mentioned before, these four years correspond well to the historical extent of contraction phases in the business cycle (Degiannakis et al. 2014; NBER 2020). It is assumed that whatever hysteretic shift might

[31] For the sake of readability, the terms will subsequently be shortened to "recovery of the development level" and "trajectory retention" or similar shorter versions of the dimension names.

have been caused by the shock itself has taken place by this point and a region has settled on its new post-downturn economic equilibrium.

The approximation of this new growth trajectory and recovery of the level of development of employment or production takes place in the four years following the beginning of the recovery period (cf. t_2–t_3 in Figure 2). Methodologically, the four year timeframe corresponds to the approach outlined by Hill et al. who use a four-year timeframe to identify binary resilience (Hill et al. 2012). Conceptually, the duration of four years fits neatly in the upper bound of the average duration of economic expansion phases (Degiannakis et al. 2014; NBER 2020; Koopman et al. 2016)[32].

The sustainability and direction of the *post-downturn growth trajectory* is then simply measured by the average growth rate over the four years of the recovery phase (cf. t_2 and onwards in Figure 2). Corresponding to the approach outlined by Hill et al. 2012 and Hausmann et al. 2005, the estimate of this growth rate is based on the slope of the logarithmic regression of growth rates over those four years[33]. This value is then put in relation to the pre-downturn growth rate (i.e., the average rate measured before first shock in the case of a series of downturns), thereby giving an indicator measuring whether, and by how much, a region changed its growth trajectory. The result is a comparable measure of the extent of *retention of the regional growth trajectory*. For example: a low pre-shock growth region can be shown to have a high resilience with regard to its retention of the growth trajectory even if it only shows a moderate positive growth rate during the recovery period, as long as the rate is higher than the average rate before the shock event. Conversely, a high-growth region suffering a decrease in growth trajectory but still retaining an overall positive rate will show as less resilient in this resilience performance dimension.

To measure the *recovery of the absolute level of development*, this approach proposes to observe the average relative distance between the actual total regional levels of development – i.e., the absolute value of RGVA and total employment – and a counterfactual non-downturn scenario over the four years following the beginning of the recovery period. A similar approach is proposed by Fratesi and Perucca in their conception of a gap between actual and counterfactual

[32] As before this assumption will be subject to a robustness test in Chapter 5.

[33] To better reflect the sustainability of the post-recovery growth trajectory, a similar method was applied to the four-year period post-recovery (t_3 onwards in figure 1). This however extends the measurement period significantly and leads to many observations having to be dropped due to the limitations of the time series data. Despite this, an additional trajectory retention dimension measured over 8 years following the entry into the recovery period is introduced into the final analysis to take account of potential shortcomings of a short recovery period (cf. section 5.3).

development as a measure of resilience, although they measure the gap only at the beginning and the end of the recovery period (Fratesi and Perucca 2018).

The result of this measure is an approximate value for the level of recovery of regional development during the recovery phase (cf. t_2–t_3 in Figure 2). The counterfactual scenario in this case is based on the estimated total level of employment and RGVA derived from a linear extrapolation of the absolute regional values before the original downturn, based on the average eight-year growth levels before the shock event. The value derived by this approach results in an indicator of the recovery of the absolute level of development relative to where the region could have been if no shock had happened at all.

A region quickly entering the recovery phase will – by the nature of the extrapolation of the counterfactual – achieve a stronger recovery of the absolute level of development than a region with a longer downturn phase – that is, unless the latter shows exceptional performance. Similarly, a region that does not achieve a very high post-downturn growth trajectory might still come close to recovering its absolute level of development with a V-shaped recovery pattern – resulting in an (on average) slow-growth region that nevertheless manages to keep its regional economy on a stable development level (Yao and Zhang 2011). Logically, not all regions which recover their pre-shock growth trajectory will necessarily make up for missed growth opportunities during the downturn phase, thereby giving a differentiated picture of relative resilience in each performance dimensions.

Both measures together give a better and, importantly, comparable picture of the resilience performance of a single region in response to a wide variety of shocks, especially compared to comparable categorical measures proposed by Hill et al., Giannakis and Bruggeman, or Sensier et al (Sensier et al. 2016; Hill et al. 2012; Giannakis and Bruggeman 2020). The ability to contrast resilience performance along two dimensions (first, the recovery of the absolute level of development, and second, the retention of the regional growth trajectory) takes into account the prospective elements of the resilience process proposed by Ron Martin (Martin 2012). At the same time, it is able to consider factors of resistance and vulnerability without them influencing the actual evaluation of subsequent resilience performance.

While one individual resilience indicator would arguably be tidier, as the approaches by Hill et al, Martin, or Briguglio et al. show, the proposed method manages to capture the process of resilience in greater detail than otherwise possible (Hill et al. 2012; Martin 2012; Briguglio et al. 2009). It also does not become too overwhelming as might be the case with the five-resilience performance indicator approach by Fratesi and Perucca (Fratesi and Perucca 2018).

Lastly, the relative nature of the methodology – e.g., the comparison to a region's own past and counterfactual performance in trajectory retention and development level – makes it comparable across national borders and even different points in time, since it is independent of a chosen benchmark like national or European growth. In contrast, other approaches with fixed references will generally be bound to the national or time-dependent refence value chosen (Sensier et al. 2016; Fingleton et al. 2015; Paolo Di Caro 2017).

In summary, the proposed methodology aims to assess regional resilience performance based on two continuous measures, each indicative for one of the two dimensions of resilience performance as described in Chapter 2.1. The fist measure, i.e., the retention of the regional growth trajectory, is based on the difference of the average recovery phase growth trajectory compared to the pre-shock average growth trajectory. The second dimension, i.e., the recovery of the development level, is based on the measurement of the relative average difference of the actual level of development and a counterfactual no-shock scenario level of development throughout the recovery phase. The results of both resilience performance measures for the EU15 NUTS 3-level data will be presented in the next chapter. As mentioned above, the different underlying assumptions made – such as the fixed duration of the recovery period, the thresholds for identification of shocks etc. – will additionally be tested on their robustness. Furthermore, the descriptive analysis will observe variations across the observed time series and remark on significant national and spatial differences (e.g., the number and type of export industries by country). This the analysis continues into Chapter 6, where the measures of both resilience performance dimensions are discussed across different categorical lines. This step can already be considered a first step towards the analysis of the effect of different resilience capabilities since the variables of time and space can obviously influence regional responses to an economic shock significantly.

5. Analysis – measuring resilience performance

Before detailing each methodological step and the results based on the full time series, it is worth using examples to illustrate the approach taken. This chapter will describe the empirical approach based on the resilience performance indicators for only two exemplary observations. The goal is to show the potential of the outlined quantitative approach to measuring regional economic resilience performance in Europe. Generally, if not mentioned otherwise, the regional economic performance data for all EU NUTS 3 regions is drawn from the European

Commission's Annual Regional Database for Regional and Urban Policy (ARDECO), formerly known as Cambridge Econometrics' European regional database (European Commission 2021b).

The two cases described in Figures 3 and 4 were selected from the 3447 fully observable cases of shock-downturn-recovery cycles[34] across the time series of both regional gross values added (RGVA) and total regional employment (i.e., the totality of employed persons living within a region). The only criterium for their selection was to clearly show one example for the method for both total employment and RGVA as the underlying performance variable.

The first case (see Figure 3) is based on total employment data as a performance indicator and concerns the region of "Passau (Landkreis)"[35], located in Germany near the Austrian-Bavarian border. In 1995, the year of the initial shock, the region's employment market was dominated by manufacturing industries[36] and a strong private service sector[37] (26,1% and 31,1% respectively). Throughout the time series, manufacturing remains of a high regional importance, while the service sector continues to grow its share of total employment (respectively 27,1% and 34,3% in 2018). Agriculture[38], despite its important role in the late 1980s (15,1% of labor), declined rapidly in its proportion of the labor market (3,8% in 2018).

In the early 1990s (1992-1997) Germany experienced a series of national downturns in employment, which in turn lead to a regional downturn in Passau in 1996 and 1997. The shock in 1995, which caused the downturn of 1996, is the first shock in this example which had a regional effect and is therefore treated as the first in the series. Meanwhile the national economic shock in 1997 had no subsequent regional effect. In addition to the downturn in employment, the region experienced a parallel series of national economic shocks to RGVA from 1992-1997, and again in 2003 and 2009, however only the latter two lead to a regional downturn in RGVA.

The second example, which illustrates measurement of resilience performance based on RGVA, is the Danish region of "Byen København", shown in Figure 4[39]. As the name suggests, the region is centered on the Danish capital of Copenhagen and its surrounding municipalities. Economically, and unsurprisingly for such an urban area, the region is shaped nearly

[34] Qualifications as to which cases count as fully observable will be made in the subsequent sections.
[35] Corresponding NUTS 3 code: DE228
[36] NACE classifications B-E.
[37] NACE classifications G-J.
[38] NACE classification A.
[39] Corresponding NUTS 3 code: DK011

exclusively by private and public service sectors who together made up about 91,4% of the total RGVA in 2018, a Figure which does not vary much during the observed time frame.

In the year 2001, the year of the shock described for Byen København, the private sector services of trade, transportation accommodation and information services together made up roughly 31,2% of RGVA. A further 30,1% consisted of business-services[40] relating to finance and insurance, real estate, administrative services, and research. The public sector[41] made up an additional 27,8% of RGVA. The region experienced three subsequent national economic downturn shock events starting in 2000, of which the one in 2001 resulted in the regional downturn discussed here. A second shock and downturn pairing (as before caused by a national economic downturn) took place in 2009 as an effect of the GFC. The region experienced no additional shock events in the years following 2001 (up to and including 2008).

Additionally, there was a series of employment shocks between 1990 and 1997, all local industry shocks in the business-service sector, which lead to a downturn in employment in 1990 and 1993. Parallel to the national economic downturn in GVA during the GFC, the region also experienced employment shocks and downturns in 2009 and 2010.

The observation of resilience performance begins in both cases with the original shock event – i.e., the first shock which, in the concurrent or subsequent year, caused a regional downturn by reducing the annual growth rate by at least 2% compared to the eight-year average. The 1995 shock in Passau (Landkreis) was caused by a national economic downturn in employment which hit the agricultural sector particularly hard – part of the relatively quick decline of the sector leading into the 2010s. This shock in turn caused a drop in the employment growth rate to -1,58% by 1996, which compared to the pre-shock eight-year average of ca. 1,55%, constitutes a regional economic downturn by the definition set out in Chapter 4.1 (a difference of 3,1 percentage points). The threshold for a downturn is only reached in 1996, since, while in 1995 the trajectory decreases, it does not reach the necessary decrease of two percentage points.

Consequently, the four-year timeframe for returning to the pre-shock growth trajectory (i.e., the growth trajectory up to 1995 of ca. 1,55%) begins in 1996 the year of the last (and in this case initial) downturn. The return to the pre-shock growth trajectory is achieved within two years (three years from the shock event) by 1998 (achieving an annual employment growth rate of 2,84%). As outlined above, this is the point at which Hill et al.'s approach would declare this region as resilient (Hill et al. 2012).

[40] NACE classifications K-N.
[41] NACE classifications O-U.

However, in the approach presented, this marks only the beginning of the recovery phase, i.e., the phase from 1995-1998 is the maximum extent of the regional downturn and initial negative effect of the shock. From this point onward, following Martin and Sunley's theoretical approach, the retention of the regional growth trajectory and recovery of the level of development – e.g. the two dimensions of resilience performance outlined in Chapter 4.3 – can be determined (Martin and Sunley 2020).

To do so, the recovery phase growth trajectory is estimated using the average four-year growth rate over the subsequent four years from 1998-2002[42], which is approximately 1,13%. This in turn is used to determine the absolute difference to the pre-shock eight-year growth rate in percentage points. In this case, the new growth trajectory is nearly equal to the levels reached before (-0,42 percentage points). Compared to all observed cases, this divergence is only minimal (the average for employment trajectory resilience lies at -0,51 percentage points and a median of -0,37 percentage points respectively), giving the region an overall positive z-score of 0,035 for the standardized retention of the growth trajectory dimension ranking. Compared to German regions exclusively, the performance is even stronger with a z-score of 0,27. Overall, as can be seen in the scatter plot in Figure 3, Passau is an average performer by this performance dimension.

The second resilience performance dimension, the recovery of the level of development, is calculated by measuring the average relative distance from the actual level of development (e.g., the average total employment over the four years of the recovery phase from 1998-2002) to a counterfactual scenario. The latter is based on an extrapolation of the pre-downturn level of total employment and the eight-year pre-shock average growth rate. In the case of Passau (Landkreis), this corresponds to a total employment level on average 6,3% lower than under the counterfactual assumed no-downturn scenario over the measurement period (the average for employment recovery of the development level for all observations level lies at -10,8% and a median of -10,01% respectively). Standardized across all observed employment downturns, this results in a z-score of roughly 0,44. In reference to German regions only, this increases to a z-score of 0,68. As with the retention of the growth trajectory, the region of Passau (Landkreis) in 1995-2002 is an average performer overall.

This picture of an average performer is further underlined when looking at the ranking of all regions across both indicators. Passau sits at place 678 (trajectory retention) and 441 (level

[42] Using the method outlined in section 4.1, proposed by Hausman et al. and further employed by Hill et al. Hausmann et al. 2005; Hill et al. 2008.

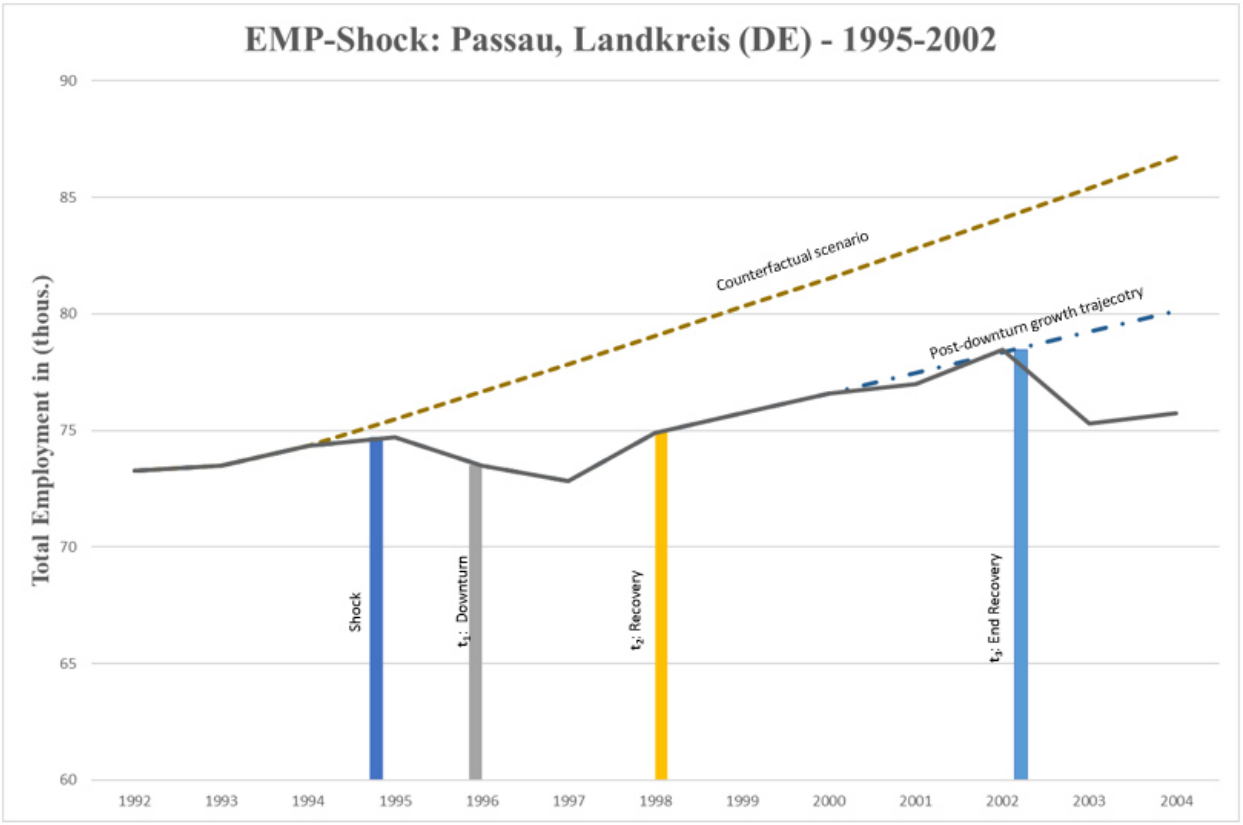
recovery) among the 1323 regions observed[43]. Within the theoretical approach outlined by Martin and Sunley, this would make the region of Passau (Landkreis) a declining or stable underperformer (cf. Figure 1), since the overall level of development is lower than in the counterfactual and the recovery growth trajectory comes close, but still falls short of the pre-shock values (Martin and Sunley 2020).

That said, as shown above, if those values are standardized and looked at comparatively, the region of Passau (Landkreis) is relatively close to the average resilience performance of all observed regions with regard to the total employment (cf. Figure 3). This demonstrates the value of this two-dimensional approach, since one can now state with confidence that the region of Passau (Landkreis) closely approximates the average resilience performance of downturn-affected regions.

The observed events in Byen København (Figure 4) started in 2001 and were caused by a series of national economic shocks during which Danish GVA growth nearly stalled at 0,38% by 2003. The first of three subsequent regional economic downturns took place the same year as the initial shock, in 2001. It resulted in a decline in yearly regional growth of RGVA to 1,84%. Compared to the eight-year average growth rate of 3,95%, this constitutes a total comparative drop of roughly 2,11 percentage points.

In the two following years, the regional RGVA declined first by 1,8% and then stagnated at 0,13% in 2003 – each year comprising a subsequent shock-downturn pairing. This series of downturns illustrates one of the strengths of this methodological approach, as the first downturn in 2001 shows that a region does not need to go into sudden extreme decline to be able to identify a regional downturn effect. Instead, a significant alteration of the growth trajectory suffices as a trigger. By 2005, two years after the last regional economic downturn in 2003 and four years after the initial shock event, the region saw its yearly growth exceed the average pre-shock levels (before 2001) for the first time – reaching 4,3% for that year. As above, this constitutes a region which is resilient according to Hill et al.'s approach and is the point from which the measurement of the two resilience performance indicators takes place in the methodology presented here.

[43] Detailed fact sheets on the region can be found in Appendix XX



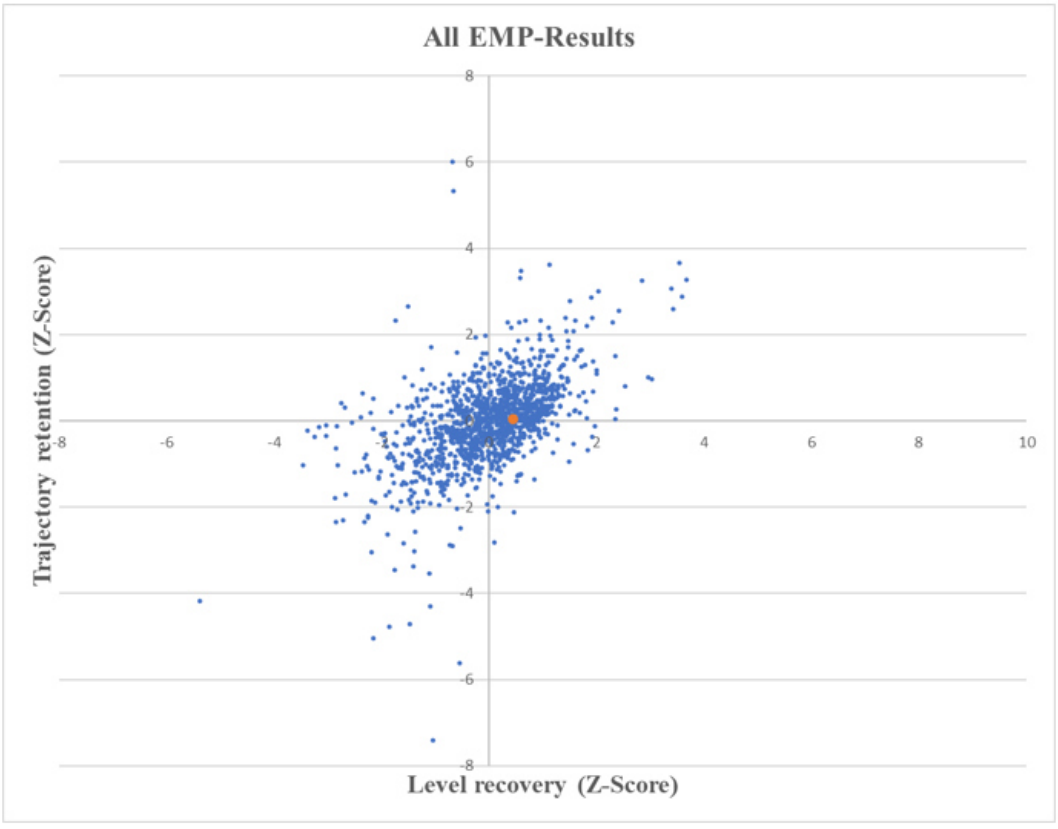
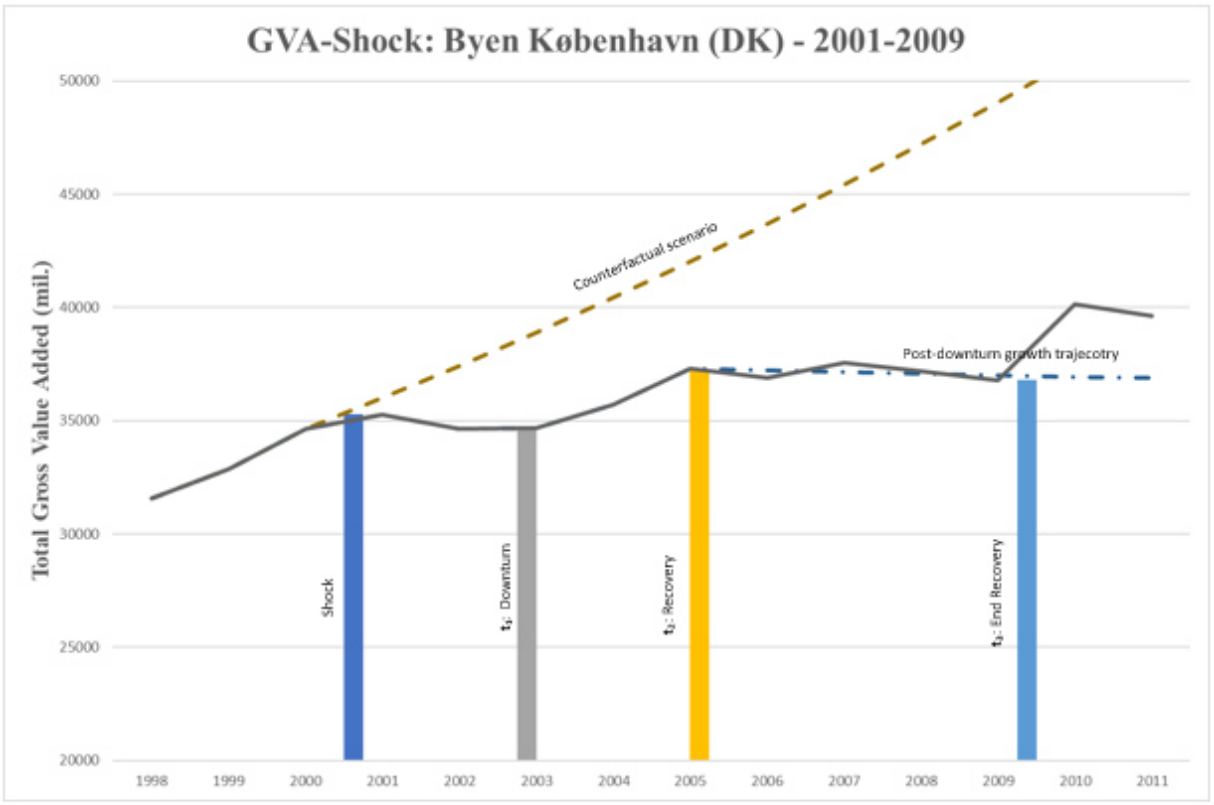


Figure 3: Case example for employment resilience performance



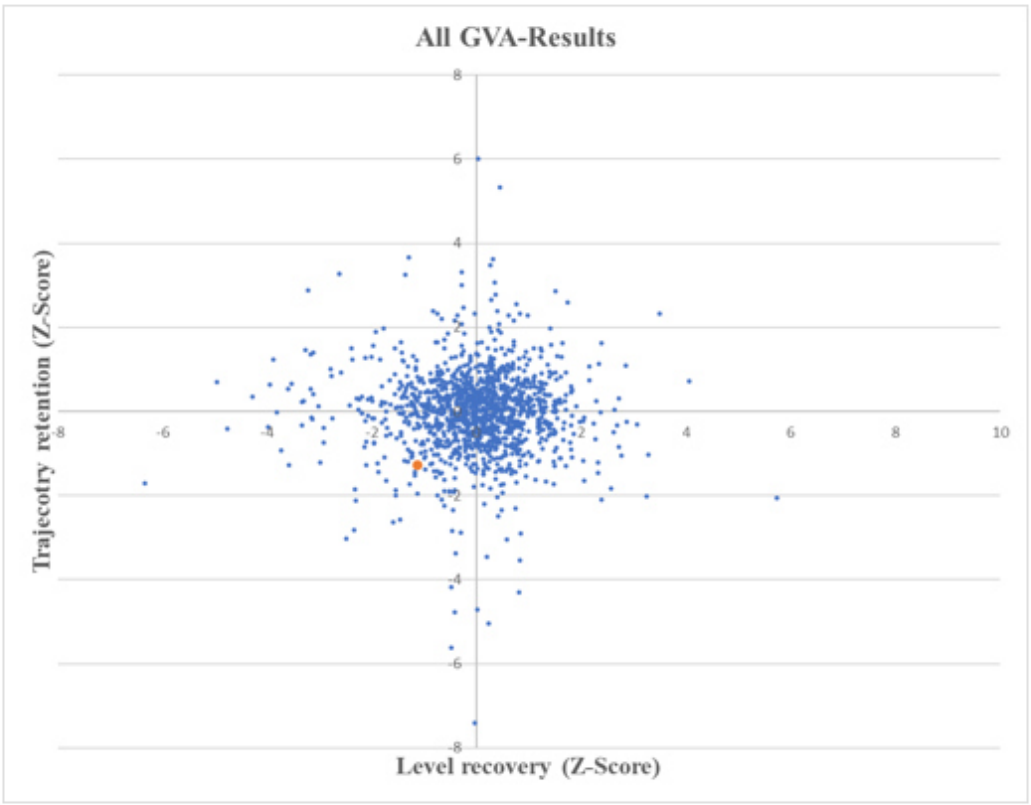


Figure 4: Case example GVA resilience performance

Over the next four years (2005-2009) – the fixed time for the recovery phase – the region basically stagnated at an average growth trajectory of -0,18%. In contrast to the pre-shock average growth trajectory, this resulted in a difference of -4,13 percentage points (the average among all 2124 observed regions, based on RGVA, being -0,95 percentage points and the median -0,76 percentage points). Standardized across all observed regions this results in a z-score of -1,27 and among Danish cases alone of -0,89. Compared either way, the performance of Byen København in the aftermath of 2001 is significantly below average with regard to the retention of the growth trajectory.

Meanwhile, the total production is -19,76% lower than the level expected in a no-shock counterfactual scenario (across all cases, an average recovery of the level of development of -8,08% and a median shortfall of -7,32% is observed). This results in a z-score of -1,14 across all cases and -1,7 in the Danish context alone.

In comparison to all other observations, the Byen København is below average in and after 2001 with regard to the trajectory retention, as well as the recovery of the absolute development level. Within the framework of Martin and Sunley, Byen København could be defined as a "declining underperformer" (cf. Figure 1c). This result is reflected in its position in the scatterplot in Figure 4, as well as its comparative ranking among all cases (1930th out of 2124 with regard to trajectory retention and 1909th with regard to level recovery). This weak performance is especially interesting since during and after the shock and downturn combination of 2009 – the national economic downturn caused by the GFC – the region performed significantly stronger (z-score of 0.98 for trajectory retention and 1,19 for development level recovery, putting it respectively in 232nd and 180th place for this event in the all-observation comparison). While it is too early to judge, this could either hint at growing resilience based on past "experience" – similar to theories on psychological resilience (Fletcher and Sarkar 2013) – or point to high variation in the nature as well as political and economic response to different types of crisis and the effect on regional economic resilience.

While these examples are only two observations out of over 3400 observed resilience processes in total, this "case study" already demonstrates some advantages of the proposed method. Despite their obvious performance differences, if the same analysis was made using a binary resilience measure proposed by Hill et al., both regions would have been equally rated as resilient since both return to their pre-downturn growth trajectory within four years (Hill et al. 2012). Similarly, even using the more dynamic approach based on business cycles proposed Sensier et al., both regions would simply be termed 'resilient', because they return to their peak

total development level from before the downturn – again despite very different results in each region in the mid-run (Sensier et al. 2016). Only the approach by Fratesi and Perucca, with their analysis based on a presumed no-shock growth path, could have delivered similar results, if it was applied to the shock events presented here. Even this is questionable, however, since their method needs a previously-determined observation window with fixed shock and crisis duration periods (i.e. in their case fixed on the 2008-2009 GFC and its effects) (Fratesi and Perucca 2018). Meanwhile, by applying the method proposed here, one arrives at the presented results without such preconceptions– a small but significant advantage in the study of longer time series.

Furthermore, the approach shown allows evaluation of both regions compared to all other observations in two dimensions, thereby providing a much better picture of their comparative resilience performance. This approach does not simply produce a binary distinction between resilient and non-resilient but can clearly state that one region is *more or less resilient* than another. Furthermore, the measures of both dimensions offer indicators for changes in growth trajectories and the level of total development after a shock. This allows the analysis not only to rank regions but also to classify them into different resilience scenarios as outlined by Martin and discussed in Chapter 2 (cf. Figure 1)[44].

The big disadvantage of this approach – especially compared to the approach by Sensier et al. – obviously lies in the fixed threshold constants picked for the level and length of shocks, downturns, and even the recovery phase. As an example, the fixed four-year period for measuring the recovery phase's average growth trajectory and the average distance to the counterfactual scenario are – to some extent – arbitrary. While founded on theoretical assumptions about the business cycles and based on the previous work of Hill et al., these assumptions obviously must be tested in detail (Hill et al. 2012).

Further problems result from restrictions to the underlying data sets which, as also observed by Fratesi and Perucca, are not necessarily long enough to capture the whole resilience process in cases of prolonged crisis (Fratesi and Perucca 2018). As will be shown below, regions in Greece (and to some extent Spain) were victims of a long series of downturns following the initial shocks of the 2008-2009 GFC – caused by the subsequent sovereign debt crisis. Since, as outlined, each subsequent downturn within four years of the preceding downturn 'restarts' the measurements leading up to the eventual recovery period, this can cause observations to extend

[44] Sensier et al's approach is capable to identify tendencies in the change of growth trajectory as well, however their approach restricts them to identify negative hysteretic shifts only while the presented approach is independent of the direction of the shift (Sensier et al. 2016).

beyond the end of the dataset in 2018. Independent of this, the methodology proposed results in 2014 being the effective cut-off for the latest beginning of any recovery phase among the observed regions.

To highlight these and other issues, the following chapters give a descriptive overview of the results of the application of the methodology on the data set and will be accompanied by robustness tests varying the underlying assumptions of each methodological step determining the respective results. Furthermore, the following chapters will discuss the restrictions of the approach given the data available and how these restrictions where approached. This discussion will focus on shock identification (including the identification of export industries), a descriptive analysis of resistance and downturn, and finally the actual measurement of resilience performance. This last step of the analysis will be continued in Chapter 6 and analyses the causes of resilience by testing the variance of the results with regard to nationality, shock type, regional typology, and timing. Following this, Chapter 7 provides detailed analysis of the effects of the different resilience capabilities outlined in Chapter 3 on resilience performance.

5.1 Identification of shock events

While the presented work largely follows Hill et al.'s approach and then expands on it (as mentioned above), the application of this approach to the European context made some adaptations necessary. Most importantly, while Hill et al.'s approach used three-digit sectoral resolution of US metropolitan regions (similar to the two-digit level of the NACE GDP definition of the European statistical convention), this study had to reduce the resolution to the highest level of the NACE code. Second, while Hill et al. analyze wider metropolitan regions only (i.e., excluding rural areas), this study will encompass all NUTS 3 regions. This results in a more heterogenous sample compared to the American, metropolitan equivalent. These, and other differences will be discussed in this chapter.

The total number of possible data points forming the base for the measurement of regional resilience performance – i.e., yearly regional observations – numbers 33670 in case of total employment and 33185 in case of regional gross value added. This constitutes data on 1106 NUTS 3 regions (in 2018)[45] in the western EU15 over a timeframe of 31 years[46]. However, as

[45] The only regions not covered for the whole time series are the German regions constituting the former German Democratic Republic (GDR) which, due to data restrictions, can only be observed from the year 1994 onwards.
[46] Including the year 2018 for which, with the exception of shock events and concurrent downturns, no further observations are possible.

mentioned in the section before, the latest possible point at which a recovery period can begin to result in a full observation of regional resilience performance is the year 2014. Hence, the number of regions to which the methodology could potentially be applied to fully is significantly lower and depends on the timing of the entry into the recovery period.

	NUTS3-Regions	EMP	GVA
Austria (AT)	35	1.085	1.085
Belgium (BE)	44	1.364	1.364
Germany (DE)	401	11.815	11.815
Denmark (DK)	11	341	341
Greece (EL)	52	1.612	1.196
Spain (ES)	59	1.829	1.829
Finland (FI)	19	589	589
France (FR)	101	3.131	3.131
Ireland (IE)	8	248	184
Italy (IT)	110	3.410	3.410
Netherlands (NL)	40	1.240	1.240
Portugal (PT)	25	775	775
Sweden (SE)	21	651	651
United Kingdom (UK)	179	5.549	5.549
Luxembourg (LU)	1	31	26
TOTAL	1.106	33.670	33.185

Table 2: Total observed regions

The discrepancy in the number of data points based on total employment and gross value added is caused by missing data for regions in Greece, Ireland and Luxembourg up until the mid-1990s. This data could not be reconstructed and, apparently, was not gathered at the level of NUTS 3 regions for the full time series.

As can be seen in Table 1, the number of NUTS 3 regions varies significantly by country, with Germany alone accounting for more than a third of all NUTS 3 regions[47]. One reason for this is, obviously, the wide variation in size of the respective countries. Germany as the most populous state also has the most NUTS 3 regions. However, the imbalance is also enhanced by the relatively wide population bands within which the different regional levels are defined by the NUTS classification system. For example, NUTS 3 regions are defined as between 150.000-

[47] A fact which will have to be considered when discussing country association and country level effects in section 7.

800.000 inhabitants. This wide range, together with exceptional cases (like islands or sparsely populated regions) and the tendency of nation states to align NUTS regions with existing subnational statistical units, leads to discrepancies between the nation states of Europe.

To account for this, the subsequent analyses (especially those on the effect of resilience capabilities) are based on relative or population weighted values (like GDP per capita etc.) whenever possible. Furthermore, to evaluate the validity of the results, especially with regard to the later analysis of the regional resilience capabilities, the national association of each region will be introduced as a categorical variable.

As outlined in Chapter 4, the first step in the approach to measuring resilience performance (also described in the original by Hill et al.) is the identification of shocks. The first type of shocks – and methodologically the easiest to identify – are called national economic downturns (NED). As described in Chapter 4.1, these shocks are identified by a one-year downturn of more than two percentage points compared to the average annual national growth rate (approximated by measuring the slope of the logarithmic regression of RGVA or employment over the last eight years) (Edward Hill et al. 2012).

	National Economic downturns (employment)	Regions affected	National economic downturns (GVA)	Regions affected
Austria (AT)	-	-	2	70
Belgium (BE)	-	-	2	88
Germany (DE)	6	2.406	7	2.807
Denmark (DK)	2	22	4	44
Greece (EL)	5	260	6	312
Spain (ES)	8	472	7	413
Finland (FI)	4	76	7	133
France (FR)	-	-	3	303
Ireland (IE)	6	48	5	38
Italy (IT)	3	330	4	440
Netherlands (NL)	2	80	4	160
Portugal (PT)	7	175	7	175
Sweden (SE)	4	84	7	147
United Kingdom (UI	3	537	5	895
Luxembourg (LU)	2	2	6	6
TOTAL	52	4.492	76	6.031

Table 3: Overview of national economic downturns

Using RGVA as an indicator during the observed time series from 1988-2018, a total of 76 such events occur, in total potentially affecting a theoretical maximum of 6031 regional yearly observations. Based on employment data, one can identify a slightly lower total of 52 national economic downturns during this period, affecting a potential total of 4492 regions. As will be

discussed later, due to the nature of NEDs, which have the potential to affect all regions within a nation, the absolute number of this type of shock (by region) far exceeds all other types.

Across the whole period of 30 years[48], about half the time at least some countries experienced a national downturn in either gross value added or employment. Similarly, across the whole time series, there is no region which did not potentially experience the negative effects of at least one national economic downturn shock. Even Austria, Belgium, and France, which do not experience a NED as measured based on employment, all experience a NED identified by gross value added. However, this does not mean that all regions were equally affected by a regional economic downturn. As pointed out in Chapter 3, a national economic downturn does not exclude regional economic resistance to the national shock event. This distinction will be further discussed and identified in Chapter 5.2.

Looking at the temporal distribution of the national economic downturns (cf. Figure 5), it becomes visible that NEDs – as expected – follow the generally recognized business cycles for the period with peaks in the early to mid-1990s, the early 2000s, and around and subsequent to the GFC in 2008-2009 (Battilossi et al. 2010; Ozturk and Sozdemir 2015). Additionally, one can identify, as postulated by macroeconomic and specifically Keynesian approaches, that national employment downturns often happen with a slight time lag compared to the shocks to the 'general' economy as measured by GVA and GDP (Keynes 1936). Furthermore, while every country is affected at least once during the 30-year period analyzed, irrespective of underlying measure, only the effect of the financial crisis in 2008-2009 on the GVA caused all fifteen analyzed European economies to slide into a national economic downturn at the same time (for detailed country data cf. Appendix I.a).

As pointed out previously, the central criticism with this approach to identifying national economic shocks – as with other types of shocks – are the set constants for the identification set out in Chapter 4.1. In this case, this concerns mainly the eight-year average growth rate[49] and the comparative yearly drop by two percentage points set as a trigger for the identification of a national economic downturn.

To test the robustness of these assumptions, the timeframe for measures of the average growth rate was varied between six and 10 years in two-year steps and the effect on the measured average growth rate was observed (cf. Table 4). Using the Kolmogrov-Smirnov and the

[48] 31 counting 2018.
[49] Which is measured by the slope of the logarithmic regression of production or employment over the respectively specified timeframe (cf. section 4.1).

Shapiro-Wilk approach test, it was found that the average growth across all measurement approaches was non-normally distributed[50]. Taking account for this, the standard analysis of variance was additionally accompanied by a Kurskal-Wallis test (cf. Appendix I.b). Either way, the results show no significant difference between the three different timeframes used to arrive at the measure. The latter finding is also supported by frequency of national shocks identified for each timeframe (cf. Table 5.), which varies only slightly depending on timeframe used.

Therefore, conservatively staying as close to the original approach by Hill et al., the original eight-year average is kept[51].

GVA	N	Minimum	Maximum	Mean	Std. deviation
8-years	427	-0,048	0,077	0,021	0,016
6-years	457	-0,060	0,086	0,021	0,018
10-years	397	-0,038	0,066	0,022	0,014

EMP	N	Minimum	Maximum	Mean	Std. deviation
8-years	465	-0,034	0,055	0,009	0,014
6-years	495	-0,046	0,071	0,009	0,015
10-years	435	-0,025	0,045	0,009	0,013

Table 4: Descriptive statistics average pre-shock growth (national)

As for the trigger for identification of national economic downturns – i.e., a two-percentage point drop in annual growth rates compared to the pre-shock average – this value was increased to three percentage points and the effect on the results was observed. As can be seen in Table 5, the number of total observed NEDs naturally decrease if this value is increased. However, since the pattern across nations remains similar and the decrease in identified NEDs seems uniform, again the conservative approach is chosen, and the original value of two percentage points is maintained[52].

The other type of shock identified by the methodology presented here are the industry shocks, which can be national and local. Different to national economic downturns, they are directly related to a region's economic performance and, in contrast to national economic downturns, are potentially localized events for an individual region.

[50] The potential exception being GVA average growth, which showed a normal distribution by the Kolmogrov-Smirnnov test but not Shapiro-Wilk test. Conservatively it will be treated as non-normally distributed.
[51] The effect of the eight-year average framework on local industry shocks and the identification of downturns will be discussed in the corresponding below.
[52] As before, the effect on other shock types will be discussed later.

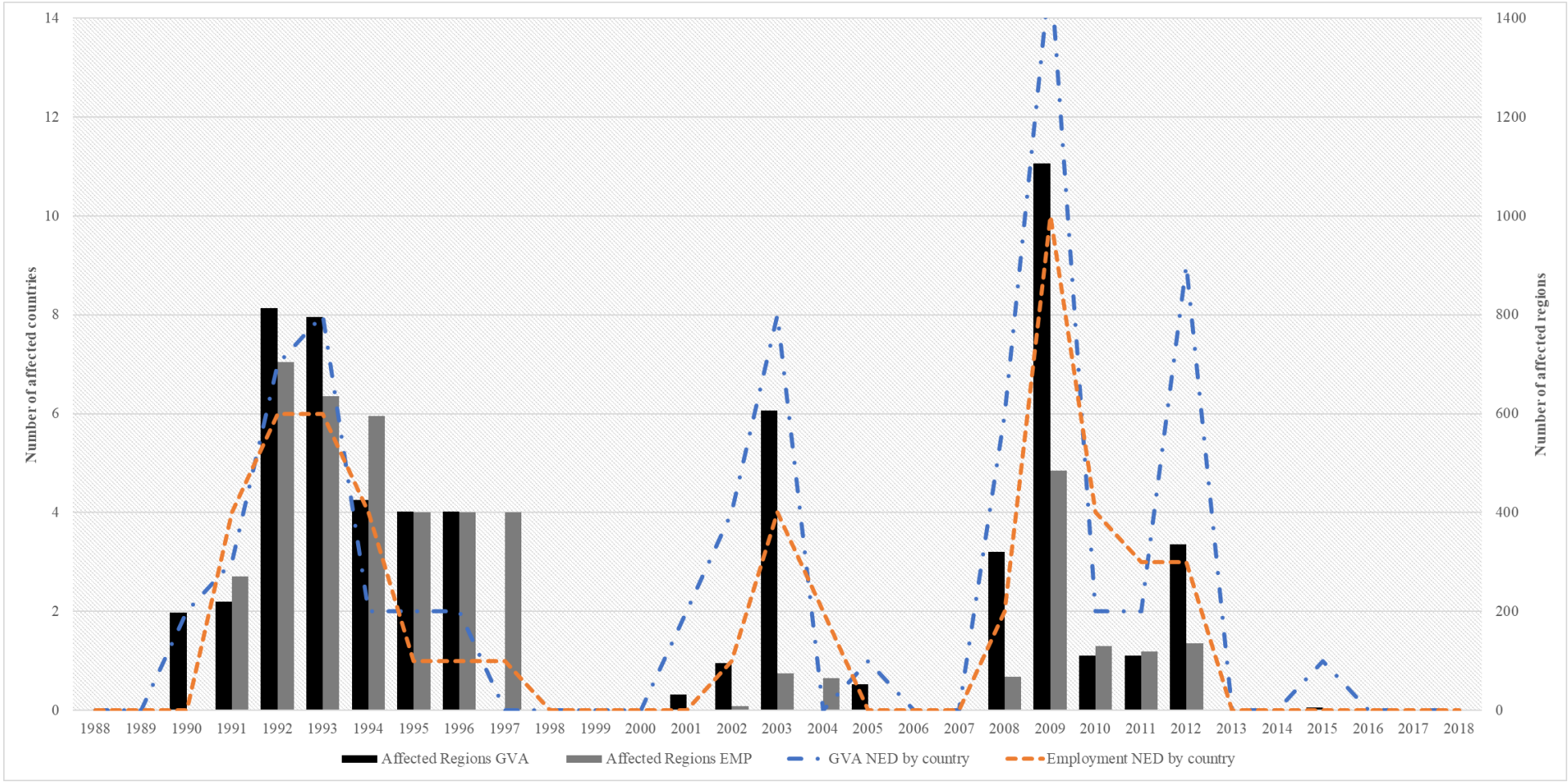


Figure 5: Frequency of national economic downturns and total number of potentially affected regions

As outlined in Chapter 4.1 the first step towards the identification of industrial shocks lies in what Hill et al. dubbed export industries. Based on Hill et al.'s approach, the present analysis defines export industries as sectors whose share of regional employment or regional gross value added is equivalent to at least one percent of the total regional employment and exceeds the same sector's share of European employment or production by at least 80 percent in a given year (Hill et al. 2012). As such, export industries are not export industries in a traditional sense of the term – e.g., industries focused on international trade – but industries of an overproportioned regional importance compared to the national or European economy. Of course, this does not preclude those sectors being actual export industries in the standard meaning of the term as well (be it international or interregional).

	8-years		6-years		10-years		8-years drop by 3pp	
	GVA	EMP	GVA	EMP	GVA	EMP	GVA	EMP
AT	2	0	2	1	2	0	1	0
BE	2	0	2	0	2	0	2	0
DE	7	6	8	6	7	7	5	6
DK	4	2	4	2	4	3	1	2
EL	6	5	6	5	6	5	6	3
ES	7	8	6	8	8	9	4	7
FI	7	4	7	4	9	4	5	4
FR	3	0	5	1	2	0	2	0
IE	5	6	5	5	5	6	4	5
IT	4	3	3	3	5	4	2	1
NL	4	2	3	4	4	2	3	1
PT	7	7	7	5	9	6	6	2
SE	7	4	6	6	6	4	5	2
UK	5	3	5	3	5	4	2	2
LU	6	2	6	2	6	2	6	0
TOTAL	76	52	75	55	80	56	54	35

Table 5: Total national economic shocks under varying assumptions

As mentioned in Chapter 4, because of the lower resolution of the European data, only the highest sectoral NACE distinctions will be used. This leaves six broad categories: agriculture including fishery (NACE code "A"); manufacturing including mining and supplies of utilities etc. (NACE code "B-E"); construction (NACE code "F"); consumer services, i.e., trade and commercial services including transport, information technologies and tourism (NACE code "G-J"); business services, i.e., financial, real estate and other services mostly not aimed directly at consumers (NACE code "K-N"); and the public sector including education, art, healthcare, as well as other less specified services (NACE code "O-U")[53]. While this is obviously a step back regarding the detail of the analysis in comparison to the work by Hill et al., it nevertheless

[53] According to the "Statistical Classification of Economic Activities in the European Community, Rev. 2 (2008) (NACE Rev. 2)" European Commision 2017.

allows identification of which economic sectors are of trans-regional and European importance. The results of this analysis can be found in Table 6.

As becomes visible, export industries identified by this method align mostly with common expectations about the countries' economies in which the regions are located. Germany, with its strong base in manufacturing, also shows a large number of regions with a strong share of production and employment based in the corresponding sectors B-E (ca. 55,1% and 34,9% of all export industries observed across all national observations). Similarly, sectors related to financial services and international trade (K-E) are especially strong in the United Kingdom, Denmark and the Netherlands when measured by sectoral employment (39,9%, 48,4 and 63,1% of all observations respectively). Meanwhile countries with strong ties to tourism and the service industry show comparatively high numbers in the sectors G-J – such as in the case of Spain, where 7,6% of observations based on RGVA correspond to regions with an export base in this area.

	Export Industries by Employment							Export Industries by RGVA						
	A	B-E	F	G-J	K-N	O-U	Total	A	B-E	F	G-J	K-N	O-U	Total
AT	842	91	23	13	0	0	**969**	551	148	231	53	0	0	**983**
BE	173	50	15	1	12	1	**252**	262	33	59	34	0	41	**429**
DE	1393	2864	749	18	132	39	**5195**	3107	2460	1091	46	83	261	**7048**
DK	32	0	0	0	31	1	**64**	70	0	0	0	0	0	**70**
EL	1684	17	153	57	0	13	**1924**	1005	81	44	147	0	14	**1291**
ES	1217	36	408	66	0	65	**1792**	1426	35	408	160	0	72	**2101**
FI	466	0	13	5	0	0	**484**	498	8	26	14	0	18	**564**
FR	1333	0	23	0	58	95	**1509**	1838	0	72	0	19	118	**2047**
IE	259	0	21	0	0	0	**280**	62	54	0	0	0	0	**116**
IT	1688	592	86	0	0	5	**2371**	2178	101	122	28	0	9	**2438**
NL	148	0	8	8	281	0	**445**	570	116	19	0	0	93	**798**
PT	896	141	151	0	0	0	**1188**	684	64	225	0	0	0	**973**
SE	63	8	0	0	0	24	**95**	314	4	0	0	0	8	**326**
UK	415	162	352	65	656	7	**1657**	823	416	523	39	93	208	**2102**
LU	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
Total	**10609**	**3961**	**2002**	**233**	**1170**	**250**	18225	**13388**	**3520**	**2820**	**521**	**195**	**842**	21286
Share	**58,2%**	**21,7%**	**11,0%**	**1,3%**	**6,4%**	**1,4%**		**62,9%**	**16,5%**	**13,2%**	**2,4%**	**0,9%**	**4,0%**	

Table 6: Summary of export industries by country and sector

While aspects of this observation of export industries correspond to expectations, some sectors seem strangely overrepresented. Specifically, the agricultural sector (A) seems to be disproportionately often identified as an export industry despite its generally small share of GVA and total employment (e.g., in 2018 agriculture made up 1,3% of the total gross value added of the EU15 and about 2,8% of total employment).

However, this small economic slice of agriculture compared to the EU15 totals is the very reason it seems so overrepresented in this case. Since to mark it as an export industry a regional sector must exceed the respective average EU15 sectoral share by 80%, and agriculture makes up a significantly larger share of the economy in rural regions by nature, a bias towards

agriculture as an export industry in rural regions is to be expected. This point is underlined when considering countries like France or Ireland, which both have a relatively high share of regions which classify as rural (cf. Table 23). As would be expected, these countries also have some of the highest numbers of regions with agriculture export industries. A similar bias is significantly less common in the other sectors, which seem more uniformly distributed.

Additionally it cannot be ignored that, despite making up a comparatively small proportion of the total economy, Europe still has one of the biggest and most export driven (and subsidized) agricultural sectors worldwide (European Commission 2019, 2021a). This contributes to the overall strong representation of this sector.

More generally one can see that export industries – i.e., sectors with an exceedingly high regional sectoral share compared to the European average – are more common in measures based on RGVA than on employment. One possible explanation, which will not be investigated here, could be increased regional and national discrepancies with regard to the distribution of (labor) productivity (Artige and Nicolini 2006; Basile 2009).

Putting agriculture aside, manufacturing and construction are the most common export industries, while consumer services, public sector, and business services (and related industries) are rarer. To a certain extent this can be explained by the size of the countries which have a higher proportion of those sectors and the number of NUTS 3 regions they represent (Germany with its 401 regions and focus on the sectors B to E will have a greater weight in total than the 40 regions of the Netherlands that are more focused on financial services).

Similarly, this explains the relatively high number of export industries identified in the construction sector, since construction seems most common in countries with a relatively high number of regions, like Spain and the UK. However, and somewhat similar to the argument about agriculture, a crucial factor here is that large construction and development projects are by their nature very regional, meaning that compared to the European average, a regional building boom or public works project will nearly always cause an "export industry" to come into being (for example in the case of Spain and the building boom before the GFC)[54] (Grimes 2014; Gonzalez and Ortega 2013). As a result, as will be seen later, a high number of industry shocks are caused by regional and national downturns in the construction industry. As a relatively volatile industry bound up in local politics and global financial cycles, it is only

[54] This of course puts the term "export industry" somewhat in question since, different to manufacturing or even services, very little can be expected to be exported in these cases. A better term might be "regionally dominant industry" or similar, however, since the term was introduced by the foundational work of Hill et al. this work will stick with the term despite its shortcomings.

natural that construction industry related shocks are relatively high on the list for the cause of regional shock events (Tansey et al. 2014; Tansey and Spillane 2014).

To test the robustness of the central assumptions underlying this identification of export industries must be analyzed. By this approach, an export industry is identified by the following measures:

- a sector's minimum share of regional employment of RGVA to qualify as an export industry (in the base model at least 1% of the total);
- the relative regional share of a sector compared to the European share of the same industry (in the base model 80% above the European share);
- the choice of reference on which the identification of an export industry is based on (the base model uses the European share of the respective sector).

The results of the baseline model were presented above. To check the effect of these assumptions, they have each been varied and the results have been compared to the baseline to see if an adaptation is justified[55]. Compared to the discussion of the best timeframe to measure average growth, there is no clear way to evaluate one variation relative to another, since in the end it is about the underlying concept and theoretical framework. Therefore, a judgement call based on and justified by the observations has been made by the author. As before, a position of a conservative bias towards the original method by Hill et al. was assumed.

The effect of increasing the regional weight threshold from 1% of the total employment or RGVA to even a high 8% was surprisingly minor. The total number of industries passing an increase of the threshold to 8% decreased by only 14% based on RGVA and 11,2% based on employment. By both employment and RGVA this reduction nearly exclusively affects export industries in agriculture. Overall, given the significant change to the baseline assumptions through the increase to 8% of the regional total, this relatively small change to the results is unexpected[56].

Varying the threshold by which the regional sectoral share must exceed its European equivalent has, compared to the regional threshold, considerably greater effect. For this purpose, this level was both lowered from the baseline 80% to 50% and increased to 100% respectively. Lowering the threshold to 50% above European levels increases the total number of identified export

[55] For detailed results see appendix I.c.

[56] The analysis of this change was also expanded to investigate the subsequent effects on identified industry shocks – i.e., regional economic downturns. If expanded, the reduction in industry shocks (including A) is even smaller (cf. section 5.2).

industries by roughly 68% by both underlying economic measures. While the number of identified export industries increases across all sectors, the relative increase in sectors other than agriculture is most significant (rising by 43,6% and 44,9% compared to the baseline measured by employment and RGVA respectively). In comparison, increasing this threshold to 100% has a relatively small effect of only -26% on total export industries identified based on employment and -23,5% based on RGVA. In contrast to a reduction of the threshold, the effect on the sectoral weight among all identified export industries is reversed – i.e., independent of whether it is measured by employment or RGVA, the agricultural sector increases its share of the total to the detriment of the other sectors (up by 10 and 9,4 percentage points respectively).

Based on the observations made here, the original baseline assumption of an 80% excess of sectoral weight in comparison to the sectoral share on a European level seems to be a valid compromise. Lowering the threshold quickly leads to a strong increase in identified export industries, which – given the structural variation of European national economies – seems extreme. Conversely, increasing the threshold has comparatively little effect. This makes it questionable whether such a small effect justifies changing the base assumptions made by Hill et al.

The last variation of the identification of export industries to be looked at is the frame of reference for comparisons to identify an export industry by. Changing the reference point from the European sectoral weight to the respective national sectoral weight leaves the total number of identified export industries remains practically unchanged (-2% for employment, +0,2% by RGVA). The respective share of the different sectors, however, changes substantially. Independent of economic measure, the share of the agriculture sector increases significantly (by 15,6 percentage points based on employment and 7,7 percentage points based on RGVA), while the regional export industries identified in the other sectors generally decrease. In particular the manufacturing sector decreases by 10,7 percentage points measured by employment, and 7,3 percentage points if measured by RGVA. Presumably this is caused by the lower national share of the agricultural sector in some countries compared to the European average, thereby increasing the bias towards rural regions pointed out above.

This seems to be the case in Germany, where the shift from the European reference to the national has an extreme impact on the identified number of agricultural export industries in employment and RGVA. Since it was already postulated that the agricultural sector is somewhat overrepresented due to the concentration in rural areas, a further increase by using a national reference frame cannot necessarily be seen as an improvement.

Furthermore, an argument can be made in favor of the European (EU15) reference point since the goal of this analysis is to identify resilience in a European context and make it comparable across European regions. Consequently, especially if considering the term as industries of trans-regional importance, regional export industries should be identified by their weight relative to the European context instead of a national one. Simply speaking, while a strong regional manufacturing sector might be nothing exceptional in a German context, it still might be significant in comparison to other European regions. Based on this argument, the baseline of the European reference value for the regional sector weight will be maintained.

Of course, the identification of export industries is only the foundation for the analysis of what Hill et al. term 'industry shocks'. As outlined in Chapter 4.1, these shocks are defined as an export industry experiencing a one-year annual decline at least equivalent to 0,75 percent of the total regional employment or production.

The results of applying this approach to the data can be seen in Table 7[57]. The first observation which can be made is that the overall higher number of export industries identified by RGVA compared to those identified by employment, is not reflected if it comes to industry shocks. Generally, it seems that regional production is less prone to industry level shocks (11,7% of all identified export industries) than employment shocks (17,4% of all identified export industries).

Similarly, the frequency of shocks between sectors varies widely within and across economic indicators. Most striking in this is the different frequency of the agricultural sector being affected: while the frequency is relatively high with regard to employment (18,2% of all identified export industries), the proportion is significantly lower (8,2%) when measured based on RGVA. Meanwhile, manufacturing and construction seem affected with similar regularity across both indicators, and there seems to be a slightly higher frequency for private and public service shocks of all kinds for RGVA as a performance indicator.

Country by country, the scale of export industries is, with some variation, reflected in the shocks. The total national share of export industries affected varies significantly, however. As expected, given the lower total number, the share of export industries affected with regard to regional value added is lower across all observed countries. That said, some countries – especially Greece, Spain, Italy, and Portugal – seem to have an especially high number of industry shocks to their employment base, which, at the same time, is double or more the frequency of their respective export industries affected by RGVA shocks. The contrast between

[57] The case of Luxembourg is special with regard to industry shocks, since the whole country only consists of one NUTS 3 region, meaning it is impossible to identify specific industry shocks with the method outlined here.

the frequency of RGVA industry shocks and employment industry is, except for Denmark with zero cases of RGVA shocks, most stark in these countries. In the context of resilience research, this leads to speculations about whether their labor markets are especially vulnerable to shocks and other more substantial structural changes to their economies.

The analysis of industry shocks offers further interesting insights. This becomes clear once the shocks are plotted out across the whole observed time series. For example, as becomes visible in Figure 6, agriculture is generally the most common type of industry shock independent of chosen economic performance dimension (employment or RGVA) – as could be expected given its high share of identified export industries. However, while the number of employment shocks to the agricultural sector is volatile across the whole timeline, this number is on an approximate linear decline with regard to RGVA industry shocks. This corresponds to the general decline in the relative weight of agriculture in Europe[58].

In general, employment shocks seem more volatile in their occurrence across the whole timeline and across sectors. Examples of this include the high numbers of shocks in the construction sector (F) in the first half of the time series and the spikes to manufacturing (B-E) in the latter half. Meanwhile, despite some spikes (especially in manufacturing in the early 1990s and around 2009), the total number of industrial shocks – even disregarding the ongoing decline of shocks in the agricultural sectors – steadily declines towards the end of the time series.

In both economic dimensions (RGVA and employment), the general trend of the national economic downturns (cf. Figure 5) is to a certain extent repeated. Measured by both underlying economic indicators, spikes in total numbers of shocks become visible in the early 1990s (1990-94) and around the GFC in 2008-2009. However, the increased number of national economic downturns in the early 2000s (2000-03) is not clearly reflected by industry shocks.

Generally, while these peaks become somewhat visible, there is always a certain ‘background noise’ of industry shocks compared national economic downturns. This is especially apparent in the timeframe from ca. 1995-1998 and 2002-2007, where one finds a relatively high number of industry shocks despite the total number of national economic downturns being low or even at zero. Certainly, some of these are “after-shocks” of the bigger downturns of the national business cycle measured by the economic downturns. However, there is a high possibility that

[58] Cf. appendix I.d.

	Total Industry Shocks by Employment								Total Industry Shocks by RGVA							
	A	**B-E**	**F**	**G-J**	**K-N**	**O-U**	**Total**	**% export industry**	**A**	**B-E**	**F**	**G-J**	**K-N**	**O-U**	**Total**	**% export industry**
AT	97	9	1	0	0	0	**107**	**11,0%**	28	18	26	1	0	0	**73**	**7,4%**
BE	16	6	1	0	2	0	**25**	**9,9%**	8	5	1	5	0	4	**23**	**5,4%**
DE	147	479	233	0	15	7	**881**	**17,0%**	313	508	289	7	12	40	**1169**	**16,6%**
DK	3	0	0	0	7	0	**10**	**15,6%**	0	0	0	0	0	0	**0**	**0,0%**
EL	507	6	24	5	0	1	**543**	**28,2%**	109	27	6	30	0	3	**175**	**13,6%**
ES	285	7	67	5	0	3	**367**	**20,5%**	140	6	57	10	0	15	**228**	**10,9%**
FI	63	0	0	1	0	0	**64**	**13,2%**	33	3	3	4	0	6	**49**	**8,7%**
FR	120	0	0	0	4	14	**138**	**9,1%**	159	0	2	0	1	11	**173**	**8,5%**
IE	36	0	3	0	0	0	**39**	**13,9%**	2	12	0	0	0	0	**14**	**12,1%**
IT	350	129	1	0	0	0	**480**	**20,2%**	118	19	13	0	0	1	**151**	**6,2%**
NL	16	0	0	0	20	0	**36**	**8,1%**	16	29	0	0	0	11	**56**	**7,0%**
PT	215	31	17	0	0	0	**263**	**22,1%**	68	13	37	0	0	0	**118**	**12,1%**
SE	4	1	0	0	0	1	**6**	**6,3%**	14	1	0	0	0	0	**15**	**4,6%**
UK	68	35	42	8	60	0	**213**	**12,9%**	88	69	56	1	8	24	**246**	**11,7%**
LU	0	0	0	0	0	0	**0**		0	0	0	0	0	0	**0**	
Total	1927	703	389	19	108	26	**3172**	**17,4%**	1096	710	490	58	21	115	**2490**	**11,7%**
% export industry	**18,2%**	**17,7%**	**19,4%**	**8,2%**	**9,2%**	**10,4%**	**17,4%**		**8,2%**	**20,2%**	**17,4%**	**11,1%**	**10,8%**	**13,7%**	**11,7%**	

Table 7: Industry shocks by country and sector

a significant number are of independent origin (such as regional structural economic shifts) and represent regional events causing localized shocks to individual regions.

As will be shown in Chapter 5.2, when discussing the first downturns in a series of events, these regional events are of importance since they are to a certain extent independent of the 'global' national economic downturns and movements of the general business cycle (cf. Chapter 6.1). The latter will be of special interest later for comparative purposes in the analysis of the sources of regional economic resilience capacity.

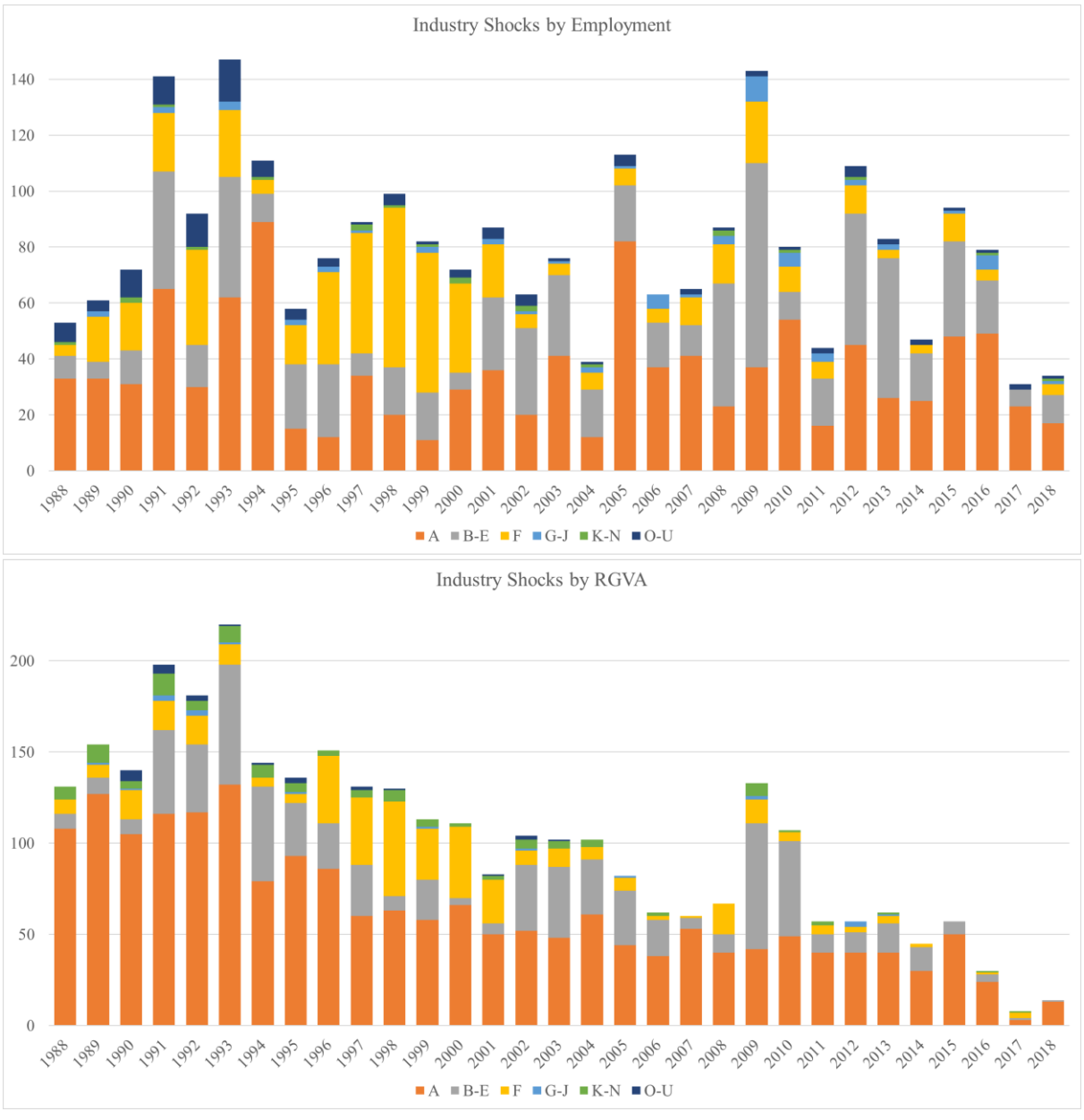


Figure 6: Industry shocks by sector and year

As pointed out in Chapter 4.1, industry shocks can be further distinguished into local industry shocks and national industry shocks. The difference being that in case of national industry

shocks the respective economic sector is in decline on both a national and regional level[59], while local industry shocks are presumed to have an effect solely on a regional level.

National industry shocks hint at an underlying structural change to the national economy, like the decline of the agricultural sector or a turn towards a more service-oriented economy. Local industry shocks – while not excluding regional structural change – are more regional in origin, such as a big local employer closing shop or outsourcing production (Hill et al. 2012).

Obviously, in the European context and given the varying number of NUTS 3 regions per country, the line between national and local industry shock is not quite as clear as in the original study of Hill et al. on the US metropolitan areas. This becomes especially apparent when considering a country with few NUTS 3 regions (e.g., Ireland with only 8 NUTS 3 regions). In this case a purely regional event might decrease the national aggregate severely enough to be identified as a national industry shock despite in fact being only a localized event (Hill et al. 2012). The latter is to some extent mitigated by to the use of a higher NACE level for the identification of sectors than used in the US cases – i.e., the total aggregate and the necessary slump to a specific sector would need to be bigger as well, thereby decreasing the oversized influence of such a local event.

The potential analytical value of the distinction between the different industry shocks can be seen when the frequency of both types is plotted across the observed timespan (Figure 7). By comparing national economic downturns (Figure 5) to the frequency of national industry shocks, one can see that latter follow the general downturns in the business cycle relatively closely. Meanwhile local industry shocks are more common in the times between. That said, neither phenomenon ever quite disappears, and both remain present throughout the observed data set.

Interestingly, while both types of industry shocks are of roughly similar frequency when measured by RGVA (1127 local industry shocks and 1363 national industry shocks – 14,4% and 17,5% of all shocks respectively), when measured based on employment, local industry shocks are far more dominant (1929 local industry shocks compared to only 1243 national industry shocks – 28,2% and 18,2% respectively) (cf. Table 8). By both underlying economic

[59] Identified by the same method as national economic downturns, i.e., a two-percentage point drop compared to the eight-year pre-shock average.

variables (employment and RGVA), national economic downturns remain numerically dominant, which is unsurprising since they potentially affect all regions within a nation at once.

The discrepancy between RGVA and employment with regard to the frequency of both types of industry shocks suggests that regional employment is regularly affected by highly regional events which are not necessarily determined by national-level changes. This underlines the importance of local events like the closures of big employers, changes in the regional economic structure, or regional policy decisions[60]. By contrast, the balance between national and local industrial shocks seen with regard to RGVA hints at an at least equal importance of local and higher-level factors. That said, the extent of this discrepancy between national industry shocks and local industry shocks is somewhat reduced if it comes to the actual effect of these shocks to the regional economy – i.e., the resulting regional economic downturns (cf. chapter 5.2).

	RGVA	EMP
TOTAL	**7810**	**6845**
National economic downturn (NED)	**6031**	**4492**
Total local industry shock (LIS)	**1127**	**1929**
Total national industry shock (NIS)	**1363**	**1243**
NED and LIS	**138**	**210**
A	49	163
B-E	32	36
F	38	9
G-J	1	1
K-N	1	0
O-U	17	1
NED and NIS	**573**	**609**
A	214	220
B-E	188	210
F	121	139
G-J	27	8
K-N	3	28
O-U	20	4
LIS alone	**989**	**1719**
A	304	1172
B-E	400	377
F	182	73
G-J	27	8
K-N	12	68
O-U	64	21
NIS alone	**790**	**634**
A	529	372
B-E	90	80
F	149	168
G-J	3	2
K-N	5	12
O-U	14	0

Table 8: Summary of all shock events measured by baseline model

[60] This will be further investigated in section 6.1.

However, before continuing to evaluate the effects of the various shocks on a regional economy, a short discussion on the effect of the underlying thresholds for the identification of industry shocks is needed. Compared to national economic downturns or the identification of export industries, this is a rather simple endeavor in this case, since the only factor of importance is the size of loss to a sector which defines an industrial shock – i.e., the threshold value of a sectoral loss equivalent to at least 0,75% of the regional total. To estimate the impact of changes of this factor, it was simply doubled to 1,5% and the changes to the identified industry shocks were observed (cf. Appendix I.e).

The effect of such an increase is quite severe. Overall, the number of industry shocks identified was roughly halved independent of underlying variable (down to 1425 based on employment and 1269 by RGVA). The reduction of total cases due to this change was relatively uniform across all sectors if measured based on RGVA (ranging between a low drop of -50% in the public sector (O-U) and a larger drop of -61,1% in the business and related services area (K-N)). With regard to employment, the change was somewhat more varied, with the reduction being greatest in the agriculture sector (-67,3%), while the number of shocks in the manufacturing and service sectors was less impacted (-27,7% in manufacturing (B-E), -33,3% in consumer services (G-J), and -36,2% in business and related services (K-N)). The effect on the total number of identified local and national industry shocks was relatively equal for RGVA and employment. This reflects the general reduction in identified industry shocks by roughly half, with a maximum reduction to national industry shocks measured by employment of -60%[61].

Of all the alterations to the baseline model analyzed so far, the increase in the threshold for identifying industry shocks has the greatest potential effect on the results. However, the present work will stick with the original 0,75% reduction as set out by Hill et al. (Hill et al. 2012). The reasoning behind this is threefold: first, the agricultural sector in many regions is already quite small: as pointed out, in 2018 its weight in the EU15 average in employment was only 1,29% by RGVA and 2,75% by total employment. Increasing the threshold for industry shocks might further increase the bias towards rural regions. Second, the shock event in this approach is only seen as a causal event; it does not determine the severity or even the actual occurrence of a regional economic downturn. This means that a higher sensitivity is not necessarily problematic since the cases where the shock was inconsequential or not severe, will be eliminated subsequently when evaluating the extent of the corresponding regional economic downturn (cf.

[61] Detailed summaries to be found in appendix I.e.

Chapter 5.2). Third, as mentioned before, the analysis proposed in this thesis follows a conservative approach with regard to the original method by Hill et al.; as such, the bias towards their choice of threshold is maintained.

Independent if measured by RGVA or employment this chapter showed the dominance of national economic shocks for the time series. As mentioned, this is not surprising considering the nature of the measure by which a national economic downturn potentially can affect all regions within a country. Of higher interest in this chapter was the analysis of export industries and industry shocks. While in general export industries and industry shocks of both types (national and local) follow (more-or-less) established national patterns of specialization, the agricultural sector is significantly overrepresented in both. This, as outlined, can be caused by a steady decline of the sector as well as the sensitivity of the methodology to differences between rural and urban spaces. Besides agriculture, manufacturing as well as construction are the biggest source of industry shocks. Furthermore, and not unexpected, the frequency of shocks across the time series follows a rough pattern which corresponds to the general business cycle (cf. Chapter 6.1 and 7.2.5 for a more detailed discussion on this relationship). Lastly, the robustness tests conducted in this chapter do not warrant a change to the underlying methodology as outlined in chapter four.

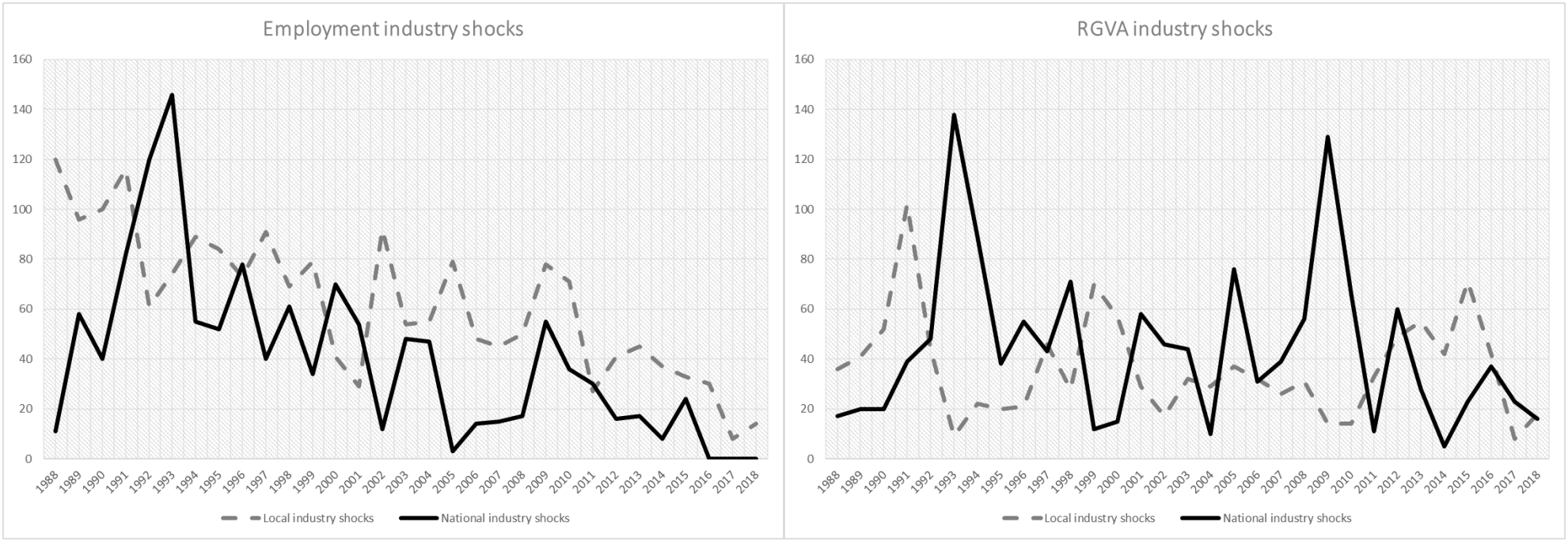


Figure 7: Comparison of regions affected by local and national industry shocks by year

5.2 Resistance and downturn

The identification of shock events – while essential – is only the first step in the investigation of regional economic resilience performance. As pointed out in Chapter 4, resilience as a regional capacity is not observable without a shock event making its realization necessary in the first place. Therefore, it is not only important to determine a shock event, but also the vulnerability and resistance of a region to these shock events. After all, resilience performance can only be estimated when a region experiences a shock. Pure *resistance* – i.e. the ability of a region to withstand a shock event and avoid serious negative effects, while desirable, cannot be seen as part of a region's resilience performance as the region does not need to realize its capacity for resilience in the first place (Martin and Sunley 2020; Sensier et al. 2016; Hill et al. 2012).

Staying within the framework outlined in Chapter 4.2, derived from the original work by Hill et al., the identification of resistance and downturn are based on the effect of a shock on a regional economy. Any shock is defined as leading to a regional economic downturn if the annual growth rate thereafter declines, compared to the average growth rate over the previous eight years, by at least two percentage points[62]. In case of subsequent shocks preceding a downturn, the first shock is seen as the causal event. Regions not experiencing a downturn are termed *shock resistant* and are disregarded for the purpose of evaluating resilience performance (Hill et al. 2012, p. 9).

Table 9 summarizes the results of this approach to measuring regional economic downturns. As one can see about 68% of all shock events lead to a downturn in regional gross value added, meanwhile for employment the rate is lower with only 52% of shock events causing a regional downturn. This means that, compared with the already lower number of employment shocks, the total number of downturns in employment with 3560 cases is significantly lower than for RGVA with 5337 cases.

The higher share of RGVA downturns may be related to a generally higher responsiveness of RGVA compared to employment. There are many potential reasons for this including the lower flexibility of employment contracts, the effect of labor rights and organization, specific policy initiatives, or employers motivated to hold on to hard-to-find human capital (Möller 2010; Barro 1977; Burda and Hunt 2011; Gehrke et al. 2019). The institutional and policy aspects in

[62] In case of high-growth regions with more than 4% eight-year average growth, an annual decline of at least half the eight-year average is necessary to be identified as a regional economic downturn. This approach is the same as that used to identify national economic downturns in the preceding section.

particular might also explain the comparatively lower rate of downturns in employment in response to national economic downturn (NED) shocks, assuming national stabilization policies focus on employment as a major measure of economic success (Burda and Hunt 2011). Consequently, some of these factors potentially influencing RGVA and employment differently will play a role in the investigation of the regional resilience capabilities in Chapter 7.

For shocks identified based on employment, the rate of downturns caused by local industry shocks (LIS) is 41%, compared to 60% of national industry shocks (NIS) and 58% of NEDs. This hints at an increased stickiness for employment at least in response to purely regional events. Conversely, for RGVA, local industry shocks lead to relatively more downturns than national industry shocks. One potential cause in the case of national shock events concerning a whole industrial sector (i.e. NISs) could be the positive effect of national policies focused on RGVA effects (Möller 2010; Burda and Hunt 2011). Meanwhile a purely regional RGVA downturn might not attract the same kind of resources.

RGVA Shocks							
	Shock	**Downturn (DT)**		**First Downturn (FDT)**		**Additional Downturns**	**Average DT Duration**
TOTAL	7810	5337	68%	2422	45%	0,85	1,56
NED	6031	4347	72%	1980	46%	0,69	1,17
LIS	1127	730	65%	293	40%	1,72	3,58
NIS	1363	777	57%	260	33%	1,32	2,63

Employment Shocks							
	Shock	**Downturn (DT)**		**First Downturn (FDT)**		**Additional Downturns**	**Average DT Duration**
TOTAL	6845	3560	52%	1455	41%	1,01	1,44
NED	4492	2622	58%	968	37%	0,92	1,19
LIS	1929	797	41%	358	45%	1,19	1,95
NIS	1243	740	60%	267	36%	1,21	1,80

Table 9: Summary of shock characteristics

While focusing on the cases vulnerable to shock events, these results of course also mean that between one-third and a half of all observations show resistance to shocks (32% if measured by RGVA and 48% if measured by employment).

As mentioned in Chapter 4, the next step in the measurement of resilience performance is based on post-downturn regional developments contrasted with regional performance. Following the approach of Hill et al., this comparison is always performed between the first downturn (in the case of several subsequent shock-downturn pairings) and regional performance after the last downturn. This means that the eight-year average growth trajectory which forms the base of

comparison is always based on the regional economic performance *before* the first downturn in a series of shocks and downturns. As proposed in the amendments presented to Hill et al.'s approach, the one-year return to this average growth rate marks the start of the recovery phase of the resilience process (cf. Chapter 4.3). Hence the identification of such *first downturns* is of central importance.

The limit for the occurrence of a subsequent downturn after an initial shock event is set at four years – corresponding to the maximum time limit proposed by Hill et al. for the return to the pre-shock average growth rate. If another shock-downturn event happens within the following four years, the four years after this additional downturn are again controlled for another downturn. This repeats until all subsequent downturns in a series are identified. As a result, the phase from the first shock-downturn event to the last downturn – i.e., the *downturn duration* – can be quite long (cf. average DT durations in Table 9; detailed descriptive data can be found in Appendix I.f). This means that a *first downturn* is an event without another downturn in the four years preceding it.

Of all measured downturns, roughly 41% of employment downturns and 45% of RGVA downturns are first downturns (FDT) (cf. Table 9). As can be seen, the rate of FDTs is relatively equal among all types of shock events[63]. The potential exception might be national industry shocks identified based on RGVA, although their frequency is lowest based on employment data as well.

This latter observation can be explained by the close association of national economic downturns with national industry shocks (cf. Chapter 5.1). Under the presented method, if national industry shocks and downturns run parallel or with a slight delay to national economic downturns, as often observed, regional downturns would regularly be associated with national economic downturns as the cause of the first downturn in a series. Generally, it must be assumed that their presence swamps industry shocks relatively often, since NEDs are the most numerous class of shock. This effect, as discussed above, seems more prevalent if measured by RGVA and for national industry shocks.

Additionally, industry shocks might often be after-effects of bigger national or even global economic downturns. This could be the case if a national economic downturn leads to a loss of competitivity in a sector, reduced global trade, lack of labor migration etc. These are all factors

[63] Double events, i.e., a national economic downturn concurrent to an industrial shock of either type, were not analysed separately in this descriptive section due to their relatively low number. Their treatment in regard to the later analysis will be discussed in section 6.2.

which could endanger regional employers and producers potentially long after the original national downturn shock has abated.

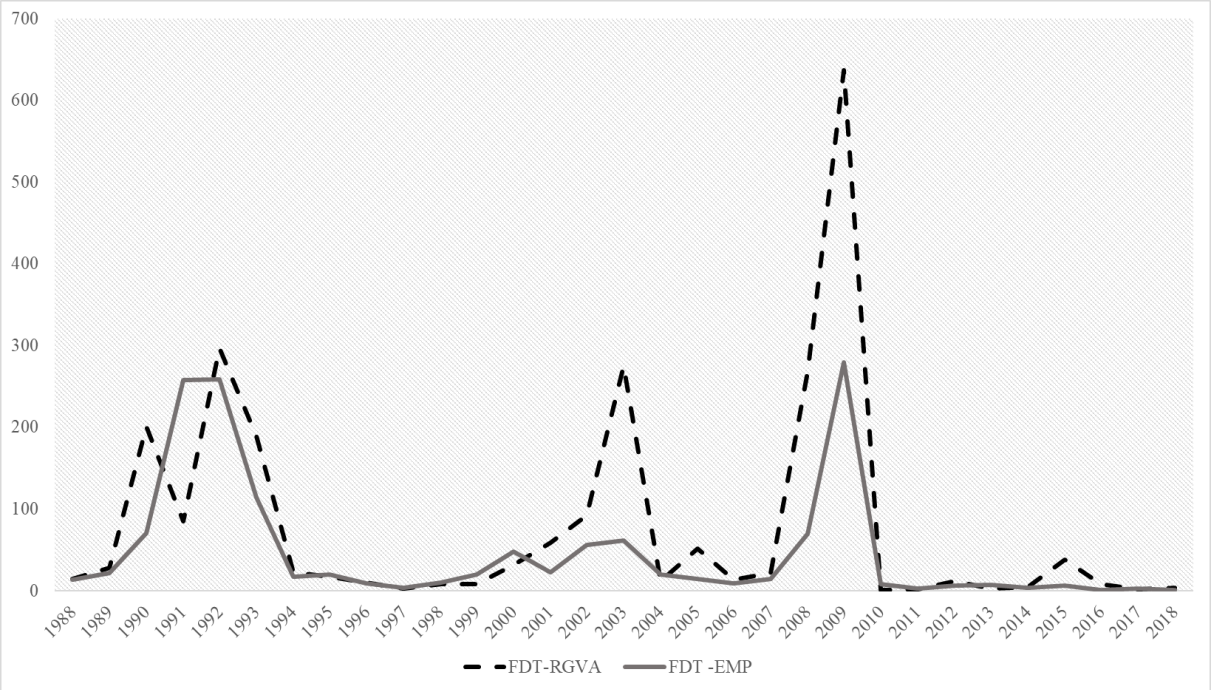


Figure 8: Total number of first downturns (FDT) by year

A similar observation could also explain the slightly higher frequency of local industry shocks as first downturns based on employment numbers. This is demonstrated by the visibility of the three spikes in shock events in Figure 8, which plots the first downturns by their frequency across the time series (cf. Figure 5).

As before, a certain lag can be observed of the increase in downturns as measured by employment compared to RGVA. Consequently, one explanation for the relatively high frequency of first downturns from industry shocks measured by employment, could be a delayed effect from a general recessionary downturn. In this case, the national economic downturn to employment potentially happens simultaneously or even with delay relative to the industry shock which was triggered originally by a NED measured by (national) GVA. As a result, and different to the RGVA-based observations, this would lead to a more common identification of industry shocks as the cause of a downturn (potentially concurrent with or preceding a national economic downturn, which are more common for employment than RGVA, cf. Table 8).

A further observation of importance is how many additional downturns follow the first in a series of downturns, as well as by how much this extends the phase of the downturn itself – the aforementioned downturn duration. Generally, the average frequency of subsequent downturns

is lower for downturns in RGVA (on average 0,85 additional downturns) than employment-based measures (1.01 additional downturns) (cf. Table 9). Interestingly, the average added time – i.e., the years added from the first downturn to the last – is slightly longer for downturns identified based on RGVA with an average of 1,56 years compared to employment with 1,44 years (cf. Table 9 and appendix I.f). However, this is influenced by some more extreme outliers which in case of RGVA downturns reach up to 24 years of combined downturn duration. Added to this comes a greater variance and deviation than for employment downturns[64].

Across both measures, national economic downturns seem to add the least additional time to the downturn phase itself. With an average duration of 1,17 years and an added 0,69 downturns, the first NED downturns identified based on RGVA have the shortest duration, followed by the same shock type based on employment with an only slightly longer duration (1,19 years at 0,92 additional downturns).

Interestingly the biggest divergence between the first downturns identified based on RGVA and those based on employment can be seen for both types of industry shocks. While always having a longer duration than the respective national economic downturns, the first downturns caused by industry shocks identified based on RGVA are up to three times longer than the national economic downturns (3,58 years in case of local industry shocks, 2,63 in case of national industry shocks). While there is also a difference between the downturn duration of both industry shocks identified on basis of employment, the difference is not as great (cf. Table 9).

One thesis for explaining this difference is that local industry shocks to employment are generally one-off events, such as the closure of a local employer. Such a singular and concentrated event could have little to no effect beyond the immediate. This seems to be confirmed by the lower average number of additional downturns and the shorter average downturn duration for such shock events (cf. Table 9). Any knock-on effects due to lower regional demand might be further mitigated by a local workforce being able to find work in similar occupations or nearby labor markets. The well-developed welfare state in many European countries could have a similar effect by preventing a sudden shortfall in regional labor demand (Palier et al. 2012).

Another explanation could be that the RGVA is potentially more connected with the general business cycle than regional employment numbers – as was already observed in the higher synchronicity of national economic downturns and national industry shocks (cf. Figures 5 and

[64] Cf. appendix I.f.

7). Similar to an inverted yield curve or decreasing consumer and business confidence (Chauvet and Potter 2001; Batchelor 2001), industry shocks could be an early warning sign for a general protracted economic downturn identified by RGVA. This would result in a significant increase of the downturn duration through subsequent NEDs. Meanwhile, industry shocks to employment, which are relatively more common concurrent to NEDs (cf. Table 8), might see less added time through subsequent NEDs.

A regional (first) downturn, while a potentially momentous event for individuals and the development of a region, is obviously only the cause for the test of the regional resilience capacity and the observation of its resilience performance. How European regions perform with regard to recovery and resilience after a downturn will be discussed in the next chapter.

GVA	N	Minimum	Maximum	Mean	Std. deviation
8-years	32526	-0,149	0,147	0,018	0,019
6-years	34738	-0,185	0,200	0,018	0,021
10-years	30314	-0,129	0,139	0,018	0,017
EMP	N	Minimum	Maximum	Mean	Std. deviation
8-years	33439	-0,074	0,134	0,006	0,014
6-years	35651	-0,111	0,158	0,006	0,016
10-years	31227	-0,068	0,118	0,007	0,012

Table 10: Descriptive statistics average pre-shock growth (regional)

Before doing so, however, it is necessary to discuss the influence of the threshold values used for downturn identification. As the thresholds to identify a regional economic downturn are the same as those used to identify national economic downturns in Chapter 5.1, the same variation to the threshold values will be made.

As before, the two thresholds in question are the average growth trajectory before the original shock event, and the extent of the year-by-year drop from this value which marks a downturn in the first place. To test these assumptions, the timeframe for measurement of the average pre-shock growth trajectory was changed from the baseline of 8 years to 6 and 10 years[65] respectively, while the baseline drop was changed from two to three percentage points.

Using the Kolmogrov-Smirnov and the Shapiro-Wilk tests, the distribution of the average regional growth trajectory across the three versions analyzed were found to be non-normal[66].

[65] To be consistent, this change automatically applies to the identification of national economic downturns since it changes the total identified shock-events as well. The overall effect of this change on the number of shocks was, however, already discussed in section 5.1.

[66] For the details on normality tests as well as the Kruskal-Wallis test and ANOVA see Appendix I.g.

Executing the Kruskal-Wallis test for non-parametric distributions, it was found that there is no significant difference between the two variants and the results of the baseline model. These results were generally confirmed by an ANOVA[67] analysis. However, in contrast to the Kruskal-Wallis test, the ANOVA found a significant difference between the average pre-shock employment growth measured over six years and that measured over 10 years (with the six-year averages skewing towards lower values the 10-year averages towards higher). Since the distribution is non-normal and the difference to the baseline measured over eight years is not significant for both variations, it can be assumed that this result makes no difference to the general conclusion. Therefore, it is assumed that the baseline model with an average growth assessment over eight pre-shock years holds and will consequently be maintained moving forward.

	8-years		6-years		10-years		8-years drop by 3pp	
	GVA	EMP	GVA	EMP	GVA	EMP	GVA	EMP
AT	78	12	81	31	75	10	49	7
BE	79	7	79	6	81	8	68	4
DE	952	397	1031	598	976	366	720	272
DK	20	13	20	11	21	17	9	10
EL	53	126	56	123	52	118	55	89
ES	112	127	111	129	125	128	114	129
FI	52	37	49	36	51	36	50	32
FR	243	21	280	58	206	25	162	10
IE	10	17	12	17	8	19	10	17
IT	218	205	220	208	217	217	193	137
NL	81	39	80	72	82	37	71	28
PT	68	63	69	60	58	61	66	62
SE	55	38	54	55	42	39	42	22
UK	355	315	360	316	351	318	321	186
LU	3	2	3	2	3	2	3	0
TOTAL	2379	1419	2505	1722	2348	1401	1933	1005

Table 11: Total first downturns 1990-2018 under varying assumptions

This conclusion is further supported when observing the changes to the total numbers of first downturns identified (cf. Table 11). As becomes visible, the eight-year average seems to be a conservative compromise between the other values tested. Generally, the 10-year averages deliver only slightly lower numbers of identified FDTs. The six-year average results in a bigger difference to the baseline model, especially for employment downturns, as expected from the ANOVA results described above. However, given the results of the Kruskal-Wallis test on the mean, it can be assumed this is because of outliers caused by growth spikes before shock events, for which a six-year time frame is more susceptible since it is not long enough for such events to be smoothed out.

[67] If not specifically mentioned otherwise, ANOVA in the context of this work will always be referring to a one-way analysis of variance.

As with the analysis of national economic downturns, changing the downturn trigger to 3 percentage points – i.e., the year-by-year drop in percentage points compared to the average pre-shock growth necessary to trigger a downturn – has the biggest effect on the total numerical results. As can be seen in Table 11, the number of first downturns drops by about 20% based on RGVA and by roughly 30% for employment downturns compared to the baseline approach[68]. However, given the already low mean for the pre-shock average growth described above, a drop by three percentage points would mean that only the most severe recessions would trigger a shock, especially in regions with an already low growth rate. Since it is the expressed goal of this analysis to make the identification of smaller regional shock events possible, this could be detrimental[69].

These arguments, together with the assumed bias towards the original approach by Hill et al., supports the decision to maintain the baseline model with a minus two percentage point trigger on the eight-year average pre-shock growth for regional economic downturns. Therefore, the investigation of the entry into the recovery phase and resilience performance in the next chapter will be based on these assumptions.

In summary, this chapter focused for the most part on two points: First, the direct effect of the shocks made observable in Chapter 5.1 (i.e., if a shock causes a regional economic downturn). Second, the establishment of the causal starting point of a regional crisis (i.e., the first downturn in a series of downturns). Overall, it became apparent that on average a regions RGVA is more vulnerable to shock events than the regional employment base. There is also some difference in the vulnerability of regions to the different shock types with local industry shock types generally leading to the lowest share of downturns. This becomes most visible when using regional total employment as the underlying economic performance benchmark.

Additionally, this chapter also analyzed the various length of different series of subsequent shock-downturn pairings – i.e., the number of additional shocks and the subsequent total duration of a downturn. Overall, industry shocks of both kinds show a substantially increased tendency towards subsequent shocks and thereby a prolonged downturn duration. This effect was strongest when employing RGVA as the underlying regional economic performance

[68] To allow for an even comparison between the different timeframes, the first downturns or rather their shocks taking place before 1990 have been excluded.

[69] This argument is supported by the fact that the approach already compensates for high-growth regions above a 4% average growth rate by necessitating a drop of at least half the pre-shock growth rate instead of ‘only’ 2 percentage points.

variable. Finally, as before, the robustness tests conducted on the various assumptions made by the methodology as outlined in Chapter 4 did not justify a change to the approach.

5.3 Recovery and resilience

At this point the methodology followed in the present study deviates significantly from the original approach outlined by Hill et al. in 2012. After identifying a shock and downturn, Hill et al. focus solely on the (one-time, annual) return to the pre-downturn average growth rate to determine resilience (or non-resilience) in a binary fashion (Hill et al. 2012). Alternatively, other approaches use this mark, or comparable turning points, as a the starting point to identify the regional return to a peak of total development, or use a point of comparison to an average European performance or other trans-regional benchmark (Sensier et al. 2016; Giannakis and Bruggeman 2020; Crescenzi et al. 2016). Each of these approaches results in a dichotomous or category-based evaluation of regional economic resilience performance which is often bound to one individual type of shock and shock event.

RGVA Shocks						
	First Downturns (FDT)	Return to growth trajectory within four years		Out of Range	Years to recovery phase	Years to growth equivalency
TOTAL	2422	1967	81,2%	1,1%	1,79	2,43
NED	1980	1610	81,3%	0,3%	1,81	2,48
LIS	293	229	78,2%	5,8%	1,74	2,25
NIS	260	208	80,0%	3,1%	1,60	2,21

Employment Shocks						
	First Downturns (FDT)	Return to growth trajectory within four years		Out of Range	Years to recovery phase	Years to growth equivalency
TOTAL	1455	1028	70,7%	0,8%	2,15	3,26
NED	968	676	69,8%	0,0%	2,24	3,41
LIS	358	262	73,2%	2,5%	1,93	2,92
NIS	267	195	73,0%	0,7%	2,12	3,13

Table 12: Summary of FDT and entry into recovery phase.

In contrast, the presented methodology follows a more dynamic approach, comparable only to Fratesi and Perucca (Fratesi and Perucca 2018). As explained in Chapter 4.3, from here on it is the goal to base the evaluation of regional economic resilience performance on a self-referential comparison between actual regional developments and a counterfactual no-shock scenario.

In order to achieve this, the chosen approach postulates that the observation of regional economic performance has to take place during a period of economic recovery when the

immediate effects of shock and downturn have abated[70] and the actual changes to the regional level of development as well as the retention of the post-downturn growth trajectory can be observed (cf. Chapter 4.3). To identify the beginning and duration of this recovery phase, the methodology described here the defines the beginning of the recovery period as the year in which the regional annual growth rate equals or exceeds the pre-shock[71] average growth rate[72] for the first time after a downturn[73]. If this is not achieved within four years of the last downturn event in a series, the measurements of resilience performance will begin, even if the level of growth has not yet recovered.

After the beginning of the recovery period marked thusly, the subsequent four years are the period of observation of the regional recovery measures[74]. Alternatives and extensions of this period are discussed later.

As mentioned in the subchapter above, only the first downturns and their series are of relevance to this analysis. Hence, the following descriptions of timings, durations and entries into recovery phase are made about these first downturns only (FDT).

Of the 2422 first-downturn series measured based on RGVA, 1967 or 81,2% return to their pre-shock growth trajectory within four years of the respective last downturn (cf. Table 12). Accounting for the 1,1% of cases which are out of range of the data set, this means only 17,7% of cases do not return to their pre-shock levels of average growth at least once in this time span. Among the different shock types, both types of industry shocks have a slightly lower rate than the all-shock-type average, while local industry shocks show the lowest rate among all RGVA based observations[75].

Based on total regional employment, the picture is very different (cf. Table 12). Of the 1455 first-downturn series, only 1028 return to their average pre-shock growth trajectories (70,7%). This means that, even discounting the 0,8% of cases which are out of range of the data set, 28,5% of first employment downturns do not manage to recover their pre-shock growth trajectories within the allotted time frame. In contrast to first RGVA downturns, the rate of return to the pre-shock growth trajectory for industry employment downturns is slightly higher compared to the respective national economic downturns. This higher rate of non-return in the

[70] I.e. when regional vulnerability and the negative effects of the shock have been realized.
[71] In case of a several subsequent shocks, the average growth rate before the first shock event in a series.
[72] I.e. the average eight-year growth rate discussed in section 5.2.
[73] In case of several downturns, the last downturn in a series.
[74] If a 'recovery period' is mentioned subsequently without qualifiers, reference is made to these four years.
[75] These numbers include 'double-shocks', i.e., simultaneous national economic downturns and national or local industry shock.

case of national economic downturns might have to do with an increased vulnerability of regional employment markets to general economic downturns and the effects on the economy as a whole. Potentially this could be the result of a high regional level of specialization, which in turn decreases the region's ability to bounce back after a downturn and find alternative employment for highly specialized human capital, especially when most other regions are also struggling with the effects of a national economic downturn[76].

As described before a non-recovery automatically leads to an assessment of the regional recovery phase to begin four years following the last downturn. Consequently, this can result in a weaker resilience performance for these regions – as it does generally for all delayed entries into the recovery phase. This is caused by the compounding nature of the counterfactual comparison on which the resilience performance measure of the *recovery of the level of development* is based. Unless such a region shows an exceptionally high recovery of the level of development and, to a lesser extent, a high retention of the post-downturn growth trajectory, it will usually be rated lower than a region with a similar performance but earlier entry into recovery.

	Employment				RGVA			
Statistic	FDT Duration	Years to growth equivalency*	Years to recovery phase*	Total Duration: FDT-Recovery*	FDT Duration	Years to growth equivalency*	Years to recovery phase*	Total Duration: FDT-Recovery*
Nbr. of observations	1455	1316	1028	1028	2422	2269	1967	1967
Minimum	0,00	1,00	1,00	1,00	0,00	1,00	1,00	1,00
Maximum	16,00	20,00	4,00	15,00	24,00	19,00	4,00	25,00
1st Quartile	0,00	1,00	1,00	2,00	0,00	1,00	1,00	1,00
Median	1,00	2,00	2,00	3,00	0,00	2,00	1,00	2,00
3rd Quartile	2,00	4,00	3,00	5,00	2,00	3,00	2,00	5,00
Mean	1,44	3,26	2,15	3,43	1,56	2,43	1,79	3,26
Variance (n-1)	4,05	7,40	1,08	4,51	6,05	4,22	0,94	7,18
Standard deviation (n-1)	2,01	2,72	1,04	2,12	2,46	2,06	0,97	2,68
Lower bound on mean (95%)	1,34	3,11	2,08	3,30	1,46	2,35	1,75	3,14
Upper bound on mean (95%)	1,54	3,41	2,21	3,56	1,66	2,52	1,83	3,37

*First downturns never returning to their former levels of growth whithin the data set, as well as those out of range were omitted

Table 13: Summary of First Downturn durations and timings

This difference in the timing of the entry into the recovery phase between RGVA and employment downturns is pronounced even among regions which manage to enter the recovery phase within the set four years – i.e., recover their pre-shock growth trajectories (cf. Table 12

[76] These and other theses will be discussed further in section 6 and empirically investigated in section 7.

and 13). When measured by RGVA, the time between last downturn and entry into the recovery phase averages a duration of 1,79 years, while based on employment it increases to 2,15 years. The regions not returning to their pre-shock growth trajectory within four years are not included in these averages.

This difference becomes even further pronounced if one considers the average time a region needs to recover its annual equivalency of its pre-shock growth levels independent of the four-year cut-off – i.e., including regions which do so after the four-year threshold chosen (cf. Tables 12 and 13). RGVA downturns average at 2,43 years, which is significantly higher than when using the cut-off threshold of four years, but less of an increase than employment downturns, which average 3,26 years from the last downturn to the eventual recovery of the growth trajectory. Regions never returning to their former growth trajectories were omitted in this assessment – justifying the need for a cut-off point in the first place.

Despite this, due to the longer duration of RGVA downturns (cf. Chapter 5.2, Tables 9 and 12), the average time from the first downturn to the eventual recovery phase is relatively similar between RGVA (3,26 years) and employment (3,43 years). The cause of this discrepancy might be underlying structural changes to a regional economy, which might be easier to compensate for with shifts in production and capital, as opposed to a fundamental restructuring of the regional workforce and human capital. Additionally, the general delayed reaction of employment-based indicators compared to other indicators of economic development discussed earlier, potentially also influences these measures (Keynes 1936)

Disregarding the cause and effect of the length of time to recovery, it must be stated that these numbers vary significantly between countries (cf. Table 14). This concerns both the wide variations among RGVA and employment downturns, as well as the different results of the same countries in either.

A striking example of both extremes is Greece (EL). While Greek regions have the worst rate of return to the pre-shock growth trajectory within four years among all observed countries in case of RGVA downturns (50,9%). The picture for Greece looks far improved when evaluated on basis of employment downturns, where the return rate is above average (81,0%)[77]. Similarly, while the duration from the first downturn to the recovery phase is a staggering 8,04 years on average for RGVA downturns, the time to recovery for first employment downturns is significantly lower at 2,92 years on average.

[77] This comes with one caveat, which will be further discussed in section 6.4, as Greece has the highest number of out-of-range regions, especially with regard to the GFC from 2008-2009.

On the other extreme end is Germany, whose regions, based on RGVA, achieve a return rate of 92% after an average of 3,06 years counting from the first downturn in a series. But, at the same time, Germany's regions perform among the worst on average when it comes to employment downturns, with a return rate of only 56,3% (which is the lowest rate, disregarding Luxembourg) after an average of 3,71 years.

RGVA Shocks					
	First Downturns (FDT)	Return to growth trajectory within four years		Out of Range	Years to recovery phase from FDT
AT	78	70	89,7%	0,0%	2,57
BE	80	65	81,3%	0,0%	2,22
DE	970	892	92,0%	1,4%	3,06
DK	20	20	100,0%	0,0%	2,40
EL	53	27	50,9%	0,0%	8,04
ES	125	82	65,6%	0,0%	5,73
FI	53	46	86,8%	0,0%	3,91
FR	243	186	76,5%	1,6%	2,10
IE	10	7	70,0%	10,0%	6,00
IT	220	166	75,5%	0,0%	3,70
NL	84	69	82,1%	1,2%	4,54
PT	70	35	50,0%	1,4%	3,80
SE	55	51	92,7%	0,0%	3,59
UK	358	248	69,3%	1,7%	3,02
LU	3	3	100,0%	0,0%	4,00
TOTAL	2422	1967	81,2%	1,1%	3,26

Employment Shocks					
	First Downturns (FDT)	Return to growth trajectory within four years		Out of Range	Years to recovery phase from FDT
AT	13	11	84,6%	0,0%	2,64
BE	7	6	85,7%	0,0%	2,33
DE	400	225	56,3%	0,3%	3,71
DK	13	10	76,9%	0,0%	3,60
EL	126	102	81,0%	4,0%	2,92
ES	133	87	65,4%	0,0%	5,22
FI	37	35	94,6%	0,0%	3,20
FR	27	27	100,0%	0,0%	2,19
IE	20	16	80,0%	0,0%	4,25
IT	214	153	71,5%	0,0%	3,39
NL	40	28	70,0%	0,0%	2,89
PT	65	45	69,2%	0,0%	4,00
SE	38	33	86,8%	0,0%	2,67
UK	320	249	77,8%	1,6%	3,03
LU	2	1	50,0%	0,0%	4,00
TOTAL	1455	1028	70,7%	0,8%	3,43

Table 14: FDT and duration to recovery by county

Between these extremes, all manner of variations can be found, for which the explanations might be manifold. One might make certain assumptions about north-south divides. Since, generally, but not exclusively, southern countries seem to have higher return rates on employment downturns than on RGVA downturns than the north and vice-versa (Fochesato 2018). Furthermore, national policy patterns might have a strong influence. For example,

France's strong labor laws and high public sector share of employment could be cause for the 100% return rate in employment downturns (Gautié 2013). Or explanation might be found in historical influences. Like the case of Germany's poor employment performance in the 90s and 2000s which was strongly influenced by the East German experience after unification (Hall and Ludwig 2007).

As such, the influence of national factors, not only on duration and entry into the recovery phase but also on resilience performance in general, cannot be disregarded. Hence, once the discussion of the explanatory factors of resilience performance takes place, country-level effects and a region's country association will be an important part of this analysis.

The most important thresholds for the identification of the return to the pre-shock growth trajectory are once more the set timeframes during which the measurements take place. Specifically, this concerns the timeframe discussed in Chapter 5.2 for measuring the pre-shock average growth (eight years in the baseline approach) and second the length of the cut-off for the return to the pre-shock growth levels (i.e., the latest date for the beginning of the recovery period and the subsequent measures of resilience performance, i.e., four years in the baseline approach).

	8-years		6-years		10-years	
	GVA	EMP	GVA	EMP	GVA	EMP
AT	70	10	60	19	71	9
BE	64	6	55	4	67	5
DE	876	222	917	334	913	258
DK	20	10	19	3	19	13
EL	27	102	23	95	22	98
ES	71	81	63	73	85	86
FI	45	35	43	33	47	36
FR	186	21	192	35	167	24
IE	7	13	9	9	7	16
IT	164	146	156	139	160	152
NL	66	27	53	43	69	24
PT	33	43	30	37	28	49
SE	51	33	51	49	35	35
UK	245	244	235	225	240	276
LU	3	1	3	0	3	1
TOTAL	1928	994	1909	1098	1933	1082

Table 15: Return to growth trajectory based on different assumptions on pre-shock average growth trajectories

As can be seen in Table 15[78], variations to the length of time on which the pre-shock average growth trajectory is based have only a marginal effect on the return rate to the pre-shock growth trajectory within four years. The biggest effect can be found for employment downturns when

[78] As before, the cases from before 1990 were omitted, explaining the difference in numbers in the baseline approach here and at other places, e.g., table 13.

shortening the measurement period to six years. This results in an increase of roughly 10% for returns to the previous growth trajectory. However, given that the total number of first downturns in this case is also increased by ca. 21% (cf. Table 11) compared to the baseline, this effect is still minor. More significant is the increase of returns for employment downturns when the measurement duration is extended to 10 years. However, even considering the smaller number of first downturns, the difference remains relatively small. The changes for RGVA-based downturns are all below 1% of cases and are therefore even less significant. These findings underline and strengthen the decision made above to keep the baseline approach with an eight-year measure for the pre-shock average growth trajectory.

Table 16 summarizes the results of a variation of the time limit for the return to the pre-shock growth trajectory, after which the starting point for the recovery period measurements of resilience performance described below are set, if an annual growth rate equivalency is not achieved at least once. For this purpose, based on the eight-year pre-shock average (i.e., the baseline approach discussed above), the time limits were varied to five and six years from the four-year limit of the baseline model[79].

	First Downturns (FDT)	Return to growth trajectory within four years		Out of Range	Years to recovery phase from FDT
RGVA Downturns					
4-year limit	2422	1967	81,21%	1,11%	3,26
5-year limit	2314	1990	86,00%	1,38%	3,67
6-year limit	1967	1685	85,66%	2,64%	4,86
Employment Downturns					
4-year limit	1455	1028	70,65%	0,76%	3,43
5-year limit	1404	1096	78,06%	1,00%	3,93
6-year limit	1353	1102	81,45%	1,85%	4,39

Table 16: Return to pre-shock growth trajectory under varying time limits

The first significant difference is a decrease in the number of identified first downturns caused by the prolongation of the potential shock series. As described before, a first downturn in the baseline approach is defined as not being preceded by another shock in the prior four years.

[79] Country-level data can be found in appendix I.h.

This means that if another shock occurs during the four years following an initial downturn, the downturn duration is prolonged, allowing a region to return to the original pre-shock average growth trajectory over the four years after the latter downturn.

As discussed in Chapter 4.2, this can lead to a series of downturns being identified which prolongs the total time from first to last downturn and the recovery phase substantially (cf. Chapter 4.2 and 5.2). By increasing the limit for a return to the pre-shock growth trajectory as described above, further subsequent shocks are potentially included in a series following a first downturn – thereby lowering the total number of first downturns. Furthermore, this also causes some first downturns to be carried beyond the limits of the dataset, especially if the last downturn in a series is too close to the last year of the data set, e.g., 2018.

This effect is greatest for RGVA downturns. Once the time limit is increased to six years, the number of first downturns observed drops by about 19% to 1967 cases from 2422. The major factor causing this is the increased frequency of RGVA downturns in 2000-2003, followed directly by the spike of shocks and downturns in 2008-2009 caused by the GFC (cf. Figure 8). Employment downturns are less influenced by this because of the comparatively smaller number of such downturns in the early 2000s and the somewhat delayed effect of the GFC on employment (while RGVA cases were already increasing in 2008, employment downturns only spiked in 2009). By contrast, the increase to a five-year cut off only reduces observations by 4,46% for RGVA and 3,51% for employment.

The lower number of first downturns is also reflected in a lower number of regions returning to their pre-shock average growth trajectory within the higher time limits – again with the six-year limit having the highest numerical effect on RGVA. However, while the rate of return only varies by about 5 percentage points for RGVA, the relative rate of regions returning to their pre-shock average employment growth trajectory increases by nearly 11 percentage points at the six-year limit. This latter finding could relate to the general lag in the development and especially recovery of the labor market compared to the economy as measured by gross value added pointed, as already observed at several different points of this discussion.

The duration of the time from first to last downturn also increases. As expected, due to the mechanics on shock series explained above, this effect is somewhat stronger for RGVA than employment-based observations. Naturally, due to the restrictions of the dataset to 2018, a later cut-off date also increases the number of regions whose developments fall out of range of the possible observations. This latter problem will always persist once observation times are

increased (as was the case for the time length over which the pre-shock average growth was measured).

On average the influence of these changes is only relatively minor. Furthermore, there are other good reasons to stick with the four-year cut-off for now. First, the effect of the GFC on the number of first downturns and the subsequent return to the pre-shock growth trajectory, while worthwhile being discussed here, also increases the danger of this very distinct event being swamped by earlier shock and downturn events which were very different in their nature (i.e., the shock series starting in the early 2000s). There is are good reasons the GFC is one of the most discussed economic events in the economic literature of the recent years and suppressing it through methodological choices would not do (among others Fratesi and Perucca 2018; Capello et al. 2015; Crescenzi et al. 2016; Giannakis and Bruggeman 2017a, 2020; Fingleton et al. 2012; Martin et al. 2016). Hence, 'drowning out' this event seems not only methodologically unnecessary but also analytically questionable.

Second, while the increase in the relative number of regions returning to their pre-shock average growth trajectory after an employment downturn is significant, in absolute numerical terms this effect is less marked. This is especially true when considering, that in many cases the effects of the 2008-2009 financial crisis are being swamped by events earlier in the 2000s, which reduces the total number of first employment downturns observable in the first place as well. Though this effect is more pronounced for RGVA downturns (cf. Figure 8). Additionally, the number of observations is further decreased by out-of-range observations due to the limitations of the dataset used.

Finally, in contrast with the method proposed by Hill et al., this return to the pre-shock growth trajectory is not the final call on resilience or non-resilience in the approach proposed here. Since the resilience performance of all regions will be assessed only once a return to the pre-shock growth trajectory is achieved, or in case of no such return after four years at the latest, all regions with an identified first downturn[80] will be covered by the analysis. They might perform weaker in the recovery of the level of development dimension on average, but conceivably could still individually outperform regions which entered the recovery phase at an earlier time. This latter point is actually one of the central advantages of the approach proposed here as it allows not only for a fast 'v-shaped' recovery (Yao and Zhang 2011), but also

[80] If remaining observable within the data set.

'rewards' more organic switches and recoveries of a regional economy over a longer time span[81].

As mentioned, following the approach by Hill et al., the return to the pre-shock growth trajectory would conventionally mark a region as resilient, however, as outlined in Chapter 4.3, this is not the end of the line in the approach discussed here. Instead, the goal, as stated above, is to allow the measurement of the resilience performance of European regions in such a fashion as to allow clear comparative statements based on a continuous scale. To do so, the use of two continuous measures which allow a deeper analysis of regional economic resilience performance were proposed. Not only will these allow a comparative analysis with an increased precision but also the identification of factors influencing regional economic resilience performance in a more direct fashion – i.e., enabling the quantitative analysis of *resilience capabilities* described and discussed in Chapter 3.

The first of the two resilience performance dimensions is termed the *recovery of the level of development*[82]. It measures the average relative distance between the actual total regional levels of development (i.e., the annual total regional employment and the annual regional gross value added respectively) and a counterfactual non-downturn scenario over the four years following the beginning of the recovery period. As stated, the recovery period begins in the baseline approach with the return to the pre-shock growth trajectory or, if such a return does not happen, four years after the last downturn.

The result is an approximate value for the level of recovery of regional development during the recovery phase. By using the average over the whole four years instead of a fixed measurement point, the expectation is to compensate for potential economic slowdowns or even additional shocks or one-time growth spikes during the recovery phase. The counterfactual scenario is based on the estimated total level of employment or RGVA derived from an extrapolation of the absolute regional values before the original shock. The average eight-year growth trajectory from before the shock event is used for the extrapolation itself (cf. Chapter 4.2 and Chapter 5.2 for a discussion on the average pre-shock growth trajectory).

[81] Nonetheless, the effect of varying time limits (also on the length of the recovery phase) on the final results in both resilience performance dimensions will be discussed below.
[82] Alternatively referred to as recovery of development level, or simply development level recovery/dimension.

	Employment				RGVA			
Statistic	Retention of growth trajectory - 4 year period	Recovery of development level - 4 year period	Retention of growth trajectory - 8 year period	Recovery of development level - 8 year period	Retention of growth trajectory - 4 year period	Recovery of development level - 4 year period	Retention of growth trajectory - 8 year period	Recovery of development level - 8 year period
Nbr. of observations	1323	1323	1323	1323	2124	2124	2124	2124
Nbr. of missing values	0	0	262	262	0	0	428	428
Minimum	-0,182	-0,645	-0,113	-0,491	-0,146	-0,732	-0,132	-0,784
Maximum	0,139	0,899	0,060	0,402	0,189	0,509	0,103	0,385
1st Quartile	-0,017	-0,164	-0,019	-0,187	-0,022	-0,129	-0,021	-0,151
Median	-0,004	-0,101	-0,007	-0,114	-0,008	-0,073	-0,009	-0,084
3rd Quartile	0,007	-0,044	0,004	-0,040	0,005	-0,023	0,001	-0,022
Mean	-0,005	-0,108	-0,008	-0,117	-0,009	-0,081	-0,011	-0,090
Variance (n-1)	0,001	0,010	0,000	0,013	0,001	0,011	0,000	0,013
Standard deviation (n-1)	0,024	0,100	0,019	0,115	0,025	0,103	0,020	0,114
Lower bound on mean (95%)	-0,006	-0,113	-0,009	-0,124	-0,011	-0,085	-0,012	-0,096
Upper bound on mean (95%)	-0,004	-0,102	-0,006	-0,110	-0,008	-0,076	-0,010	-0,085

Table 17: Descriptive statistics for resilience performance indicators

Table 17 shows the descriptive results for the analysis of this measure for all observed cases based on RGVA (N = 2.124) and total employment (N = 1323). The lower number of observations compared to the total number of observed first downturns above (cf. Table 14), results from the number of cases extending beyond the range of analysis due to the length of the recovery period. This means that, given the baseline time limits and counting from the last downturn, this type of analysis needs at maximum eight years of data on the underlying variables of employment or RGVA to deliver results – i.e., a maximum of four years until the entry into the recovery phase and another four years for the observation of the recovery phase itself.

On average one can observe that RGVA shocks produce a slightly lower but significant[83] decrease in the regional level of development compared to employment shocks (-8,1% compared to -10,8%). This in effect means that on average regions affected by a respective shock-downturn pairing have between -8,1% of their local RGVA or -10,8% of their total employment less than they could have had in a no-shock counterfactual scenario[84].

Obviously within these average values there is significant variation. For example, a region exceeding all others by this measure in response to an employment shock is the Scottish region of Eilean Siar in the Outer Hebrides (NUTS: UKM64). This region exceeds its counterfactual

[83] Due to non-normal distributions, a Kruskal-Wallis test was executed. See appendix I.i.

[84] Country-based data and resilience performance, along with other regional typologies will be given in section 6.

no-shock scenario by a staggering 90% - i.e., 90% higher levels of total employment than predicted by simple extrapolation. This extreme value is caused by a long downturn of the regional employment base throughout the 1990s – including a decline in population – which preceded a slow recovery beginning in 2002. This leads to an overall negative average growth trajectory of -5,4% in the time before the shock event in 2004. This tentative recovery was in turn interrupted first by a local industry shock in 2004, then followed by a national economic downturn shock caused by the GFC in 2008, and another local shock event in 2011. Despite these successive downturns, the region was able to maintain a stable level of employment after entering the recovery phase in 2012, permanently stopping the steady decline of the years before. This development is seemingly due in large part to tourism and a growing local wind energy sector (CnES 2010). The result is a region which, despite a long decline, managed to stabilize and, in the face of a series of severe shock events, kept its new level of development stable over an appreciable space of time. Therefore, while not being a new Silicon Valley or City of London, it proved to be a very resilient region with regard to the recovery of its development level[85].

At the other extreme, in this case for RGVA downturns, is the German region of Herne (NUTS: DEA55) which is situated in the German Ruhr district. Until late 1988, the regional economy was steadily expanding, mostly based on manufacturing, heavy industry, and mining (Stefan Berger et al. 2018). From 1989 onwards, beginning with a local industry shock to construction, the region was hit by a series of six shocks and downturn pairings which lasted until 1997. The former high-growth region subsequently stagnated and did not recover its pre-shock growth levels, therefore entering the recovery period after the maximum four years in 2001. During this recovery period, the level of local total employment was on average about 72% lower than for the counterfactual no-shock scenario[86].

Despite these extreme cases, most observations lie closer to the average resilience performance for all regions (cf. Table 17 and Figure 9 and 10). More typical are cases as described in the introduction to chapter 5, i.e., the observations of Passau (Landkreis) in Germany and Byen København in Denmark. Overall, across all cases, the continuous measurement of the recovery of the development level allows for a direct comparison between different regions on their

[85] With regard to the second measure, the retention of growth trajectory, the region is similarly among the top regions in the data set since its average recovery growth rate of around 0,1% still exceeds the pre-shock average growth rate substantially.

[86] With a growth trajectory about 14,6 percentage points lower than before the first shock event, the region is also last in the other resilience measure based on RGVA downturns.

performance in this resilience dimension and, in consequence, enables further investigation into the reasons for the divergent outcomes.

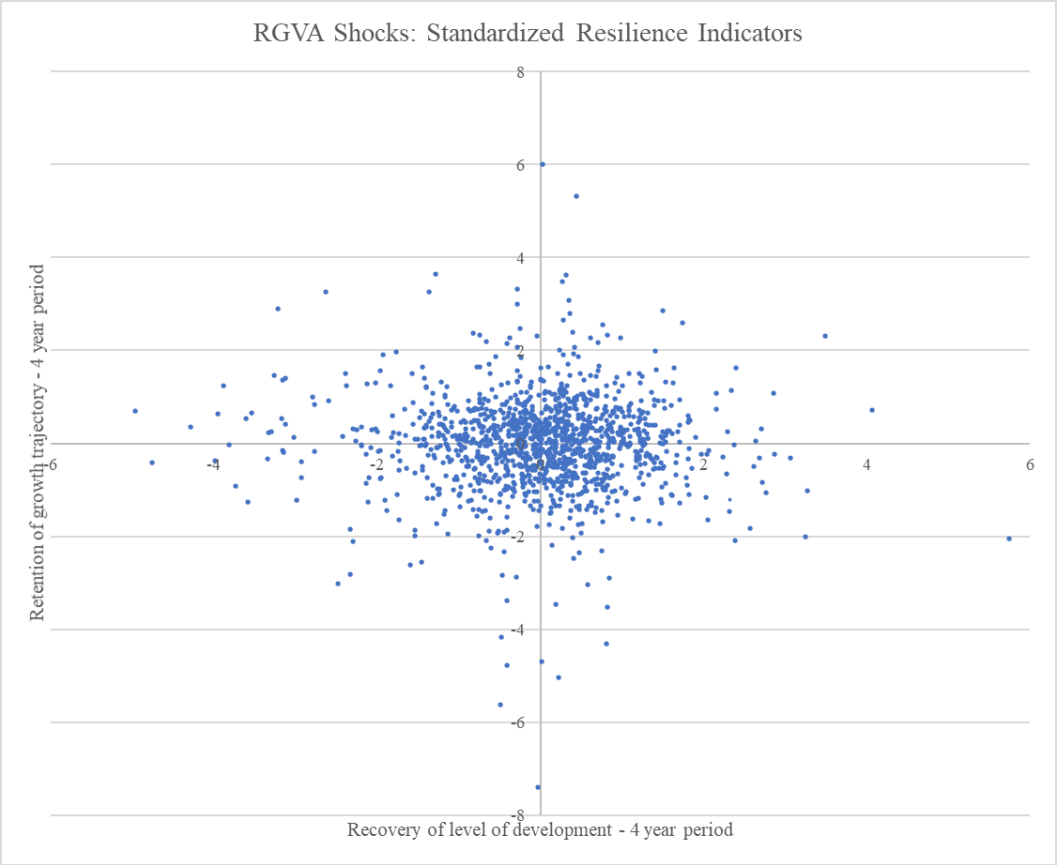


Figure 9: Standardized regional economic resilience performance (RGVA shocks)

The second dimension of regional resilience performance as described in this methodology is the *retention of the (pre-shock) growth trajectory*[87]. As described in Chapter 4.3, this measure is based on the average four year-growth rate[88] of a region measured over the recovery phase (i.e., the four years following the annual return to the previous levels of growth for the first time). This measure aims to give an indication for the hysteretic shift to the trajectory of growth of a regional economy, as well as to the sustainability of this trajectory. This stands in contrast to the one-off measure employed by Sensier et al. in their work which allows no further distinction of sustained hysteretic shifts, while it bears similarity to the methods employed by Fratesi and Perucca (Sensier et al. 2016; Fratesi and Perucca 2018). The descriptive results of this measure are summarized in Table 17.

As becomes visible, the average regional growth trajectory is lowered by 0,9 percentage points in case of RGVA-shocks and by 0,5 percentage points in cases of employment shocks. While

[87] Often referred subsequently as trajectory retention or similar.
[88] Measured the same way as the pre-shock average growth rate i.e., by the slope of the logarithmic regression of production or employment over four years of the recovery phase.

in absolute terms this does not seem as large a difference as that of the level of development, this difference it is significant from a relative perspective and, given the accumulative properties of a permanently lowered growth rate, not without long-term consequence.

As with the recovery of the development level before, most observed downturns cluster around the mean (also compare Figure 9 and 10), but again there are extreme outliers. One such example is the German region of Herne described earlier, which not only performed exceptionally badly in regard to the recovery of the level of development but is also among the worst regions observed based on the retention of the growth trajectory as well. A more positive extreme can be seen in the case of the Portuguese Azores – i.e. the Região Autónoma dos Açores (NUTS: PT200). Here, following a long, slow decline and a series of shock-downturn pairings to the RGVA, beginning with a local industry shock to the construction sector in 1988, the region managed to turn around and achieve an extremely high growth rate during its recovery period starting from 1997 (up by 16,2 percentage points). This very strong development was mainly carried by strong service, agricultural, and public sectors. Compared to the average pre-shock downturn rate of -2,5%, this is quite an achievement – even if these high rates were not sustained and flattened off to only 6,1% p.a. in 2001 and 3,2% in 2002[89].

Again, it must be pointed out that Azores and Herne are extreme cases. As can be seen by the descriptive data (Table 17) and the standardized scatter plots (Figures 9 and 10), the usual performance of regions tends to be more moderate. As such, the cases described in the introduction are better examples for 'normal' regional resilience performance in both dimensions.

While each dimension of resilience performance outlined here has its own effects and consequences for a region, the value of both dimensions of resilience performance can best be understood when combined, as shown in Figures 9-10, which show the standardized distribution of the regional resilience performance of all observed first downturns during the observation period[90].

This approach enables comparison of their relative performance and the classification of regions into the different resilience outcome scenarios as outlined by Martin and described in Chapter 2.1 (cf. Figure 1) – at least to a certain extent. Following this line of thought, regions in the first and second quadrant of the scatter plot would correspond most closely to the regional

[89] As the example of Eilean Siar also shows, island economies are quite often among the more extreme cases in both directions.
[90] The values for both dimensions have been standardized by z-transformation in figure 9 and 10 in favour of better visualization and comparability of the different units of measurement.

overperformers – with stable overperformers probably being found in the second quadrant. Meanwhile underperformers can likely be found in quadrants 3 and especially 4 – the latter being the case for a declining underperformer. The closer to the origin of the plot, the more a region would correspond to an adequate performer – i.e., a classic case of engineering or elastic resilience with a return to a pre-shock regional economic equilibrium.

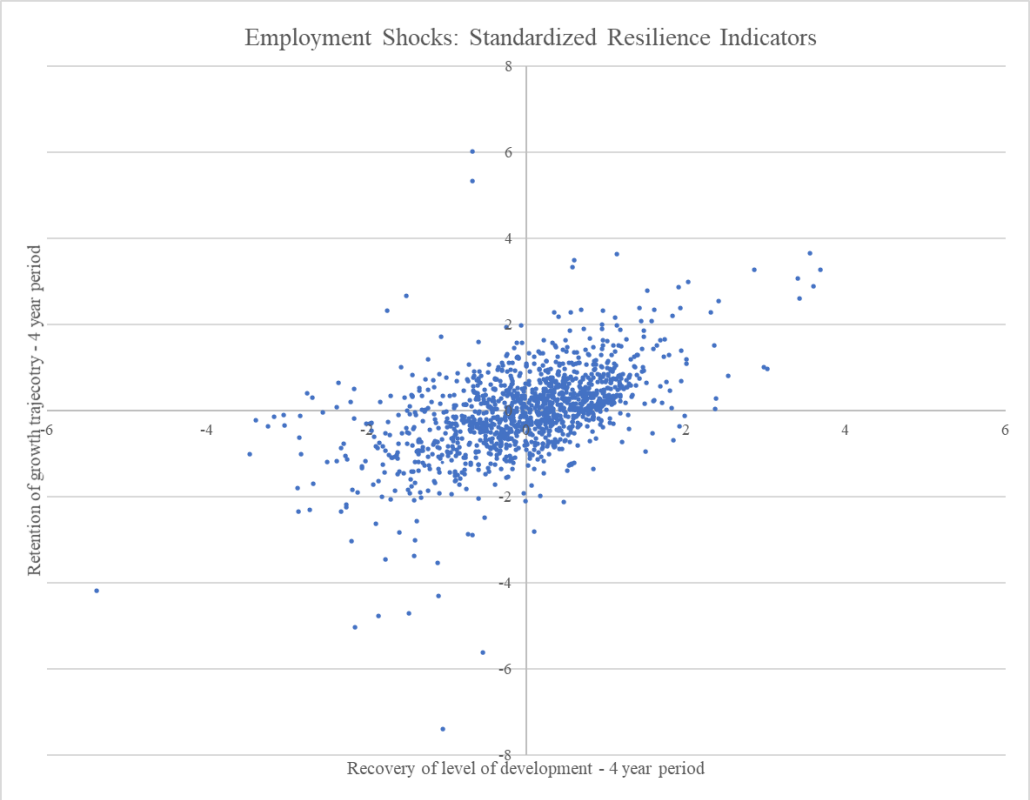


Figure 10: Standardized regional economic resilience performance (employment shocks)

This of course is only a very rough visual classification and has little value for the further analysis which will focus on the quantitative measures only. This point is further driven home since the location of each region in the plot is determined by the relative position of to all others. Hence it cannot be a 'pure' universal classification like the theoretical framework set out by Martin (Martin 2012). Still, the Figure can serve as a visual guide to place the regions in context of each other.

Similarly, it is possible to plot a map showing (average) regional resilience performance along both dimensions, as demonstrated in Maps 1 to 4 at the end of this chapter. While these Maps are necessarily restricted in their informational content – for example the data for each region is aggregated for an average value if there are several downturns in a region – they still offer a quick glance at the distribution of resilience performance across Europe. Additionally, some features of European resilience patterns discussed in the next chapter become obvious immediately in this format – such as French regions' relatively low vulnerability to employment

shocks and general average to high resilience performance, or the European North-South divide with regard to employment resilience performance.

However, despite the visual attractiveness of such presentations, the actual continuous and region-specific measures of both dimensions are the most significant results from this methodology. They alone allow deeper study of comparative resilience performance, as well as deeper analysis of explanatory factors for any divergences in both resilience dimensions. Herein also lies the big advantage of the methodology for measuring resilience performance proposed here, compared to binary (resilient or not resilient) approaches like those of Hill et al., Sensier et al., or even Giannakis and Bruggeman, who all base their analyses on a general categorical classification (Hill et al. 2012; Sensier et al. 2016; Giannakis and Bruggeman 2020). Since both dimensions of resilience performance measured here are non-binary, continuous, and relative to a region's own past performance (in contrast to some higher-level benchmark), they allow a direct comparison of the *quality of the resilience process* of each region with all other regions affected. Thereby an evaluation of the underlying factors driving different developments in these regions becomes more feasible.

Last but not least, since this analysis and the proposed underlying methodology are not dependent on a specific shock, unlike other approaches in the past (cf. Davies 2011; Doran and Fingleton 2016; Fingleton et al. 2012), it is possible to analyze resilience performance across large time series. The potential for this can be seen in Figures 11 and 12, where both dimensions of resilience performance are plotted out across the timeseries for shocks to RGVA and employment respectively.

Naturally, each of these plots, figures, and the average values given for both resilience performance dimensions are highly aggregated and must be analyzed in greater detail. Similarly, it is also necessary to look at the differences in country-level performance, as well as an evaluation of resilience performance along other regional classifications. This will be executed in Chapter 6 before Chapter 7 explores the effect of diverse indicators of the different resilience capabilities discussed in Chapter 3. Before doing so, however, as in the chapters before, some of the underlying assumptions behind the measurement of the resilience dimensions must be discussed.

The main features potentially influencing the results on both recovery of the level of development and retention of the growth trajectory are again the timeframes set for the observation of the different regions concerned. First, this concerns the cut-off date for the return to the pre-shock growth trajectory – i.e., the latest point at which the recovery period and

therefore the measurement of both resilience performance dimensions begins. The need for this was already discussed above when analyzing the effect of this constant on the number of first downturns and the number of regions returning to their pre-shock trajectories. Here the effect on the final measures will be analyzed. Second, it is necessary to discuss the length of the recovery period itself since the length of time over which both measures are taken might significantly influence outcomes.

Therefore, the time limits will be varied from the baseline assumption of four years. In the case of the cut-off for the beginning of the recovery period, this will be changed to five and six years. For the discussion of the length of the recovery period, this work will go further and extend it to six, eight and 10 years.

Employment downturns					
Retention of growth trajectory					
Variable	N	Minimum	Maximum	Mean	Std. deviation
4-year limit	1323	-0,182	0,139	-0,005	0,024
5-year limit	1256	-0,182	0,139	-0,005	0,024
6-year limit	1171	-0,182	0,139	-0,005	0,023
Recovery of the level of development					
4-year limit	1323	-0,664	0,899	-0,095	0,103
5-year limit	1256	-0,694	0,899	-0,100	0,107
6-year limit	1171	-0,718	0,899	-0,103	0,110

RGVA downturns					
Retention of growth trajectory					
Variable	N	Minimum	Maximum	Mean	Std. deviation
4-year limit	2124	-0,146	0,189	-0,009	0,025
5-year limit	2014	-0,137	0,189	-0,009	0,024
6-year limit	1585	-0,133	0,189	-0,010	0,024
Recovery of the level of development					
4-year limit	2124	-0,732	0,509	-0,081	0,103
5-year limit	2014	-0,715	0,765	-0,079	0,112
6-year limit	1585	-0,714	0,862	-0,099	0,120

Table 18: Changes to resilience performance depending on cut-off date for recovery period

With regard to the limit for entry into the recovery phase, the descriptive results are summarized in Table 18. As for employment downturns, there is little change to the overall retention of growth trajectory. The significance of this result is confirmed by performing a Kruskal-Wallis[91]

[91] Normality tests were performed on the results (Kolmogorov-Smirnov and Shapiro-Wilk). None of the measures was distributed normally. As such the Kruskal-Wallis test is the appropriate measure taken here. ANOVA was additionally executed to confirm these results due to the large data set. Cf. Appendix I.i.

test, as well as an ANOVA on the results[92]. Similarly, while there is a slight variation on the mean for the recovery of the level of employment development, none of these divergences from the baseline of four years prove significant when applying the same tests.

Regional resilience performance based on RGVA reacts along the same lines to the variations. The exception to this is the development level recovery, where regional performance skews to significantly lower values under a six-year time limit. While significant, the reason for this effect is relatively easy to recognize by considering the extreme drop in observable cases. This drop in cases has been identified previously (cf. Table 16). As before, the cause for this drop in observations can be found in the proximity of many RGVA downturns relative to the GFC in 2008-2009. In contrast, the slight variations in the dimension of the retention of the growth trajectory are not significant. Disregarding the exceptional effect of the GFC on RGVA downturns, there is little observable change to the results, except lowering the number of observable cases by exhausting the length of the data set. In effect, the findings support the decision to keep the cut-off limit for entry into the recovery phase at the four years already established.

In contrast, varying the length of the recovery period has a significant effect on the results in both dimensions. Independent of resilience performance dimension and for both employment downturns and RGVA downturns, the results skew more to the negative (in mean and in the extremes) the longer the recovery period is extended (cf. Table 19).

These results were tested – due to mostly non-normal distributions among the samples – by using first the Kruskal-Wallis test and then confirming the results by ANOVA[93]. The effect of increasing the recovery phase duration usually becomes significant in respect to the baseline approach at a recovery period of eight years – i.e., a doubling of the baseline approach of four years. The only exception confirmed in both tests was the recovery of the level of development in case of employment downturns, where the effect only becomes significant at a 10-year recovery phase[94].

With regard to the resilience performance measure for recovery of the level of development, this negative trend is a result of the methodology applied. As discussed before the measure of the recovery of the development level is based on a comparison of the actual regional

[92] Detailed test results on the effect of changes to the entry into the recovery phase can be found in Appendix I.j.
[93] All tests named here can be found in appendix I.k.
[94] ANOVA also only shows a significant difference in the retention of the growth trajectory for RGVA downturns at 10 years. Due to the non-normal distribution this result must be taken with a grain of salt, however.

development and a counterfactual scenario[95]. This counterfactual scenario in turn is based on an extrapolation of the pre-shock average growth trajectory. As a consequence, the longer one extends the time between the original shock event and the final measurement in the recovery phase, the bigger the potential difference between both values becomes. Therefore, assuming that in most cases a shock-downturn pairing follows a phase of relatively positive average growth, one can expect to find increasingly negative development level results as the measurement period is extended longer.

Employment downturns					
Retention of growth trajectory					
	N	Minimum	Maximum	Mean	Std. deviation
4-year recovery	1323	-0,182	0,139	-0,005	0,024
6-year recovery	1193	-0,106	0,074	-0,007	0,021
8-year recovery	1061	-0,113	0,060	-0,008	0,019
10-year recovery	992	-0,115	0,056	-0,008	0,018
Recovery of the level of development					
4-year recovery	1323	-0,645	0,899	-0,108	0,100
6-year recovery	1193	-0,671	1,076	-0,108	0,110
8-year recovery	1061	-0,491	0,402	-0,117	0,115
10-year recovery	992	-0,537	0,478	-0,128	0,124

RGVA downturns					
Retention of growth trajectory					
	N	Minimum	Maximum	Mean	Std. deviation
4-year recovery	2124	-0,146	0,189	-0,009	0,025
6-year recovery	1902	-0,140	0,125	-0,011	0,021
8-year recovery	1696	-0,132	0,103	-0,011	0,020
10-year recovery	1288	-0,132	0,087	-0,014	0,019
Recovery of the level of development					
4-year recovery	2124	-0,732	0,509	-0,081	0,103
6-year recovery	1902	-0,761	0,364	-0,085	0,105
8-year recovery	1696	-0,784	0,385	-0,090	0,114
10-year recovery	1288	-0,804	0,417	-0,111	0,125

Table 19: Changes to resilience performance depending on length of recovery period

Based on these arguments, it can be assumed that in practice the extension of the recovery time has little benefit with regard to measuring the extent of the recovery of the development level. Theoretically the longer phase might smooth out some sudden spikes to the aggregates in either employment or RGVA. However, the difference seems overall too small to justify changing the baseline approach, and since the average difference over the whole period is used, such spikes are generally compensated for. Additionally, one must consider that for employment downturns the effect only becomes significant at a 10-year recovery period. Assuming a maximum time

[95] Technically the relative average distance of both during the recovery period.

for the return to the growth trajectory (i.e., four years), an extension to a 10-year recovery period would in effect entail a 14-year maximum observation phase after the last downturn. This would exclude a great many downturns from observation (cf. Table 19). This latter point becomes even more valid when considering the increasing likelihood of subsequent unrelated crises and downturns influencing the measurements the longer the measurement time is extended.

Fundamentally the argument for the other resilience dimension, e.g., the retention of the (recovery) growth trajectory, is similar. That said, there are two reasons to consider an extension from the baseline approach in this case. First, it must be considered that this measure is based on the direct comparison of the pre-average growth trajectory and the recovery phase growth trajectory – both measured by the slope of the logarithmic regression of production or employment totals over the respective phases. Consequently, the shorter the observation time on which the measure is based, the higher the chance of a sudden spike in the year-by-year regional growth rates causing a bias. The second reason, related to the first, is that the goal of introducing the retention of the growth trajectory measure was to identify the *direction and sustainability* of the recovery growth trajectory to thereby identify potential hysteretic shifts. One-time extreme events, like sudden growth spikes, do not represent a sustainable shift of the regional economic equilibrium and therefore the bias caused by such events might cause serious misrepresentations of regional economic developments.

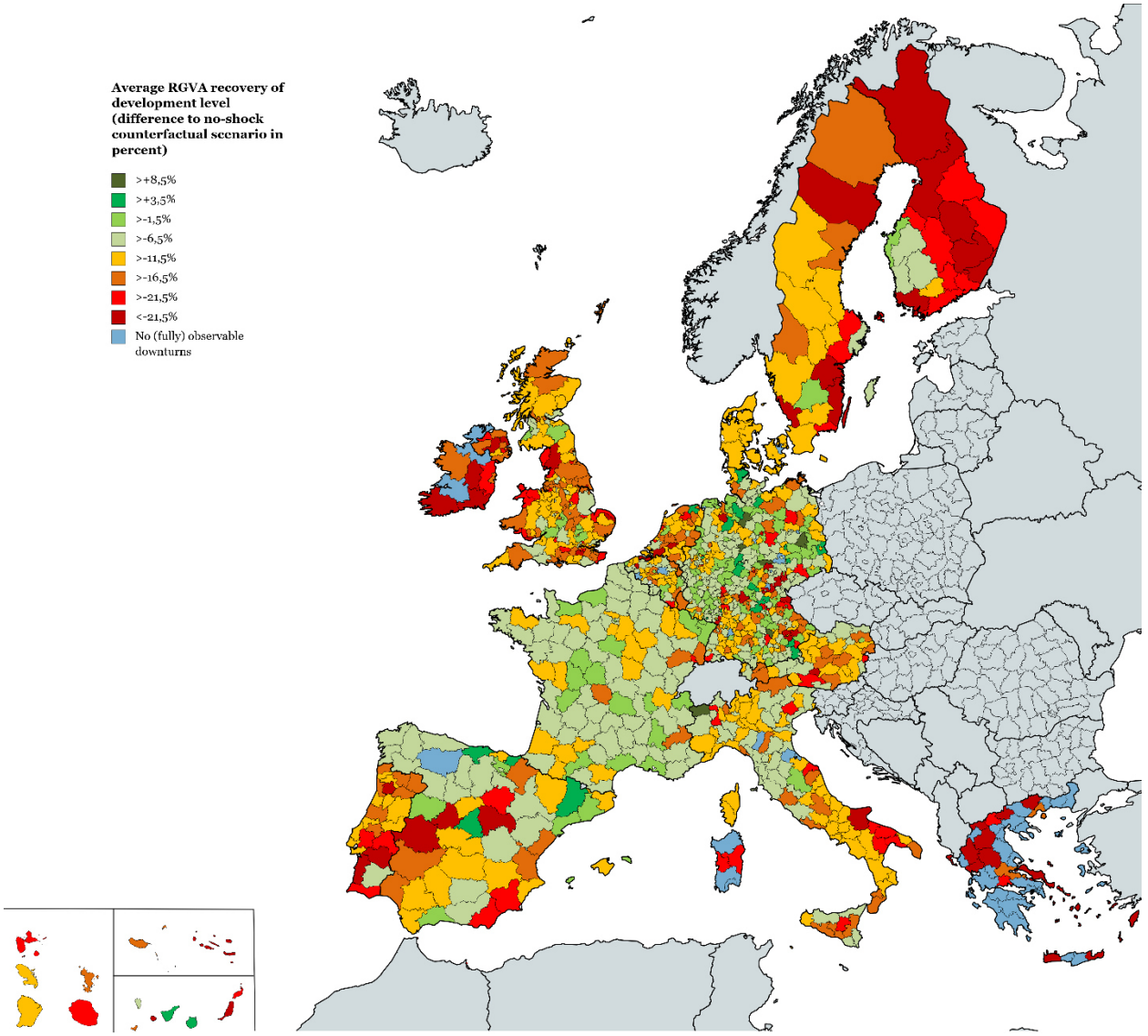
Of course, the arguments against using a longer recovery period, discussed in connection to the recovery of the development level, still hold here. The longer the recovery phase, the more shock-downturn pairings become unobservable due to the restrictions of the data set. Additionally, the chance of subsequent shock events influencing the result increases as well.

Consequently, a compromise will be proposed for the measure of the resilience performance dimension on growth trajectory retention. While not rejecting the baseline approach with its four-year limit on the recovery period, results based on an eight-year recovery period will be used as a secondary measure for this resilience performance dimension. As for the further analysis, both measures of the retention of the growth trajectory will be employed in parallel and considered in the interpretation of any results.

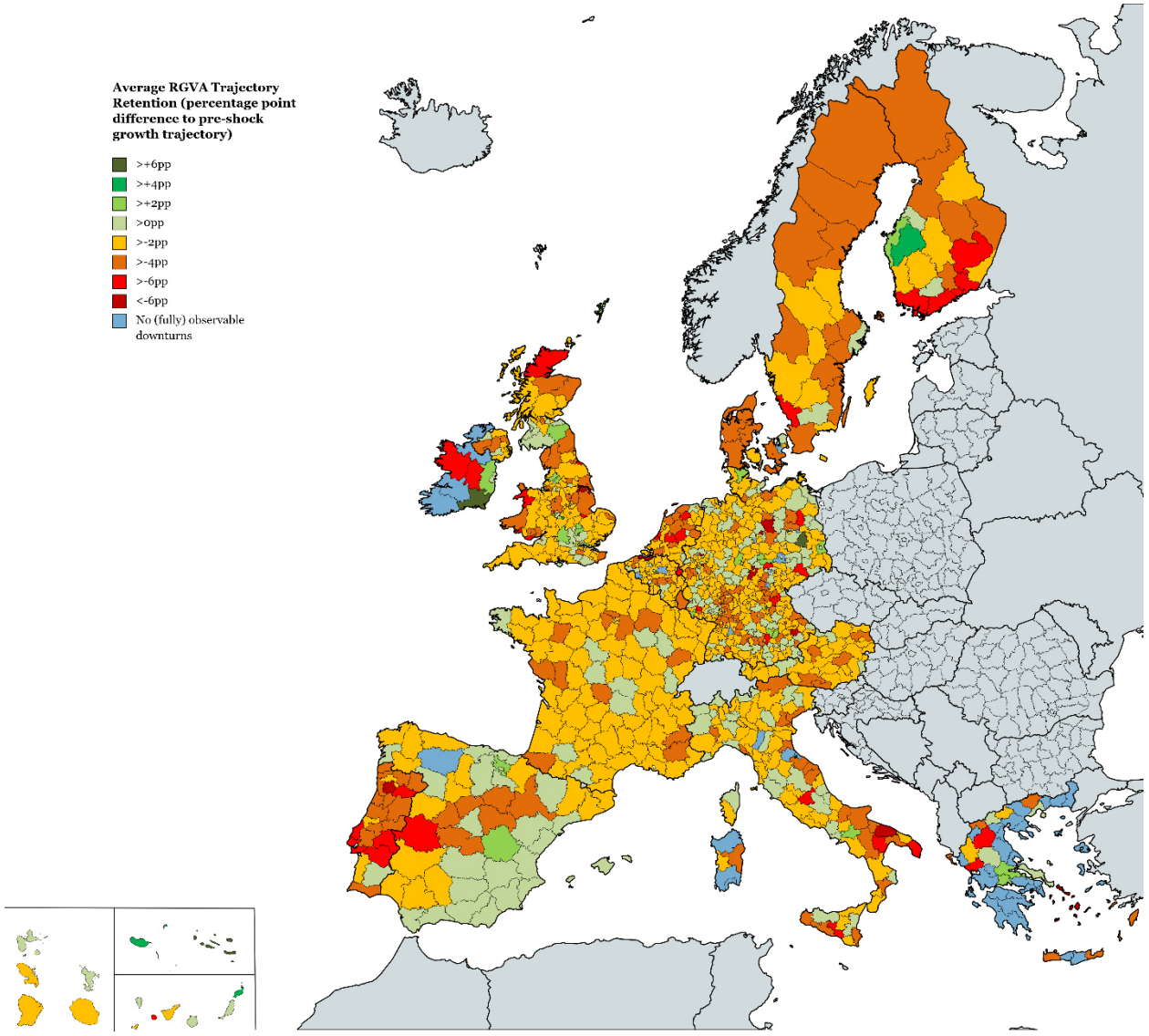
In summary this chapter showed that the resilience performance in both dimensions (i.e., the recovery of the level of development and the retention of the growth trajectory) varies depending on the economic performance indicator used. Based on the regional gross value added (RGVA) the dimension on the recovery of development level performs significantly stronger on average than is the case for an employment-based analysis. For the measures

assessing the retention of the growth trajectory the reverse is true. On average the regional labor base sees a significantly smaller decrease in the average recovery phase growth trajectory compared to the corresponding pre-shock value than is the case for the same measurement based on RGVA.

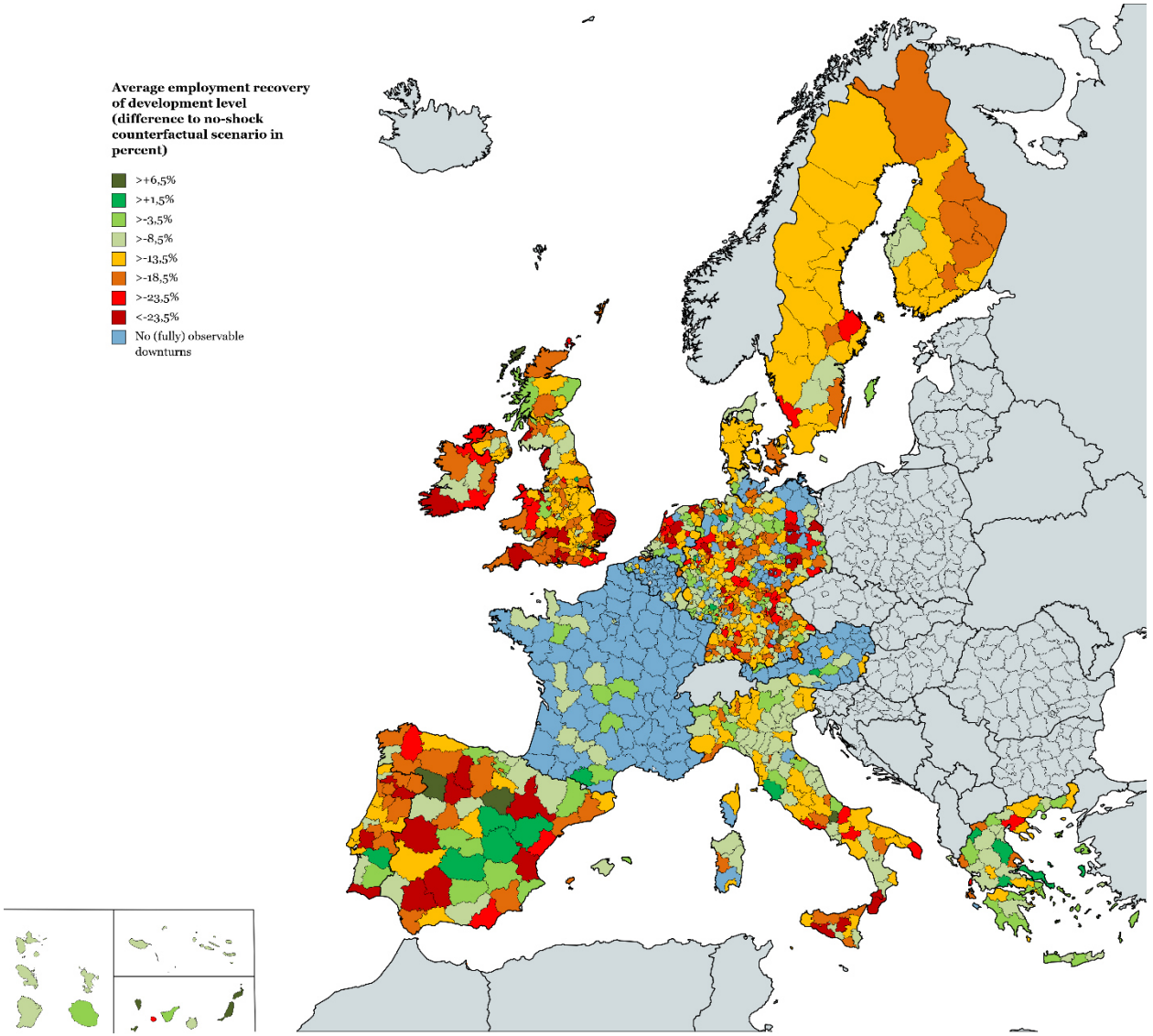
Additionally, the robustness test showed a significant effect of an extended measurement time (i.e., an extended recovery period) on the retention of the growth trajectory results. To accommodate this, it was decided to use not only the baseline four-year measure of this dimension but to additionally include the same measure taken over an eight-year recovery period in the analysis. A more detailed analysis of the results on all three measures by varying categories will be conducted in the next chapters.



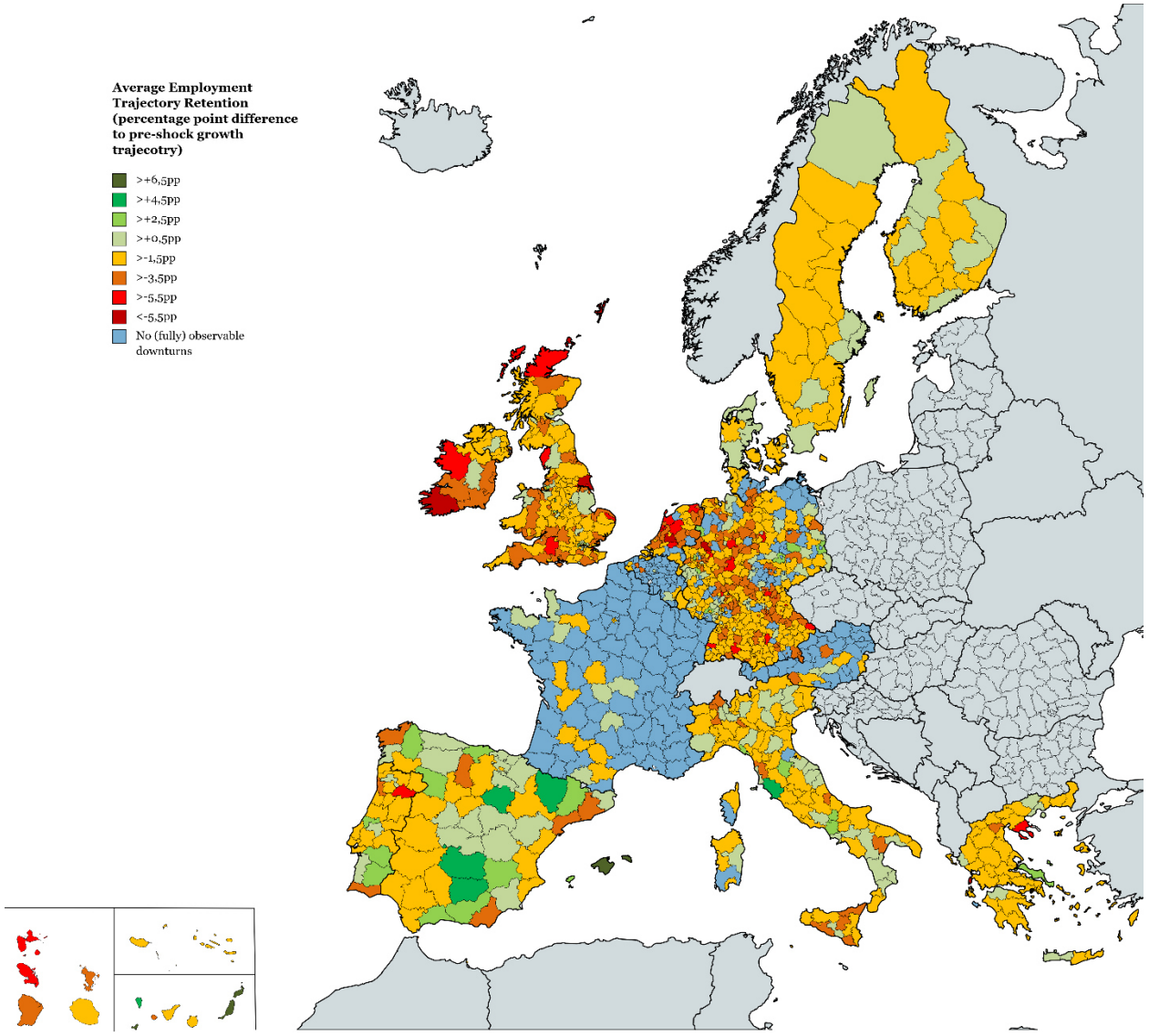
Map 1: Average RGVA recovery of the development level



Map 2: Average RGVA trajectory retention



Map 3: Average employment recovery of the development level



Map 4: Average employment trajectory retention

6. Variances of resilience performance in space and time

The goal of this chapter is twofold: First, it aims to give the reader a better understanding of the temporal and geographic distribution of resilience performance. Second, it forms the first part of the analysis of the factors influencing a region's resilience performance. These aims go hand in hand, since, as several other authors have investigated, these geo-temporal aspects are by themselves potentially powerful explanatory factors with regards to regional economic resilience (i.a. Giannakis and Bruggeman 2020; Crescenzi et al. 2016; Cellini and Torrisi 2014; Giannakis and Bruggeman 2017a; Capello et al. 2015).

The first step will be the investigation of resilience performance over time. To begin, the fluctuations of resilience performance across the full time series (cf. Figure 11 and 12) will be discussed before focusing on three episodes of first downturn spikes (1990-1993, 2000-2003 and 2008-2009), each representing a distinct crisis event of greater magnitude (cf. Figure 8), as well as the cases falling in between those events as a distinct group of observations. Collectively these episodes will be referred to as "crisis periods". The central thesis here is that no crisis is the same and that each produces potentially varying outcomes and different factors affecting resilience performance (Cellini and Torrisi 2014; Fingleton et al. 2012).

In a second step, this chapter will investigate resilience performance with regards to the cause of the diverse downturns observed. Here the effect and resilience patterns corresponding to the different types of shocks identified in 4.1. will be discussed. Following the approach by Hill et al. as well as other literature on different resilience reactions on shocks, a significant variation of resilience performance across the different shock types can potentially be expected (Hill et al. 2012; Martin and Sunley 2020)

Following this, this chapter will look at the socio-geographic typology of regions. This is done at a relatively low resolution by looking at the urban-rural distinction and the potential effect this typology has on regional resilience performance. Generally, the assumptions and empirical results to be found in the literature on the topic point to an increased level of resilience performance for more urban and metropolitan regions (Giannakis and Bruggeman 2020; Capello et al. 2015; Holl 2018). However, there is absolute certainty about this relationship, with several works finding either no conclusive evidence for an urban advantage or even indicators for a higher resilience in more rural or intermediate regions (Brakman et al. 2015; Giannakis and Bruggeman 2017b; Ženka et al. 2017; Ženka et al. 2019).

Finally, the effect of nationality on regional resilience performance will be investigated. As several authors state, national factors are significant determinants of regional economic resilience performance (i.a. Giannakis and Bruggeman 2017a, 2020; Crescenzi et al. 2016; Doran and Fingleton 2016; Davies 2011). It follows to assume that the respective region's resilience experience differs significantly based on its nationality. Many of the underlying national variables will additionally be discussed in Chapter 7. The analysis in this chapter serves mainly to establish general trends in the data since it is impossible to cover all contingencies in an explorative study.

Each of these steps will be executed under the consideration of the first temporal analysis for the four crisis periods of the time series (including a class for the observations falling between the downturn spikes) discussed in 6.1. This means that the analysis of the effects of national differences on regional economic performance will be executed not only across the whole time series but also in each of the different time periods of the series itself. The same treatment applies to the urban-rural distinction and the discussion of the shock types[96].

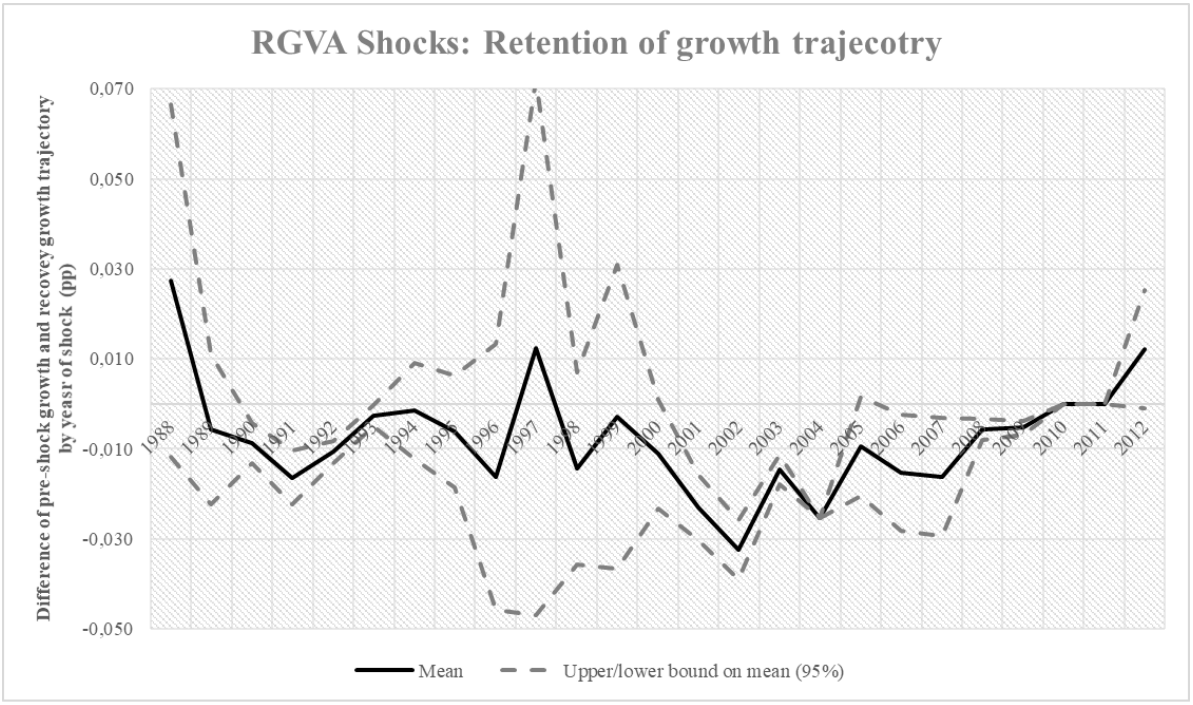
6.1 Resilience performance at different time intervals

The regional resilience performance over time is shown in Figures 11 and 12. Both graphs show the average European regional resilience performance for shocks beginning in the specific year in question – i.e., independent of the last year of the recovery period or the downturn duration. They show the average resilience performance of all observations experiencing their first downturn of a series in that particular year as well as the corresponding upper and lower bounds on the mean. The results presented in these graphs are highly aggregated and only partially useful to further investigation. A deeper analysis along national as well as time specific lines is necessary, specifically with regards to the overrepresentation of some of the bigger countries and the aforementioned crisis periods of downturn spikes.

Despite this, a couple of observations can be made relatively easily even based on the aggregates. Observing both dimensions of resilience performance in response to RGVA shocks over time (Figure 11), one recognizes a period of increased volatility and deviation beginning in the latter half of the 1990s to about 2001-2002. This holds with regards to average performance as well as the general variation of the results. This can mostly be explained by the

[96] Due to the exhaustive nature of the statistical analysis in this chapter many of the results could not be presented easily in the form of tables or other illustrations in the text itself. The corresponding analytical steps, when not covered in the section itself, can be found in the appendix to section 6 (i.e., Appendix II).

relatively low number of observations in this phase: From 1995-2001 there are only 132 first downturns observable compared to 834 observations for the 1988-1994 period[97]. However, when focusing on the retention of growth trajectory alone it becomes obvious that even outside of this period, RGVA downturns seem somewhat more volatile in their resilience performance than employment downturns (Figure 12). Interestingly, both show a lower performance compared to preceding and subsequent years for the period from roughly 2000 up to the GFC in 2008.



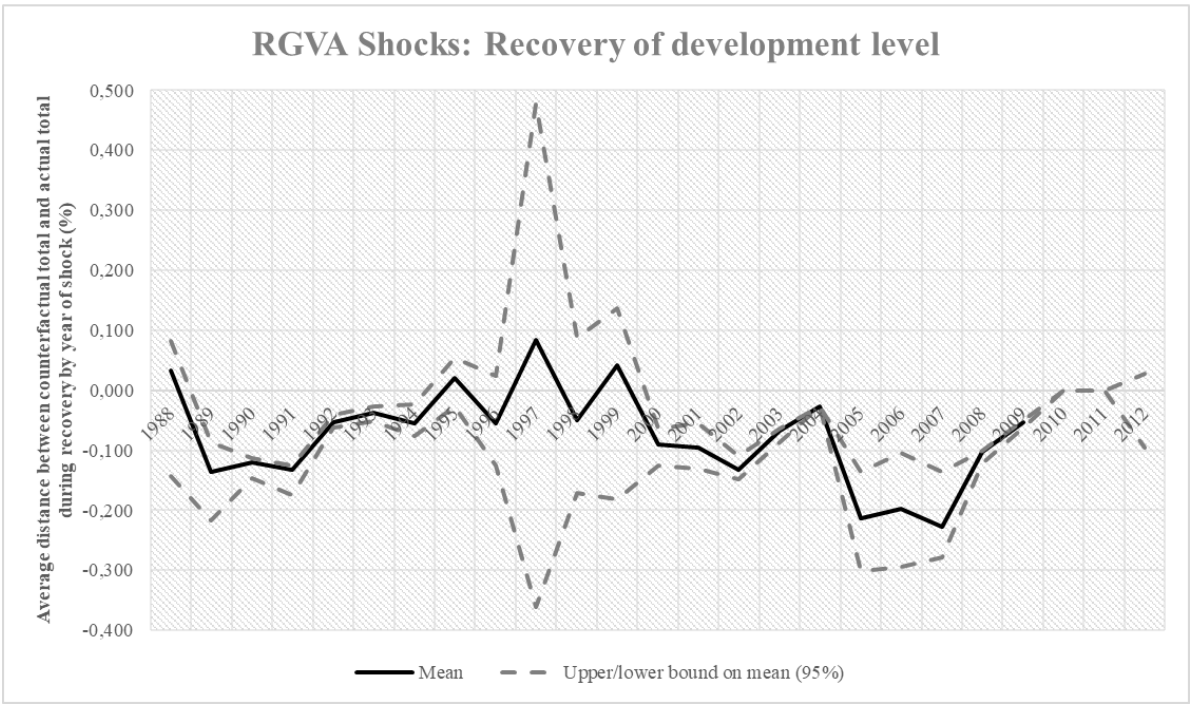


Figure 11: European resilience performance over time: RGVA

[97] Detailed year by year descriptive data can be found in appendix II.a.

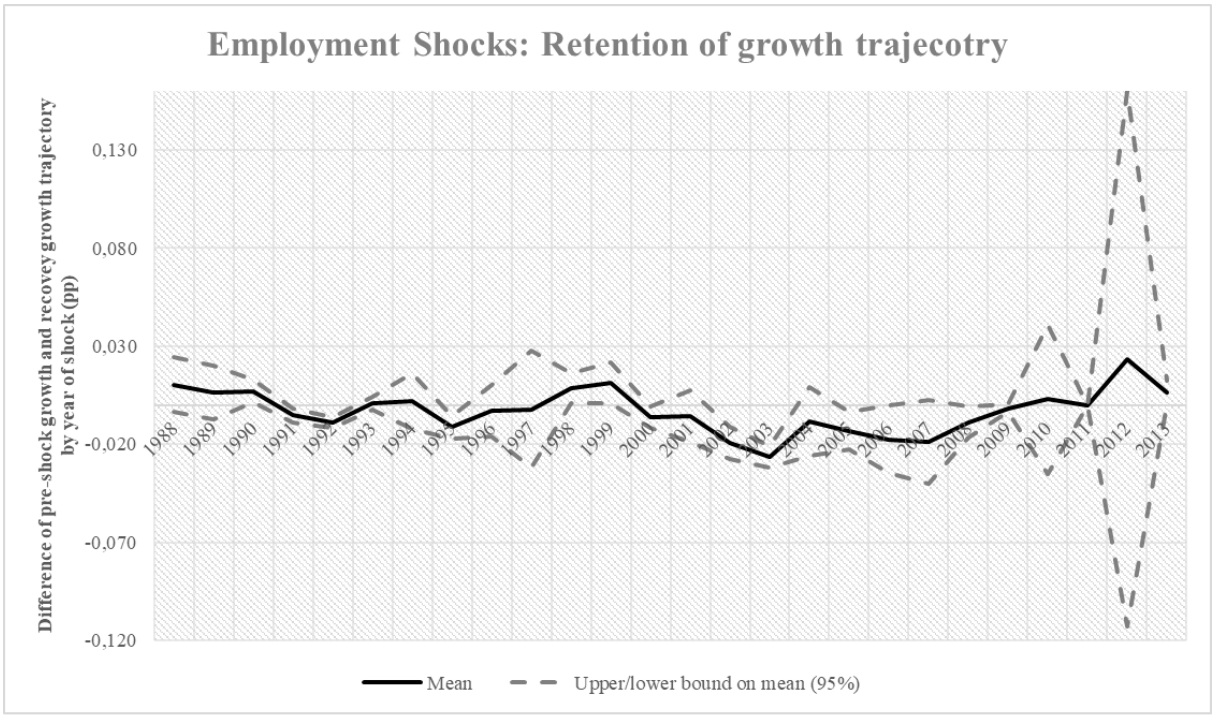
Furthermore, while RGVA downturn-related resilience performance seems somewhat more volatile, there are at least some synchronous patterns which can be recognized. First, both RGVA downturns and employment downturns seem to show similar general trends with regards to the recovery of the development level. This is true especially for the period of generally lower resilience performance up until the GFC in 2008, as described above. Furthermore, there are similar general trends in the early and late 1990s as well as a general improvement of resilience performance by this dimension post-GFC in 2008-2009[98] which can be identified for employment as well as RGVA.

By contrast the differences between RGVA and employment downturn performance are stronger when evaluated by the trajectory retention dimension. Here employment downturns show a relatively regular performance pattern throughout the years as well as a far lower deviation from the mean[99]. Meanwhile, RGVA resilience performance remains equally volatile in both measurement dimensions. One thesis potentially explaining the relative steadiness of the trajectory retention of employment might have to do with the mitigating effect of employment law, organized labor, and the duration of work contracts, which potentially prevent sudden trajectory shifts in either direction (Hall and Ludwig 2007).

To make the analysis of the relatively long timeline covered more systematic, it will be separated into discreet crisis periods. These periods are roughly based on spikes in the first downturns in the timeline (cf. Figure 8).

As such, three crisis periods are marked: First, the period 1990-1993; second, the period 2000-2003; and third, the period 2008-2009[100]. Each of these periods corresponds roughly to a general downturn in the business cycle and is marked, though not exclusively so, by an increased frequency of regional shocks caused by national economic downturns (cf. Figure 5, albeit slight variations on the timing in the different nations exist)[101]. The cases which fall in between these periods of increased uncertainty and shocks will be observed in a separate sample as a set of shocks and downturns that – to some extent – are independent of the performance of the greater economy (on an aggregated European level).

[98] As will be discussed later this 'improvement' has to be seen under the caveat, that many aspects of the European sovereign debt crisis following the GFC are subsequent to the latter. I.e., shocks related to the sovereign debt crisis are rarely first downturns because as a series they are mostly triggered in 2008-2009 already.
[99] Remark: The scales in Figures 11 and 12 are not the same. Still, the difference persists if taking a look at the yearly performance in appendix II.a.
[100] As mentioned before, when referring to the GFC as a distinct crisis it is this crisis period which is referred to, even though the GFC originally began in 2007.
[101] Section 7.2.5 discusses the nature of each of the three crisis events in some more detail.



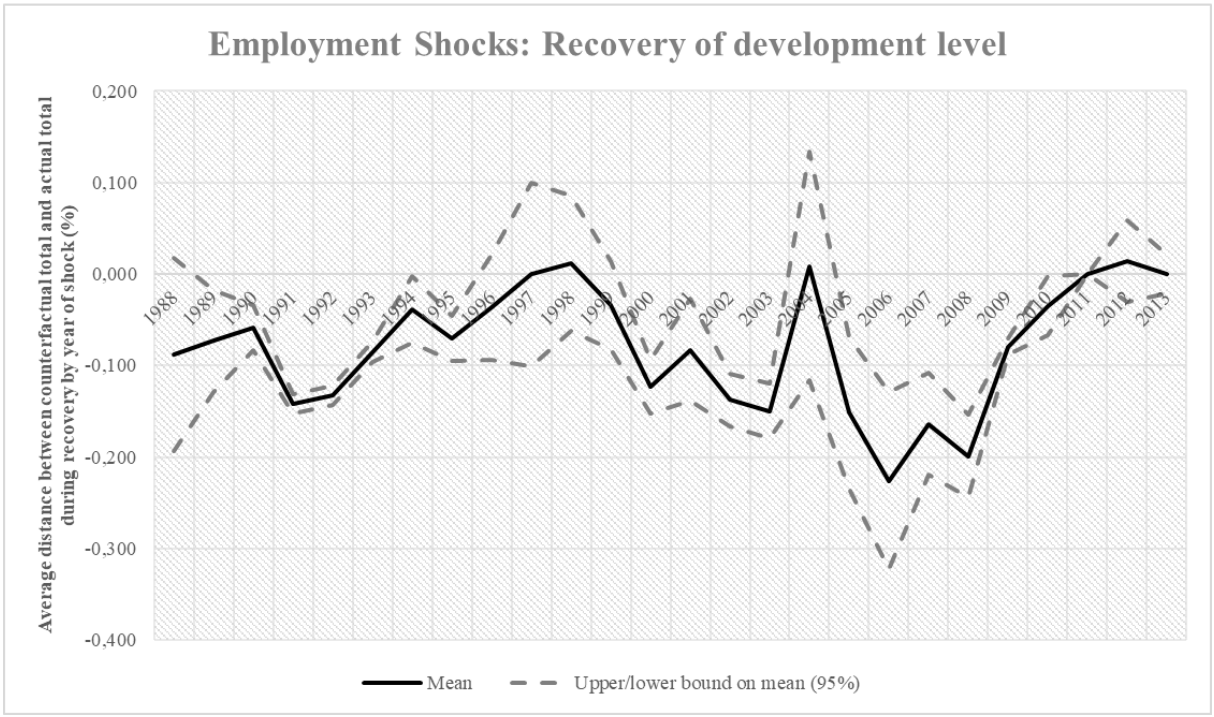


Figure 12: European resilience performance over time: Employment

The descriptive summary of each phase of increased (first) shock-downturn events can be found in Tables 20 and 21 for RGVA and employment downturns respectively[102]. Concerning RGVA downturns, the phase 1990-93 shows the most observable events with 769 cases (36%), closely followed by 2008-2009 with 741 cases (35%) (cf. Table 20). Significantly fewer events cluster around the years 2000 to 2003 (448 cases or 21%), while all downturns falling in between those

[102] Detailed descriptive statistics can be found in Appendix II.b.

periods only make up a total of 166 observations (8%). Extending the recovery period to eight years for the measure on the retention of the growth trajectory reduces – logically, due to the closeness of the end of the data set – the latest period 2008-2009 by roughly half while there is only little effect on the other crisis periods. The number of downturns starting in between those spikes are also more severely affected for the same reasons.

Periode	N	Minimum	Maximum	Mean	Std. deviation
Recovery of development level					
All	2124	-0,732	0,509	-0,081	0,103
Between	166	-0,732	0,337	-0,105	0,168
90-93	769	-0,590	0,278	-0,080	0,109
00-03	448	-0,490	0,509	-0,090	0,100
08-09	741	-0,521	0,257	-0,071	0,072
Retention of growth trajecotry - 4 year recovery phase					
All	2124	-0,146	0,189	-0,009	0,025
Between	166	-0,146	0,189	-0,004	0,036
90-93	769	-0,097	0,138	-0,009	0,024
00-03	448	-0,125	0,068	-0,019	0,030
08-09	741	-0,094	0,088	-0,005	0,017
Retention of growth trajecotry - 8 year recovery phase					
All	1696	-0,132	0,103	-0,011	0,020
Between	128	-0,132	0,103	-0,009	0,031
90-93	767	-0,093	0,065	-0,012	0,018
00-03	434	-0,098	0,031	-0,019	0,019
08-09	367	-0,035	0,047	-0,001	0,013

Table 20: Descriptive statistics of crisis periods, RGVA downturns.

Generally, the comparatively low number of downturns starting in the interim of the big spikes signals the importance of the national and European business cycle for the local level. This justifies, to a certain extent, the focus on periods of economic crisis taken by other authors as well as the same bias appearing often in the authors subsequent work (among others Giannakis and Bruggeman 2017a; Capello et al. 2015; Martin et al. 2016; Crescenzi et al. 2016).

As for employment downturns, a somewhat different pattern becomes apparent (cf. Table 21). The crisis from 1990 to 1993 contains the most observations overall. With 702 regions observed this group is nearly as big as the equivalent in RGVA downturns despite a lower aggregate number of employment downturns. Therefore, this period alone makes up more than half the observations of employment downturns (53%).

Consequently, the other two sample periods are markedly smaller than their equivalent in RGVA downturns. With just 177 observations the period 2000-2001 contains only 13% of employment-based observations while the observations from 2008-2009 make up 21%. Relatively to the total, the cases falling in between those spikes are, at 162 cases or 12% of the

total, are more relevant than for RGVA downturns by comparison. While the lower total number of identified first downturn events is based on the generally lower number of identified shock events and downturns for employment as an underlying economic performance measure (cf. Chapter 5.1 and 5.2), the difference to RGVA-based observation across time is in need of some discussion.

One factor explaining the different frequency of RGVA and employment downturns specifically for the 2008-2009 event, can be found in the measurement methodology and the slower reaction of employment to shocks as well as the subsequent recovery observed at several points before already (cf. Chapter 5.3). Given the increased number of additional employment downturns (1,01 compared to 0,85 for RGVA on average) and a longer duration until the beginning of the recovery period (2,15 compared to 1,79 years after the last downturn on average), it is likely that employment observations have a higher probability to be out of range for the later crisis periods. This is further underlined by the severe reduction in the number of observations for the crisis period 2008-2009, when the measurement of trajectory retention is extended to an eight-year recovery period. In this case, the number of valid observations for RGVA is reduced by 'only' half, while only about a fifth of employment downturns remain observable (cf. Table 20 and 21).

Periode	N	Minimum	Maximum	Mean	Std. deviation
Recovery of development level					
All	1323	-0,645	0,899	-0,108	0,100
Between	162	-0,411	0,899	-0,058	0,136
90-93	702	-0,453	0,260	-0,121	0,089
00-03	177	-0,645	0,093	-0,132	0,109
08-09	282	-0,391	0,123	-0,089	0,082
Retention of growth trajecotry - 4 year recovery phase					
All	1323	-0,182	0,139	-0,005	0,024
Between	162	-0,108	0,073	0,000	0,025
90-93	702	-0,182	0,139	-0,004	0,025
00-03	177	-0,120	0,034	-0,017	0,026
08-09	282	-0,065	0,064	-0,002	0,017
Retention of growth trajecotry - 8 year recovery phase					
All	1061	-0,113	0,060	-0,008	0,019
Between	135	-0,062	0,060	-0,003	0,020
90-93	701	-0,058	0,058	-0,007	0,017
00-03	167	-0,113	0,027	-0,020	0,022
08-09	58	-0,027	0,041	0,005	0,014

Table 21: Descriptive statistics of crisis periods, employment downturns

Nonetheless, cases falling out of the observation range cannot explain the whole difference in relative frequency between RGVA and employment downturns. One partial explanation could

be based on changed employment laws and national policies especially with regards to the 2008-2009 GFC, reducing the vulnerability of labor to recessions[103] (Gehrke et al. 2019; Möller 2010; Burda and Hunt 2011).

Additionally, the relatively high number of employment downturns in 1990-1993 might be connected to an increased number of German regions in an employment downturn (cf. Appendix II.n), feasibly caused by the after-effects of reunification that were dissipating over time (Hall and Ludwig 2007). A further reason for the divergence can be found in the different types of shocks causing RGVA and employment downturns respectively.

As to be expected, RGVA spikes show national economic downturns as the most common initial shock causing a regional economic RGVA downturn for all crisis periods[104]. Meanwhile for employment industry shocks, with the exception of 1990-1993, local industry shocks are the most frequent cause for regional economic downturns (cf. Appendix II.f). Assuming regional employment is most vulnerable to (local) industry shocks, the general economic downturns of 2000-2003 and 2008-2009 might have simply had less of an effect, at least compared to RGVA-based investigations. This latter point is underlined by the observations falling in between the crisis periods: Here, local industry shocks are the most common cause of RGVA downturns as well as employment downturns and the total frequencies of downturns is nearly equal, independent of the underlying measure.

The relative frequency of first downturns notwithstanding, the main concern of this analysis is the evaluation of the regional resilience performance in response to each of these crisis phases, the descriptive results of which can be found in Tables 20 and 21. Due to the usually non-normal distribution of the samples, non-parametric tests were applied (i.e. Kruskal-Wallis with an additional Dunn post-hoc test for multiple comparison of groups[105]), which, in turn, as before, were accompanied by a one-way analysis of variance (ANOVA) for confirmation[106].

For the recovery of the level of development of RGVA downturns, the period 2008-2009, with an average development level only 7,1% lower than the respective non-shock scenarios, shows the best recovery of all observed samples. This result is significant in contrast to the shock spike

[103] As for example the so called Hartz-reform package in Germany, which are argued to have reduced the effect of the GFC on the German employment market. That said the exact causality and effect of each component of the package is still disputed (Gehrke et al. 2019).
[104] For the cases falling in between the downturn spikes local industry shocks dominate.
[105] For the sake of brevity whenever a Kruskal-Wallis test or its results are referred to in the subsequent text and sections, the execution of a Dunn's test is implied when interpreting the differences between groups.
[106] Here only the significant results will be discussed, the detailed results of these and related tests relevant to this section can be found in Appendix II.c.

of 2000-2003 as well as on the mean of all observations based on the ANOVA analysis[107]. Conversely, the observations falling in between the different downturn spikes show the overall lowest recovery of the development level compared to the mean (-10,5%) - however, with a significantly higher p-value. Applying Kruskal-Wallis, the results for these observations show no significant difference to the other samples. Besides the contrast of 2000-2003 and 2008-2009, the periods of 1990-1993 and 2000-2003 show no significant deviation from the norm either.

Mirroring these results, the retention of the growth trajectory with a drop of only 0,5 percentage points is significantly higher than average for the period of 2008-2009. In contrast to the results for the recovery of the development level, the observations falling in between show a trajectory retention significantly stronger than the average with a drop of 0,4 percentage points. The largest contrast, significant to the results of all other samples as well as compared to the average, is the retention of the growth trajectory in response to the crisis period of 2000-2003. With a loss of 1,9 percentage points compared to the pre-shock growth trajectory, the crisis period of 2000-2003 showed on average the worst RGVA resilience performance as measured by this dimension.

Extending the recovery period to eight years to measure the retention of the growth trajectory, the comparatively weak results for the period 2000-2003 are confirmed and maintain their significance. Even more remarkably, the downturns falling in the 2008-2009 period manage to significantly improve their trajectory retention, further resulting in a comparative drop of only 0,1 percentage points. However, because of the drop in observable cases by about half for this period through extending the recovery period, these results cannot be given too much weight. Still, it confirms the relatively strong resilience performance in response to the GFC. Meanwhile, the cases falling in between the crisis periods do not differ significantly from the average anymore and approach the results of 1990-1993. Again, the drop in observable cases by about one third might influence this.

Overall, there are two takeaways for RGVA downturns regarding their timing. First, the crisis period from 2000-2003, while performing well on average on the development level recovery, shows by far the worst performance in the trajectory retention dimension. This means that the regions concerned managed on average to maintain or approximate the economic standing they

[107] The former result is also affirmed by Kruskal-Wallis.

could have had without a shock. However, their long-term growth trajectories were significantly lowered because of the low regional resilience performance during the recovery period.

Second, despite its severity (as reflected in the high number of downturns), the regional resilience performance in response to the 2008-2009 GFC was exceptionally good in comparison to the other events. The latter might be indicative of the regional economic effect of the extraordinary monetary and fiscal policies implemented as a reaction to the financial crisis by most European countries (Aït-Sahalia et al. 2012; Classens et al. 2010; Gardner 2009). Support for this assumption can be seen in the relatively poor performance of the cases falling in between the spikes of downturns which, compared to the average, perform poorly especially on the recovery of the development level. Assuming national economic stabilization policies have a significant effect on RGVA downturns and are mostly implemented as a response to national economic downturns, the observations falling outside of such downturns would lack such a boost by policy and therefore potentially perform weaker.

For employment downturns the resilience performance during the different crisis periods in both dimensions shows a general similarity to the results described for RGVA downturns (cf. Table 21[108]). Again, the period 2008-2009 shows, with a loss of 8,9% compared to the counterfactual scenario, a significantly stronger recovery of the development level compared to the crisis periods from 1990-1993 and 2000-2003. The latter two at the same time show the worst performance in this dimension in comparison to the other periods (-12,1% and -13,2% compared to the counterfactual) as well as a significant drop on the average. In contrast to the RGVA results, the employment downturns occurring in between the big crisis periods fare best with a drop of only 5,8% compared to the counterfactual, thereby significantly outperforming the average as well as the crisis periods of 2000-2003 and 1990-1993. Since this period between the crisis is dominated by local industry shocks (to which, as pointed out above, employment seems to be most vulnerable during this period at 59,2% of observations (cf. Appendix II.f)), one hypothesis relates to the nature of the shock as a reason for stronger or weaker resilience performance – i.e., a higher recovery of the level of development in response to (local) industry shocks for employment downturns. This will be investigated more deeply in Chapter 6.2 and 7.3.2.

As with RGVA downturns, the crisis period of 2000-2003 performs the weakest in the resilience performance dimension on growth trajectory retention. Independent of the duration of the

[108] As before, details on the performed tests as well as further descriptive analysis can be found in Appendix II.b and II.c.

recovery period used as a basis to measure this dimension, this period performs significantly weaker than all other crisis periods as well as the average (-1,7 percentage points in case of a four-year recovery and -2,0 percentage points in an eight-year recovery). In contrast, the period 1990-1993 shows a markedly improved performance than its RGVA-based equivalent, with a drop of the recovery growth trajectory of only 0,4 percentage points, thereby approximating the all-region average closely. That said, the performance of this period declines if the time frame for the recovery period is extended to eight years (-0,7 percentage points); however, it still generally follows the average trend.

The observations falling between the crisis phases as well as the downturns during the GFC (2008-2009) perform strongest compared to the average. That said, both periods show no significant differences to the other crisis periods except, of course, to the period 2000-2003. The cases observed between the downturn spikes take the overall lead in this dimension with a full recovery of their pre-shock growth trajectory on average. Meanwhile, the phase of 2008-2009 follows closely with an average comparative trajectory drop of 0,2 percentage points. Extending the recovery period to eight years changes this order by reducing the retention of the pre-shock growth trajectory for the in-between cases to a drop of 0,3 percentage points and increasing the 2008-2009 performance to 0,5 percentage points. As with the RGVA-based results for the phase 2008-2009, and with an even stronger emphasis because of the relatively larger drop in cases, these results have to be put in quotation marks due to the low number of observations remaining (about 20%) once the recovery period is extended to eight years.

In summary, similar conclusions can be drawn for the regional employment resilience performance across the years as for RGVA. As before, the phase 2000-2003 sees the overall worst resilience performance compared to the other periods. Regarding employment, the measured resilience outcome for this period are weak, given that not only the retention of the growth trajectory is low but also the recovery of the development level performs badly. According to the logic of Martin's model, many of the regions affected by the crisis of 2000-2003 therefore show a pattern of declining underperformers (cf. Figure 1). Similarly reflecting the results on RGVA downturns, the downturns clustering around the GFC from 2008 to 2009 seem to significantly outperform the other periods across both dimensions – with the same conclusions regarding the potential effect of stabilization policies as above.

The only exception to this pattern of similarities seems to be the downturns happening in between the phases of downturn spikes. While for RGVA downturns the performance in such cases was worst in the dimension of the recovery of the development level, employment

downturns (with the discussed exception of the expanded recovery phase) perform well in both performance dimensions and even outperform the other periods' observations based on the average recovery of the development level. As already discussed, a potential factor explaining this might relate to the industry shocks dominating this in-between period and the different effect these shocks seem to have on employment and RGVA-based resilience performance.

6.2 Resilience performance and shock types

The last observation concerning the timing of shocks offers a convenient segue to the next step in this analysis, i.e., the varying resilience performance in response to the different shock types discussed in Chapter 4.1 and empirically described in Chapter 5.1. As the sample size for some of the sub-groups of shocks is too small for a reliable ANOVA the analysis will rely mostly on the non-parametric Kruskal-Wallis test, whose size requirements are less demanding (Karadağ Ataş and Aktaş Altunay 2011; Meyer and Seaman 2013).

As outlined in Chapter 4.1 the presented methodology allows for the observation of three main types of shocks – national economic downturns (NED), local industry shocks (LIS) and national industry shocks (NIS). Two additional hybrid-shock types exist in the combinations of national economic downturns and each of the industry shocks, in the event that they occur concurrently (cf. Chapters 4.1 and 5.1 as well as Table 8). The descriptive resilience performance results for the different types of shocks and their corresponding first downturns are displayed in Tables 22 and 23[109].

As mentioned before, NEDs are the most common cause for regional economic downturns owing to their potential effect on all regions of a country simultaneously. However, (pure) NEDs are significantly more numerous in relation to RGVA downturns (80,1% of observations) than for employment downturns (58% of cases). Conversely, LISs make up about 22% of causes for regional employment downturns while only 10% of RGVA downturns are connected to them. Of the main shock classes NISs are the least numerous for both downturn measures: they amount to a share of around 11% and 5,7% for employment and RGVA downturns respectively. The combined cases are significantly rarer, with the fewest observations on combinations of NED and LIS (around 0,6% of cases for RGVA and 1,6% for employment downturns). The

[109] Detailed descriptive statistics can be found in Appendix II.d.

combination of NIS and NED is somewhat more common, at 7,8% and 3,4% for employment and RGVA downturns respectively.

TYPE	N	Minimum	Maximum	Mean	Std. deviation
Recovery of development level					
All	2124	-0,732	0,509	-0,081	0,103
LIS	213	-0,732	0,509	-0,102	0,142
NED	1702	-0,590	0,278	-0,073	0,092
NIS	123	-0,490	0,190	-0,133	0,136
NED+LIS	12	-0,437	-0,042	-0,162	0,113
NED+NIS	74	-0,451	0,188	-0,099	0,099
Retention of growth trajecotry - 4 year recovery phase					
All	2124	-0,146	0,189	-0,009	0,025
LIS	213	-0,146	0,189	-0,006	0,037
NED	1702	-0,095	0,088	-0,009	0,022
NIS	123	-0,125	0,064	-0,014	0,031
NED+LIS	12	-0,097	0,028	-0,023	0,032
NED+NIS	74	-0,071	0,083	-0,011	0,028
Retention of growth trajecotry - 8 year recovery phase					
All	1696	-0,132	0,103	-0,011	0,020
LIS	193	-0,132	0,103	-0,012	0,030
NED	1336	-0,097	0,065	-0,011	0,018
NIS	98	-0,091	0,026	-0,016	0,021
NED+LIS	9	-0,067	0,018	-0,023	0,025
NED+NIS	60	-0,098	0,050	-0,013	0,022

Table 22: Descriptive statistics by shock types, RGVA downturns

NEDs are not only the most frequently occurring shock causing RGVA downturns, but they are also cause for the shock-downturn pairings that show the best recovery of the RGVA development level. Compared to the counterfactual scenarios, regions affected by such downturns experience a drop of the total regional RGVA of about 7,3%, thereby significantly outperforming all other shock types – except the combination of NED and NIS that comes close with a drop of only 9,9%[110]. The worst RGVA performance for this resilience dimension can be observed for the combination of NED and LIS; however, the observation number is too small to make a finite assessment of this. These results are generally affirmed by ANOVA with the restrictions regarding its results mentioned above.

The resilience dimension on the retention of the (pre-shock) growth trajectory offers a less clear picture. Here the performance of the Kruskal-Wallis test could identify no significant difference between the samples. However, an ANOVA shows a tendency for a higher retention for NEDs as well as LIS (as marked by their average values as well). As mentioned before these results

[110] Details on the test and results can be found in appendix II.e.

must be interpreted with care, however. An extension of the recovery period makes no significant difference to these results either.

A deeper investigation of the shock-type specific results for RGVA downturns was made based on the already introduced crisis periods across the time series (cf. Appendix II.f and II.g). Only in the years 1990-1993 a significant difference between NEDs on the one hand and LIS and NIS on the other hand could be identified. Here NED-related downturns again performed significantly stronger in the recovery of the development level (a drop of 7% to the counterfactual) than LIS (-11,4%) and NIS (-17,8%). Additionally, for the observations falling between the three periods of increased shocks, tentative evidence was found for a significantly increased performance of LIS-caused regional downturns in the retention performance dimensions in comparison (0,001 percentage points for a four-year recovery period, -0,05 percentage points at eight years) to their NED equivalent (-0,011 and -0,16 percentage points).

Taken together, the picture for the relation of shock type and resilience performance in response to RGVA downturns seems less clear than the differences in performance across the time series discussed in Chapter 6.1. There is some evidence of a higher average resilience performance – especially for the recovery of the development level – of NEDs. Since NEDs are obviously the most common RGVA shock type by far during the three crisis phases of 1990-1993, 2000-2003, and 2008-2009, this might indicate the effectiveness of national economic stabilization measures or monetary policies during recession periods. This observation was already examined in the discussion of the different time periods in Chapter 6.1. However, this in turn is cast in doubt when looking at the individual performance results for each of the different crisis periods, where only for 1990-1993 clear evidence for a positive bias towards NEDs can be identified. In sum, it seems that at least for RGVA downturns the type of shock alone is not a major explanatory factor with regards to the resilience performance of a regional economy. It will, however, remain as a categorical variable for the investigations to be made in Chapter 7.

Rectifying to some extent the importance of the shock type as an explanatory factor, the results for employment downturns show an opposite trend to what was found in their RGVA equivalent (cf. Table 23). Here it seems that in general, downturns caused by local industry shocks tend to result on average in a higher resilience performance than those caused by NEDs.

Looking at the recovery of the development level, a meaningful difference between LISs and NEDs can be identified. Compared to the counterfactual, LISs perform with a drop of about

8,8% significantly stronger than NEDs with a drop of 11,5%[111]. This result is also confirmed by ANOVA – considering the aforementioned caveats on the sample sizes – where LISs once more significantly outperform the other shock types.

TYPE	N	Minimum	Maximum	Mean	Std. deviation
Recovery of development level					
All	1323	-0,645	0,899	-0,108	0,100
LIS	288	-0,453	0,899	-0,088	0,131
NED	768	-0,423	0,128	-0,115	0,083
NIS	143	-0,645	0,177	-0,101	0,108
NED+LIS	21	-0,392	-0,004	-0,138	0,102
NED+NIS	103	-0,391	0,065	-0,113	0,096
Retention of growth trajecotry - 4 year recovery phase					
All	1323	-0,182	0,139	-0,005	0,024
LIS	288	-0,077	0,083	-0,001	0,023
NED	768	-0,140	0,139	-0,007	0,023
NIS	143	-0,108	0,073	-0,002	0,026
NED+LIS	21	-0,120	0,018	-0,020	0,038
NED+NIS	103	-0,182	0,082	-0,003	0,025
Retention of growth trajecotry - 8 year recovery phase					
All	1061	-0,113	0,060	-0,008	0,019
LIS	232	-0,113	0,060	-0,004	0,021
NED	596	-0,086	0,042	-0,009	0,018
NIS	134	-0,093	0,053	-0,006	0,023
NED+LIS	13	-0,076	0,012	-0,017	0,026
NED+NIS	86	-0,050	0,044	-0,006	0,017

Table 23: Descriptive statistics by shock types, employment downturns

This pattern repeats when taking the trajectory retention into account. Regardless of whether they are measured over four or eight years, LISs show a significantly stronger retention of the growth trajectory than NED. At four years, LISs show a comparative drop of the recovery trajectory of 0,1 percentage points on the pre-shock trajectory and at eight years one of 0,4 percentage points. Meanwhile, NEDs drop on average by 0,7 and 0,9 percentage points at four and eight years respectively. Additionally, NISs perform significantly stronger than NEDs at a drop of 0,2 percentage points and 0,6 percentage points. Therefore, it seems that at least with respect to the aggregate cases, downturns caused by industry shocks – especially local industry shocks – outperform national economic downturns.

Considering that employment is often a target of equal importance for national stabilization policies as GVA, this is a somewhat surprising result (Burda and Hunt 2011; Möller 2010). This might point to factors other than national-level resource availability being highly important

[111] Detailed descriptive data and the results of the tests, including the data and tests on the different crisis periods, can be found in appendix II.e.

to regional employment resilience – e.g., regional human capital, accessibility of neighboring labor markets, unionization rate, which are discussed in Chapter 3 and analyzed in Chapter 7. However, as in the case of RGVA downturns, though to a lesser extent, these conclusions on shock type-specific regional resilience performance become somewhat muddy once analyzed across the different periods of the time series[112].

As with RGVA downturns, the significance of the difference in the recovery of the development level between NEDs and LISs only persists for the years of 1990-1993, albeit in the reverse direction. During this time LISs as well as NISs perform significantly stronger than NEDs. The first two show levels of development of 10,2% and 8,3% lower than the counterfactual scenario respectively, while NEDs see a drop of 13,1%. As before, no significance can be found in the comparisons of the combined shock types.

In contrast to the RGVA-related performance, the retention of the growth trajectory of employment downturns shows regularities across at least some periods of the aggregate results. Based on a four-year recovery period a significant difference between LISs, NISs and NEDs can be identified. In the crisis period from 1990 to 1993 regions affected by an LIS downturn outperform their pre-shock growth trajectory by 0,4 percentage points while NIS-related downturns are even higher at 0,7 percentage points. NEDs by contrast see a decline in the comparison of the trajectories by 0,7 percentage points. The difference is even starker for the period from 2000-2003, when LIS downturn trajectories decline on average by 1,0 percentage points and NIS downturns by -1,1 percentage points. At the same time, however, NEDs experience a much more severely reduced growth trajectory of 3,2 percentage points compared to the pre-shock period. Expanding the recovery period to eight years, these results are repeated for 1990-1993 as well as 2000-2003. Furthermore, in this case the LIS and NIS individually outperform the combined downturns of NED and NIS shocks in 1990-1993 and in 2000-2003 the combination of NED and LIS. Furthermore, at an eight-year recovery period the difference between LIS and NIS downturns on the one hand and NED-caused downturns on the other hand becomes significant for the observation situated between the three crisis periods as well. Again, NED-related downturns show a generally lower retention of the growth trajectory in those cases.

In summary, the verdict for the influence of the shock type on the resilience performance in the aftermath of an employment downturn is nearly a perfect reversal of the overall evaluation made for RGVA downturns. While for RGVA downturns NED-related regional economic

[112] Cf. Appendix II.f for summarized descriptive data and II.g for corresponding the analysis.

downturns generally showed the best resilience performance – at least with regards to the overall recovery of the development level – the reverse is true for employment-related downturns. In this case downturns caused by local industry shocks, and, to a lesser extent, national industry shocks significantly outperform downturns related to NEDs.

Furthermore, although the positive performance observed after NED-caused RGVA downturns got lost once analyzed for each of the different crisis periods of the time series, the significantly stronger performance of LIS and NIS after employment downturns remains observable and significant for all periods, at least for the retention of the growth trajectory. The only exception to this pattern are the years surrounding the GFC. Here, one must consider the above-average performance across all shock types compared to the other phases, which might influence the results.

Therefore, and stronger than for RGVA, it can be stipulated that LIS and to a lesser extent NIS-caused downturns show a stronger employment resilience performance on average than NED-related events (and, to a lesser extent, the combinations of both types of industry shocks with NEDs). Hence the approach to maintain the shock type as a categorical variable and even an analytical category is strengthened by the results on employment downturns – despite the relatively weak associations with RGVA downturns. This need to maintain the distinction of the different shock events for analytical purposes becomes even more pressing because of the difference in the comparative resilience performance between RGVA downturns and employment downturns regarding the effect direction of NEDs and industry shocks (especially LIS).

6.3 Resilience performance and regional typology

Similarly, to the preceding chapters, the present task is the investigation of divergent resilience performance along typological distinctions among the different observations of regional resilience performance. Next to the questions of when and how these downturns occur, the most obvious distinction, especially when talking about regional economic resilience performance, is where. This chapter will first investigate the differences of regional resilience performance along general regional characteristics, i.e., their classification into rural, intermediate, and urban regions. Following this, the investigation in the next subchapter will turn to the national environment that the different regions are embedded in and investigate country-dependent performance differences among the observations. As before, this investigation will be expanded

upon by looking at the specific corresponding country and class performance across the different crisis periods analyzed in Chapter 6.1.

As mentioned in the introduction of Chapter 6 and in the discussion of geographic resilience capabilities in Chapter 3.4, the findings on the effect of urbanization levels and related population density differ significantly in the literature. Many results found in the literature point to a generally higher level of resilience for more urban and metropolitan regions, often related to the available (human) resources, increased accessibility, effectiveness of local labor markets, or a younger population (Giannakis and Bruggeman 2020; Capello et al. 2015; Holl 2018; Reggiani et al. 2011; Reggiani et al. 2002). However, the relationship between urbanization and resilience is less clear as it may seem since several works published on the topic either are inconclusive on the issue or find an even higher resilience in more rural regions. The latter seems often related to the presumed stabilizing effect of agricultural industries compared to manufacturing and service industries (Brakman et al. 2015; Giannakis and Bruggeman 2017b; Ženka et al. 2017; Ženka et al. 2019; Holl 2018; Faggian et al. 2018). While the majority of the potential explanatory factors for the divergent resilience of urban and rural regions will be discussed in Chapter 7, the first step is clearly to establish if such a difference can in fact be identified in the context of the present methodology.

To distinguish the rural, intermediate, or urban characteristics of a region, the European Union's urban-rural typology is used. This typology identifies continuous urban areas as clusters of continuous 1 km² cells with more than 300 inhabitants per km² with a minimum population of 5,000 per cluster – all other areas are identified as rural. If a NUTS 3 region has less than 20% of its population living in rural areas, it is termed "predominantly urban"; between 20% and 50% as "intermediate"; and with more than 50% living in rural areas as "predominantly rural"[113]. Additionally, the approach takes larger urban centers into account: if a rural region contains an urban cluster of 200,000 or more inhabitants who represent at least 25% of the total NUTS 3 population, this regions classification is changed to an intermediate region; if an intermediate region contains a urban cluster of 500,000 or more inhabitants representing at least 25% of the regional population it is changed to a predominantly urban status (Eurostat 2021f).

For the present analysis the data set on the urban-rural status based on the NUTS 2016 regional classification is used (Eurostat 2019, summary in Table 24). As a one-off data set it was last updated for 2019. There is of course the chance that early regional observations especially are misclassified with regards to their urban-rural characteristics. However, given the

[113] For the purposes here the categories are changed to a simpler 'rural', 'intermediate', and 'urban'.

fundamentality of this classification, change to the regional status as urban, intermediate, or rural is rather unlikely, even over a period of 30 years.

	Urban	Intermediate	Rural
AT	4	7	24
BE	13	19	12
DE	95	196	110
DK	2	5	4
EL	8	15	29
ES	17	32	10
FI	1	6	12
FR	15	33	53
IE	1	1	6
IT	29	60	21
NL	22	17	1
PT	3	6	16
SE	2	14	5
UK	124	37	18
LU	0	1	0
Total	336	449	321

Table 24: Urban-Intermediate-Rural regions by country

The descriptive results on regional resilience performance can be found in Tables 25 and 26[114]. Independent of the type of underlying measurement – i.e., RGVA or employment – the distribution of regions among the observations is relatively equal reflecting the number of regions in each class. Most regions affected by downturns are classified as intermediate at 40,5% for RGVA downturns and 38,02% for employment downturns. Urban regions make up 30,8% and 34,8% of the observations, respectively. Rural regions are the smallest category with 28,7% of RGVA downturns and 27,1% of employment downturns. Hence not only is the number of the different regional classifications approximately equal but also the relative frequency is maintained between RGVA and employment downturns.

Still, as before the analysis must mainly focus on non-parametric tests due to the non-normal distribution of the different samples. However, given the size of the dataset as well as the

[114] Detailed test results as well as descriptive data on the analysis of the respective urban-rural resilience performance can be found in Appendix II.h and II.i.

relative size of each of the sub-samples, ANOVA becomes somewhat more reliable for this case than with the other prior applications (Lix et al. 1996; Harwell et al. 1992)[115].

Regarding the recovery of the development level for RGVA (Table 25), immediate regions show an overall higher resilience performance in direct comparison to urban and rural regions. With a loss to the regional level of development of 7,2% compared to a no-shock counterfactual scenario, the intermediate regions perform significantly stronger than urban regions (-8,8%). These results are confirmed by the application of ANOVA on the samples. Employing the non-parametric Kruskal-Wallis test shows rural regions performing tentatively stronger than urban regions as well (at -8,5%). However, this last result could not be confirmed by ANOVA and given the closeness of the means for urban and rural regions, seems to be a far less clear finding.

Class	N	Minimum	Maximum	Mean	Std. deviation
Recovery of development level					
All	2124	-0,732	0,509	-0,081	0,103
Urban	654	-0,732	0,509	-0,088	0,091
Intermediate	860	-0,489	0,278	-0,072	0,103
Rural	610	-0,590	0,337	-0,085	0,113
Retention of growth trajecotry - 4 year recovery phase					
All	2124	-0,146	0,189	-0,009	0,025
Urban	654	-0,146	0,173	-0,009	0,026
Intermediate	860	-0,110	0,189	-0,009	0,025
Rural	610	-0,125	0,071	-0,011	0,023
Retention of growth trajecotry - 8 year recovery phase					
All	1696	-0,132	0,103	-0,011	0,020
Urban	505	-0,132	0,103	-0,012	0,021
Intermediate	710	-0,127	0,091	-0,011	0,020
Rural	481	-0,091	0,079	-0,012	0,019

Table 25: Descriptive statistics by urban-rural classification, RGVA downturns

As for the retention of the RGVA growth trajectory, no significant effect of the regions' rural, intermediate, or urban characteristics could be identified either in a four or eight-year recovery period.

Across the time series, i.e., for the different crisis periods discussed in 6.1, the results above can be confirmed for the years between 1990-1993 and 2008-2009[116]. For 1990-1993 a significantly higher recovery of the RGVA development level can be found in intermediate regions than in urban regions (-6,7% versus -9% compared to the respective counterfactuals). For the years surrounding the GFC, urban regions again show a weaker performance (-8,8%),

[115] A two-way ANOVA will still be avoided for the contrasting resilience performance of rural, intermediate, and urban regions across the different phases of the time series discussed in section 4.4.1 because of the danger of compounding the error factor due to both samples being non-parametric.
[116] Cf. Appendix II.j and II.k.

in this case significantly lower than both intermediate (-6,2%) and rural regions (-6%). As before, for the dimension of the retention of the (pre-shock) RGVA growth trajectory, no significant effect of the regional classification could be identified by employing Kruskal-Wallis tests. Conducting an ANOVA, an increased retention of the growth trajectory in intermediate regions for 2008-2009 and a significantly lower than average retention for urban areas in 2000-2003 could be identified. However, given their high related p-value and the non-parametric distribution, these results are tentative at best and should be disregarded.

The results for the resilience performance along the urban-rural regional characteristics for employment downturns can be found in Table 26. In contrast to the observations made on RGVA downturns, no significant difference between the three types of regions can be identified in this case[117]. This goes for both performance dimensions. Generally, it seems the resilience performance of employment downturns does not depend much on the urban-rural cleavage, at least for the aggregate data of the time series.

This picture changes somewhat if focusing on the individual phases of the time series[118]. As for RGVA downturns, no significant effect for the employment downturns falling in between the three spike phases of downturns can be identified. However, for the phase 1990-1993 rural regions show a significantly higher recovery of the development level than urban regions (a 10,4% drop in rural areas compared to the counterfactual versus 13,2% in urban areas), but no significant effect on the retention dimension was found[119]. The results for 2000-2003 tend in a similar direction. Again, a significantly stronger resilience performance for rural regions compared to urban regions can be identified, in this case in the retention of the growth trajectory dimension (a 1,5 versus 2,3 percentage points drop compared to the pre-shock growth trajectory). Critically, however, this last result cannot be confirmed by ANOVA nor is it repeated for the eight-year duration of the recovery phase measure.

Overall, the observations of the employment downturns during 1990-1993 and 2000-2003 seem to tentatively confirm the results seen for RGVA downturns where a generally lower resilience performance for urban regions in contrast to rural and intermediate regions was evident. In direct comparison, resilience performance seems to be higher in rural regions for employment downturns while RGVA downturns perform stronger in intermediate regions. So far this

[117] Detailed test results as well as descriptive data and tests on the time series can be found in Appendix II.h and II.i.
[118] Cf. Appendix II.j and II.k.
[119] ANOVA identifies a significantly stronger than average performance for rural regions at a 8-year recovery rate, however due to the drop in observations, the relatively small sample size and the non-normal distribution these were ignored for the present report.

suggests a tentative pattern pointing towards a stronger resilience performance for non-urban regions, but once one considers the performance of employment downturns in the GFC, this assumption changes.

Class	N	Minimum	Maximum	Mean	Std. deviation
Recovery of development level					
All	1323	-0,645	0,899	-0,108	0,100
Urban	461	-0,393	0,145	-0,110	0,085
Intermediate	503	-0,453	0,252	-0,111	0,098
Rural	359	-0,645	0,899	-0,100	0,118
Retention of growth trajecotry - 4 year recovery phase					
All	1323	-0,182	0,139	-0,005	0,024
Urban	461	-0,088	0,139	-0,005	0,023
Intermediate	503	-0,090	0,083	-0,005	0,021
Rural	359	-0,182	0,073	-0,005	0,029
Retention of growth trajecotry - 8 year recovery phase					
All	1061	-0,113	0,060	-0,008	0,019
Urban	355	-0,064	0,042	-0,008	0,018
Intermediate	415	-0,113	0,058	-0,008	0,019
Rural	291	-0,086	0,060	-0,007	0,022

Table 26: Descriptive statistics by urban-rural classification, employment downturns

For employment downturns taking place during 2008-2009 the resilience performance of urban regions significantly exceeds the performance of all other region types in both resilience performance dimensions. While the development level of rural regions drops on average by 12,4% and intermediate regions by 10% compared to the counterfactual, urban areas lose only 6,6% on average compared to the non-shock scenario[120]. Meanwhile, the growth trajectory of urban areas during a four-year recovery period even outperforms the pre-shock trajectory by 0,2 percentage points on average. By contrast, rural and intermediate regions lower their trajectory by an average of 0,7 and 0,5 percentage points respectively[121]. Due to the extreme reduction of cases by 80%, the measurements for eight-year recovery period have little validity for the latest crisis period regarding employment downturns[122].

In summary the results on the effect of the urban-intermediate-rural distinction on the regional economic resilience performance is unclear. This reflects the previously discussed general division on the topic in resilience literature (among others Giannakis and Bruggeman 2020; Ženka et al. 2019; Ženka et al. 2017; Capello et al. 2015; Brakman et al. 2015). While the results

[120] ANOVA confirms these results for urban and rural regions, the significance of the difference to intermediate regions is only identified by Kruskal-Wallis test.
[121] As for the recovery of the development level ANOVA only confirms this for urban and rural regions.
[122] In this case ANOVA again identifies a higher than expected performance for urban regions (at a very high p-value however).

on RGVA downturns as well as the 1990-1993 and 2000-2003 crisis periods for employment downturns seem to support a resilience advantage for rural and intermediate regions, the results for the GFC in regards to employment downturn resilience performance show a trend in the exact opposite direction.

This suggests two things: First, something fundamental changed in the time leading up to or during the GFC in 2008-2009 in how the urban-rural cleavage influences employment markets and the subsequent regional resilience performance in response to employment downturns. Second, the urban-rural distinction alone is not enough to explain divergent resilience performance.

As the literature suggests, the classification of urban, intermediate, and rural can be useful but the explanatory factors for the different resilience performance of these regions are not permanently bound to this typology. These factors include human capital, regional accessibility, and stability of certain regionally prevalent sectors, none of which are necessarily fixed to the urban-rural cleavage – although there might be a certain bias in one direction or other (among others Brakman et al. 2015; Reggiani et al. 2011; Holl 2018; Faggian et al. 2018; Giannakis and Bruggeman 2020; Oprea et al. 2020; Giannakis and Bruggeman 2017a). Since most of these variables will be part of the investigation in Chapter 7, going forward the urban-rural categorization or regions will mostly serve as a categorical variable to distinguish observations for analytical purposes (cf. Chapter 7.3.3). That said, the variable is still considered to be a potential explanatory factor since it is suitable in replacing other variables like population density, metropolitan status, or level of urbanization as an indicator of regional population and geographic endowment[123].

6.4 Country dependent resilience performance

The last general categorization of the different regions affected by (first) economic downturns, and their respective regional economic resilience performance concerns the countries the respective regions are affiliated with. In the investigation of European regional economic resilience, country-level distinctions as well as country-level explanatory variables obviously have an important role to play. In the resilience literature on the topic the analysis ranges from

[123] A task to which the Eurostat methodology presented above is especially apt, since the high variance of the geographic size of NUTS 3 regions across the countries in the data set makes simple measures like population density per km² highly unreliable for comparative purposes.

simple distinctions of country affiliation, the European north-south divide, national macroeconomic factors like debt levels, Eurozone membership, or inflation rates, down to more nuanced factors like national stabilization policies in response to specific crisis, market efficiencies, or (regional) institutions (among others Crescenzi et al. 2016; Giannakis and Bruggeman 2017a, 2020; Kakderi and Tasopoulou 2017; Briguglio et al. 2009). A great many of these country-level factors were discussed in Chapter 3 and will be analyzed deeper in Chapter 7. Still, it is pertinent to look at the variance in resilience performance along country lines separately from the underlying factors before deepening the analysis.

As will be seen, the results of this analysis are highly heterogenous. This is to be expected due to the relatively high number of countries involved (15) and the variations not just in regional resilience performance, but also in the absolute number of NUTS 3 regions across each of the countries involved. Chapter 4.1. already discussed the occasionally extreme difference in the number of NUTS 3 regions in each of the European countries involved. Considering the different timings and shocks influencing first downturns, the number of observations of resilience performance by country varies even more.

For example, at one end of the spectrum one finds Luxembourg with only two fully observable employment downturns while at the other end, Germany offers 900 observable cases of RGVA downturns. Consequently, the method of analysis for the comparison of the country-dependent resilience performance is restricted to the non-parametric Kruskal-Wallis test as the test option with the least demands to sample size and distribution. ANOVA was conducted but its results cannot be seen as reliable, especially for the smaller country samples[124]. The summarized descriptive results for the country-dependent resilience performance can be found in Tables 27 and 28.

The most significant result from analyzing the recovery of the development level for RGVA downturns (cf. Table 27) concern three countries: Germany (DE), France (FR) and Greece (EL). Regions in Germany and France both show a nearly equal average drop of only 5,1% compared to the respective counterfactual no-shock scenarios, a result which is significantly stronger compared to most of their peer countries and to the average. This positions them in the lead in this dimension for RGVA downturns. The standard deviation for Germany is higher than for France; however, there is no significant difference in the two countries' resilience performance for this dimension.

[124] As before, only descriptive results are given in here, the detailed descriptive data and test results can be found in appendix II.l and II.m.

Greek regions, on the other hand, with an average drop of 35,8% compared to the counterfactual, are the worst RGVA performers among all countries covered. Again, this result is significant compared to most of the other countries regions observed as well as the average. Given the severe toll especially the GFC as well as the subsequent Euro crisis took on the Greek economy, these results are not surprising (Ozturk and Sozdemir 2015).

However, it must also be considered that the GFC and Euro crisis in Greece have a lingering effect, thereby producing a great number of subsequent downturns and by far the most extended duration from the first downturn in a series to the eventual beginning of the recovery period (on average 8,04 years, cf. Table 14). As such, many downturns after 2008 cannot be observed to the full extent of the four-year recovery period even with a data set extending up to 2018. This explains the small number of observations (17) and might also skew the results more negatively than they would otherwise be in a longer time series[125]. The observed downturns in regions in other countries show further significant differences. However, none are as broadly significant as the three named here (cf. Appendix I.m).

Two other countries which deserve a mention at this point are the United Kingdom (UK) and Belgium (BE). The UK, as one of the leading economies by size next to Germany and France, has a significantly weaker performance than the latter two, with a downturn of 11,1% in the sample compared to the counterfactual. Meanwhile the relatively small (in number of observed downturns as well as economic size) Belgium ranks in third place after France and Germany, with a drop of 7,5% compared to the counterfactual and outperforms the UK significantly. This shows that size and economic weight alone are not decisive when it comes to regional economic resilience[126].

For the retention of the RGVA growth trajectory a Kruskal-Wallis test was conducted. However, at a four-year recovery period only one significant difference between the country samples could be found. This concerns the performance of Portuguese regions in response to RGVA downturns. With a drop of their recovery growth trajectory by 2,1 percentage points compared to the pre-shock trajectory, Portuguese regions perform significantly weaker on average than German, French, Spanish, and British regions.

[125] That said, one would expect regions entering the recovery phase earlier to generally perform stronger than those experiencing an even longer downturn period. Cf. section 4.3. for more details on the measure of the recovery of the development level dimension.

[126] All mentioned results were additionally confirmed with ANOVA, under consideration of the caveats made about the applicability of this method.

NAT	N	Minimum	Maximum	Mean	Std. deviation
Recovery of development level					
All	2124	-0,732	0,509	-0,081	0,103
AT	73	-0,313	0,105	-0,094	0,059
BE	80	-0,419	0,063	-0,075	0,075
DE	900	-0,732	0,509	-0,051	0,101
DK	20	-0,198	0,041	-0,097	0,060
EL	17	-0,590	-0,162	-0,358	0,131
ES	71	-0,490	0,094	-0,091	0,114
FI	40	-0,590	0,190	-0,189	0,180
FR	223	-0,229	0,087	-0,051	0,058
IE	6	-0,521	-0,101	-0,263	0,168
IT	172	-0,405	0,106	-0,103	0,083
LU	3	-0,157	-0,105	-0,136	0,028
NL	69	-0,521	0,203	-0,115	0,105
PT	58	-0,480	0,158	-0,139	0,102
SE	44	-0,321	0,198	-0,114	0,104
UK	348	-0,464	0,213	-0,111	0,084
Retention of growth trajecotry - 4 year recovery phase					
All	2124	-0,146	0,189	-0,009	0,025
AT	73	-0,055	0,024	-0,009	0,017
BE	80	-0,048	0,023	-0,009	0,014
DE	900	-0,146	0,138	-0,008	0,024
DK	20	-0,056	0,027	-0,018	0,027
EL	17	-0,062	0,038	-0,016	0,029
ES	71	-0,125	0,066	-0,003	0,029
FI	40	-0,092	0,071	-0,017	0,042
FR	223	-0,061	0,023	-0,009	0,016
IE	6	-0,048	0,069	0,009	0,051
IT	172	-0,107	0,022	-0,012	0,020
LU	3	-0,064	0,002	-0,032	0,033
NL	69	-0,090	0,056	-0,017	0,031
PT	58	-0,085	0,189	-0,021	0,048
SE	44	-0,054	0,057	-0,015	0,021
UK	348	-0,097	0,083	-0,008	0,026
Retention of growth trajecotry - 8 year recovery phase					
All	1696	-0,132	0,103	-0,011	0,020
AT	49	-0,031	0,009	-0,010	0,010
BE	54	-0,068	0,013	-0,008	0,015
DE	801	-0,132	0,047	-0,008	0,017
DK	14	-0,035	0,022	-0,018	0,019
EL	0	-	-	-	-
ES	67	-0,072	0,049	-0,011	0,023
FI	38	-0,077	0,079	-0,019	0,036
FR	156	-0,063	0,030	-0,011	0,015
IE	2	-0,098	-0,061	-0,080	0,026
IT	130	-0,074	0,014	-0,014	0,015
LU	2	-0,044	-0,025	-0,034	0,013
NL	45	-0,127	0,046	-0,032	0,026
PT	48	-0,093	0,103	-0,034	0,037
SE	41	-0,036	0,027	-0,009	0,014
UK	249	-0,072	0,042	-0,009	0,021

Table 27: Descriptive of resilience performance by county, RGVA

Even by direct comparison of the averages the Portuguese retention of the growth trajectory is the worst – with the exception of Luxembourg which, with only three observations, cannot be considered a valid contrast. An additional ANOVA identifies significantly higher levels of growth trajectory retention for Germany, Spain, Ireland, and the UK. Due to the previously discussed shortcomings of the samples, however, these results must be taken with a grain of salt.

If the recovery period is extended to eight years for the measurement of the retention of the growth trajectory, more contrasts between the different nations' regions become visible. While the comparatively poor performance of Portugal is confirmed as significant in comparison to more countries (the shortfall of its trajectory retention increases to -3,4 percentage points), the Netherlands shows a significantly lower performance level than many of its contemporaries as well (at 3,2 percentage points below the pre-shock trajectory). The additionally executed ANOVA confirms the aforementioned results for Germany, Spain, and the UK. Furthermore, an increased retention of the growth trajectory can be identified for Austria, Belgium France, Italy, and Sweden. As before, however, the results of ANOVA must be interpreted with care since the number of observations at an eight-year recovery period is reduced even further. Specifically, the Irish observations are reduced to only two and for Greece all regions become unobservable.

Some of these results change when extending the analysis of the country dependent regional RGVA resilience performance to the different crisis periods of the time series discussed in 6.1[127]. The first significant observation is the near total lack of significant differences between the regional recovery of the development level for the periods from 2000-2003 and 2008-2009. In 2000-2003 only the Netherlands shows a significant lower recovery level (-15,2%) when compared to Germany, France and Sweden which outperform Dutch regions significantly on average. In the aftermath of the GFC, Germany alone shows a significantly higher performance in contrast to Austria, UK, Sweden, and Italy, with a drop of only 4%. All other contrasts – despite partially strong average differences – are not significant, partly due to the low number of observations for some countries. For the cases falling in between the spikes and the crisis period from 1990 to 1993 the differences are somewhat clearer. Especially for 1990-1993 the significantly stronger performance of German and French regions is confirmed in most pairings, while Austria, Belgium, Finland, Italy, Portugal, the UK, and Sweden perform significantly weaker.

[127] Summary, detailed descriptive and test results can be found in Appendix II.n and II.o.

For the retention of the RGVA growth trajectory (for a four-year recovery period as well as at an eight-year recovery period), this pattern repeats. Generally, there is more divergence between countries especially for the period 1990-1993. In this case France is the lone best performer, followed closely by Spain, while Portugal again performs the weakest. Meanwhile in 2000-2003 there seems to be a more synchronous development – except for Germany which significantly outperforms Denmark, Italy, the Netherlands, and Portugal. In the years around the GFC, and in contrast to the recovery of the development level, the performance in the retention dimension seems to increase relatively uniformly again. However, due to the low numbers of observations for some countries these results are somewhat unreliable.

To summarize the results of the resilience performance to RGVA downturns, some trends can be identified: First, at least for the recovery of the level of development, France and Germany seem to perform equally well, although there are differences in their comparative performance depending on the crisis period taken as a reference point. Second, there seems to be a certain indication of a north-south cleavage, especially when contrasting Germany and France with countries like Greece, Portugal, and, to a lesser extent, Italy (Landesmann 2013). That said, this is far from clear-cut, as the heterogenous results for the UK and the Netherlands, for example, attest to. Third, there seems to be tangential evidence of a higher level of synchronicity in the resilience performance over time. While the significance of differences in results across resilience dimensions is relatively high for the period 1990-1993, this heterogeneity seems to decrease towards the first two decades of the 21st century, with the potential exception of the response to the GFC in 2008-2009. This last finding reflects to some extent the general synchronization of the European business cycles up to the GFC identified by other researchers (Degiannakis et al. 2014; Darvas and Szapary 2004; Arčabić and Škrinjarić 2021).

While the results on RGVA downturns at least tentatively reflect general assumptions about the relative resilience performance especially with regards to the north-south divide of the European Union (Landesmann 2013), the analysis of the aggregated results of both employment resilience dimensions offers some surprises (cf. Table 28).

This is most striking when considering the recovery of the employment development level of Greece (EL) across all observations. In this dimension Greece performs best with an all-regional average drop of 6,2% compared to the counterfactual no-shock scenario. While this result is somewhat surprising, this picture will change once looking at the specific performance in each phase of the time series, as described below. Nonetheless, this level of resilience performance is significant in half of the comparisons with the other countries' regions, specifically Germany,

Finland, Ireland, Italy, the Netherlands, Portugal, and the UK[128]. The country performing best overall in the recovery dimension is France, however. With an average drop of only 4,3% compared to the counterfactual, French regions perform best among all observed countries. Again, this result is significant in direct comparison to the same countries' regions as for Greek observations. Among the countries performing least well, the lowest recovery of the development level on average in descending order are Germany, the UK, Portugal, the Netherlands, and Ireland.

For the retention of the employment growth trajectory during a four-year recovery phase, there is a repeated pattern of a lower aggregate employment resilience performance on average in mostly northern countries' regions (except for Sweden and Denmark). The weakest performance by far can be identified for the Netherlands, with an average drop of the regional employment recovery growth trajectory by 2,2 percentage points compared to the respective pre-shock trajectory. This low performance in this dimension is significant in nine out of 14 possible pairings. Significantly higher than the Netherlands, but still significantly lower than Greece, Spain, Italy, and Sweden, is the German performance with a comparative drop of the growth trajectory of 0,9 percentage points. While a few other countries perform weaker on average (UK, Ireland, Luxembourg) by comparison, these results are not as significant as for the Netherlands and Germany[129]. In contrast, the significantly higher comparative results for trajectory retention can be found in southern countries, specifically Spain (+1,1pp), Greece (-0,2pp) and Italy (-0,3pp).

Expanding the recovery phase to eight years changes the picture only slightly. Germany and the Netherlands remain (significantly) among the weakest performers while the more southern countries' regions perform stronger on average. Significant changes can mainly be identified for Greece, which performs significantly weaker at -0,8pp, and Finland, which, with an increase of 0,8 percentage points becomes the strongest performer in this dimension compared to nearly half of the other countries. France significantly improves its performance to 0,1 percentage points which is significant in comparison to Germany and the Netherlands. Meanwhile Spain, Italy and Sweden remain among the strongest comparative performers. The significance of the relatively weak performance of the UK and Ireland increases as well. Furthermore, Portugal, which at four years showed no notable performance observation, now performs significantly weaker at -0,7 percentage points in comparison to the higher rated countries.

[128] Detailed results on the tests performed can be found in appendix II.m.
[129] As at other times the number of downturns in Luxembourg is anyhow too low to make a qualified statement.

NAT	N	Minimum	Maximum	Mean	Std. deviation
Recovery of development level					
All	1323	-0,645	0,899	-0,108	0,100
AT	12	-0,180	0,056	-0,061	0,068
BE	7	-0,121	-0,018	-0,074	0,035
DE	389	-0,357	0,128	-0,115	0,075
DK	13	-0,161	-0,035	-0,101	0,035
EL	93	-0,375	0,133	-0,062	0,105
ES	80	-0,645	0,260	-0,087	0,160
FI	37	-0,223	0,021	-0,111	0,052
FR	26	-0,114	0,018	-0,043	0,030
IE	16	-0,363	0,234	-0,147	0,161
IT	199	-0,453	0,129	-0,108	0,096
LU	2	-0,097	-0,064	-0,080	0,023
NL	40	-0,393	0,004	-0,136	0,096
PT	59	-0,423	0,065	-0,134	0,118
SE	38	-0,250	0,020	-0,104	0,087
UK	312	-0,393	0,899	-0,116	0,107
Retention of growth trajecotry - 4 year recovery phase					
All	1323	-0,182	0,139	-0,005	0,024
AT	12	-0,028	0,031	-0,004	0,018
BE	7	-0,023	0,011	-0,004	0,013
DE	389	-0,061	0,036	-0,009	0,016
DK	13	-0,013	0,010	0,002	0,006
EL	93	-0,108	0,056	-0,002	0,019
ES	80	-0,105	0,083	0,011	0,036
FI	37	-0,037	0,034	0,000	0,021
FR	26	-0,036	0,015	-0,006	0,017
IE	16	-0,120	0,057	-0,020	0,053
IT	199	-0,051	0,051	-0,003	0,018
LU	2	-0,025	-0,002	-0,013	0,016
NL	40	-0,061	0,020	-0,022	0,018
PT	59	-0,073	0,062	-0,003	0,032
SE	38	-0,015	0,024	0,002	0,009
UK	312	-0,182	0,139	-0,007	0,029
Retention of growth trajecotry - 8 year recovery phase					
All	1323	-0,113	0,060	-0,008	0,019
AT	10	-0,022	0,021	-0,003	0,013
BE	7	-0,018	0,012	-0,005	0,012
DE	371	-0,053	0,021	-0,013	0,012
DK	3	-0,006	0,013	0,001	0,011
EL	75	-0,062	0,020	-0,008	0,017
ES	74	-0,113	0,058	0,003	0,031
FI	24	-0,014	0,023	0,008	0,011
FR	25	-0,022	0,016	0,001	0,014
IE	12	-0,093	0,060	-0,029	0,063
IT	127	-0,040	0,040	0,001	0,015
LU	1	-0,022	-0,022	-0,022	0,000
NL	40	-0,064	0,026	-0,023	0,017
PT	41	-0,043	0,035	-0,010	0,025
SE	32	-0,006	0,016	0,003	0,005
UK	219	-0,058	0,042	-0,007	0,019

Table 28: Descriptive of resilience performance by county, employment

Notwithstanding the slight changes at a recovery period of eight years, the aggregate numbers for both dimensions across the time series underline the observations above of a reverse of the trends observed for RGVA downturns. While measured based on RGVA mostly northern countries (as a very broad category) tend to show a stronger regional resilience performance than southern European countries, the reverse seems to be the case for employment downturns, where the advantage lies in the south. Fitting its geographic position between northern and southern Europe, the main exception to this observation seems to be France, which performs at least adequately in both dimensions and whose regions are on average often even among the best in the respective performance dimension[130].

Extending the analysis of the regional resilience performance in response to employment downturns, the north-south cleavage postulated above becomes extremely dependent on the specific crisis period investigated. Generally, the observations falling in between the different spikes of downturns as well as the period around 2000-2003 show the least divergence between the observed countries' regions. This observation seems to support the observation that RGVA downturns have an increasing European synchronicity of resilience performance (and the wider business cycles) around the turn of the century. The periods 1990-1993 and 2008-2009 are different, however[131].

During the early 1990s the picture of a stronger employment resilience performance of southern European regions is affirmed. Greek regions, with a drop of their average development level of 1,4% compared to the counterfactual, once more perform significantly stronger than most other countries' regions. Similarly, Spain (-8,7%), Italy (-9,7%), and Portugal (-9,5%) show a significantly better performance in this dimension in comparison to the counterfactual than other countries[132]. Meanwhile, the weakest performers by far are Germany (-12%), Sweden (-17,6%), and the UK (-16,7%). This trend in the results repeats for the retention of the employment growth trajectory at four and eight years, albeit at lower levels of significance. Again, Germany and the UK are significantly weaker in their regions' average performance (-1,1 and -1,3 percentage points respectively in a four-year recovery phase). As before, France's regions, at least for the recovery dimension (-4,2% on average), are among the stronger performers. An honorable mention goes to Finland, whose regions, while being among the

[130] Due to the, compared to RGVA based evaluations, low total number of employment downturns it can be assumed that France is generally less vulnerable to shocks to its employment base in the first place than, for example, Germany.
[131] For a descriptive summary and the respective statistical analyses on country based regional resilience performance cf. Appendix II.n and II.o.
[132] Austria and Belgium show a relatively high recovery of the development level as well at -6,2%, this value is however not significant in any pairing due to the very small number of observations for each crisis.

weakest performers in the recovery dimension, show a very high trajectory retention at 1,7 percentage points (1,3 percentage points over an eight-year recovery period).

The crisis phase 2008-2009, in contrast, shows very different results. Based on the recovery of the employment development level, Germany (-1,5%), followed by Sweden (-1,6%), outperforms Denmark (-10,2%), Greece (-22,6%), Spain (-24,7%), Finland (-9,7%), Ireland (-17,1%), and Italy (-7,6%) significantly. When analyzing the retention of the employment growth trajectory over four years[133] this order changes somewhat.

Portugal in particular shows a very quick recovery of its employment growth trajectory, even exceeding the pre-shock trajectory by 1,7 percentage points. This is true as well for Denmark, albeit to a lesser extent at 0,3 percentage points. The results for the other countries become generally less significant in the different pairings (except for Finland (-2,1pp) and Italy (-1,2pp)). Still, there remains a recognizable trend for Germany, the UK, and Sweden to perform stronger than in the crisis in 1990-1993.

Two conclusions can be drawn from this regarding resilience performance in response to regional employment downturns: First, there exist certain factors which make regions in mostly southern European, and, to a lesser extent, Scandinavian countries perform stronger on average than countries like Germany, the UK, or the Netherlands. As discussed in Chapter 3, such county-level effects might have to do with the specifics of the respective labor markets and sectoral structure (especially the public sector). Second, these factors, or at least their effects, are by no means uniform across time. As shown by the analysis of the employment downturns surrounding the GFC, the results for employment downturns can change significantly in respect to a specific crisis.

In summary, while no clear national pattern of resilience performance can be identified, there are certain trends. Mainly, a rough North-South cleavage seems to be at work. Regions in generally northern countries show a stronger average RGVA-based resilience performance while the reverse seems to be the case for employment-based performance measures. That said, once analyzed in detail and especially across the different periods of the time series, the picture becomes less clear and resilience performance in connection to national association seems to be strongly dependent on crisis type as well as location. However, since the circumstances in each country observed as well as the policies implemented as a reaction to shock events can

[133] The 8-year recovery phase sees an extreme drop in observations for the 2008-2009 phase and is therefore omitted from the interpretation here.

differ widely across time, this does not mean that the country variable is meaningless but only underlines the importance of space and time for a region's resilience outcomes.

6.5 Discussion on the variances of resilience

Overall Chapter 6 has led to several conclusions, which while not always clear cut, allow for some interpretation of the patterns of resilience and the effect of circumstance on regional resilience capacity:

1. Timing matters. Independent of resilience performance dimension or the nature of the downturn, the variance across the different crisis periods of the time series is large enough to underline the unique character of each crisis period and to justify and even necessitate their individual investigation.
2. The specific type of shock affecting a region can make a significant difference. However, the effect different shocks have varies depending on the nature of the regional downturn. In case of RGVA downturns there is significant, but weak, evidence for stronger performance for downturns caused by national economic downturns. Meanwhile for employment downturns a stronger performance can be significantly identified subsequent to industry shocks and specifically local industry shocks. Correspondingly, this might also imply that explanatory factors relating to the resilience performance for both employment and RGVA downturns differ significantly in their effect. This might especially concern the effect of the availability of local and national/European resources has on the resilience performance in each case.
3. The effect of the urban or rural (and intermediate) status of a region is by no means clear. While in general there seems to be a slightly higher level of resilience performance in rural and immediate type regions, this picture changes, especially for employment downturns towards the end of the time series. As was discussed in 6.3., around the GFC urban regions suddenly show a significantly stronger resilience performance than before. This might hint at either a general change of the direction of the trend towards urban regions becoming more resilient, or could be caused by the specific characteristics of the GFC and especially the policy responses to it.
4. Country-level effects and factors potentially matter significantly as well. However, RGVA and employment resilience performance are not constant 'inherent' national quantities. They change from crisis to crisis and are never reliably constant for any

country[134]. National factors seem to have a very significant, but changing, influence on the resilience outcomes. Just as no crisis is like any other, neither do the observed countries (or rather the regions therein) show a high level of synchronicity in their resilience performance.

For the subsequent analysis, all these factors will have to be considered. Therefore, the connection between the resilience capabilities discussed in Chapter 3 and the regional resilience performance observed here will not only be analyzed in the aggregate across the whole time series but also for each of the discussed periods of increased downturn frequency (cf. Chapter 6.1). As such, these time periods serve as quasi-control variables. Similarly, it has become clear that shock type and regional typology must be treated in a similar way since they carry explanatory value of their own. Furthermore, while the country association cannot be used to the full extent in the analysis of Chapter 7, mainly due to the small number of observations in some countries, country-level effects – be they in the form of institutions, macroeconomic variables, or cultural factors – are obviously significant. Chapter 7 will therefore additionally attempt a country-level analysis of the connection between resilience capabilities and performance for a selected number of countries that have enough observations to make a comparison meaningful.

7. Analysis – resilience capabilities

This chapter continues the analysis of resilience performance begun in Chapter 6. Instead of categorical variables of descriptive regional characteristics, however, it focuses directly on the hypotheses made in Chapter 3 about the effect of different resilience capabilities – i.e., the assumptions about the origins and explanation of regionally divergent resilience performance (cf. Table 1 for a summary of the different hypotheses).

To do so, the first part of this chapter will briefly discuss the different indicators selected to represent the different resilience capabilities. This will include the reference to the respective sources and the methodology of operationalization where necessary, as well as a discussion on the shortcomings of some of the indicators. The latter is of particular importance: due to the relative long time series observed, not all indicators chosen were available at the optimal level

[134] The potential exception to this, surprisingly, might be France.

of detail and accuracy. Hence, methods of estimating missing values, use of constants in place of time dependent variables, and missing data will have to be discussed.

Subsequently in chapter 7.2 the effect of the different indicators on regional resilience performance across all observations will be analyzed. The tools employed will be a multiple linear regression and analysis of covariance. The latter aims to take account of the categorical variables discussed in Chapter 6. In view of the relatively high number of independent variables (26 in total), the stepwise algorithm[135] for model selection will be used to identify the variables with the highest explanatory power regarding the respective resilience performance dimension. The results of this general analysis will then be discussed in the context of the theoretical assumptions made in Chapters 2 and 3.

In Chapter 7.3 this analysis is repeated several times for the different regional categories discussed in chapter 6: first for each of the different crisis periods of the time series outlined, second along the regional urban-rural classifications, and third for the different shock types. Due to the relatively small number of the mixed shock types (i.e., the possible combinations of industry shocks and national economic downturns), these observations will be summarized to the main shock types only (national economic downturns, national industry shocks, and local industry shocks). Additionally, in a last step, a deeper analysis is conducted on the resilience performance of regions within selected countries. While country level effects are significant, as underlined by the results in Chapter 6, the number of full observations for many countries is often too small to make significant country level statements possible. Therefore, only the four countries with the most observations for employment and RGVA downturn will be analyzed in this last step. The goal is to shed some light on country-specific factors and lay the groundwork for future research endeavors focused solely on country-level resilience capabilities. The discussion in Chapter 7.3. will mainly discuss divergent results from the general analysis in 7.2. The goal here is to keep the specific discussion focused since the aim remains to offer a general picture of European regional economic resilience performance[136].

Finally, Chapter 7.4 will offer a summary and discussion of the results across the different levels of analysis, while Chapter 7.5 will expand this discussion by some necessary methodological

[135] The specific algorithm employed is provided by the XLSTAT statistics package. It selects predictors (independent variables) by adding them one after another starting with the predictor with the highest contribution to the model (by Student's t statistics). A variable is added if its t is smaller than the probability of entry (p=0,05). After three variables are added each variable is evaluated in turn by its t statistic, if its p is greater than the probability of removal (p=0,1) the variable is removed. This procedure is repeated with all variables till no further variables can be added or removed from the model. The results are corrected for heteroscedasticity (adjusted Newey West method) (Xlstat 2021).

[136] That said, fully detailed results of these analyses can be found in Appendixes III.b to III.e.

and theoretical considerations. Chapter 8 will then put the discussion of regional economic resilience, the measurement of regional resilience performance, and the value of different resilience capabilities into the theoretical context of the wider economic debate and draw conclusions from the results for future research as well as offer potential advice for policy makers.

7.1 Measuring resilience capabilities

Table 29 summarizes the indicators, their sources, their geographic level of measurement, and the corresponding methodology of operationalization selected to test the influence of the different resilience capabilities discussed in Chapter 3 (cf. Table 1 for a summary). Since the theoretical justification for the choice of each indicator was presented in Chapter 3, this chapter focusses solely on their operationalization in the context of the subsequent empirical analysis.

Furthermore, the discussion is exclusive to indicators that were operationalized and treated in a significant manner before including them in the analysis. Data not treated additionally - for example data on the respective national government deficit or the national current account balance taken directly from the IMF database - will not be elaborated upon individually since they were used without further significant changes (IMF 2020a, 2020b)[137]. Lastly, the necessity and methods used for estimating missing data in case of some indicators will be discussed briefly as well.

The most common method of treatment given to the different indicators in preparation for the analysis is the z-standardization based on their year-by-year data. The goal of doing so was to make cumulative values – for example, GDP per capita – comparable across a long time series by only using the z-score based on the yearly distribution of the same value across all European regions (i.e., all regions independent if affected by a shock/downturn or not). Since the z-score gives the number of standard deviations relative to the mean of all regions, this value can be compared independent of the underlying raw aggregate value (Fahrmeir 2004). Therefore, it is possible, for example, to identify a region with a high GDP per capita in 1992 by its high z-score on the all-region mean in this year. Subsequently, it can still be identified as a high GDP per capita region in comparison to other region's lower yearly GDP per capita z-score,

[137] Simple relative ratios, percentages, per capita values, unit adjustments, or weights will not be further expanded upon as well, since the author assumes the understanding of such is a given. Table 29 offers a short description in each case, however.

potentially observed decades later. This works even if the later observations' GDP per capita aggregates have increased beyond the older aggregate values due to cumulative growth over several decades. Independent of the aggregate GDP per capita, the older observation of a high GDP per capita region still would rank higher in a comparison of the yearly z-scores than a more recent observation with a higher aggregate value but a lower z-score on the yearly all-region average.

One action taken that should at least be mentioned with regards to the different sectoral weights, is the combination of the NACE level groupings G-J (mostly direct to consumer services and trades) and K-N (insurances, financial, research and other business services) into one general service grouping (code: Serv_GVA and Serv_EMP). The reasons for this are of practical as well as theoretical nature. Practically it mainly serves to reduce the number of the overall variables. Additionally, the distinction between those two groupings at this level is somewhat arbitrary anyway – e.g., information and communication technologies can be found in the broad spectrum of G-J, but could arguably be counted as business services at least as much as real estate management. Hence, without higher resolution on the different sub-sectors on a regional level across the 30 years covered in the study – data which is not available to the public as of now, if it exists at all – this distinction serves no practical purpose.

These practical considerations are further underlined by the theoretical argument, hat most existing analyses and hypotheses which consider the relation between sectoral weight and regional resilience performance mostly focus on services as one broad category without further distinction, of, for example, financial services (i.a. Angulo et al. 2018; Lagravinese 2015; Hill et al. 2012; Giannakis and Bruggeman 2020; Navarro-Espigares et al. 2012).

That said, this should not detract from the need to look in more detail into the role of specific sectors or industries and their effect on regional resilience performance. While this is not possible at a European NUTS 3 level, similar studies potentially could be executed for specific countries in the future. Such a more detailed analysis would produce results similar to the work of Hill et al. on US metropolitan regions who, due to more easily available micro-level data, managed to observe regional economies at a far higher level of detail than possible with publicly available European level data (Hill et al. 2012).

This relatively general sectoral observation is also reflected in the calculation of the regional Herfindahl-Hirschman Index (HHI) (Fahrmeir 2004; Rhoades 1993). For the calculations underlying the HHI, while the distinction between the two service branches was maintained to not further upset the balance, the distinction between six sectors only is potentially misleading

with regards to the regional economic concentration. As a concentration measure, the HHI was originally intended to measure trade concentration and is intended to calculate the concentration of a few economic factors (or firms, in the case of monopolistic markets). While this corresponds to the use of the HHI in this case, the lumping together of many different sectors into broad categories might lead to misrepresentation of the actual economic concentration in a specific region (Rhoades 1993; Hirschman 1964). However, without more detailed data on the regional economic structure, the level of accuracy enabled by the available sources must suffice[138].

Some further indicators had to be calculated from scratch since no regional data was available for the NUTS 3 level, at least not for the whole time series observed. This especially concerns the aging index and the yearly net migration rate. The first was calculated by simply dividing the number of regional inhabitants of 65 years and older by the number of people 14 and younger, thereby following a generally accepted practice to calculate such an index (Preedy and Watson 2010). The reason why the aging index had to be used in the first place can be found in the surprising lack of age-related data for NUTS 3 regions. The simple variable of median age for example is not available at that level; hence the aging index was a handy proxy which could be calculated using available data on broad age groups (ESPON 2021b, 2021c).

A similar lack of data on the regional level concerned the level of regional migration. Therefore, data on deaths, live births, and absolute population change had to be used to calculate the natural population increase (difference of live births and deaths), which in turn was subtracted from the absolute population change in each year to calculate the absolute level of migration (Eurostat 2021a, 2021c). The net migration rate then was calculated on basis of the mid-year total regional populations (the average of the total population at the beginning of the observed year and the following year) and gives the number of migrants per 1000 inhabitants (Weeks 2008).

Additionally, some indicators had to be treated as one-off averages which as a result are constant across the timeline. This concerns mostly indicators where the data was either of a nature that suggests relatively little change over time in the first place (e.g., multimodal accessibility, which is strongly dependent on geographic location of a region and can be assumed to change only minimally[139]) or was too incomplete to justify an estimate of the gaps

[138] The "Structural Business Statistics" (SBS) which were used to calculate the average business size from 2008-2018 could be a potential source in the future for such a higher resolution. However, as the author can attest through experience, any SBS data from before 2008 is unreliable and incomplete and was subject to regular changes in coding and data gathering which makes any investigation based on a long time series futile.

[139] Additionally, changing NUTS codes in the used ESPON data base made a more accurate approach impossible for some regional observations.

Code	Short description	Source	Methodology	Level
Rec_DL	Recovery of development level	ARDECO: GVA at constant prices (ROVGZ)/Employment regional accounts (RNETZ)	Cf. sections 4 and 5	NUTS 3
Ret_Tra_4	Retention of (pre-shock) growth trajectory during a four-year recovery phase	ARDECO: GVA at constant prices (ROVGZ)/Employment regional accounts (RNETZ)	Cf. sections 4 and 5	NUTS 3
Ret_Tra_8	Retention of (pre-shock) growth trajectory during a right-year recovery phase	ARDECO: GVA at constant prices (ROVGZ)/Employment regional accounts (RNETZ)	Cf. sections 4 and 5	NUTS 3
Pop-age	Aging index	ESPON database: population 0-14 and 65+ (pop_t_0-14/pop_t_65+)	Ratio of population 65+ years to population younger than 15 years.	NUTS 3
Mig_net	Yearly net migration rate	Eurostat database: on live births and annual deaths (demo_r_deaths, demp_r_births), total population from ARDECO (RNPTN)	Calculation of natural increase (difference births and deaths), calculation of net migration (difference population change and natural increase), calculation of net migration rate (yearly migrants per thousand mid year population)	NUTS 3
Pop_work	Share of economically active population	ARDECO: Active civilian population (RNLCN), total population (RNPTN)	Ratio of active population to total population	NUTS 2
Agri_GVA/ EMP, Manu_GVA /EMP, Const_GVA /EMP, Serv_GVA/ EMP, Pub_GVA/ EMP	Regional sectoral weight	ARDECO: Sectoral employment (RNETZ) and sectoral GVA (ROVGZ)	Regional share of total, sectors G-J and K-N were combined to Serv_GVA/EMP as total service sector	NUTS 3
HHI	Regional sectoral concentration	ARDECO: GVA at constant prices (ROVGZ)	Herfindahl-Hirschman Index (cf. Fahrmeir 2004)	NUTS 3
GDP_PC	Standardized GDP per capita	ARDECO: GDP per head of population (RHVGDP)	Z-standardization of annual GDP (PPS) per capita across all EU15 regions	NUTS 3
GFCF_PC	Standardized gross fixed capital formation per capita	ARDECO: Gross fixed capital formation at current prices (ROIGT), total population (RNPTN)	Z-standardization of annual GFCF (PPS) per capita across all EU15 regions	NUTS 2
PROD	Standardized GDP per 1.000 hours worked	ARDECO: GDP at current prices (RUVGD), Hours worked (RNLHT)	Z-standardization of annual GDP (PPS) per 1.000hrs worked across all EU15 regions	NUTS 2
RnD_GDP	Spending on research and development as share of GDP	ESPON database: Intramural R&D expenditure (GERD)		NUTS 2
RnD_EMP	Cities and more densely populated show a higher resilience due to higher-levels of interaction possibilities and resources	ESPON database: R&D personnel and researchers (TOTAL)		NUTS 2
MM_Ac	Potential multimodal accessibility	ESPON database: Potential multimodal accessibility (potaccmu)	Regional average across four data sets (2001, 2006, 2011, 2014)	NUTS 3
Avg_bus	Average business size	Eurostat database: Structural business statistics (sbs_r_nuts06_r2)	Average of number of employees divided by number of local units from 2008-2018	NUTS 2
Gov_debt	National Government Deficit (% of GDP)	IMF database: General government net lending/borrowing. Percent of GDP		NUTS 0
Cur_blc	Current account balance (% of GDP)	IMF database: Current account balance, percent of GDP. Percent of GDP		NUTS 0
Gov_close	Government closeness	Government Closeness Index by Ivanyna and Sha, 2014	Cf. Ivnayna and Sha, 2014	NUTS 0
Lab_comp	Standardized labor compensation	ARDECO: Compensation of Employees at current prices (RUWCD)	Z-standardization of annual compensation (PPS) across all EU15 regions	NUTS 2
Union	National Union Density	ICTWSS Database: Union density rate	cf. Visser 2019	NUTS 0
ML_barg	National Index of Multi-level bargaining	ICTWSS Database: Level-M: Index of Multi-level bargaining	cf. Visser 2019	NUTS 0
SHDI	Subnational Human Development Index	Global_Data_Lab database: Sub-national HDI	cf. Global Data Lab 2020	NUTS 1-2
SC_Org	Extend of social networks and social capital	European Social Survey Round 1-8	Aggregate mean value of items wrkprty (worked in political party or action group last 12 months) and wrkoprg (worked in another organization or association last 12 months). Average across all ESS rounds.	NUTS 1-3
EoC	Ease of getting credit	World Bank Doing Business database: Score-Getting credit (DB05-14 methodology)	Average country score from 2004-2015	NUTS 0
Clu	Regional cluster density	European Cluster Observatory database: Cluster Mapping 2015, total population from ARDECO (RNPTN)	Number of "cluster stars" by region (2013) by 100.000 inhabitants	NUTS 2

Table 29: Operationalization of the resilience capability indicators

in the time series. An example of the latter is the data on the average business size by employees which in turn is based on data from Eurostat's structural business statistics (Eurostat 2021e). Due to large gaps in that database as well as numbers gathered on the basis of different business definitions over time, only the last ten years of the data are reliable for the purposes here. Hence it was decided to work with an average constant instead of unreliably estimated yearly values.

Similar treatment was given to data on social capital, the ease of getting credit[140], government closeness, and cluster density. The two survey-based data sources for the ease of getting credit and the social capital indicators[141], i.e., the World Bank's "Doing Business" database and the European Social Survey (ESS) respectively, simply do not extent beyond the early 2000s (2002 and 2004 respectively). Additionally, the latter is only conducted biennially, which would necessitate estimation of the years intermediate to the conducted surveys anyhow (World Bank 2020; GESIS 2016). As pointed out in Chapter 3.3, at least for social capital, the choice of an average constant is not as methodologically problematic as it might seem: As Putnam and other authors postulate, social capital is in any case a regional characteristic acquired and honed over long periods of time and not usually prone to sudden changes in its nature[142] (Putnam 1992, 2000; Akçomak and ter Weel 2009; Parente 2019). The data sets on cluster conglomerations[143] and government closeness[144]are both on-off measures and had to be treated as a constant by

[140] As a further remark, the „ease of getting credit" score specifically was used since the methodology for the total score of the "doing business" index changed several times in a non-reproduceable fashion.

[141] The indicator for social capital, or rather social networks, was generated by the aggregated regional mean of the items concerning (voluntary/non-paid) party work (wrkprty) and work in other organizations and associations (wrkoprg).

[142] Similar arguments could be made for the business culture and regulations of a country, however to a lesser extend since they are directly policy related (Silke Meyer 2012). The "getting credit" score itself is based on the Doing Business methodology employed from 2005-2014 and combines questionnaire items on legal rights of creditors and debtors as well as an index on the debt of credit information (World Bank 2020).

[143] The item used from this data set concerns so called "cluster stars" (per capita). These stars are in turn based: First, on the identification of "strong clusters" defined as the top 20% of agglomerations of related industries (divided int 51 groupings) in Europe by a location quotient and at least 500 employees. The location quotient is based on a comparison of the regions share of employment in a sector with the European average; Second, on the absolute size of a cluster by employees (a threshold is set at a location quotient of 1,5); Third, on the cluster productivity measured based on purchasing power corrected wages; And fourth, on the cluster dynamism based on average measures of cluster employment growth and the presence of fast growing firms. A cluster is awarded one star each for being among the top performers in each category by European comparison. Each region is awarded as many stars as the clusters within it are awarded in total (Ketels and Protsiv 2016). This latter variable is then divided by the total inhabitants of the region to serve as an indicator for cluster presence and strength in the present analysis.

[144] As mentioned in section 3.2 this index is based on World Bank data on financial decentralization, the detailed methodology can be found in Ivanyna and Shah 2014. Their index was used as calculated by them without further changes. It is comprised out of three component indexes. First, a fiscal decentralization index, constituted from data on the local dependence on higher level financing, local taxation autonomy, (unconditional) transfers to local administrative units, local expenditure autonomy, and the freedom to borrow of local governments. Second, a political decentralization index, comprised from items on regional elections for regional legislative and executive institutions, as well as the existence of elements of direct democracy. Third, an administrative decentralization index, comprised on data on local discretion for bureaucratic and administrative appointments, and the share of local government employment in total regional government employment. These different measures are then

default. A fact less problematic for the government closeness than clusters, since government closeness describes a fundamental characteristic of a whole country which, since often constitutionally fixed, will change less frequently anyhow (Ivanyna and Shah 2014; European Cluster Observatory 2015).

Two further points must be made with regards to the data coverage and the methods of estimation in the case of missing data. First, as Table 29 shows, not all variables could be identified at the NUTS 3 level[145]. To amend this, data on the next highest level was employed; in the majority of cases, this was data from NUTS 2 level. In some cases, especially considering the polling data for the social capital variables and the SHDI, the regional level of detail available varied significantly from country to country. In particular, the data from the ESS needed to be compiled at a higher level for several countries since the numbers of people polled at NUTS 3 and even NUTS 2 level were either not identified specifically, or often nearly insignificant and varied immensely for each survey round. Variables that have an effect at the country level only are, of course, not affected by this constraint since they affect all regions at all levels equally – e.g., national government deficit, government closeness, or even ease of getting credit.

Related to this are the difficulties caused by regular changes to the NUTS code itself. Throughout the observation period, regional coding changed substantially at least five times (Eurostat 2021b). This entails the simple change of regional codes but also the complete revision of regional compositions including changing regional boundaries and sizes. Since the present work is based on the NUTS 2016 system and because not all data is regularly adapted to the new NUTS codes by the respective European institutions, this had to be executed manually by the author in many cases. If possible, the translation from one NUTS code to the next was made directly – i.e., in the case of simple change of codes. Where there was a total change of regional composition during the time series which could not be reconstructed, the next highest level of the NUTS classification was employed if this was possible. Lamentably, in many cases this was not feasible, and the observations of these variables had to be omitted either completely or at least for part of the time series. This concerns all types of variables but has the biggest effect on geographically fixed variables – like regional multimodal accessibility. This is also one of the main reasons why the total number of valid observations in the regression

combined in a general decentralization index which in turn is then weight according to the population size of the regional units resulting in the final government closeness index used here (Ivanyna and Shah 2014).

[145] The NUTS level noted in table 29 are the respective lowest available. This does not exclude that parts of the data set are available only at higher levels. As for example in case of the ESS, data for one country might be available down to NUTS 3 level while for other countries it is restricted to NUTS 1 level.

analyses in the subsequent chapters is lower than the total observations of full regional resilience performances made in Chapters 5 and 6 (cf. Table 17).

The other reason why the number of observations for the statistical test of the resilience capabilities is reduced lies in the conservative approach that was taken to estimate missing datapoints in the time series for the different indicators. First and foremost, the selection of the specific indicators for each resilience capability was conducted with an eye for the fullest data sets available. If a data set was found to be more complete, it was favored over another data set whose operationalization might have been more appropriate but offered less coverage of the time series from 1988 to 2018. One example for such a trade-off is the use of an aging index instead of the more accurate and potentially informative median or average age, as discussed earlier. Other such trade-offs include, among others, the use of SHDI instead of component variables about education, inequality, or health (Global Data Lab 2020), the exclusion of patent data with regards to innovation, or even the use of higher-level NACE sectoral classifications instead of the more detailed structural business statistics already discussed.

When such a conservative approach to the choice of indicator was not possible, estimates were used to fill gaps in the time series. Generally, the method used was to simply replace missing values by the regional average. This approach was used in cases when values were missing at the beginning of a time series or for several years in a row. This includes the treatment of many Italian regions with missing values from 1988 to 1994 for the regional GDP share of research and development spending as well as the union density and multi-level bargaining index of some other countries (including for many Greek observations) (ESPON 2021a; Visser 2019). The only exception made to this approach was for the data on the regional employment share in research and development (ESPON 2021e). While the missing data at the beginning of the time series (missing uniformly 1988-1991) was again replaced by the all-time mean, data which was, due to reporting errors, missing in years between reported data points was estimated by using exponential smoothing. This concerns relatively few data points but seemed more appropriate for the treatment of values seemingly omitted at random across different countries, regions, and years.

Overall, such estimation methods were only used in the mentioned cases. In general, estimation was largely avoided through a careful choice of variables, the use of higher-level data as in the case of the social capital indicators, or the use of average constants where appropriate as in the case of the "ease of getting credit score". As a result, out of 2124 fully observable regions experiencing a RGVA downturn only 222 (10,45%) observations had to be omitted due to a

lack of data for the final empirical analysis presented in the next chapter. For employment, 204 (15,42%) cases had to be omitted out of a total of 1323 observable downturns. The higher relative share for employment downturns is caused by a lack of RGVA data for German regions in the late 1980s and early 1990s that forms the basis for the economic concentration indicator measured by the HHI[146] as an independent variable. For the dependent variable on the retention of the (pre-shock) growth trajectory measured over the longer eight-year recovery period these numbers increase as well. However, this is caused solely by the related drop in possible observations through the expansion of the recovery phase and not related to the independent variables describing the resilience capabilities (cf. Chapter 5.3).

7.2 Resilience capabilities and regional resilience performance

This chapter will discuss the results of the analysis of the relation between the different resilience capabilities, operationalized as described in Chapters 3 and 7.1, and the resilience performance as measured and described in Chapters 5 and 6. First, this chapter will discuss only the summarized results of the analytical steps applied without going into too much detail about individual variables and result. Subsequently in Chapters 7.2.1-7.2.4, the discussion will focus first on structural resilience capabilities, second on institutional resilience capabilities, third on social and demographic variables, and, last on factors of geographic endowment. Chapter 7.2.5 will summarize the results and additionally discuss aspects of the categorical regional variables and their influence on regional resilience performance as well as the other resilience capabilities[147].

For the most part, the empirical results on the stepwise multiple regression analysis and the stepwise ANCOVA will be represented in text by the significant standardized coefficients found, including goodness of fit statistics (R^2 etc.), only. All additional components of the analysis (unstandardized coefficients, correlation matrixes, multicollinearity statistics, type I-III analysis etc.) can be found in the appendixes[148].

[146] The same lack of data has no effect on RGVA downturns since their measurement themselves is based on the same data. Hence while additional employment downturns could be identified for those missing years since employment data was available, this was not possible with regards to RGVA downturns.
[147] This aspect however will be substantial part of the discussions before already, since, as will be described, the categorical variables are introduced step by step into the analytical process.
[148] Appendixes III.a.i – III.a.iii contain the details on the analyses of RGVA resilience performance and III.a.iv – III.a.vi the details on the employment based analyses.

The results of the analysis for regional resilience performance across all observed regions can be found in Tables 30 and 31 for the observed RGVA and employment downturns, respectively. Table a) shows the results of the stepwise multiple OLS based solely on the continuous variables discussed in Chapters 3 and 7.1. Meanwhile, Tables b) and c) introduce the categorical variables on regional characteristics that were discussed mainly in Chapter 6 in an ANCOVA. As can be seen, the difference between both ANCOVAs executed lies in the inclusion of the categorical variable of regional country affiliation. The reason for this, as has been stated at other points, is the problematically low number of observations for some countries in the time series, which makes the result of an ANCOVA, once they are included, to a certain degree unreliable. For example, for RGVA downturns only two valid observations of the whole shock-downturn-resilience cycle could be made for the Republic of Ireland. A similar situation exists for Belgium and Austria in employment downturns (both produced only seven usable observations).

Due to this shortcoming, it was decided to include both versions of the analysis in Chapter 7.2. A further benefit of this approach is, of course, the possibility to offer an estimate of the effect size specific national effects and characteristics have on regional resilience performance. While the focus here is to identified regional resilience capabilities which are to a certain extent generalizable across the European context, national effects are obviously significant and warrant further in-depth study (Giannakis and Bruggeman 2020; Martin 2012).

With regards to the recovery of the development level in response to RGVA downturns, the three models suggested by the stepwise algorithm differ somewhat depending on the numbers of categorical variables introduced. By simple multiple regression (cf. Table 30a) the stepwise procedure suggests the highest number of significant effects among the continuous variables. In this the sectoral concentration (HHI), social development measured by SHDI, and the sectoral share of agriculture show the strongest negative effect on this resilience dimension. Meanwhile a positive current account balance (Cur_blc), more highly developed social networks (SC_Org), and a higher labor productivity (PROD) result in the strongest positive effects on the RGVA recovery of the development level.

Through the introduction of further categorical variables, the explanatory power of the models suggested by the stepwise algorithm increases (from an R^2 of 0,172 to an R^2 of 0,228). However, the number of significantly contributing continuous variables decreases at the same time. While based on multiple regression, a total of 15 continuous variables showed at least a tentative effect. The introduction of all categorical variables reduces this to only six (cf. 30c). In this case

the SHDI and the public sector share of RGVA have the strongest positive effect, while HHI and higher-level wage bargaining (ML_barg) – i.e., less localized/firm specific wage agreements – have the strongest negative effect. With regards to the categorical variables, the results from Chapter 6 are reflected to a large extent, including the slightly negative effect of local industry shocks on the RGVA resilience performance in this dimension. The main exceptions to this being that the rural-urban distinction has no evident effect at all (across all resilience dimensions)[149], and that, contrary to the results of 6.1 once all variables are taken into account the crisis of 2008-2009 had a significant negative effect on this resilience dimension[150].

For the dimension of the growth trajectory retention after RGVA downturns, measured over recovery periods of four and eight years, the general pattern is similar. The multiple regression shows the highest number of significant effects by the continuous variables (ten at four years, eleven at eight years) and the lowest R^2 (0,056 and 0,190 respectively). The addition of the categorical variables reduces the first (down to seven and five) and increases the latter (up to 0,103 and 0,261). Under inclusion of all categorical variables the strongest effects on the trajectory retention measured over four years can be found in the negative influence of high-level wage bargaining (ML_barg), a low government deficit (Gov_debt)[151], and economic concentration measured by HHI. For trajectory retention measured over eight years, the greatest (negative) effect by far is suggested by a high union density (Union). This is followed at a distance by the negative effects of a positive current account balance (Cur_blc) and a low government deficit. As for (weak) positive factors remaining once all categorical variables are introduced, only population age approximated by ageing index (Pop-age) and the public sector share of the RGVA (Pub_GVA) remain for an eight-year recovery period. For a four-year recovery period an even weaker effect for the public sector share and the employment in research and development (RnD_EMP) can be identified.

As for the effect of the categorical variables, the results are similar as in the case of the recovery of the development level. Again, the urban-rural classification shows no effect while country effects remain strong – with the difference that for an eight-year recovery period the country effect remains positive for only four countries (Denmark, Belgium, Finland, and Sweden).

[149] In section 6.3 a positive tendency for intermediate and rural regions was identified.
[150] In section 6.1 downturns starting in 08-09 were found to have the on average best outcomes among the observed crisis periods.
[151] As this variable is coded a higher deficit is expressed by negative numbers while a surplus is suggested by a positive value. Hence the suggestion here is that a lower deficit/higher surplus has a negative effect on the comparative growth trajectory.

Furthermore, in contrast to the development level recovery, downturns beginning in the period 2008-2009 show no significant effect on the retention of either trajectory dimension.

In contrast to RGVA downturns, observable employment downturns show fewer continuous variables having any significant effect on the recovery of the development level to start with. As with RGVA downturns, the inclusion of the different categorical variables reduces the number of (continuous) variables with significant effect on this recovery dimension (from seven for the simple multiple regression (Table 31a) down to four and five in both ANCOVAs (cf. Table 31b-c)) while the R^2 of the resulting models increases (from 0,104 to 0,195). Once all categorical variables, including country association, are introduced the strongest positive effects are produced by the current account balance (Cur_blc) and the indicator for productivity (PROD). The strongest negative effect by far is connected to the country level union density (Union). Significantly weaker negative effects are associated with the employment share of research and development activities (RnD_EMP) and the sectoral economic concertation of the RGVA measured by HHI.

The results on the recovery of the development level with regards to the categorical variables again generally reflect the conclusions already drawn in Chapter 6.4. The main exception to this is the effect of the introduction of the country category on French and Spanish regions. While French regions performed significantly stronger among all observed countries' regions in Chapter 6.4, here the effect of being a French region is a strong negative factor for this resilience dimension. The Spanish case is similar: while the average Spanish region outperformed the all-region average, once considering the other independent variables this effect disappears and the Spanish association becomes a regional liability with regards to this resilience dimension. For the periods of the time series in which the different downturn resilience observations begin, the results from 6.1 are reflected in the positive effect of the observations falling in between the different shock spikes and the negative effect on downturns beginning in the period 2000-2003.

The trajectory retention performance of employment downturns, or rather the effect of the respective explanatory variables, behaves somewhat differently than in the cases described so far. Here, while the R^2 of the explanatory variables identified by the stepwise algorithm (or rather the underlying model) increases for both measures of the trajectory with the addition of the categorical variables as expected (from 0,096/0,266 for the multiple regression (Table 31a) to 0,160/0,323 after including all variables (Table 31c)), the number of continuous variables

Table 30: Standardized coefficients for RGVA resilience performance (all)

a)

Independent Variable	Reecovery of Development Level	Retention of Growth Trajecotry (4 years)	Retention of Growth Trajecotry (8 years)
Pop_age	0,056 **	0,080 ***	0,179 ***
Mig_net	0,055 *		
Pop_work		-0,091 **	-0,176 ***
Agri_GVA	-0,158 ***		
Manu_GVA			
Const_GVA	-0,064 *		
Serv_GVA			
Pub_GVA	0,147 ***	0,064 *	0,098 **
HHI	-0,244 ***	-0,068 *	-0,067
GDP_PC			
GFCF_PC			0,064 *
PROD	0,156 ***		
RnD_GDP			
RnD_EMP			
MM_Ac		0,097 **	0,076 *
Avg_bus	0,086 **	-0,112 **	-0,199 ***
Gov_debt	-0,145 ***	-0,198 ***	-0,281 ***
Cur_blc	0,163 ***		0,079
Gov_close			
Lab_comp			
Union	-0,071 **		
ML_barg	-0,119 ***	-0,116 **	-0,111 **
SHDI	-0,204 ***		0,107 *
SC_Org	0,159 ***	0,206 ***	0,161 ***
EoC		0,162 ***	0,387 ***
Clu	-0,078 ***		-0,113 ***
adj R^2	0,172	0,056	0,190
Model F	27,268 ***	12,382 ***	26,154 ***
N	1902	1902	1506

***p<0,01;**p<0,05;*p<0,1

b)

Independent Variable	Reecovery of Development Level	Retention of Growth Trajecotry (4 years)	Retention of Growth Trajecotry (8 years)
Pop_age			0,103 ***
Mig_net		-0,062 **	-0,057 **
Pop_work		-0,060 *	-0,140 ***
Agri_GVA	-0,128 ***	-0,080 **	
Manu_GVA		-0,059 **	
Const_GVA			
Serv_GVA			
Pub_GVA	0,159 ***		0,095 ***
HHI	-0,187 ***	-0,060	-0,055
GDP_PC		-0,062 *	
GFCF_PC			
PROD	0,123 ***		
RnD_GDP			
RnD_EMP	-0,055 *		
MM_Ac			
Avg_bus	0,135 ***		-0,150 ***
Gov_debt	-0,087 **	-0,105 **	-0,197 ***
Cur_blc	0,124 ***		
Gov_close			
Lab_comp			
Union	-0,050		
ML_barg	-0,176 ***	-0,125 ***	-0,099 *
SHDI		0,120 *	0,278 ***
SC_Org	0,153 ***	0,182 ***	0,189 ***
EoC	-0,136 **		0,273 ***
Clu	-0,079 ***		-0,124 ***
90-93	0,151 ***	0,114 **	0,126 **
00-03	-0,066 **	-0,218 ***	-0,221 ***
08-09	-0,032	0,007	0,078
BTW	-0,020	0,055 **	0,012
Urban			
Intermed.			
Rural			
LOC_Ind	-0,039		
NAT_Eco	0,068 *		
NAT_Ind	-0,005		
adj R^2	0,179	0,088	0,230
Model F	24,018 ***	15,107 ***	30,982 ***
N	1902	1902	1506

***p<0,01;**p<0,05;*p<0,1

c)

Independent Variable	Reecovery of Development Level	Retention of Growth Trajecotry (4 years)	Retention of Growth Trajecotry (8 years)
Pop_age			0,100 ***
Mig_net		-0,059 **	
Pop_work			
Agri_GVA	-0,059 *	-0,082 **	
Manu_GVA			
Const_GVA			
Serv_GVA			
Pub_GVA	0,139 ***	0,060 *	0,081 **
HHI	-0,123 ***	-0,108 **	
GDP_PC			
GFCF_PC			
PROD			
RnD_GDP			
RnD_EMP		0,050 *	
MM_Ac			
Avg_bus			
Gov_debt	-0,065	-0,177 ***	-0,123 *
Cur_blc			-0,195 ***
Gov_close			
Lab_comp			
Union			-0,988 ***
ML_barg	-0,185 ***	-0,256 ***	
SHDI	0,237 ***		
SC_Org			
EoC			
Clu	-0,056 **		-0,130 ***
AT	0,118 **	-0,200 ***	-0,056
BE	0,176 ***	0,041	0,559 ***
DE	0,327 ***	-0,003	-0,281 **
DK	-0,002	-0,122	1,034 ***
EL	-0,887 ***	-0,110	
ES	0,168 **	0,118	-0,620 ***
FI	0,213 *	0,170	1,086 ***
FR	0,214 ***	-0,189 ***	-0,947 ***
IE	-0,126	0,701 *	-0,689 ***
IT	0,097	-0,120 *	-0,296 ***
NL	0,096	0,058	-0,499 ***
PT	0,052	-0,282 ***	-0,870 ***
SE	0,012	0,089	1,321 ***
UK	-0,146 **	-0,250 ***	-0,099 *
90-93	0,214 ***	0,093 **	0,179 ***
00-03	-0,137 ***	-0,195 ***	-0,250 ***
08-09	-0,160 ***	0,041	0,062
BTW	0,043	0,038	0,011
Urban			
Intermed.			
Rural			
LOC_Ind	-0,076 **		
NAT_Eco	0,127 ***		
NAT_Ind	-0,008		
adj R^2	0,228	0,103	0,261
Model F	23,476 ***	10,494 ***	26,272 ***
N	1902	1902	1506

***p<0,01;**p<0,05;*p<0,1

Table 31: Standardized coefficients for empoloyment resilience performance (all)

a)

Independent Variable	Reecovery of Development Level	Retention of Growth Trajecotry (4 years)	Retention of Growth Trajecotry (8 years)
Pop_age			0,180 ***
Mig_net		-0,071 *	-0,108 **
Pop_work		-0,120 **	-0,172 ***
Agri_EMP			
Manu_EMP			
Const_EMP			0,103 *
Serv_EMP			
Pub_EMP			
HHI			
GDP_PC			
GFCF_PC			
PROD	0,110 *		0,113
RnD_GDP			
RnD_EMP			
MM_Ac	-0,162 **		
Avg_bus			-0,210 ***
Gov_debt	-0,203 ***	-0,215 ***	-0,299 ***
Cur_blc	0,257 ***		0,169 ***
Gov_close	0,145 ***	0,319 ***	0,431 ***
Lab_comp			
Union	-0,243 ***	-0,238 ***	-0,307 ***
ML_barg	-0,120 ***		
SHDI		-0,151 ***	-0,262 ***
SC_Org			
EoC			0,284
Clu			-0,073
adj R^2	0,104	0,096	0,266
Model F	19,539 ***	20,887 ***	25,642 ***
N	1119	1119	884

***p<0,01;**p<0,05;*p<0,1

b)

Independent Variable	Reecovery of Development Level	Retention of Growth Trajecotry (4 years)	Retention of Growth Trajecotry (8 years)
Pop_age		0,084 **	0,200 ***
Mig_net		-0,081 *	-0,117 **
Pop_work		-0,116 *	-0,134 **
Agri_EMP			
Manu_EMP			
Const_EMP			0,102 *
Serv_EMP			
Pub_EMP			
HHI			
GDP_PC			
GFCF_PC			
PROD			0,137 **
RnD_GDP			
RnD_EMP			
MM_Ac		0,137 **	
Avg_bus		-0,175 **	-0,179 ***
Gov_debt	-0,123 ***	-0,189 ***	-0,216 ***
Cur_blc	0,229 ***		0,172 ***
Gov_close	0,144 ***	0,278 ***	0,331 ***
Lab_comp			
Union	-0,250 ***	-0,285 ***	-0,306 ***
ML_barg		0,142	
SHDI		-0,267 ***	-0,254 **
SC_Org			
EoC		0,271 ***	0,275 ***
Clu			
90-93	-0,100 **	-0,040	0,006
00-03	-0,196 ***	-0,190 ***	-0,241 ***
08-09	0,073 **	0,191 ***	0,208 ***
BTW	0,131 ***	0,032	-0,020
Urban			
Intermed.			
Rural			
LOC_Ind		0,049	0,037
NAT_Eco		-0,144 ***	-0,177 ***
NAT_Ind		0,041 *	0,066 **
adj R^2	0,132	0,137	0,291
Model F	25,313 ***	12,067 ***	22,291 ***
N	1119	1119	884

***p<0,01;**p<0,05;*p<0,1

c)

Independent Variable	Reecovery of Development Level	Retention of Growth Trajecotry (4 years)	Retention of Growth Trajecotry (8 years)
Pop_age			0,186 ***
Mig_net		-0,105 **	-0,105 **
Pop_work		-0,134	-0,119 *
Agri_EMP			
Manu_EMP			
Const_EMP			0,098 *
Serv_EMP			
Pub_EMP			
HHI	-0,063 **		
GDP_PC			
GFCF_PC			
PROD	0,284 ***		0,234 ***
RnD_GDP			
RnD_EMP	-0,107 ***		
MM_Ac		0,169 **	
Avg_bus		-0,298 ***	
Gov_debt		-0,205 ***	-0,175 ***
Cur_blc	0,350 ***	0,116 *	0,221 ***
Gov_close			
Lab_comp			
Union	-0,752 ***	-0,308	-1,090 ***
ML_barg			
SHDI			-0,336 ***
SC_Org			
EoC			
Clu			-0,053
AT	-0,024	-0,085	0,036
BE	0,179	-0,209	0,243
DE	-0,554 ***	0,081	-0,805 ***
DK	0,535 *	0,568 **	1,384 ***
EL	0,308 **	-0,059	-0,503 **
ES	-0,439	0,015	-1,073 ***
FI	0,782 ***	0,271	1,461 ***
FR	-0,669 **	-0,417	-1,215 ***
IT	-0,210 ***	-0,330 ***	-0,470 ***
NL	-0,947 ***	-0,500 ***	-1,016 ***
PT	0,016	-0,015	-0,635 ***
SE	0,759 **	0,671 **	1,812 ***
UK	-0,097	-0,066	-0,139
90-93	0,012	0,156 *	0,212
00-03	-0,220 ***	-0,193 ***	-0,252 ***
08-09	0,073	0,027	0,067
BTW	0,094 ***	0,035	0,002
Urban			
Intermed.			
Rural			
LOC_Ind		0,039	0,036
NAT_Eco		-0,103 ***	-0,131 ***
NAT_Ind		0,027	0,043
adj R^2	0,195	0,160	0,323
Model F	14,506 ***	9,864 ***	16,619 ***
N	1119	1119	884

***p<0,01;**p<0,05;*p<0,1

increases in this case when introducing the categorical variables on period, urban-rural typology, and shock type.

After including all categorical variables, the continuous variables with the strongest positive effect for the eight-year recovery period trajectory measure are the productivity indicator (PROD), the current account balance (Cur_blc), and the population age approximated by the aging index (Pop-age). The strongest negative effect by far is associated, as with the development level dimension, with the national unionization levels (Union). This is followed by a strong negative effect of the SHDI and a far weaker negative effect of the regional civilian share of the economically active population (Pop_work). At four years the biggest significant negative effect is caused by the average business size (Avg_bus), followed by the government deficit (Gov_debt), and the net migration rate (Mig_net).

With regards to the country association of the regions analyzed there are some deviations compared to the results of Chapter 6.4. While Italy performed reasonably well in an all-region comparison, here the association of regions with Italy becomes a negative factor for both measures over a four-year and eight-year recovery period. Similarly, while Spain performed reasonably well in 6.4, association with it becomes one of the strongest negative country effects at an eight-year recovery period, this might be a result of the effects of the protracted European sovereign debt crisis. Meanwhile the effects of the other country associations mostly keep to the expectations[152]. As in Chapter 6.1 the association with the 2000-2003 period of the timeline has the strongest negative effect on employment growth trajectory retention. Similarly, national economic downturns have a significant negative effect on the growth trajectory performance dimension of employment downturns as well. Again, the rural-urban typology has no effect.

As mentioned above, this summary of the analysis presented in Tables 30 and 31 serves mainly descriptive purposes. The next subchapters will discuss the different hypotheses made about regional resilience capabilities and the subsequent resilience performance. Nevertheless, a couple of observations can be made at this point:

1. Of all variables, the regional country association seems to have the most effect on the results overall. This is true for the strength of their own explanatory power in regard to the respective resilience performance dimensions, the cumulative effect on the explanatory power of the models identified by the stepwise approach measured by R^2, and their influence on the observed effect of other variables. Despite this strong effect

[152] As above the exception being France, which might be caused by very few observed cases.

of the country association, their value should not be overestimated. Because the total number of valid observations for each country varies significantly, biases by over- or underrepresentation can influence the results[153].

2. The urban-rural typology seems to have no significant effect on the regional resilience performance in any context whatsoever, neither for employment downturns nor RGVA downturns. As such this reflects the ambivalent results by other studies on the topic discussed in Chapter 3.4 and 6.3 (cf. i.a. Giannakis and Bruggeman 2020).
3. As with the country category, the timing of each downturn has significant effects across the board. Worth mentioning here is especially the ubiquitous negative effect of the crisis period 2000-2003.

Taken together these observations lead to the conclusion that whatever variables are identified as having explanatory value in the next chapters, their effect will always be under the strong circumstantial influence of the specific timing and location of each shock event.

Independent of these general findings the next sub-chapters will discuss the different resilience capabilities and their effect on regional resilience performance in detail. This discussion will follow the structure outlined in Chapter 3., i.e., the division in structural, institutional, social and demographic, and geographically endowed resilience capabilities. These are followed by a brief discussion on the effect of the categorical variables not covered in any of these chapters[154].

7.2.1 The effect of structural resilience capabilities

As outlined in detail in Chapter 3.1, structural resilience capabilities focus mainly on the general set-up and structure of a regional economy. The four central capabilities summarized in that chapter were:

- the extent of the *regional economic concentration*,
- the nature of *the regional economic structure*,
- *innovative capabilities and signal openness* of local firms and actors, and
- the extent or the *regional economic endowment*.

[153] This is especially a factor concerning the over-representation of German regions caused by the comparatively high number of German NUTS 3 regions.
[154] National association and the urban-rural typology will be discussed together with the geographic resilience capabilities in section 7.2.4.

The main thesis behind the investigation of the *regional economic concentration* assumes a positive relationship between regional economic diversity and regional economic resilience performance. Generally the view is that a higher diversity causes a stronger redundancy, thus enabling resources and labor to easily shift within a regional economy once part of that economy is affected by shock (Hill et al. 2012; Garmestani et al. 2006; Brown and Greenbaum 2017). This, however, is not an exclusive finding since, under certain circumstances, other authors postulate a negative effect of high regional economic diversity as well – here the argument centers mainly on the economic advantages through specialization (Navarro-Espigares et al. 2012).

The indicators chosen to measure the regional economic diversity were the sectoral concentration measured by the Herfindahl-Hirschman Index (HHI), based on the sectoral GVA share, the average firm size based on employment numbers (Avg_bus), and labor productivity as an indicator for increased specialization (PROD). While the first two measures are region and time specific, the average firm size had to be approximated based on the aggregated values from 2008-2018 and could be ascertained for the NUTS 2 level only[155].

As can be seen in the regression Tables (cf. Tables 29), the effect of a higher regional sectoral economic concentration measured by HHI is generally negative in case of RGVA downturns. Independent of the inclusion of further categorical variables, the effect persists and is especially strong for the recovery of the development level dimension of regional resilience performance. This underlines the importance of regional economic diversity to regional economic resilience as measured by RGVA. Since the recovery of the development level is the measure focusing mostly on the comparative loss in the regional economic development, a higher economic redundancy, and increased options for shifting capital and production within a regional economy would be expected to have a strong positive influence.

Meanwhile, in the case of employment downturns the effect of the economic concentration measured by HHI is nearly negligible (cf. Table 30). The only effect to be found is negative on the development level recovery once all categorical variables are included. This might hint at the generally lower inter-sectoral mobility of employees, or the rather career and job embeddedness of labor. This would make it immensely harder to simply change careers from one sector to another, while other regional production factors flow more freely by comparison (Feldman and Ng 2007; Stumpf 2014). If so, this would explain why RGVA related

[155] As discussed in section 7.1

performance measures show a positive relationship with diversity and regional economic redundancy, while employment-based resilience performance sees no (or little) positive effect.

While specialization as indicated through labor productivity has no visible effect on RGVA resilience performance in any dimension, there is a significant positive effect on employment resilience performance for the development level recovery as well as the trajectory retention measured over eight years. Similar to assumptions by Navarro-Espigares et al. in their study on Spanish regions (Navarro-Espigares et al. 2012), this hints at the positive effects of specialization on employment resilience performance – i.e. a certain positive effect of increased economic concentration. This effect of labor productivity on employment resilience performance is stable even after introducing the country categories.

The analysis of the average business size and the regional resilience performance tends to support these results. Except for the relationship to the development level regarding RGVA, the effects which can be discerned for the variable are negative on the other regional resilience performance measures, i.e., a bigger average business size results in a lower RGVA growth trajectory retention. However, the effects identified are far less consistent across the different analytical steps. The significance of the positive effect on the development level and the negative effect on the retention of the growth trajectory (for an eight-year recovery) persist for RGVA only if the regional national association is not introduced as a categorical variable. Once the country variable is introduced, any effect disappears. For employment downturns the picture is somewhat more stable, with some negative effect of larger average business size on the trajectory retention remaining across all analytical models (for different recovery period lengths, however).

Overall, the results for the effect of the business size on regional economic resilience performance are less than clear than for HHI and productivity. This might have to do with the operationalization of the variable as a NUTS 2 multi-year average, which would also explain why the effect vanishes totally once the country variable is introduced. Still, it seems that there is some positive effect of a generally smaller firm size on the retention of the growth trajectory especially for downturns caused by employment shocks. This positive relationship of smaller businesses on employment resilience performance might be caused by smaller and more diverse firms resulting in more job opportunities within the same industrial sector (counteracting the career embeddedness mentioned above). It might also hint at the increased job creation through new firms and entrepreneurial endeavors (Stumpf 2014; Nyström 2012). The tentative positive effect of a larger firm size on the recovery of the development level for RGVA downturns might

be potentially related to the benefits of economies of scale during a recession, i.e. increased resistance to economic downturns of bigger firms, thereby lowering the initial loss to the level of regional development (Navarro-Espigares et al. 2012; Garmestani et al. 2006).

Besides this last observation, the results of the analysis so far support the thesis that increased economic diversity has a positive effect on regional resilience performance. That said, the evidence is far less strong in the case of resilience performance relating to regional employment resilience performance than to regional RGVA resilience performance. For employment resilience performance there are even trends speaking for the benefits of specialization as indicated through higher labor productivity. This partially reflects the results by Navarro-Espigares et al. who make out a higher employment resilience performance in Spanish regions as a result of increased specialization in the service sector (Navarro-Espigares et al. 2012).

The latter remark connects neatly to the next resilience capability, i.e., the nature of *the regional economic structure.* As outlined in Chapter 3.1 and 7.1, the measures used here are simply the regional sectoral weights used in the original identification of sector-specific industry shocks[156], i.e., RGVA weights are used to analyze RGVA resilience performance and employment weights for employment resilience performance[157].

As mentioned, the assumptions on the relation between sectoral specialization and resilience performance made by the literature on regional economic resilience are not always unanimous. As a general trend however, services and, to a lesser extent, agriculture are seen as stabilizing elements that make a region more resistant and increase regional resilience by a higher stickiness of their economic contribution (Hill et al. 2012; Navarro-Espigares et al. 2012). In the context of the present analysis, one would therefore expect a lower drop in the development level in the aftermath of a shock event in regions with a relatively strong service or agricultural sector, but also a lower growth trajectory retention. Manufacturing and construction, on the other hand, are often associated with a higher sensitivity to the business cycle – hence an associated weaker recovery of the development level dimension – but also a faster recovery that shows increased growth rates after the immediate effects of a crisis are compensated for – i.e. resulting in an increased retention of the growth trajectory (Angulo et al. 2018; Lagravinese 2015; Hill et al. 2012; Giannakis and Bruggeman 2020, 2017a).

[156] Except for the service sectors being summarized into one category for the purposes of the present analysis.
[157] In the tables Agri_GVA, Manu_GVA, Const_GVA, Serv_GVA, Pub_GVA and Agri_EMP, Manu_EMP, Const_EMP, Serv_EMP, Pub_EMP respectively.

With regards to RGVA, these assumptions cannot be confirmed in the European context being analyzed here. While there is at least tentative evidence for a high share of the agricultural sector having a negative effect on the trajectory retention, as expected, a negative effect on the recovery of the development is identified as well, contrary to the assumptions. The latter is stronger than the former, at least before introducing the country association variables[158]. For manufacturing, construction, and the combined service sectors, little to no effect can be found in any version of the analysis[159]. This weak effect of the sectors on the resilience performance of RGVA downturns has one big exception in the public sector: Across all versions of the analysis – even once country variables are included – the RGVA share of the public sector has a persistent positive effect on regional resilience performance in all dimensions.

One explanation for this is rather simple. The NACE sectors P-U, summarized here as the "public sector", includes, among others, the education sector and health services as well as classic public administration-related services. As such, these, and specifically education and health related services, are exactly the types of services that are assumed by Hill et al. and others to be shock resistant and resilient with regards to the development level[160] (Hill et al. 2012). Hence at least part of the hypotheses about the effect of the service sectors on regional resilience performance is confirmed. Unexpected, considering the hypothesis of a mainly stabilizing influence of these industries, is that there is also a tentative positive association with the trajectory retention dimensions. This observation underlines the importance of the state and state-provided services for the protection of the status-quo and also indicates the public-sector influence on the future growth trajectory and long-term economic trends within a region – the latter being an observation often controversially discussed in the economic sciences (Agell et al. 1999; Fölster and Henrekson 1999).

While for the RGVA downturns and the related sectoral share there was at least evidence to provide a verdict on the positive effect of public services on the regional resilience performance, the analysis of employment downturns and the corresponding relationship to sectoral weight shows very few effects at all. The only observable significant effect identified by the stepwise approach is the positive relationship of a higher share in the construction sector and the retention of the growth trajectory measured over a recovery period of eight years. While this seems to

[158] The decrease of the effect after introducing the categorical country variable hints at a general strong connection between regional economic setup and national economic trajectory.
[159] The two exceptions being very weak in their standardized effect and with a relatively high p value.
[160] Which makes even more sense in the European context since many of the public sector areas are significantly bigger than in the US and many of these services are directly or indirectly financed through the state (Handler et al. 2006).

affirm hypotheses about the positive effect of the construction sector with regards to trajectory retention, it is at best a very weak confirmation of this thesis – especially considering the relatively low significance level of the effect. Additionally, the absence of any positive effect whatsoever of the public sector in case of employment downturns is surprising given the strong trend identified for RGVA downturns - even more so since an increased stickiness of public employment is often postulated (Kopelman and Rosen 2016).

In summary, the thesis about the positive effect of services and industries generally credited to the public sector by NACE classification (health, education etc.) has been confirmed, at least tentatively, for RGVA downturns and the public share of RGVA. The results for the other sectors as well as for employment downturns in general (with the potential exception of the role of the construction sector in relation to the employment trajectory retention dimension) was inconclusive or, as in the case of the agricultural sector, even counter to the original assumptions.

This somewhat surprising inconclusiveness given the importance of the related hypotheses in the literature might be resolved once the different regional resilience performance observations are analyzed not in one big bundle, but on a more region-specific level. The matter of sectoral weights will therefore be given special attention in Chapter 7.3, where the different regional classes (i.e., the observations grouped by the different categorical variables discussed in Chapter 6) will be discussed. Given the effect of the negative effect of the agricultural sector, the urban-rural typology might be of special interest here. However, the different phases of the time series and the shock types might have a significant effect as well. As was already observed in Chapter 6, the nature and timing of shock events has a significant effect on resilience, therefore a similar effect on the various capability-performance relationships cannot be excluded either.

A further structural factor – i.e., a part of the wider economic structure of a region – was the *capability of regional economic actors for innovation and their general signal openness* (cf. Chapter 3.1). The general assumption behind this thesis is relatively uncontested and assumes a higher resilience of the regional economic actors, and therefore the regional economy itself, through increased adaptability to changed economic circumstances. While signal openness allows regional actors to act swiftly and appropriately to changing economic circumstance, innovativeness can produce solutions to crises as well as open the path to new, potentially improved, economic equilibria (cf. i.a.Simmie and Martin 2010; Hill et al. 2012; Clark et al. 2010).

The measures chosen to serve as indicators for this capability are relatively common indicators for innovativeness, i.e. the research and development spending relative to (regional) GDP (RnD_GDP) and the share of local employment in research and development (RnD_EMP) (Katz 2006). As pointed out in Chapter 7.1, in this case data was only available for the NUTS 2 level, hence the level of data detail is somewhat reduced compared to other indicators.

Given the importance of adaptiveness and innovation in many approaches to explain resilience and resilience performance, the empiric results are relatively weak. For employment-based resilience performance, as can be seen in Table 31, if measured across all observations simultaneously, only employment in research and development has any effect on employment development level retention, which, contrary to the basic assumptions, is negative. Furthermore, the effect exists only once all other categorical variables are included.

For RGVA downturns (Table 30), again only research and development employment shows a significant effect in two circumstances: First, a negative association with the retention of the development level if the country association is excluded, and second, for the full analytical model with all categorical variables, a positive effect on the trajectory retention at a four-year recovery phase. In both cases the significance of the effect is low and the effect itself relatively weak.

Overall, the empirical investigation does not allow to affirm the thesis about innovativeness and signal openness being a positive factor at this point. The negative effects on employment downturn resilience performance even suggest the opposite – which could be related to labor saving innovations being implemented (Acemoglu and Restrepo 2019; Piva and Vivarelli 2018). However, the shortcoming of the two indicators, i.e. the measurement at a higher NUTS level, the necessary estimates discussed in 7.1, and the general criticism of their use as innovation indicators (Katz 2006) must be considered.

As mentioned in Chapter 3.1, the capability of innovativeness and signal openness can also be associated with other regional traits - for example, social capital or general social and human development (cf. Chapters 3.3 and 7.2.3). Hence, while a direct effect of the most obvious indicators cannot be established beyond doubt, other more decentralized forms and sources of innovativeness and signal openness might still exist. Additionally, Chapter 7.3 and the brief investigation of the different regional classes and their respective resilience capabilities could potentially change this conclusion, at least under some specific circumstances.

The last resilience capability assembled under the structural umbrella concerns the extent of the *regional economic endowment* – i.e., the effect of resources, capital, and wealth assembled in

the past. As explained in Chapter 3.1, the central thesis in this case is relatively straight forward and postulates that a higher amount of accumulated regional resources increases resilience performance by creating economic redundancy and enabling choices not available to actors in less well-off regions. The variables used as indicators for this resilience dimension are the GDP per capita (GDP_PC) and the gross fixed capital formation (GFCF) per capita. As explained in 7.1, these values were standardized for each year of measurement across all European regions[161] to avoid biases caused by cumulative growth over the years.

While the logic of the argument about past resources is clear and straightforward, the empirical results do not support this argument. For employment downturns, no effect of either the GDP per capita or the GFCF could be identified by the stepwise approach. For RGVA downturns a slight positive effect of a comparatively higher GFCF per capita and the eight-year growth trajectory retention can be identified (cf. Table 30a). Additionally, a small negative effect of a comparatively high GDP per capita is identified for the four-year trajectory retention dimension of resilience performance (cf. Table 30b). However, both effects have a relatively low significance and disappear once all categorical variables including country variables are introduced.

Therefore, the assumptions of the role of past resources cannot be confirmed at this point. However, as before, a more detailed look at the different sub-categories of the regions might change this pattern. Furthermore, the 'past resources' discussed here were interpreted in a very literal way. A wider view would include other factors, such as accumulated social capital, infrastructure, or human capital, into this area of economic endowment as well – each of which will be discussed below. Hence, while GDP and GFCF seem to have little to no influence on regional resilience performance, the picture might be significantly different for other regional, less tangible resources. Therefore, at least the idea of past-assembled resource-based path-dependency (cf. Chapters 2 and 3) is still valid at this point.

In summary, there seems good evidence for the negative effect of high levels of *regional economic concentration* on RGVA-based resilience performance measures. However, the effect is significantly less clear in case of employment-based measures. The analysis of the *regional economic structure* by sectoral weights showed a positive effect of services and industries generally accounted to the broad public sector by NACE classification (health, education etc.) on RGVA downturn resilience performance. The results for the other sectors as well as for employment downturns in general were generally inconclusive or only weakly significant.

[161] I.e. all regions in the analysed EU15 states.

Similarly, the variables associated with *signal openness and innovative capabilities* of regional actors and the indicators for *regional economic endowment* show few significant effects across both employment as well as RGVA-based resilience performance measures.

7.2.2 The effect of institutional resilience capabilities

As outlined in Chapter 3.2, institutional resilience capabilities concern the wider institutional framework within which a regional economy and its actors are embedded and how these institutions in turn shape regional economic resilience performance. As before, four main capabilities associated to the regional institutional framework were defined:

- *macroeconomic stability,*
- *microeconomic market efficiency*,
- *good governance*, and the
- *existence of knowledge networks*.

Macroeconomic stability assumes that a stable greater economic environment, i.e. a stable national economy, low debt levels, balanced trade, and sound and reliable economic policies, increase resistance to economic shocks and provide for an increased resilience performance once affected by a shock event despite this stability (Briguglio et al. 2009; Martin and Sunley 2015a; Crescenzi et al. 2016). To approach this resilience capability the national current account balance (Cur_blc) and the national government deficit (Gov_debt), both relative to the national GDP, were chosen as macroeconomic indicators. Both variables show a relatively strong effect on both employment as well as RGVA downturns.

In the case of the resilience performance in the aftermath of RGVA shocks, the effect of a lower deficit level on regional resilience performance seems to be negative across all resilience performance dimensions[162]. While the significance and strength of this effect is markedly reduced once all categorical variables are introduced (Table 30c), this is still a somewhat surprising effect considering the original thesis on the subject – generally assuming that a higher deficit level is not necessarily associated with a more stable economic environment[163].

[162] As a low government deficit of even surplus results in positive values for the indicator and a deficit in negative values, the corresponding effect would be reversed. I.e., a negative effect of the Gov_debt variable means that a low deficit or surplus has a negative effect, while a higher deficit has a positive effect.
[163] The author has tested the same analysis with the government debt relative to GDP as well, the results, i.e., a positive association of higher government debt/deficit, did not change. Data on such secondary confirmatory tests can be provided upon request by the author.

That said, looking at the original data on the yearly government deficits and surpluses amount of the observed countries, it becomes clear that a negative balance is the rule, not the exception (IMF 2020a). Additionally, one must consider that the data on the independent variables analyzed here is always measured in the original shock year. Hence, if a shock occurs in a specific year and a government reacts quickly by implementing, for example, anti-cyclical policies in the form of increased government spending, this will automatically lead to an increased deficit ratio (as would a severely shrinking GDP). On their own, such anti-cyclical policies can be seen as an aspect of macroeconomic stability itself (Corsetti et al. 2013; Bonam and Lukkzen 2019). This negative effect would be further increased when considering the local industry shocks that performed weaker on average for RGVA (cf. Chapter 6.2), where there might be little to no action taken by a national government, at least none which would increase the national deficit significantly[164].

Furthermore, it can be argued that due to the nature of sovereign credit ratings and risk aversion of investors, a stable macroeconomic environment is a fundamental condition for flexible and relatively cheap issuance of public debt and therefore an increased deficit in the first place (Afonso et al. 2012). Therefore, while the variable of the government deficit is not an optimal indicator for macroeconomic stability, its positive effect[165] on the resilience performances can still be interpreted as such. Furthermore - and this relates more to the good governance capability discussed below - it underlines the potential importance of anti-cyclical national stabilization policies as part of good economic governance while potentially showing the downside of austerity politics.

The effect of the current account balance on the resilience performance of RGVA downturns is, by comparison, less clear. While there is some evidence of a positive effect of a positive balance on the recovery of the development level (cf. Table 30a/b), once all categorical variables are introduced a significant negative effect on the eight-year growth trajectory retention becomes apparent (cf. Table 30c). Since macroeconomic stability implies a more or less balanced current account (Briguglio et al. 2009), this contradictory non-result might hint at precisely such a balance. However, this interpretation is obviously a stretch. The only tentative conclusion so far is that a current account surplus seems to have the potential to stabilize the development level of a region while resulting in negative effects on the growth trajectory retention in the long run. As discussed in Chapter 3.2, this might have to do with the short term

[164] This argument obviously only holds for bigger states with larger numbers of NUTS 3 regions.
[165] I.e. the negative effect of a lower deficit in the analysis.

stabilizing effect of export markets. A prevailing export surplus might, however, become unsustainable and a liability in the long run by leading to – depending on the theoretical point of view taken – slower growth in the long run due to increased inflation, decreased domestic investments, imbalances in international (and European) trade, or decreased domestic demand (Samuelson 1948; Stolper and Samuelson 1941; Young and Semmler 2011; Sinn 2006; Priewe 2018; Ohlin 1935).

Still, overall, the variable of the current account balance seems to hint at either no effect of macroeconomic stability on regional economic RGVA downturn resilience performance at all, or simply the insufficient nature of the variable to serve as an indicator for the capability. The first of these two conclusions cannot be completely ignored since macroeconomic stability might have an overall greater effect on vulnerability and resistance to initial shocks than subsequent resilience. This twofold and intermingled nature of resilience and resistance was discussed in Chapter 3 and is also explored by Briguglio et al. as well as by Martins and Sunley (Briguglio et al. 2009; Martin and Sunley 2015a).

Looking at the same variables for the resilience performance in the aftermath of employment downturns, the negative effect of government deficit (i.e., the negative effect of a low deficit) on all three dimensions of resilience performance persists across all versions of analysis. Only once the county association variables are introduced does the negative effect on the level development recovery disappear – the effects for both measures of trajectory retention remain, however.

Again, similar arguments to those for the RGVA-based observations can be made for the cause-and-effect relationship between government deficit and employment resilience performance. In particular, the argument about the anti-cyclical stabilization policies becomes even more pronounced in the case of employment shocks. Since, as discussed in Chapter 4.1, employment shocks generally lag behind RGVA shocks when occurring around similar macroeconomic crises (i.e., the three shock periods of 1990-1993, 2000-2003, and 2008-2009), any stabilization policies implemented in reaction to the earlier RGVA shocks would potentially positively affect employment resilience performance as well. As such, a negative effect of a low government deficit – or rather, a positive effect of a higher deficit – would be the consequence from such a mechanism. Furthermore, certain activities of welfare states which increase the deficit under duress might directly increase job resilience as well, as for example the German model of short-time working (Burda and Hunt 2011; Möller 2010). Again, despite these explanations for a

reasonable causality between deficit and resilience performance, the quality of the government deficit as an indicator specifically for macroeconomic stability must be questioned.

In contrast to the findings on RGVA downturns, the resilience performance after employment downturns is affected quite strongly in a positive fashion by the current account balance variable in all versions of the analysis and for all performance dimensions (cf. Table 31a/b/c). As macroeconomic stability as a resilience capability refers to a balanced current account as a source of increased resilience performance, it is disputable if this hypothesis can be affirmed given the strong positive effect of a current account surplus. However, the result which remains is, that a strong export base seems to be a positive driver of employment resilience performance. Classic trade-related theories would support these findings mainly by positive feedback loops of growing foreign demand stabilizing and adding to domestic demand, thereby increasing the need for supply and production factors like labor, at least in the relative short term (Samuelson 1948; Stolper and Samuelson 1941; Ohlin 1935).

Overall macroeconomic stability seems not to be a sufficiently significant factor in explaining regional economic resilience performance. Quite the opposite: the strong positive effect of a rising government deficit and a strong current account surplus on especially regional emplyoment resilience performance suggest that macroeconomic imbalance or instability at least in these areas can profit regional economies with regards to their resilience performance. However, this does not mean that such instability is actually desirable in the long run, since it would affect access to many drivers of growth, capital access, and wealth accumulation (Afonso et al. 2012; Bonam and Lukkzen 2019). Furthermore, as was pointed out several times above, the quality of the variables as indicators for macroeconomic stability is questionable and needs to be redressed in future studies on the topic. Still, for the purpose of this study, the value of macroeconomic stability for explaining divergent regional resilience performance must be assessed as relatively low. The individual variables, however, still have some value as they speak to the generally positive effect of trade as well as the potential positive effect of early anti-cyclical spending as a response to shock events.

The second capability designated as an institutional resilience capability concerns the *microeconomic market efficiency* of regional economies. It generally follows the argumentation of Martin and Briguglio et al. that a more flexible microeconomic market environment allows regional actors to adjust and adapt their behavior more quickly than within ridged market structures (Martin 2012; Briguglio et al. 2009). Several indicators were proposed for this potential resilience capability:

- first, the national level ease of getting a credit score (EoC) – based on the average of the national scores from 2004-2015, as described in 7.1.,
- second, the annual national level of union density (Union),
- third an annual national level index on multi-level labor bargaining (ML_barg), and last,
- data on the standardized real labor compensation at NUTS 2 level (Lab_comp).

For RGVA downturns the results seem to support the idea of the importance of microeconomic market efficiency for positive resilience performance. While there is no effect of labor compensation, both the level of unionization as well as a high-level wage bargaining (i.e., less enterprise-based bargaining in favor of higher-level tariff agreements for industries and sectors) show strong and significant negative effects on the different RGVA resilience performance dimensions. Once all categorical variables are introduced (cf. Table 30c), the strongest negative effect can be found in the relation of unionization and the eight-year trajectory retention. This is followed by the negative effects of high-level wage bargaining (i.e., less firm level flexibility) on the recovery of the development level and the trajectory retention measured over four years. All three effects suggest that a more liberal and efficient microeconomic (labor) market environment is beneficial for regional resilience performance.

The indicator measuring the ease of getting credit shows no significant effect once the country variables are introduced. This by itself is unsurprising: from the way this value was measured, it is a constant for each country, hence any effect would be suppressed by the introduction of the county category. However, before the county categories are introduced, a significant effect become visible (cf. Table 30a/b). Again, as would be expected for a thesis of microeconomic market efficiency and credit access, these are positive for the retention of growth trajectory dimension, and strongest for the eight-year retention. Curiously, and counter to the stated assumption, the ease of getting credit seems to have a negative effect on the recovery of the development level dimension in Table 30b. One explanation would be that the indicator includes elements on the general strictness of the banking and financial market regulations (World Bank 2020). Therefore, it could be that the banking crisis of 2008/2009 and the related credit crunch in particular, a phenomenon also related to the events causing the downturn spikes form 1990-1993, might have an oversized influence on this finding. This effect would, of course, disappear in the mid-term once the crunch was resolved (Brinkmann and Horvitz 1995; Iyer et al. 2014; Poole 2009). If so, this would influence the trajectory retention dimensions less than the recovery of the development levels, which would potentially drop significantly more

if firms suddenly had problems of accessing credit. It will be important to analyze this phenomenon further in Chapter 7.3.1, where the different crisis periods are looked at separately.

Independent of the last point, there seems to be strong evidence of the importance of a high microeconomic market flexibility for a high regional economic resilience performance in the aftermath of RGVA downturns. This is supported by the effects of the same variables on employment downturns and their respective resilience performance (cf. Table 31). While multilevel bargaining seems to have no effect, there is a persistent negative effect of unionization on employment resilience performance, even once all categorical variables are considered. Once the country variables are considered (cf. Table 31), the effect of unionization becomes the strongest negative influence among the continuous variables that were included as indicators across all three employment performance dimensions (some country categories remain stronger).

As with RGVA-based resilience performance and for the same reasons, the effect of the ease of getting credit variable disappears once the country categories are included. However, if those categories are excluded, the effect of the indicator is significantly positive on both retention of the growth trajectory measures. Again, like before, this suggests the importance of credit access for regional economic resilience performance in general.

Overall, despite the deviations in the context of the RGVA-based recovery of the development level and credit access discussed above, the evidence for the importance of microeconomic market efficiency for a high regional employment resilience performance remains strong and the hypothesis on this resilience capability can be affirmed. Furthermore, this observation is valid for RGVA-related resilience performance as well as employment-based resilience performance.

Good governance, the third resilience capability discussed here, is one of the hardest potential resilience capabilities to find a good indicator for, as discussed in 3.2. This is especially true at the level of regional governments and for an indicator that can be measured continuously. As a compromise, the government closeness index (Gov_close) by Ivanyna and Shah was introduced to at least catch levels of decentralization and citizens' closeness to governmental institutions (Ivanyna and Shah 2014). The disadvantages of this index are the same as the drawbacks of the treatment of the ease of credit indicator. In both cases the final measure is a value that is a constant with respect to the country association category. This in turn leads to its near automatic exclusion from the analytical model once all categorical variables are introduced (cf. Tables 30c and 31c).

Taking this last remark into account and focusing only on the analytical steps excluding the country variables, the first observation is that government closeness seems to have no significant effect at all on the resilience performance in response to RGVA downturns – at least as far as it was identified by the stepwise algorithm. However, for employment downturn resilience performance a highly significant effect could be identified for all resilience performance dimensions (cf. Table 31a/b). While a positive effect of a higher level of government closeness exists for all dimensions, it is strongest with the two measures of trajectory retention.

This result underlines the importance of good governance in the form of governance closeness and, more generally, political and fiscal devolution for the regional employment markets and employment resilience performance in the face of crisis. In this regard it seems that ideas by Ostrom, Briguglio et al. and others are affirmed significantly (Ostrom 1990; Briguglio et al. 2009). Meanwhile, good governance seems to have little effect on the production side of things with no significant results on RGVA resilience performance.

However, one must consider that good governance is more than just the polity and administrative framework described by the government closeness index. The quality of economic and other practical policies potentially matters at least as much as the level of government closeness on which they are made. The disadvantage of a study executed across a relatively long data set as presented here is that it is exceedingly difficult to quantify policies made at discrete points in time in response to specific crisis and make meaningful statements about their effect. How, for example, would one compare the monetary policies executed by the ECB from 2008 onwards with the decision of some local council to expand an industry park in the mid-1990s?

That said, a potential hint at government policies in response to crisis might be found in the overall positive effect of a high government deficit that was already discussed. As the data suggests that the deficit increases often in tandem with initial downturns and shock scenarios, one explanation could be the implementation of national stabilization policies (cf. discussion in 7.2.1). Such programs and their positive effect in turn can be seen as a result of (good) governance. If so, this would support the argument of the importance of good governance for RGVA resilience performance as well. Similar arguments on the relation between other variables and good governance could be made as well (for example with regards to spending on research and development or the framework conditions for microeconomic market efficiency).

Nevertheless, the conclusion so far must be that good governance, at least as represented by the dimension of closeness and decentralization, is only a factor for the employment-related resilience performance. This finding is supported, though not unanimously so, by several authors' findings on the positive effects of fiscal decentralization[166] specifically on regional employment markets. The potential benefits of higher levels of fiscal decentralization on labor market development described in the literature are various and include: increased regional public sector employment, regional labor programs, increased flexibility of regional labor markets, higher regional policy flexibility, and equalizing effects on regional disparities (Qian and Weingast 1997; Rodriguez-Pose and Ezcurra 2010; Bianchi et al. 2021; Knuth 2009). If the presented results are considered reliable, similar benefits could influence regional employment resilience performance in the aftermath of severe shock events to the regional employment base.

The last institutional capability discussed was about the *existence of regional knowledge networks*. The argument brought forward here also relates to the arguments already made in 7.2.1 for the resilience capability of innovativeness and signal openness of regional actors (cf. also the idea of 'Generalized Darwinism' in Chapter 2.3). Due to this close relation, there is an overlap between both capabilities. Therefore, the share of regional employment in research and development can be used as an additional indicator again. However, a further variable measuring the existence of industrial clusters in a region is introduced too – the so called cluster star ratings for each NUTS 2 region (Clu), as proposed by the European Cluster Observatory (European Cluster Observatory 2015).

As established in Chapter 7.2.1, once all categorical variables are introduced (Table 30c), the relation between RGVA resilience performance and the regional employment share of research and development activities consists only of a weak negative effect on the trajectory retention measured during a four-year recovery phase. While there is little effect of the first variable, the second variable, i.e., the cluster stars, has a moderately strong negative effect on the trajectory retention measured over eight years as well as a weak negative effect on the recovery of the development level.

These results both speak against a positive influence of knowledge networks on RGVA resilience performance. The negative effect of clusters on regional resilience performance found probably does not constitute a detrimental effect of such networks themselves but reflects more the negative influence of high levels of sectoral concentration on regional resilience

[166] Which, since Ivanyna and Shah's approach is based on fiscal decentralization data, is a major contributor to high scores in the government closeness index (Ivanyna and Shah 2014).

performance (cf. Chapter 7.2.1 as well as the effect of the HHI in Table 30). That said, there is some tentative evidence for positive effects of social capital and social networks on regional RGVA resilience performance, as will be discussed in Chapter 7.2.3. While not strictly knowledge related, this still might be interpreted as a positive indicator regarding the thesis on the present resilience capability.

By comparison, the effect of both variables on employment downturn resilience performance is even less pronounced (cf. Table 31). The only significant effect that can be found is a moderately negative effect on the recovery of the development level of research and development employment once all categorical variables are introduced, and a very weak and not significant negative effect of clusters on the trajectory retention over an eight-year recovery period. Therefore, there is even less indication of the importance of the existence of regional knowledge networks for regional employment resilience performance, at least if all observations are treated equally[167].

Overall, this chapter showed that institutional resilience capabilities have varying effects on regional resilience performance in all its forms. Macroeconomic stability in the form of a balanced macroeconomic environment as represented by the government deficit or the current account surplus saw relatively little support as a positive resilience capability by itself (rather the opposite, there exist positive effects of increased deficits and a current account surplus). Meanwhile, the evidence for the positive effect of microeconomic market efficiency as a positive resilience capability is relatively strong for all resilience dimensions. Good governance, at least in the form of decentralization and government closeness, shows mostly positive effects on regional resilience performance measured based on regional employment numbers, but the effect on RGVA-based resilience performance is negligible. The effect of regional knowledge networks in the form of clusters shows a negative tendency mostly towards RGVA-based resilience measures. This, however, is possibly connected more to the negative effect of regional economic concentration (cf. Chapter 7.2.1) than the functional nature of clusters themselves.

[167] As mentioned before section 7.3 will discuss the different regional categories separately.

7.2.3 The effect of social and demographic resilience capabilities

The social and demographic resilience capabilities described in Chapter 3.3 include:

- *the level of regional social development,*
- *the extent of the regional social cohesion,*
- *the regional age demographics*, and finally
- *the extent and effect of regional migration*.

Despite the latter two being more general regional demographic characteristics than capabilities in any actor-related sense, they all deserve a closer analysis regarding their effect in determining regional resilience performance.

The general idea behind a potential positive effect of a high level of *social development* on regional resilience performance was discussed in Chapter 3.3. It centers on the idea that a well developed society has inherit characteristics that make it function as a stabilizing element on the regional economy through a high resilience of individual actors and by allowing for new economic solutions, options, and equilibria to be identified more easily (Briguglio et al. 2009; Simmie and Martin 2010; Foster 2012).

As this capability refers rather generally to the state of development of the society in areas of education, participation, individual resources, health, etc., the variable most appropriate to reflect these social characteristics is the sub-national human development index (SHDI, cf. Chapter 3.3). Additionally, to further focus on the education aspect, employment in research and development areas can again serve as a further proximate indicator.

The latter variable will not be further discussed here since its effects in relation to the various resilience performance dimensions – for both employment and RGVA downturns – have already been discussed extensively in Chapters 7.2.1 and 7.2.2[168]. As can be seen in Table 30, the SHDI, which is comprised of data on regional GDP per capita, educational attainment levels, and live expectancy, generally has a positive effect on the regional resilience performance dimensions in case of RGVA downturns. The only exception to this trend is a negative effect on the RGVA development level dimension in the linear regression without categorical variables. However, this effect is negated immediately once these variables are introduced. Once country association is considered, only the relatively strong positive effect on the recovery of the development level remains significant (cf. Table 30c). The positive results

[168] The variable was found to have little effect in general, and if then a detrimental influence on the few performance dimensions it did affect.

for the trajectory retention, however, must still be considered since at least some components of the SHDI are highly country dependent (as, for example, the expected number of school years at birth). As such, their effect might be suppressed by the categorical country variables once they are introduced (cf. Table 30b).

Despite this uncertainty regarding the trajectory retention measures, it seems safe to draw the conclusion that social development is an important contributing factor to RGVA resilience performance – at the very least to the dimension of the recovery of development level.

Interestingly, the direction of the effect for the SHDI becomes negative once employment resilience performance is analyzed (cf. Table 31). While it has no effect on the recovery of the development level at all, it has a persistent strong negative effect on the recovery of the trajectory dimension that continues to be a significant even once all categorical variables are introduced (Table 31c).

There are a couple of valid interpretations of this result. First, since the SHDI includes components on educational attainment, this negative effect of a high SHDI on employment resilience could be indicative of the negative effect of overeducation on local labor markets that was identified in some studies by other authors (cf. i.a. Büchel and van Ham 2003; Agénor and Lim 2018). Second, it could be symptomatic of higher labor costs related to higher education and high GDP per capita regions, which in turn could lead to outsourcing and lower investment levels. This latter assumption is counteracted, however, by the non-effect observed for the variable of labor compensation (lab_comp). Third, as the health component of the SHDI is measured by life expectancy, the negative effect could be indicative of a greater share of pensioners reducing total employment in the long run – which would explain the negative effect specifically on the trajectory retention levels.

Be that as it may, what can be stated from these negative results is that social development as measured by SHDI is at least no positive resilience capability increasing regional resilience performance in the aftermath of employment downturns. Meanwhile the positive effect on the RGVA related resilience performance is strong and can be seen as a positive resilience capability.

Closely related to the social development resilience capability is the idea of *social cohesion* as a regional resilience capability. As outlined in Chapter 3.3, social cohesion is seen as an elementary feature in adaptive resilience approaches by facilitating ad hoc problem solution and adaptive behavior through microeconomic actor interactions (Simmie and Martin 2010). As such, it was concluded that this capability corresponds to the social network component of

the theoretical construct of social capital (Putnam 1992, 2000; Sabatino 2019). As an indicator for this dimension, elements of the ESS questionnaire relating to organization membership (party and otherwise) were employed (Parente 2019; GESIS 2016). Furthermore, as economic equality is an important element of social cohesion as well (Foster 2012) but inequality-related data was not available at the necessary quality, the GDP per capita will be considered in suggesting at least inter-regional discontinuities in distribution. Since the latter was already discussed in 7.2.1 the focus here will be on the former[169].

Before introducing the country association variables, the effect of social capital – or rather, the social network aspect of social capital (SC_Org) – is moderately positive and highly significant for all RGVA resilience performance dimensions (cf. table30/b). Once the country categories are introduced the effect is suppressed (cf. Table 30c). A probable reason for this lies in the strong cultural connotation of the measure, which results in a stark difference of organizational membership between countries. For example, Germany shows a national average organization membership of about 15,52% of the total population, while Spain on average shows a membership rate of only about 6,82%. Additionally, as can be seen in appendix III.a.vi, the correlation between most country categories and the social network variable is usually relatively strong and on nearly equal levels as other national level variables, such as the multilevel bargaining index (ML_barg).

Despite the country-related variance of the variable, a positive effect of a high level of social capital – or rather, dense social networks – can be tentatively ascertained for the resilience performance in the aftermath of RGVA downturns. Overall, this also supports the hypothesis about the importance of social cohesion for RGVA resilience performance.

Meanwhile, for employment downturns no such relationship can be observed for any of the resilience performance dimensions (cf. Table 31). Therefore, at least for the data and variables at hand, social networks are important with regards to the creation of value and the upkeep of regional production, but the local labor pool does not significantly profit from more intricate social linkages among the population. The latter result reflects the findings on union density, i.e., a typically labor-oriented organization that, as shown in the discussion on microeconomic market efficiency, seems to have an overall detrimental influence on the regional employment resilience performance.

[169] As was discussed there, the GDP per capita shows no significant effect on any resilience performance dimension neither for employment downturns nor RGVA downturns. As such it can be presumed that at least interregional income discrepancies have no significant effect on resilience performance of any kind.

The *age demographics* of a region are a characteristic whose function as a resilience capability is mainly based on the argument that a younger population has more options and shows greater flexibility than an overaged populous (cf. i.a. Foster 2012; Hill et al. 2012). As discussed in Chapter 3.3, however, there are arguments for a higher resilience of older populations as well. These are mostly based on arguments about accumulated individual resources and age-related inequality (cf. i.a. Taylor et al. 2011; Afman 2020; Ihle and Siebert-Meyerhoff 2017). Proposed indicators for this regional feature were an aging index (Pop_age, based on the proportion of over 64-year-old to under 15-year-old) and the share of the economically active (civilian) population between 15 and 64 (Pop_work).

The resilience performance in response to RGVA downturns is shown to be positively affected by a higher aging index (cf. Table 30) – i.e., an inferred higher age of the population. That said, this positive effect is only moderately strong. Once the categorical variables are introduced into the stepwise analysis, it persists only for the retention trajectory measured over eight-years (cf. 30c). This effect seems to weakly confirm the potential effect of age-related accumulated resources discussed in Chapter 3.3. There seems to be no significant benefit of a younger population in this context. In a similar vein, higher shares of an economically active population have a negative effect at first – again, not supporting any benefits relating to a younger, or at least more active, population. Once the country variables are included, this negative effect disappears, however.

In summary, the results for either a positive or negative effect of an older (or younger) population are weak. A slight positive effect of an older population, potentially related to greater accumulated individual resources, can be inferred from the data and analysis, but this result is too weak overall to confirm population age-related factors as a decisive regional capability for RGVA resilience performance at this point.

The evidence for an influence of the same age and demographic related variables is slightly stronger for the resilience performance in the aftermath of employment downturns (cf. Table 31). As with RGVA downturns, the aging index is shown to have a generally positive effect on the employment trajectory retention. Again, the effect remains valid over an eight-year recovery period only, once all categorical variables are introduced. This finding is slightly more counterintuitive for employment than RGVA resilience performance; however, one has to consider that human capital is also an individual resource which can be accumulated. Additionally, many countries have provisions in their labor law that make workplaces more secure for older or more long-term and older employees (Garavan et al. 2001; Lahey 2010).

In contrast to RGVA downturn performance, the negative effect of the share of the economically active population persists in the case of employment performance even when the country categories are introduced. An explanation for such a negative effect could be as simple as a case of regional oversupply of labor (Agénor and Lim 2018). The significance of these results is, however, very low: only the effect on the eight-year trajectory resilience shows a generally acceptable significance level at all. As before, the conclusion from these results must be that the effect of age-related demographics is small at best. If the relationship is accepted, then the influence of an older, less active population is in general positive for employment as well as RGVA resilience performance but the evidence for this interpretation remains weak. Still, Chapter 7.3 will investigate the variable again, especially in the context of the different crisis periods of the time series. This will potentially compensate for the effects of the general aging trend in Europe that might obscure the results here (Prskawetz and Sambt 2014).

The last demographic variable concerns the level of *intra-regional migration* (Mig_net). While it is not a resilience capability in the classical sense either, it is a regional characteristic that potentially influences the regional labor market, available human capital, and, indirectly, regional social cohesion (cf. Chapter 3.3). As explained in Chapter 7.1, the variable employed to measure migration is the classic net-migration rate – i.e., the annual number of migrants per 1.000 inhabitants.

The effect of the regional net migration is only very small for RGVA resilience performance (cf. Table 30). Once all categorical variables are introduced, only a very weak negative effect on the trajectory retention measured over four years remains (cf. Table 30c). The effect of migration on employment resilience performance is slightly stronger and more persistent: for the trajectory retention measured over both a four and eight-year recovery period, a moderately strong negative effect could be identified (cf. Table 31). As for the negative effect of the share of economically active population, the reason for this effect might be related to the supply side of labor as a production factor (O'Connor 2020; Foster 2012; Agénor and Lim 2018).

In summary, there is tentative evidence for a weak negative influence of inter-regional migration on regional resilience performance (specifically the retention of the growth trajectory). For RGVA resilience performance, the effect is very weak and unlikely to be considered a major factor in explaining regional economic resilience performance. By comparison, the negative effect on employment-related resilience performance might be more significant. Still, compared to other resilience capabilities, the negative effect of migration rates remains rather small.

As in the mentioned, the results on the effect of social and demographic resilience capabilities are mixed and no clear generalizable causal relationship can be inferred. On the one hand, social development as measured by the SHDI, shows a positive effect on RGVA-based resilience performance measures, on the other hand the effect of the same variable on employment-based measures shows a negative tendency. The resilience capability of social cohesion was approximated for the most part by an indicator of social capital in the form of regional social networks which shows significant effect on RGVA resilience performance only. As was discussed, there could be an appreciable influence of cultural norms on the variable which can influence the results. Age related demographic factors showed only a weak effect on both RGVA- as well as employment-based resilience performance with older populations seemingly being slightly beneficial. However, there are indications of a negative effect of a high population share of economically active persons on regional employment resilience performance. Finally, while inter-regional migration showed only little appreciable effect on RGVA-based measures, the effect on employment resilience performance shows relatively solid negative tendencies. As the negative effect of a larger share of economically active persons, this potentially is related to a certain regional oversupply in labor.

7.2.4 The effect of regional endowment

As argued in Chapter 3.4, the idea of regional endowment concerns in a broad sense practically all the resilience capabilities that were already discussed. But, as it was made clear, the idea here is to focus on geographic features of a specific region. The major features of concern here are:

- *the relative accessibility of a region*, measured by using the potential multimodal accessibility index by ESPON (MM_Ac), and
- *the level of urbanization and population density* of a region, a feature that is provided for by the rural-urban typology of European regions discussed in Chapter 6.3.

Additionally, this chapter will also shortly discuss the effect on these variables of the respective regional country association, which is, at its core, a form of geographic endowment as well.

Multimodal accessibility[170]shows practically no effect on RGVA resilience performance, besides some positive effects of low significance before the categorical variables are introduced

[170] The measure is based on the population accessible form each region weighted by the multimodal (air, road, rail, sea) travel time (ESPON 2021d).

(cf. Table 30). For employment related resilience performance, a positive effect on the trajectory retention measured over four years can be identified by the stepwise approach that, furthermore, remains significant once the country association categories are introduced (cf. Table 31c).

Still, despite the positive effect mentioned, the overall results for the effect of accessibility on regional resilience performance are very weak. For employment, the reason for this might be found in the relatively high localized nature of labor markets. Studies have shown that laborers as well as local employers often show a strong location bias. Wider nets are often cast only in cases of high competition amongst job seekers or employers (Manning and Petrongolo 2017; Agénor and Lim 2018). This could explain the positive effect of accessibility on the relatively short-term growth trajectory retention over four years, but once the immediate shock effects are compensated for, more distance labor markets might lose their attractiveness. That said, if this were the cause of the positive effect on this resilience dimension, one would expect a similar effect on the equally short-term recovery of the development level, but this could not be identified. As a result, regional accessibility, at least when analyzed across the whole set of observations, cannot be identified as a resilience capability of high importance.

As for the *rural-urban typology*, there was no significant effect, either positive or negative, found by the chosen analytical method. Still, as discussed in Chapter 6.3, there is a significant difference between the three types or regions (i.e., rural, intermediate, and urban). Hence this typology will be analyzed and discussed separately in Chapter 7.3.3 as well.

While the number of regional observations for some countries – and hence the related *country association* categories – is below the threshold where the corresponding effect can be analyzed with a great level of certainty[171], a brief rundown of the significant results found will be given (cf. Tables 30c and 31c). This analysis must be considered complementary to the country-based analysis in Chapter 6.4 and the subsequent analysis of selected countries' regions in Chapter 7.3.4.

Regarding the recovery of the development level in response to RGVA shocks and downturns (cf. Table 30c), the positive effect of the respective regional country association reflects the results from the analysis in Chapter 6.4 nearly perfectly. As in Chapter 6.4, the strongest positive effect on the recovery of the development level can be found to be highly significant

[171] As discussed, this is the reason why the analysis so far has always been supplemented by comparing the results from analytical steps without country categorical variables (tables 30b and 31b) as well as without any categorical variables (table 30a and 31a).

for Germany (DE), France (FR), and Belgium (BE). Less significant, but still positive, are the effects for Spain (ES) and Austria (AT). Additionally, there is an only marginally negative effect for Finland. The strongest negative effect can be found for Greece (EL), followed by a weaker negative effect for the United Kingdom (UK), albeit at a lower significance level for the latter.

Excluding an only marginally significant positive result for Ireland (IE), the RGVA trajectory retention measured over a four-year recovery phase is only affected negatively by the regional association with, in descending order, Portugal (PT), UK, AT, and FR. Additionally, the Italian regional country association shows a marginally significant negative effect. While the general trend reflects the findings from Chapter 6.4 in this case, the strength and significance of the results coincide only roughly; hence one can assume that the other explanatory capabilities described in the previous chapters explain a significant portion of the country-related variance.

Once the recovery period is expanded to eight years, significant negative effects dominate. The only significant positive, and very strong, effects are associated with Denmark and Sweden. All other country associations show a negative effect or, in the case of AT and UK, either no or only marginal significant results[172]. The worst negative effect observed is associated with, in descending order, French, Portuguese, Irish, and Spanish regions. As with the four-year RGVA trajectory retention these results suggest that, while the country association is powerful, the other variables have considerable influence (as discussed in the previous chapters).

For employment downturns the regional recovery of the development level (cf. Table 31c) is significantly positively affected by the Swedish, Finish, and surprisingly Greek country association. Additionally, a Danish association shows a marginally significant positive effect as well. Meanwhile the effect is negative for, in descending order, regions in the Netherlands (NL), FR, DE, and Italy (IT). In comparison to Chapter 6.4, the strong negative effect of the French association is particularly surprising in this context.

For the employment-related retention of the growth trajectory measured over four years, positive significant effects can be found for DK and SE. Meanwhile, as before, there is a strong and significant negative effect for regions in NL and IT. Here, as well as for the eight year-based trajectory retention and the recovery of the development level that was already discussed, one can see a clear trend towards a positive effect of the two Scandinavian countries in the sample on regional employment resilience performance.

[172] Greek regions are not mentioned since they fall in majority out of range once the recovery phase is expanded to 8 years.

The positive picture of the general Scandinavian influence on resilience performance is supported by FI, whose regions show to be significantly positively affected by their country association in the eight-year growth trajectory retention measure as well. Otherwise, as with RGVA downturns, only negative effects can be identified – with the exception of the non-significant effects of AT, BE and UK. There, the strongest negative effect is shown by association with, in descending order, FR, ES, NL, DE, and PT. The negative effect of the EL and IT association is somewhat less strong in comparison.

Overall, this shows the importance of the country category as an explanatory variable for regional economic resilience performance. It thus shows the strong effect national policies, institutions, and cultural variables might have on the regional resilience performance. Sadly, as mentioned in other places, the data to cover the whole time series at a level of detail that can shed more light on these specificities is not available. This shortcoming, however, justifies additional and more detailed studies to be conducted, either of individual countries and their regional resilience performance or based on more detailed data, which is starting to be gathered at a pan-European level only in recent years. One source for such data would be the structural business statistics mentioned, which could give more detail on regional industrial and sectoral composition than has been available so far.

More specifically, taken together with the results from Chapter 6.4, the results underline several general trends. First, in regional resilience performance, the Scandinavian countries in the sample (including Finland) do best, or rather their regions do, especially in the resilience dimension of the retention of the growth trajectory. Second, while there is a certain bias towards northern countries especially with regards to RGVA resilience performance, there seems to be no obvious north-south divide with regards to resilience performance as one might expect when looking at other economic dynamics, at least when analyzing all observations across the time series as a whole (Landesmann 2013; Howarth and Rommerskirchen 2016; Fochesato 2018). Third and last, economic performance measured by typical parameters (i.e., GDP, unemployment levels, etc.) does not necessary reflect regional economic resilience. Otherwise, the relatively strong performance and positive country effects of Spain and Greece, for example, are hard to explain.

Overall, while far from unidirectional, the effect of a region's country association remains strongest among the different variables discussed in this chapter. By contrast the effect of multimodal accessibility on RGVA resilience performance is negligible and the positive effect found on employment-based measures is weak by comparison. The urban-rural distinction and,

by extension factors like population density, similarly shows little effect. That said, as discussed above, the urban-rural cleavage needs more specific evaluation at a later point (cf. Chapter 7.3).

7.2.5 The effect of crisis timing and shock type

Two sets of variables included in the analysis do not correspond to any regional characteristics but rather the circumstances of the initial shocks initiating the resilience response. The first of those two sets describe the *timing of the different downturn events* by dividing the time series in different crisis periods of increased frequencies of shock events (cf. Chapters 5.1 and 6.1). The second set describes the specific *nature of shocks* identified following the methodology described in Chapter 4.1.

The different *crisis periods* of increased shock frequency identified in Chapter 6.1 (i.e., 1990-93, 2000-2003, and 2008-2009) correspond roughly with the European and global business cycle for the observed time series. The first of these periods, 1990-1993, corresponds to the general recession of 1990-1991 and was caused by factors related to the German unification, the subsequent monetary policies (i.e. a tightening of the monetary supply), and a crisis in the European monetary system that coincided with the US recession of 1990-1991 (Battilossi et al. 2010).

The second period of 2000-2003 corresponds to the recession phase starting from 2001 that was caused by several factors, including an increased oil price, rising inflation, tightening monetary policy, and declining consumption and world trade. These factors were caused and compounded by the bursting of the ICT ("dot com") bubble and the events of 9/11 (European Commission 2001). While the recession technically ended swiftly in most big European countries (specifically France and Germany), the negative effects on growth rates and the economy were protracted (Battilossi et al. 2010).

The last period of 2008-2009 corresponds to the Global Financial Crisis (GFC) caused by a bubble in the US housing market and the near breakdown of its financial services. Through spillovers facilitated through the intertwined financial systems, the crisis hit Europe nearly simultaneously, leading to a slowdown in global trade and a crisis of the inter-bank lending system. The related credit crunch and threat of a complete collapse of the banking system necessitated large-scale state and monetary intervention, which in turn led indirectly to the

protracted sovereign debt crisis influencing especially southern European economies deep into the 2010s[173] (Moro 2014; Perez and Matsaganis 2018).

Each of these recessions triggered different monetary and policy responses and this must be considered in the effect that the timing of a crisis has on the subsequent resilience performance. This means that while the crisis of 1990-1993 was shaped by tightening monetary policy and structural rebalancing of the economy, and 2000-2001 again resulted mostly in monetary tightening paired with (labor) market reforms, especially in Germany, the crisis of 2008-2009 was at least initially met by monetary expansion and typically Keynesian policies[174] (Battilossi et al. 2010; European Commission 2001; Moro 2014; Perez and Matsaganis 2018).

Additionally, the analysis also includes a category for the initial shock-downturn pairings occurring in between the different crisis periods[175]. To a certain extent they can serve as a control category which stands outside of the general business cycle. Consequently, as discussed in Chapter 6.1, they usually contain the highest number of (local) industry shocks, while the different crisis periods are consisting, in the majority, of national economic downturns. As for the numerical distribution of observations between the different periods, the most observations for employment as well as RGVA downturns start in 1990-1993, followed by the GFC of 2008-2009. The crisis of 2000-2003 has the least observations of all crisis periods. The cases falling in between are least numerous overall (although for employment they are nearly equal to the 2000-2003 numbers)[176].

Analyzing the effect of the different crisis periods on the RGVA based resilience performance (cf. Tables 30b and c) delivers a surprisingly clear picture that largely reflects the results of the preliminary analysis conducted in Chapter 6.1. The effect on a region of having its first downturn in the crisis of 1990-1993 is generally positive and highly significant[177]. This is in concert with the findings of 6.1, where this period showed the best average performance for the recovery of the RGVA development level and, excluding the cases in between, the second-best average in the other dimensions. Conversely, the crisis of 2000-2003 shows consistently

[173] The causal relation to the GFC and the protracted nature of the sovereign debt crisis leads to the latter not being treated as a distinct phase in the time series. Since most, if not all, shocks and downturn relating to the debt crisis are subsequent to initial first downturns in 2008 and 2009, they do not appear as separate observations by the methodology chosen here (cf. section 4.2).

[174] Obviously, the austerity politics in response to the sovereign debt crisis must be considered especially, but not exclusively, for the countries most affected – i.e. Portugal, Ireland, Italy, Greece, and Spain, often called rather disparagingly "PIIGS" countries (Perez and Matsaganis 2018).

[175] In tables 30 and 31 the crisis phases are referred to by the corresponding years while the cases falling between these spikes are summarized under "BTW".

[176] For details see section 6.1.

[177] Except for the effect on the trajectory retention measured over a 4-year recovery period, which shows a lower significance level.

significant strong negative effects on downturns occurring during this period. This observation is consistent again with Chapter 6.1. The effects of both crises are also consistent with the general economic trends in the business cycles, where recovery after the recession in the 1990s is relatively strong leading up to a boom in the late 1990s (ended by the dot com bubble), while the recovery from the crisis in the early 2000s was relative protracted and associated with sluggish growth in most countries whose regions are observed here (Battilossi et al. 2010; European Commission 2001).

In contrast, the effect of the 2008-2009 crisis does not align with the findings in Chapter 6.1. The only significant effect can be found on the recovery of the RGVA development level and is highly negative. Meanwhile no significant effect was found regarding the other two dimensions – although a non-significant positive trend is visible. Arguably, this could speak to the protracted negative effect of the sovereign debt crisis (Moro 2014; Perez and Matsaganis 2018). This latter point will be of special interest once selected countries are analyzed which were affected differently by the debt crisis (cf. Chapter 7.3.4). For the cases falling in between the crisis periods, no significant effects could be identified. As it was a relatively small set gathered across different time frames, this not very surprising.

For employment downturns (cf. Tables 31b and c), the effect of the 2000-2003 crisis period is similarly negative as for RGVA downturns. Across all dimensions there is a strong negative effect on the regional resilience performance, underlining the findings from 6.1 where this specific period was found to result in the generally worst average employment resilience performance. For the earlier crisis period of 1990-1993 only a weakly significant positive effect on the trajectory retention measured over a four-year recovery period could be identified (although the non-significant trends suggest a generally positive effect). For the crisis period of 2008-2009 the stepwise approach results in no significant effects (again, however, showing a non-significant positive trend). For the cases falling in between the crisis periods a weak, but significant positive effect on the recovery of the development level could be identified. This latter point might underline the importance of availability and access to efficiently performing labor markets to stabilizing local employment numbers.

Overall, the main finding on the timing of the crisis effects aligns with the expectations built by the pattern of the general business cycles of the time. The 1990s crisis period was followed by a relatively strong expansion up to the 2000s. This resulted, at least for RGVA downturns, in a relatively strong positive effect on resilience performance – also reflected in the higher average performance. Meanwhile, the protracted crisis starting in 2001 had a negative effect on

regional economic resilience performance. The results on the GFC and the cases falling in between are inconclusive but tentative trends suggest – except for the development level recovery for RGVA – a more positive outcome in general compared at least to the 2000-2003 period. To summarize, the unsurprising result is that a fast recession with a relatively quick and stable recovery is preferable to a long and protracted recovery after a national recession.

The second set of categorical variables discussed here concerns, the *shock typology*. Since the observations for the combined shock events are relatively small (cf. Chapter 6.2), they were included in the respective industry shock category for the quantitative analysis – i.e., combinations of national economic downturns (NAT_Eco) and local industry shocks (LOC_Ind) were counted as local industry shocks and combinations of national economic downturns and national industry shocks (NAT_Ind) as national industry shocks.

The effect of the shock typology on RGVA related resilience performance is non-existent for the performance dimension on trajectory retention independent of the time it is measured over (cf. Tables 30b and c). For the recovery of the development level dimension, however, a significant but relatively weak negative effect could be identified for local industry shocks, while national economic downturns show a significant and moderately strong positive effect.

Conversely, for employment-based resilience performance no effect on the development level dimension could be identified, but the retention dimensions at least allow for some trends to be suggested (cf. Tables 31b and c). The effect of national economic downturns on the trajectory retention is significantly negative at a moderately strong level, while for both types of industry shocks a weak (but not significant) positive trend can be identified.

Based on these results, only a provisional conclusion on the effects of shock type on resilience performance can be drawn. This is nevertheless supported by the results from the analysis in Chapter 6.2. Overall, it seems that RGVA-related resilience performance (specifically the development level dimension) is stronger in the case of national downturns, but negative, or at least weaker, in the case of (local) industry shocks. Resilience performance regarding regional employment shows a different trend, with a negative effect of national economic downturns, but a potentially stronger (or at least non-negative) performance in the case of industry shocks.

An explanation for this discrepancy could potentially be found in the phenomenon termed "jobless recovery". This term describes a phenomenon identified throughout recessions in recent decades, in which middle-skill routine jobs in particular are lost during a recession but do not recover during the subsequent economic recovery (Jaimovich and Siu 2020). The explanations for this phenomenon are manifold and include skills mismatches, labor market

polarization, and worker transition into high or low-skill jobs. However, the main contributing factor, as the literature suggests, is the replacement of mid-skill routine labor tasks by automated capital, at least for manufacturing – i.e. increasing automatization (Jaimovich and Siu 2020; Jaimovich et al. 2020; Cortes et al. 2014; Acemoglu and Restrepo 2019; Acemoglu and Autor 2010; Foote and Ryan 2015; Cortes 2012). If jobless recovery is acknowledged as a phenomenon, it would result in RGVA recovering in sync with the general business cycle, thereby resulting in a higher resilience performance in the case of national economic downturn shocks. Meanwhile, regional labor markets desynchronized from the cycle through jobless recovery would result in low or even negative regional employment resilience performance in the aftermath of national economic downturns.

In contrast, industry shocks, and especially local industry shocks, potentially do not generate the same economic pressure towards cost saving through increased productivity which exists during a general recession. The effect on resilience performance in these cases is therefore less pronounced (Fernald 2014; Escribano and Stucchi 2014; Schaal 2011).

Overall, while not directly classified as resilience capabilities, the effect of crisis timing and shock type on regional resilience is strong when taken together with the pervious analyses from Chapter 6. The results of the stepwise analysis described in this chapter for the most part reflect the results of the analysis already conducted in Chapter 6.1 and 6.2. They paint a picture of stronger resilience performance for RGVA-based measures if a downturn is caused by a national economic downturn, while local industry shocks have a negative effect. As in 6.2, the conclusion for employment resilience performance trends to exactly the opposite relation between shock type and resilience performance. The effect of the timing of the different shock-downturn pairings again points at a generally and often strong negative effect of the period from 2000-2003 across all resilience dimensions. Meanwhile the other two crisis periods and the cases falling in between the big spikes of shock events tend to have either more positive or weaker negative effects (if any at all). Especially cases whose downturn was caused during the 1990-1993 period see an overall positive effect on regional resilience performance independent of the underlying measure.

7.3 The effect of resilience capabilities by regional categories

Before giving a summary of the empirical results of the analysis conducted so far, this chapter will deal with the different subsets of observations as classified by categorical variables already discussed in Chapter 6. The goal is to observe resilience capacities in varying contexts and to isolate effects that might be suppressed by the collective all-observation analysis in Chapter 7.2. Subchapter 7.4 will then summarize the results of the different steps in the empirical analysis and draw conclusions from them. Chapter 7.5 will subsequently put the results into context and consider their limits as well as potential future research axis.

The different categories and their respective relation of resilience performance and resilience capacity will be discussed in the following order. First, the different crisis periods will be discussed separately. As discussed in Chapter 7.2.5 since each crisis period is different in its causes as well as the economic and political actions taken in response, consequently the effect of the different resilience capabilities might be different as well once looking at them separately. Second, the same treatment will be given to different shock types - or rather, the corresponding observations. Here the distinction of industry shocks (especially local) and national economic downturns will be of interest as it was found in 7.2.5 that their effect on regional resilience performance differs significantly. Third, a closer look will be taken at the rural-urban typology. The central idea here is to identify resilience capabilities that might have different influences on resilience performance depending on the general geographic and demographic setting. Last, regions from selected countries will be analyzed to find effects of resilience capabilities on resilience performance which that have been suppressed in the collective analysis conducted before.

The analysis presented here will be briefer than Chapter 7.2. Only the results of the stepwise regression, including all categorical variables (i.e., the stepwise ANCOVA), will be discussed[178]. As before, only the standardized coefficients will be presented, and the detailed results of these analyses can be found in the appendix[179].

[178] Obviously excluding the respective categorical variable by which the observations are grouped in each section.
[179] Appendixes III.b – III.e.

7.3.1 The effect of resilience capabilities across time

The results of the analyses for each individual crisis period regarding the effect of the different resilience capabilities within them can be found in Table 32 (for RGVA-related resilience performance) and Table 33 (for employment-related resilience performance). The results for the observations between the shock spikes, the crisis periods from 1990 to 1993, from 2000 to 2001, and from 2008 to 2009 are found in sub-Tables a), b), c), and d) respectively[180]. For reasons of brevity, the discussion presented here will focus on the major differences either between the different phases or remarkable deviations from the results discussed in Chapter 7.2. Regarding structure, this chapter will discuss RGVA-related resilience performance in the context of each period first. Discussions of employment resilience performance will be treated separately afterwards.

For the *RGVA resilience performance* of observations *falling between the three crisis periods* (Table 32a), the first interesting difference to the general analysis concerns the different role of the economic sector weights in influencing resilience performance. While for all observations together there was no strong effect to be identified, here the construction sector acts as a positive influence on the growth trajectory during the recovery period measured over four years. Additionally, the (non-public) service sector has a strong negative influence on the recovery of the development level. Similar results do not repeat for the other periods. This suggests there is a possibility in the cases of non-synchronous shocks (i.e., mostly industry shocks not in sync with the general business cycle) to literally build a region's way back to a growth trajectory. More specifically, this might reflect the general positive influence large infrastructure and building projects can have on regional economies and regional growth (Grimes 2014).

Of additional interest is the role of gross fixed capital formation (GFCF) which, surprisingly, shows a strong negative effect across all resilience dimensions. To a certain extent this is rather surprising, since generally one would expect a reverse connection – especially considering the positive trend for productivity (Prod) that can be associated with a higher regional recovery of development. One potential explanation for this phenomenon could lie in the negative effect already observed for services.

As observed by the ECB in 2014 for the crisis of the late 2000s and early 2010s, the investments by the service sector were hit especially hard by the crises and then considerably slower to

[180] The corresponding full analyses can be found in appendix III.b.i. for RGVA-based resilience performance and in appendix III.b.ii for employment-based resilience performance.

increase again during recovery (ECB 2014). If this observation is transferable to the regional level, this might lead to an interesting hypothesis considering the negative effect of a larger service sector on regional resilience performance: If substantial parts of regional GFCF originate from within a regionally strong service sector, the cumulative negative effect from a faltering service sector and a resulting absence of investment from the same sector, might lead to a decrease in regional aggregated demand resulting in a negative feedback loop lowering regional resilience performance. However, this is only a preliminary hypothesis which needs further investigation and should not be taken as a final statement on the connection.

This curious observation aside, one other effect that is at least worth mentioning is the positive influence of government closeness (Gov-close) on the trajectory retention measured over eight years for these cases outside the three crisis periods. This seems to suggest the benefit of a higher level of fiscal decentralization in shock events that are not connected to general crisis spikes. An argument could be made for the benefits of greater flexibility in reacting to a crisis at a local level in a non-synchronous crisis when said crisis might not be on the agenda at higher levels of government (for further discussions on this point cf. Chapter 7.2.2).

Regarding the country association only the development level dimension has shown to be affected in a significant manner. Here a positive effect of the respective country associations for regions in Belgium, Germany and Finland can be found, while a negative effect exists for regions in Spain and France. While the positive relations are expected, the negative associations for Spain and France are counter to the observations made for the collective analysis of the observations in Chapter 7.2.5. This could suggest the strong influence of national policies (or lack thereof) on regional economic resilience as well as the effect of decentralization in these countries, as at least Spain is significantly less decentralized than the other countries discussed here (Ivanyna and Shah 2014).

The detailed analysis of the *crisis period 1990-1993* (Table 32b) offers relatively few clues for the relationship between resilience capabilities (or their indicators) and RGVA resilience performance. The major effects influencing resilience results seem to stem from country association and shock type rather than specific resilience capabilities. In comparison to all other time periods – with the partial exception of the period 2008-2009 – the country association effects are significantly stronger in the observations from the early 1990s. For the development level dimension, regional association with Germany, France, or Spain has the biggest positive effect, while Finland and Sweden see a strong negative effect on their respective regions. In the trajectory retention dimension measured over eight years, the greatest negative effect can be

significantly identified on Portuguese regions, followed at a distance by the Italian regions. All other significant effects are positive with the Swedish country association having the greatest effect[181]. The country association effect being greater than in the other phases of the timeline could be a symptom of the increased synchronization of the European business cycles and through them the general resilience performance patterns (Degiannakis et al. 2014; Darvas and Szapary 2004; Arčabić and Škrinjarić 2021).

Furthermore, the crisis phase 1990-1993 is the only one that sees any strong effects of the shock types, which, as in the analysis of all observations collectively, is only significant for the development level recovery dimension. As in the analysis of 7.2.5, the effect of national economic downturns is strongly positive, while local economic downturns have a strong negative effect.

Three other effects deserve additional mention. First, there is a negative effect of a relatively high standardized GDP per capita on the development level dimension of resilience performance. However, since this effect is only significant for the crisis period 1990-1993 in which the share of German observations is particularly high (ca. 35%), probably due to the closeness to the economic effects of reunification, the assumption can be made that it is more related to the nature of the concerned regions that are affected by shock, than an actual causal relationship to subsequent resilience performance. In other words, more relatively high GDP regions are affected in the first place than low GDP regions (cf. appendix III.b.i.2 for the respective observation numbers). In a similar vein the positive effect of GFCF on resilience performance in two out of three dimensions can be interpreted. Here one has to consider the large scale infrastructure investments made after unification accompanying the "Aufbau Ost" (the rebuilding of the East) in Germany (Ragnitz 2019). However, it cannot be excluded that, especially in the crisis of the 1990s, past accumulated resources helped regional economies to react to crises better and adjust quicker to changes, as proposed by Martin and Sunley and others (Martin and Sunley 2020).

The last point, and in this case completely unique, is the seemingly positive effect of high levels of labor bargaining mechanisms during the early 1990s. So far, if any effect to this variable was found, it was negative, thereby corresponding to expectations about the importance of microeconomic market efficiency. Why an exception for the 1990s exists can only be speculated about at this point. One such speculation might have to do with country level effects,

[181] The results for this dimension measured of four years are similar, however with fewer significant results and a lower R^2 as in the other cases of analysis made so far.

e.g., that the positive effect of the French association, a country with notoriously high levels of unionization and famous for its labor disputes, might be a factor in this. Alternatively, it might be a case of higher level labor negotiations having a counteracting effect on increasing trends to outsource in the 1990s – thereby keeping production and value formation relatively localized (Crafts 2005).

The *crisis period of 2000-2003* (Table 32c) shows patterns which are again potentially shaped by the exceptionally high share of German regions among the observations (59,3%). This becomes visible in the moderately strong negative effect of higher shares of economically active population on regional resilience performance, and to a lesser extent in the effect of net migration, since the crisis as well as its aftermath were marked by increasing unemployment numbers in Germany that reached up to 12% in the aftermath of the shocks of the early 2000s (Burda and Seele 2016; Burda and Hunt 2011). Together with the so called "Hartz reforms" of the employment law and unemployment compensation, this could have resulted in generally lower aggregate demand and other effects on the regional development of GVA. As Germany also typically shows a high number of party and other civil organization members, this could further explain the negative effect of the social capital dimension (GESIS 2016). Furthermore, assuming a potential long-term beneficial effect on employment numbers through the Hartz reforms might explain the overall positive effect of the German country association for both trajectory retention measures (Burda and Hunt 2011; Burda and Seele 2016).

A further effect of note concerns the size of the public sector as measured by RGVA share. While showing a positive effect in the collective analysis in Chapter 7.2, it is, at least at this strength for all dimensions, only to be found for this crisis period. This again could be related to the greater stickiness of the sector in general and its labor numbers in particular, which in times of increased unemployment could result in beneficial results for the aggregated demand and thereby RGVA of a region (and consequently the effect on the RGVA of government spending in case of anti-cyclical measures) (Agell et al. 1999; Fölster and Henrekson 1999; Hill et al. 2012).

Table 32: Standardized coefficients for RGVA resilience performance (crisis periods)

a) Between crisis periodes

Independent Variable	Recovery of Development	Retention of Growth	Retention of Growth
Pop_age			
Mig_net			
Pop_work	0,261 *		
Agri_GVA			
Manu_GVA			-0,219
Const_GVA		0,312 ***	
Serv_GVA	-0,227 ***		
Pub_GVA			
HHI	-0,222 ***		
GDP_PC			
GFCF_PC	-0,427 ***	-0,203 **	-0,406 ***
PROD	0,363 *		
RnD_GDP			
RnD_EMP			
MM_Ac			
Avg_bus			
Gov_debt	-0,203 ***		
Cur_blc		0,250 ***	
Gov_close			0,266 ***
Lab_comp			
Union			
ML_barg			
SHDI			
SC_Org			
EoC			
Clu			-0,198 **
AT	0,011		
BE	0,327 ***		
DE	0,265 ***		
EL	-0,815 ***		
ES	0,120		
FI	0,275 **		
FR	-0,268 ***		
IT	0,028		
NL	-0,078		
PT	-0,011		
UK	0,094		
Urban			
Intermed.			
Rural			
LOC_Ind			
NAT_Eco			
NAT_Ind			
adj R^2	0,543	0,116	0,259
Model F	10,868 ***	6,845 ***	9,484 ***
N	134	134	98

***p<0,01;**p<0,05;*p<0,1

b) 1990-1993

Independent Variable	Recovery of Development	Retention of Growth	Retention of Growth
Pop_age		0,087 **	0,176 ***
Mig_net			
Pop_work			
Agri_GVA			
Manu_GVA			
Const_GVA			
Serv_GVA			
Pub_GVA			
HHI			
GDP_PC	-0,137 ***		
GFCF_PC	0,190 ***	0,128 **	
PROD			
RnD_GDP			
RnD_EMP			
MM_Ac			
Avg_bus			
Gov_debt			
Cur_blc			
Gov_close			
Lab_comp			
Union			
ML_barg	0,378 **		
SHDI			
SC_Org			
EoC			
Clu		-0,089 **	-0,184 ***
BE	-0,099	0,156 ***	0,144 *
DE	0,774 ***	0,071	-0,091
ES	0,447 ***	0,359 ***	0,196 ***
FI	-0,734 ***	-0,041	0,219 ***
FR	0,732 ***	0,274 ***	0,189 ***
IT	-0,138	-0,084	-0,251 ***
NL	0,088	-0,014	0,076
PT	-0,184 *	-0,457 ***	-0,914 ***
SE	-0,568 ***	-0,089	0,359 ***
UK	0,207	-0,052	-0,012
Urban			
Intermed.			
Rural			
LOC_Ind	-0,192 ***		
NAT_Eco	0,208 ***		
NAT_Ind	0,019		
adj R^2	0,296	0,133	0,233
Model F	20,583 ***	9,360 ***	18,906 ***
N	653	653	651

***p<0,01;**p<0,05;*p<0,1

c) 2000-2003

Independent Variable	Recovery of Development	Retention of Growth	Retention of Growth
Pop_age			
Mig_net		-0,145 ***	
Pop_work	-0,181 **	-0,164 **	
Agri_GVA			0,131 ***
Manu_GVA			
Const_GVA			
Serv_GVA			-0,101
Pub_GVA	0,267 ***	0,232 ***	0,257 ***
HHI		-0,157 **	
GDP_PC			
GFCF_PC			
PROD		0,169 **	
RnD_GDP			-0,087 *
RnD_EMP			
MM_Ac			
Avg_bus			
Gov_debt			
Cur_blc			
Gov_close			
Lab_comp			0,172 ***
Union			
ML_barg			
SHDI	0,277 **		
SC_Org	-0,336 ***		
EoC			
Clu	-0,139 ***		
AT	0,224 ***	0,071 *	0,131 ***
BE	-0,238	-0,033	0,080 **
DE	0,311	0,190 ***	0,635 ***
DK	-0,015	-0,121 ***	0,029
EL	-0,099 **	0,145 ***	
ES	0,034	-0,132 **	-0,266 ***
FI	0,043	-0,067	-0,074
FR	0,023	-0,127 ***	0,017
IE	-0,164	0,132	-0,165 ***
IT	-0,027	-0,260 ***	-0,120 ***
NL	-0,141	-0,157 ***	-0,066 *
PT	0,019	0,049	-0,080 *
SE	0,236	0,077 *	0,100 ***
UK	0,102	0,050	0,057
Urban			
Intermed.			
Rural			
LOC_Ind	0,082		
NAT_Eco			
NAT_Ind			
adj R^2	0,202	0,235	0,463
Model F	6,324 ***	8,186 ***	21,630 ***
N	421	421	408

***p<0,01;**p<0,05;*p<0,1

d) 2008-2009

Independent Variable	Recovery of Development	Retention of Growth	Retention of Growth
Pop_age	-0,191 ***	-0,149 ***	
Mig_net			0,184 ***
Pop_work	0,292 ***	0,253 ***	
Agri_GVA			
Manu_GVA	-0,125 ***	-0,101 **	
Const_GVA			
Serv_GVA			
Pub_GVA	0,156 ***		
HHI	-0,162 ***		
GDP_PC		-0,125 ***	
GFCF_PC			
PROD			
RnD_GDP			
RnD_EMP			
MM_Ac			
Avg_bus			
Gov_debt			
Cur_blc			
Gov_close			
Lab_comp			
Union			
ML_barg			
SHDI			
SC_Org	0,312 ***	0,235 **	0,337
EoC			
Clu			
AT	0,062	-0,315 ***	-0,440 ***
BE	0,449 ***	0,030	-0,284 **
DE	0,689 ***	0,150 *	-0,052
DK	0,081	0,185 *	0,192
EL	-1,469 ***	-0,656 ***	
ES	0,228	0,302 ***	
FI	-0,412 *	-0,496 *	-0,722 *
FR	0,456 ***	0,057	-0,124
IT	0,662 ***	0,534 ***	0,123
NL	-0,086	0,251 ***	0,396 ***
PT	0,314	0,447 ***	0,975 ***
SE	-0,413 ***	-0,369 ***	-0,353 **
UK	0,112	0,080	0,052
Urban			
Intermed.			
Rural			
LOC_Ind			
NAT_Eco			
NAT_Ind			
adj R^2	0,260	0,138	0,132
Model F	14,543 ***	7,524 ***	5,428 ***
N	694	694	349

***p<0,01;**p<0,05;*p<0,1

Table 33: Standardized coefficients for employment resilience performance (crisis periods)

a) Between crisis periodes

Independent Variable	Recovery of Development	Retention of Growth	Retention of Growth
Pop_age		0,142 *	
Mig_net			
Pop_work	0,212	0,319 ***	
Agri_EMP			
Manu_EMP			
Const_EMP			0,221 *
Serv_EMP			
Pub_EMP			
HHI			-0,305 **
GDP_PC			
GFCF_PC			
PROD			0,372 **
RnD_GDP			
RnD_EMP			
MM_Ac			
Avg_bus		-0,283 ***	
Gov_debt			
Cur_blc		0,292 ***	0,990 ***
Gov_close			
Lab_comp			
Union	-0,225 ***	-0,222 **	
ML_barg			-1,231 ***
SHDI		-0,364 ***	-0,334 **
SC_Org			
EoC			
Clu			
AT			-0,050
BE			-0,581 **
DE			-0,767 **
EL			1,316 ***
ES			0,486 ***
FI			0,011
FR			0,033
IT			-0,260 **
NL			-0,160
PT			0,608 ***
UK			-0,539 *
Urban			
Intermed.			
Rural			
LOC_Ind			-0,228
NAT_Eco			-0,246
NAT_Ind			0,255 ***
adj R²	0,089	0,197	0,539
Model F	7,689 ***	6,588 ***	8,140 ***
N	138	138	111

***p<0,01;**p<0,05;*p<0,1

b) 1990-1993

Independent Variable	Recovery of Development	Retention of Growth	Retention of Growth
Pop_age			0,231 ***
Mig_net			
Pop_work		-0,241 **	-0,214 ***
Agri_EMP	-0,164 **		
Manu_EMP			
Const_EMP	0,182 ***		0,147 ***
Serv_EMP			
Pub_EMP			
HHI			
GDP_PC			
GFCF_PC			
PROD	0,416 ***	0,297 ***	0,236 ***
RnD_GDP			
RnD_EMP	-0,101 **		
MM_Ac		0,299 ***	
Avg_bus			
Gov_debt			
Cur_blc	0,401 **		
Gov_close			
Lab_comp		-0,114 **	
Union	-1,929 ***	-1,759 ***	-1,445 ***
ML_barg	-0,355 *	0,379 **	
SHDI	-0,279 ***	-0,271 **	-0,297 ***
SC_Org			
EoC	-6,637 ***		
Clu			
BE	-1,355 ***	0,246	0,551 **
DE	2,578 ***	-1,619 ***	-1,747 ***
DK	3,969 ***	2,370 ***	1,897 ***
ES	-2,184 ***	-2,114 **	-2,069 ***
FI	4,108 ***	2,671 ***	2,548 ***
FR	-5,244 ***	-2,726 ***	-2,185 ***
IT	-4,595 ***	-0,891 ***	-0,716 ***
NL	-4,005 ***	-1,650 ***	-1,118 ***
PT	-4,038 ***	-0,564	-0,770 **
SE		2,977 ***	2,593 ***
UK	4,531 ***	-0,250 *	-0,518 ***
Urban			
Intermed.			
Rural			
LOC_Ind		0,156 **	
NAT_Eco		-0,089 *	
NAT_Ind		-0,060 *	
adj R²	0,262	0,250	0,370
Model F	12,339 ***	11,126 ***	22,079 ***
N	577	577	576

***p<0,01;**p<0,05;*p<0,1

c) 2000-2003

Independent Variable	Recovery of Development	Retention of Growth	Retention of Growth
Pop_age	0,222 ***	0,236 **	0,170 **
Mig_net	-0,289 ***	-0,257 ***	-0,274 ***
Pop_work			
Agri_EMP			-0,292 **
Manu_EMP			
Const_EMP	-0,416 ***		
Serv_EMP			
Pub_EMP			
HHI	-0,210 ***		
GDP_PC			
GFCF_PC		-0,300 **	
PROD			
RnD_GDP			
RnD_EMP			
MM_Ac			
Avg_bus			
Gov_debt			
Cur_blc			
Gov_close			
Lab_comp			
Union			
ML_barg			
SHDI			
SC_Org			
EoC			
Clu			
AT	0,049 **	-0,027	0,026
BE	-0,026 *	-0,018	-0,013
DE	0,045	0,195 ***	0,147 *
EL	0,120 *	-0,064	0,171
ES	0,027	-0,218 *	-0,416 ***
FI	0,145 ***	0,173 ***	0,169 ***
FR	-0,020	0,138 **	0,034
IT	0,031	-0,021	0,058
NL	-0,160 **	-0,071	-0,282 ***
PT	-0,359 ***	-0,570 ***	-0,241 ***
UK	-0,024	0,106	0,086
Urban	-0,049		
Intermed.	0,207 **		
Rural	-0,082		
LOC_Ind			
NAT_Eco			
NAT_Ind			
adj R²	0,374	0,390	0,535
Model F	6,828 ***	8,661 ***	14,025 ***
N	157	157	148

***p<0,01;**p<0,05;*p<0,1

d) 2008-2009

Independent Variable	Recovery of Development	Retention of Growth	Retention of Growth
Pop_age		-0,287 ***	
Mig_net			
Pop_work			0,416
Agri_EMP			
Manu_EMP			
Const_EMP			-0,267
Serv_EMP	-0,239 ***		
Pub_EMP			
HHI	0,275 ***		
GDP_PC			
GFCF_PC			
PROD			
RnD_GDP			
RnD_EMP			
MM_Ac	0,341 ***	0,259 ***	
Avg_bus			
Gov_debt		-4,340 ***	
Cur_blc		-15,239 ***	
Gov_close			
Lab_comp			
Union	10,778 ***		
ML_barg		-2,855 ***	
SHDI			
SC_Org		0,439 ***	
EoC			
Clu	0,112 ***		
AT	2,641 ***	7,611 ***	
DE	7,443 ***	16,522 ***	
DK	-12,605 ***	11,681 ***	
EL	1,340 *	-22,733 ***	
ES	6,083 **	-12,380 ***	
FI	-13,219 ***	8,111 ***	
FR	9,731 ***	0,447 *	
IT	0,964 ***	0,356 **	
PT	1,799 ***	-16,798 ***	
SE	-10,893 ***	18,907 ***	
UK	3,463 ***	-7,993 ***	
Urban			
Intermed.			
Rural			
LOC_Ind			
NAT_Eco			
NAT_Ind			
adj R²	0,552	0,419	0,273
Model F	21,177 ***	12,072 ***	10,026 ***
N	247	247	49

***p<0,01;**p<0,05;*p<0,1

A last factor that has a moderately strong influence on the trajectory retention over eight years is the level of (standardized) labor compensation. In general, this might hint at the importance of consumer demand for the development of regional RGVA. At the very least it underlines that there is no disadvantage of higher compensations in relation to regional resilience performance during this crisis period.

That said, this might also reflect the inherent wage differences between and within countries themselves. A specific example for this can be Western Germany's higher wage regions, which show a higher trajectory retention through higher growth levels in the long run. This development might well be unrelated to the level of labor compensation itself and instead owed to the divergent historical development in the first decades after unification in both parts of Germany (Kluge and Weber 2018). Given the German overrepresentation among the observations this might influence the whole analysis.

As mentioned, when discussing the crisis phase of 1990-1993, the country association categorical variables have only relatively weak effects. The main exception to this is the aforementioned positive effect of the German regional association that is especially strong for the trajectory retention dimension measured over eight years. The rest of the significant results are generally negative effects, except for Austria and Sweden.

The last *crisis period of 2008-2009* (Table 32d) shows some unique effects as well. First among these is the effect of the indicators for the age demographic related indicators. A higher aging index has a negative effect on the recovery of the development level dimension as well as on the trajectory retention measured over four years. Meanwhile, a higher share of the economically active population sees a significant strong positive effect for the same dimensions.

This suggests that in the aftermath of the GFC, a younger, economically active population was an asset for regional resilience performance. However, one must consider that the regions of states which showed a particularly high youth unemployment in the aftermath of the GFC (e.g. Spain, Greece, Portugal etc.), are not included among the observations to the fullest extent (Tomić 2017). The reason for this is that the subsequent shocks of the sovereign debt crisis make their resilience performance unobservable by the methodology and data set used in this work.

This crisis period is also the first time a negative effect of a higher relative regional RGVA share of the manufacturing sector becomes visible, as was originally hypothesized in Chapter 3.1 and derived from authors like Hill et al (Hill et al. 2012). As expected, based on this thesis,

a negative effect can be identified for the more short-term resilience performance measures of the recovery of the development level and the trajectory retention over a four-year recovery period. Given this is the only crisis period which affirms this thesis, evidence for it must be seen as rather weak at this point and specific to this period. Additionally, the positive effect of the public sector share on the regional economy is affirmed – albeit to a lesser degree than for the crisis of 2000-2003. As for the crisis of 2000-2003 and the cases in between, the crisis period of 2008-2009 confirms the negative effect of sectoral concentration that was identified in 7.2.1 already.

Lastly, reference must be made to the positive effect of social capital in form of organization membership during this crisis period – surprising considering previous results. This seems to confirm the thesis of social cohesion being a positive factor for regional resilience performance at least for RGVA resilience performance in the crisis of 2008-2009. However, one must be careful with this conclusion. As stated in the discussion on the negative effect of this indicator for observations of the period from 2000-2003, this variable is highly country and culture dependent. Regions in countries performing well in 2008-2009 in general economic terms often show higher values of social organization as well (for example Germany, with around 15,5% of population on average being members of an organization), than regions in generally weaker performing countries (for example Greece, with only approximately 7% of population being members in organizations) (GESIS 2016). Hence causality is hard to ascertain conclusively due to the varying scale to which the crisis of 2008-2009 and the subsequent sovereign debt crisis affected different European countries.

This last point leads to a brief discussion on the country association categories which shows some surprises, given the common negative association with the PIIGS[182] countries in the aftermath of the GFC. While associated with very low growth and a slow recovery (Perez and Matsaganis 2018), at least some of these countries have a positive effect on the resilience of their regions. This is especially true for the trajectory retention measured over four years where Portugal, Italy, and Spain show surprisingly positive influence on the associated regions – the Greek regional association corresponds to the negative expectations, however. This might reflect to a certain extent the (relative) success of emergency measures taken by these countries (especially Portugal and Spain) together with the European Union leading to a recovery that allowed them to leave measures like the European Stability Mechanism quickly behind in 2013 (Spain) and 2014 (Portugal) already (ESM 2021; Reis 2015).

[182] Portugal, Ireland, Italy, Greece, and Spain.

Overall, it seems that RGVA resilience performance follows patterns which differ from period to period. The most constant effect seems to be the positive influence of the public sector (including health, education, and administrative services), the negative effect of a high sectoral concentration measured by HHI, and the negative effect of strong industrial clusters within a region. While none of these factors are consistently present across all time periods and performance dimensions, their effects are affirmed by the general analysis conducted in 7.2. The influence of most other indicators seems to hint at a highly volatile and, across time, even conflicting relationship between the different regional resilience capabilities and the subsequent regional resilience performance.

Still, these findings underline the importance of at least two regional capabilities for RGVA resilience performance, first the importance of regional economic diversity, or at least the avoidance of overspecialization, and second, the potential strong positive influence of the public sector – i.e., the sectoral structure of a regional economy biased towards it. This does not mean all other findings from the general analysis or for the different crisis must be disregarded, but it underlines that regional RGVA resilience performance is highly situational and depends on the specific economic context a shock and downturn take place in.

The results of the analysis on the effect of the different resilience capability indicators across the different time periods for *employment-based resilience performance* confirms this conclusion that temporal circumstance strongly influences the outcome of the regional economic resilience process (cf. Table 33). However, this is with somewhat different results where commonalities among the periods can be identified.

For the cases falling in between the three big shock spikes (Table 33a), the contrast to the general analysis conducted of 7.2 is of greatest interest. Remarkable are especially the variation to the strength of some capabilities' effects as well as the total absence of other relationships observed before. This can be seen in the negative effects of the sectoral concentration in the form of the HHI. In the general analysis this affected only the recovery of level of development significantly, albeit at a relatively weak intensity. For the in-between observations, while the resilience dimension on the development level is not affected, the trajectory retention measured over eight years sees a very strong and significant negative effect. A similar increase in effect strength for these observations specifically, can be identified for the effect of labor productivity, the trade indicator of the current account balance, and the negative influence of a high SHDI.

A few other indicators, however, do not correspond to the general analysis. One concerns the effect of the share of economically active population, which is significant and strongly positive,

while in the general analysis the effect of the same indicator was negative. An assumption could be that while there is no general economic downturn in the wider economy in the form of a wider recession, regional economies can profit from a bigger labor pool and potentially more important, a bigger potential consumption base to mitigate negative effects to the labor market.

The second observation of divergence concerns a negative effect of high levels of labor-employer bargaining. Here a very strong negative effect on regional employment resilience performance can be identified, while in the analysis of 7.2 no effect could be observed. This negative effect is further confirmed by the results on the crisis periods of 2000-2003 and 2008-2009, albeit for the four-year trajectory retention measure only. This, together with the negative influence of high unionization levels, underlines the importance of microeconomic market efficiency (in the labor market) for employment resilience[183] (cf. Chapters 3.2 and 7.2.2).

Regarding the effect of the categorical variables, the country association shows no influence on the recovery of the development level and the trajectory retention measured over four years. However, for the more long-term employment trajectory retention the country association becomes quite influential again. Here the results paint a picture of a north-south difference where German, Belgian, and – at a weaker significance level – the British regions are negatively affected while Greece, Spain, and Portugal have a positive effect on their regions. The exception to this North-South pattern are the Italian regions, which seem to be significantly negative affected. This reflects to a certain extent the results from Chapter 6.4 on the respective national differences in regional resilience performance.

Finally, a significantly positive effect of the shock classification as national industry shocks on the eight-year trajectory retention can be identified. This could potentially be a sign that many observations falling in between the general shock spikes are subject to a gradual shift in their economic structure, which is seemingly associated with a general downturn in that sector at national level. This is a shift that could result in positive developments through adaptation to the regional trajectory retention in the long run (hysteresis). This must remain conjecture, however, since the actual number of observations of national industry shocks for the cases in between is relatively small (24 observations) and it is therefore risky to put too much weight on this effect.

The first observation to be made about the *1990-1993 crisis period* (cf. Table 33b) concerns the effect of the different country associations. Compared to the collective analysis conducted in

[183] The crisis of 2008-2009 sees a different result for unionization rates which will be discussed below.

7.2, as well as compared to the observations falling in between the spikes and the crisis phase of 2000-2003, the effect of this categorical variable is very strong. The only other period which shows equally strong effects by the regional county association is the phase from 2008-2009. This could suggest that, compared to the findings on RGVA resilience performance, the (regional) employment markets of the European countries analyzed are far less synchronized than the rest of the economy, a finding supported by several other authors (Buscher and Gabrisch 2009; Boeri and Jimeno 2016; Battilossi et al. 2010). This in turn could have the effect of a highly country-specific employment resilience performance in the aftermath of general downturns in the business cycle. Additionally, there is a significant positive effect of local industry shocks on regional trajectory retention if measured over four years – which corresponds with the findings of the general analysis of a positive effect of such shocks in the context of employment resilience performance.

Most continuous indicators show a similar relationship to regional employment resilience performance for the 1990-1993 crisis period as identified for the general analysis in Chapter 7.2. Of note in the area of regional sectoral composition of the labor stock is the additional negative effect of agricultural employment – which is less surprising considering the general trend of a steep decline in the employment numbers in this sector beginning in the early 1990s (European Commission 2021e). Additionally, noteworthy is the stronger positive effect, compared to the general analysis, of an increased share of employment in the construction industry.

Somewhat remarkable is the absence of any indication of a negative effect of increased sectoral concentration on the regional resilience performance, either by RGVA-based HHI, average business size, or indirectly by a high density of strong regional clusters. Additionally, no negative effect of a high governmental deficit could be identified. These absences stand in conflict with the general analysis where at least some effect of these indicators on individual resilience dimensions was identified by the stepwise approach.

Furthermore, the strength and direction of the effects of the indicators for especially the microeconomic market efficiency in the 1990-1993 period are remarkable. On the one hand, the very strong negative effect of high unionization levels seems to make a strong argument for the positive influence of a liberal and effective microeconomic (labor) market. On the other hand, the indicator on multilevel bargaining suggests a mixed picture with different effects on the development level (negative effect of high-level bargaining) and the trajectory dimension measured over four years (positive). Meanwhile the strong negative effect of a high score in the

ease of getting credit by the World Bank suggests an effect in the opposite direction for this capability. Still, since the resilience performance discussed concerns employment, the mainly negative influence of directly labor related microeconomic market efficiency indicators (i.e., high unionization and high-level labor and wage bargaining) suggests an overall positive effect for the capability.

The *crisis period from 2000-2003* (Table 33c) is most remarkable for the small number of effects in any direction that can be identified among the continuous variables –even the number of significant effects among the categorical variables is small by comparison. The main feature to be mentioned is the strong effect of some of the demographic variables.

First, population age has a relatively strong positive effect significant across all resilience dimensions. This potentially reflects the existence of strong anti-age discrimination clauses in European labor laws, preventing or mitigating a loss in total employment, though this does not satisfactorily explain the positive effect on the trajectory retention dimensions (Lahey 2010).

Second, the net migration rate shows a significant negative effect on all resilience dimensions. While this reflects once more the results from 7.2, the effect is stronger and, furthermore, the crisis in 2000-2003 is the only period which shows any significant effect related to the net migration rate. However, this observation might, as discussed before, be caused by a country bias, since as with the same period analyzed by RGVA, German regions are overrepresented in this crisis sample (38,2% of observations). Since German regions have a relatively high average net migration rate compared to countries with less numerous observations[184], this conceivably could lead to a corresponding bias – especially given the high unemployment rates in Germany up to 2005-2006 (Burda and Seele 2016; Burda and Hunt 2011; Battilossi et al. 2010).

The crisis of 2000-2003 differs further in the effect of the relative sectoral shares of the total regional employment. While a weak positive influence of the construction sector could be identified for the general analysis, the effect is now of a solid negative nature, albeit influencing the level of development dimension rather than the eight-year trajectory retention as observed in 7.2.1. Additionally, the effect of a large agricultural sector is negative on the eight-year

[184] The sample includes, for example, 21% of observations for the Netherlands, 14% for Spain, and 11,5% for Portugal. The respective average regional net migration rates (i.e., annual migrants per thousand inhabitants) across the time series are: 1,99, 1,63, 1,14. Germany has an average regional migration rate across the time series of 3,11.

retention of the growth trajectory, which reflects the results for 1990-1993 and probably constitutes a continuation of this trend.

An even stronger negative effect of economic concentration could be identified for the level of development recovery dimension than in the general analysis – supporting the idea of a diverse economic composition being advantageous for a regional employment resilience. And finally, a strong negative effect can be found for gross fixed capital formation on the employment trajectory retention measured over four years – which might hint at the negative influence of automatization on regional employment resilience and especially mid-skill jobs (Acemoglu and Autor 2010; Acemoglu and Restrepo 2019; Cortes et al. 2014; Jaimovich and Siu 2020; Jaimovich et al. 2020).

With regards to the country associations there is little to report except, potentially, the relatively strong negative effect of the Portuguese country association. Unusually and even uniquely, an effect of the rural-urban typology can be identified in the form of a significantly positive influence of the intermediate regional category on the recovery of the development level dimension. This reflects the tentative results for employment resilience performance distribution across regional typology discussed in Chapter 6.3. Despite this the result is still too singular to be a general confirmation of any trend of increased resilience performance for any one regional type by this categorization.

The *period of 2008-2009* (Table 33d) is, in many regards, unusual for employment resilience performance. Compared to the general results for all observations collectively discussed in 7.2, the effect of the different indicators is often reversed – although not always significantly so. First, the aging index seems to have a strong negative effect on the trajectory retention measured over four years, implying a performance advantage derived of a younger population in 2008-2009. This reflects the results on RGVA resilience for the same period. Second, increased sectoral concentration has a positive effect on the recovery of development dimension for this period, suggesting the advantage of increased regional economic specialization. This last result is further supported by the positive effect of the regional presence of strong clusters on the same performance dimension. Third, the current account surplus seems to have a negative on the four year trajectory retention, which, given the extreme slowdown in international trade in 2008-2009, makes sense to a certain extent (Maurer and Degain 2012).

Last, there is, for the first-time regarding employment resilience performance, a very strong positive effect of unionization on the recovery of the development level performance dimension. This makes sense as it would be the dimension where a union-based worker

protection would presumably have the biggest effect. This, however, does not explain why 2008-2009 is the only period this effect appears in. Especially since the strong negative effect of high-level wage bargaining still suggests an advantage in a high regional microeconomic market efficiency – although this effect appears to influence mainly other resilience dimensions.

Of further note at this point is the premiere appearance of a positive effect of organizational membership (i.e., social capital) on the trajectory retention over four years – reflecting the results on RGVA resilience for this period. Another strong positive effect on the same dimension comes from the multimodal accessibility variable. Additionally, a large service sector in terms of employment numbers has a significantly negative effect on the recovery of the development level during and after the GFC. Only the latter of these is somewhat reflected in the general analysis form Chapter 7.2. The exceptionally strong influence of the country association in the 2008-2009 crisis was already discussed in the context of the 1990-1993 period and hints at a de-synchronization of the different regional labor markets among the observed countries as well as potentially quite different national policy responses to the crisis regarding labor markets.

Overall, the strongest finding of the analysis is the marked difference of the crisis of 2008-2009 in comparison to the other time periods as well as to the general analysis described in Chapter 7.2. This implies a quite different economic and political response to this crisis than to the other periods as well as to the cases observed in between.

Ignoring the 'special' case of the 2008-2009 period, the results confirm the general positive effect of an older population on employment resilience performance – potentially related mostly to age-related labor legislation and accumulated individual resources. Furthermore, there is strong support for the positive effect of a high microeconomic market efficiency on regional employment resilience performance. There is also tentative evidence for the importance of labor productivity, although the evidence is only strong for 1990-1993, which is supported by the general findings in 7.2. Additionally, there is support for the negative effect of a high SHDI on regional employment resilience performance; as discussed in Chapter 7.2.3, this might be related to the life expectancy variable and the negative effect of pensioners on total employment numbers[185].

In conclusion, besides the similarities to the general analysis mentioned above, there seems to be even more volatility of the different indicator's effects across the different crisis periods for

[185] The same effect of lowering total employment numbers is of course also possible through the SHDI education components of expected and average years of schooling increase.

employment resilience performance than for the RGVA equivalent. This is underlined, and probably caused, by the exceptionally strong effect of the regional country association that can be observed, especially for the periods of 1990-1993 and 2008-2009. If national variety in the response to employment related shocks and downturns really varies so widely between countries as well as across time, the results described are not surprising.

Nevertheless, through the analysis of the different time periods, the importance of some resilience capabilities can be supported, generally underlining the results of the analysis conducted in 7.2. For RGVA these concern mostly the regional sectoral composition in the form of a high public sector share and the importance of a low level of economic concentration as positive factors for regional resilience performance. For employment-based resilience performance, the most important regional resilience capability by far seems to be microeconomic market efficiency. Besides this, employment resilience performance seems to be highly country-dependent and strong in responding to policies varying across the different periods.

7.3.2 The effect of resilience capabilities on different shock types

As with the analysis undertaken in Chapter 7.2.5, the observations here will be divided into the different analytical samples by the summarized shock types – i.e., into the main categories of national economic downturns (NED), local industry shocks (LIS), and national industry shocks (NIS). As before, the relatively few cases of overlapping concurrent national economic downturn and industry shocks will be attributed to the respective industry shock category. The standardized results of the analysis for each shock type grouping can be found in Table 34 (RGVA-based resilience performance) and Table 35 (employment-based resilience performance)[186]. As before, this chapter will first discuss RGVA-based resilience performance for each shock type followed by the same analysis on employment-based performance.

Regarding the *RGVA resilience performance* in response to *NEDs* (Table 34a), the strongest negative effect among the continuous variables can be found among indicators for microeconomic market efficiency. For the variable on multi-level bargaining, the effect is strongest on the retention of the trajectory dimension measured over four years. The effect on the recovery of the development level dimension is only slightly weaker. For the trajectory

[186] The full data on the analysis and further tests can be found in appendix III.c.i for RGVA-based resilience performance and appendix III.c.ii for employment based resilience performance.

retention measured over eight years, a very strong negative effect of the unionization rates can be identified. These influences reflect the findings of the general analysis on RGVA resilience performance and underline the importance of microeconomic (labor) market efficiency for regional RGVA resilience performance.

These similarities between the general analysis and the findings on the NED-related RGVA resilience performance are generally very common, as can be seen in the positive effect of the public sector RGVA size or the strong positive effect on the recovery of the development level of the SHDI. This is not unexpected since the NED-related observations are by far the most numerous types of observed shock-downturn pairings (ca. 82% of the total), hence they come to dominate the results of the general analysis conducted in 7.2.

The most remarkable difference compared to the general analysis that can be identified concerns the effect of external trade represented by the current account balance. While the general analysis on RGVA-related resilience performance only shows a negative effect of a current account surplus on the retention of the growth trajectory measured over a recovery phase of eight years, the shock-specific analysis shows a positive, but weaker, effect on the development level recovery as well as the trajectory retention measured over four years. This might hint at a short-term benefit of a trade surplus by acting as a kind of cushion during a national economic downturn.

However, besides this deviation the general trends and effects of the different indicators and even the crisis and country-related categorical variables are mostly the same as for the general analysis. Therefore, the analysis of the different samples determined by shock type must focus on both types of industry shocks whose effects might have been swamped by the large number of NEDs in the general analysis.

In the case of *local industry shocks* (Table 34b), the first group of effects which demands attention in comparison to the general analysis as well as the effects on NED resilience performance are the different sectoral weights by RGVA. While the only effects found in the general analysis concerned agriculture (weakly negative on two out of three resilience dimensions) and the public sector share (positive in all three dimensions), local industry shocks show a significant positive effect of manufacturing on the recovery of the development level. Meanwhile the positive effect of the public sector remains for the development level dimension only, while the agricultural share solely influences the eight-year retention dimension significantly.

Interestingly, the sectoral concentration measured by HHI as well as average firm size by employees seems to have no negative influence on local industry shocks if analyzed separately. However, regional clusters still have a negative effect that continues to point to the potential disadvantage of a high economic concentration, although the evidence is more circumstantial for local industry shocks than NEDs or in the general analysis.

In contrast to the general findings, the influence of research and development personnel becomes negative for both retention measures (albeit only weakly so for the four-year recovery period). This finding could be related to local strategies of offshoring production in favor of domestic research and development activities, i.e. developing new products domestically but offshoring their production (Schmeisser 2013; Roza et al. 2011). Of further interest is the positive effects of government closeness and the level of social organization as measured by organization membership on (different) trajectory retention. Both these features point to the importance of microlevel flexibility and local ad-hoc solutions to problems in case of local industry shocks.

This last finding is further supported by the lack of any effect by the macro variables concerning central government deficit as well as the national current account balance, both of which once more imply the importance of local solutions and resilience capabilities to mostly local problems caused by LIS. To strengthen this observation further, the country association categories have no significant effect on the local shock-related resilience performance for RGVA either.

National industry shocks (NIS) again paint a different picture of their relationship with the different resilience capabilities (Table 34c). This holds true for the comparison with the general analysis (and, by extension, the analysis of the NED specific effects) as well as the analysis of the LIS.

As before, the sectoral weights offer some variation on the other shock types. While no large surprise in and of themselves, the very strong negative effect of a large agricultural share on the trajectory retention over eight years is significant, and the positive effect of the construction industry is even unique, albeit focused on only one dimension. More importantly, it seems that the positive influence of the public sector identified for the other shock types as well as the general analysis does not exist in case of national industry downturns. This puts the extent of the ability of the state to react to such sector specific downturns somewhat into question.

Furthermore, there is for the first time a highly significant and strongly negative influence of a high regional GDP per person by standardized comparison. Together with the very strong

negative influence of a current account surplus, this might be a sign of highly specialized and export-dependent regions being affected especially hard by this type of crisis. This might be connected to regions being especially susceptible to downturns in global demand for the products of specific sectors. Alternatively, as suggested by the negative effect on the long-term growth trajectory retention, this could be a symptom of a specialized regional industry of national importance being outcompeted in the global competition (Ville and Vermeiren 2016; Marin 2005; Welfens 1999; Affuso et al. 2011).

As with LIS, government closeness seems to be a positive influence on NIS resilience performance, at least in the short-run trajectory retention. Unique positive influences can be found in the effect of multimodal accessibility on the development level dimension as well as the four-year trajectory retention. This might hint at a competitive advantage of well-connected regions in a global competition, as implied in the discussion above.

Furthermore, and atypically, a larger average firm size has a positive effect on the four-year retention of the RGVA growth trajectory. Although this is not a very strong finding as it is just one unique result, it goes against the observation of the disadvantages of economic concentration found at other points for different shocks and levels of analysis. Since the results on the effect of the HHI are not significant, this leads to the conclusion, that not economic concentration but larger firms in themselves can be a positive effect for the RGVA trajectory retention performance during national industry shocks.

As with LIS, the influence of the categorical country association variable is rather small. There seem to be some strong effects with regards to the recovery of the development level dimension. These concern in a positive and significant sense regional associations with Sweden, Germany, France, and Austria (as well as weakly significant Finland), while a strong and significant negative effect can only be identified for Greece (and weakly significant Portugal). This follows the general trends seen in 7.2 as well as the NED analysis discussed before.

Table 34: Standardized coefficients for RGVA resilience performance (shock types)

a) National Economic Downturns

Independent Variable	Reecovery of Development Level	Retention of Growth Trajecotry (4 years)	Retention of Growth Trajecotry (8 years)
Pop_age			0,079 **
Mig_net	0,075 ***		
Pop_work			
Agri_GVA		-0,077 **	
Manu_GVA			
Const_GVA			
Serv_GVA			
Pub_GVA	0,081 ***	0,056 **	0,070 *
HHI		-0,099 ***	-0,092 *
GDP_PC	-0,087 ***		
GFCF_PC			0,063 *
PROD			
RnD_GDP			
RnD_EMP		0,087 ***	
MM_Ac			
Avg_bus			
Gov_debt	-0,132 ***	-0,290 ***	
Cur_blc	0,101 **	0,112 ***	-0,154 **
Gov_close			
Lab_comp			
Union			-1,137 ***
ML_barg	-0,362 ***	-0,500 ***	
SHDI	0,299 ***		
SC_Org			
EoC			
Clu			-0,119 ***
AT	0,075	-0,372 ***	-0,154 ***
BE	0,232 ***	0,045	0,736 ***
DE	0,329 ***	-0,151	-0,212 *
DK	0,012	-0,195 **	1,126 ***
EL	-1,072 ***	0,035	
ES	0,169 **	0,101	-0,469 ***
FI	0,241 *	0,162	0,851 ***
FR	0,253 ***	-0,338 ***	-0,975 ***
IE	-0,236	0,969 **	-0,875 ***
IT	0,212 ***	-0,036	-0,069
NL	0,197 ***	0,156 **	-0,648 ***
PT	0,114	-0,322 ***	-0,942 ***
SE	0,065	0,145	1,441 ***
UK	-0,219 ***	-0,388 ***	-0,040
90-93	0,307 ***	0,203 ***	0,215 ***
00-03	-0,164 ***	-0,122 ***	-0,167 ***
08-09	-0,228 ***	0,030	0,096 **
BTW	0,036 *	-0,029	-0,040
Urban			
Intermed.			
Rural			
adj R²	0,269	0,131	0,324
Model F	26,000 ***	11,234 ***	27,570 ***
N	1564	1564	1222

***p<0,01;**p<0,05;*p<0,1

b) Local Industry Shocks

Independent Variable	Reecovery of Development Level	Retention of Growth Trajecotry (4 years)	Retention of Growth Trajecotry (8 years)
Pop_age			0,237 ***
Mig_net			
Pop_work			-0,285 ***
Agri_GVA			-0,187 ***
Manu_GVA	0,256 **		
Const_GVA			
Serv_GVA			
Pub_GVA	0,427 ***	0,220	
HHI			
GDP_PC			
GFCF_PC			
PROD			
RnD_GDP			
RnD_EMP		-0,186 *	-0,234 ***
MM_Ac			
Avg_bus			
Gov_debt			
Cur_blc			
Gov_close			0,280 ***
Lab_comp			
Union			
ML_barg			
SHDI		-0,212 *	
SC_Org		0,350 ***	
EoC			
Clu	-0,239 **	-0,312 ***	-0,242 ***
BE			
DE			
EL			
ES			
FI			
FR			
IT			
NL			
PT			
UK			
90-93		-0,159	
00-03		-0,234 **	
08-09		0,137	
BTW		0,116 *	
Urban			
Intermed.			
Rural			
adj R²	0,079	0,159	0,212
Model F	5,690 ***	4,904 ***	7,427 ***
N	166	166	144

***p<0,01;**p<0,05;*p<0,1

N	172	172	140

***p<0,01;**p<0,05;*p<0,1

c) National Industry Shocks

Independent Variable	Reecovery of Development Level	Retention of Growth Trajecotry (4 years)	Retention of Growth Trajecotry (8 years)
Pop_age			
Mig_net	-0,164		
Pop_work			
Agri_GVA			-0,402 ***
Manu_GVA			
Const_GVA			0,197 **
Serv_GVA			
Pub_GVA			
HHI			
GDP_PC	-0,402 ***	-0,349 ***	
GFCF_PC			
PROD			
RnD_GDP			
RnD_EMP			
MM_Ac	0,280 **	0,346 ***	
Avg_bus		0,282 ***	
Gov_debt			
Cur_blc	-0,548 ***	-0,312 ***	
Gov_close		0,173 **	
Lab_comp			
Union			
ML_barg			
SHDI	0,280 **		
SC_Org			
EoC			
Clu			
AT	0,159 **		
BE	-0,194		
DE	0,365 **		
EL	-1,269 ***		
ES	0,062		
FI	0,643 *		
FR	0,286 ***		
IT	0,012		
NL	0,053		
PT	-0,343 *		
SE	0,414 ***		
UK	-0,024		
90-93		0,008	-0,127
00-03		-0,239 ***	-0,352 ***
08-09		0,050	0,193 **
BTW		0,094 **	0,133 **
Urban			
Intermed.			
Rural			
adj R²	0,295	0,218	0,260
Model F	5,464 ***	6,970 ***	10,759 ***
N	172	172	140

***p<0,01;**p<0,05;*p<0,1

Table 35: Standardized coefficients for employment resilience performance (shock types)

a) National Economic Downturns

Independent Variable	Reecovery of Development Level	Retention of Growth Trajecotry (4 years)	Retention of Growth Trajecotry (8 years)
Pop_age			
Mig_net			
Pop_work		-0,270 ***	-0,310 ***
Agri_EMP		0,169 ***	
Manu_EMP			
Const_EMP		-0,094 *	
Serv_EMP			
Pub_EMP			
HHI			-0,099
GDP_PC			
GFCF_PC			
PROD	0,198 ***		0,208 ***
RnD_GDP			
RnD_EMP			
MM_Ac		0,268 ***	
Avg_bus			
Gov_debt	-0,177	-0,345 ***	-0,342 ***
Cur_blc			
Gov_close			
Lab_comp			
Union	-1,613 *		
ML_barg			
SHDI	-0,306 *		
SC_Org			0,244 **
EoC			
Clu			
DE	-1,292	-0,626 ***	-0,944 ***
DK	1,922	0,328 ***	0,183
EL	-1,535 *	-0,457 ***	
ES	-1,998	0,055	-0,193
FI	2,068	-0,073	0,160
IT	-0,511 **	-0,558 ***	-0,281 *
NL	-0,348	0,424 ***	-0,130
PT	-0,649	0,305 **	0,347
SE	2,389	0,514 ***	0,296 **
UK	-0,606	-0,199 ***	0,035
90-93	0,393	0,347 ***	0,232 **
00-03	-0,656 **	-0,448 ***	-0,331 **
08-09	0,306 ***	0,256 ***	0,207 ***
BTW	0,171 *	0,068 **	-0,008
Urban			
Intermed.			
Rural			
adj R^2	0,282	0,228	0,367
Model F	17,563 ***	12,724 ***	19,867 ***
N	675	675	522

***p<0,01;**p<0,05;*p<0,1

b) Local Industry Shocks

Independent Variable	Reecovery of Development Level	Retention of Growth Trajecotry (4 years)	Retention of Growth Trajecotry (8 years)
Pop_age			0,199 **
Mig_net			
Pop_work			
Agri_EMP			
Manu_EMP			
Const_EMP	0,144	0,229 **	0,259 ***
Serv_EMP			
Pub_EMP			
HHI			-0,147 **
GDP_PC			
GFCF_PC			
PROD	0,350 ***	0,252 **	0,455 **
RnD_GDP			
RnD_EMP	-0,179		
MM_Ac			
Avg_bus			
Gov_debt			
Cur_blc	0,604 ***	0,539 ***	0,633 ***
Gov_close			
Lab_comp			-0,211
Union			-1,391 ***
ML_barg	-0,263 *		-0,212
SHDI			-0,498 ***
SC_Org			
EoC			
Clu		-0,124 ***	
AT	-0,036	-0,020	-0,005
BE	-0,125	-0,411 ***	0,161
DE	-0,417 ***	-0,287 ***	-0,525 ***
EL	0,681 ***	0,674 ***	0,134
ES	0,461 ***	0,482 ***	-0,995 ***
FI	-0,021	-0,254 ***	1,310 ***
FR	0,037	0,007	-1,394 ***
IT	-0,200 **	-0,023	-0,016
NL	-0,265 ***	-0,205 ***	-0,717 ***
PT	0,307 ***	0,241 *	-0,298
SE	-0,231 **	0,026	1,535 ***
UK	-0,134	-0,069	-0,181
90-93		0,296 ***	0,576 ***
00-03		-0,186 **	-0,209 **
08-09		-0,073	-0,319 ***
BTW		-0,001	0,112
Urban			
Intermed.			
Rural			
adj R^2	0,285	0,249	0,458
Model F	7,261 ***	5,619 ***	8,015 ***
N	252	252	192

***p<0,01;**p<0,05;*p<0,1

c) National Industry Shocks

Independent Variable	Reecovery of Development Level	Retention of Growth Trajecotry (4 years)	Retention of Growth Trajecotry (8 years)
Pop_age			0,345 ***
Mig_net	-0,287 **	-0,263 ***	-0,245 **
Pop_work	0,287 **	-0,202 *	
Agri_EMP			
Manu_EMP			
Const_EMP			
Serv_EMP			
Pub_EMP			
HHI			
GDP_PC			
GFCF_PC			
PROD	0,533 ***		0,650 ***
RnD_GDP			
RnD_EMP			
MM_Ac	0,280		
Avg_bus			
Gov_debt	-0,560 ***		
Cur_blc	0,490 ***		0,282 **
Gov_close			
Lab_comp			
Union			-1,201 ***
ML_barg	-0,579 **		
SHDI	-0,745 ***		-1,099 ***
SC_Org			
EoC			
Clu			
AT	-0,178 **		0,154
BE	-0,038		0,652 **
DE	0,232		-0,326 *
DK	-0,132		1,089 ***
EL	1,059 ***		-0,319
ES	0,329 **		-0,957 *
FR	-0,311 ***		-0,964 ***
IT	0,127		-0,143
NL	-0,380 **		-0,761 ***
PT	0,154		-0,474 *
SE	0,039		1,384 ***
UK	-0,145		-0,179 **
90-93	-0,553 ***		
00-03	-0,046		
08-09	0,149		
BTW	0,182 ***		
Urban	-0,178 *		
Intermed.	0,306 ***		
Rural	-0,049		
adj R^2	0,408	0,100	0,474
Model F	6,475 ***	11,600 ***	9,964 ***
N	192	192	170

***p<0,01;**p<0,05;*p<0,1

Overall, the shock-specific analysis of the resilience capabilities for RGVA downturns suggests a high relevance of the nature of the shock in determining which resilience capabilities – in the form of their indicators – have a significant effect. While NEDs, as suggested in the general analysis already, profit from a strong public sector and a relatively low degree of regional concentration as well as a high microeconomic market efficiency, LIS additionally profit from well-developed social cohesion (through organization membership) and a close government as well as a strong manufacturing sector. Microeconomic market efficiency on the other hand seems less important for both LIS and NIS. The latter additionally seems to be negatively affected by relatively intense international trade (or rather, a current account surplus) but can profit when regional accessibility is high.

Compared to the analysis of the RGVA-based resilience performance observations, the analysis of *employment resilience performance* and the effect of the different resilience capabilities along samples determined by shock type follows, for the most part, the established patterns from Chapter 7.2 (cf. Table 35). That said, there are still some remarkable divergences from the general analysis as well as among the different other shock types.

For *NED-related performance* effects, the first of these divergences can be found in the effect of the regional sectoral weights based on sectoral employment (cf. Table 35a). In contrast to the general analysis – as well as all other shock types – agriculture shows a significant positive effect on the retention of the growth trajectory measured over a four-year recovery phase. This suggests at least tentative evidence for a positive influence of agriculture that was also identified by other authors (Holl 2018; Faggian et al. 2018). A further deviation can be found in the negative, but only marginally significant, trend for the effect of the construction sector. This is contrary to the trend established for the LIS-related shock responses where the effect of an increased share of employment in the construction sector has a strong positive effect.

Additionally, the weaker or non-existent negative effects of any indicators connected to sectoral concentration are remarkable when compared to the general analysis. Otherwise, for most variables, the general direction of the effects, at least stays similar to the general analysis, albeit not always affecting the same performance dimension. This holds true for the categorical variables as well, where at least the general trends observed in 7.2 are upheld – albeit partly at different levels of significance.

In the context of the *LIS observations* there is even less fundamental change from the general trends identified in the general analyses than for NEDs (cf. Table 35b). What divergences there are mostly concern the strength of the effect – e.g., the positive effect of labor productivity as

well as a current account surplus are both significantly stronger than in the general analysis, or the other shock types for that matter, while some factors have a stronger negative influence as for example the SHDI. Furthermore, the effect of some indicators on LIS are not as visible as they were in the general analysis, for example the negative effect of the government deficit.

With regards to the categorical variables, mostly the contrast of the effect of the country association for LIS performance compared to NED performance is interesting. While for NEDs the effect of the country association with Greece, Spain, and, to a lesser extent, Portugal tends towards the negative (the effects are often not significant), for LIS their effect on regional resilience performance is solidly positive, with the exception of the eight-year trajectory retention. While not unexpected, this reflects the long-term negative effects that especially the crisis of 2008-2009, with its predominantly NED shocks, had on these countries while they seem to cope reasonably well with LIS (cf. Chapter 7.3.1) (Perez and Matsaganis 2018; Moro 2014).

Except for the lack of any significant effect of sectoral size, economic concentration or accessibility, effects specific to *NIS* are overall most similar to the general analysis conducted in 7.2 (cf. Table 35c). Among the three types of shocks, it is also the only one that shows the same pattern of effects for the demographic variables as in the general analysis, i.e., the regional aging index, regional net-migration, and the economically active population, though the latter also shows a positive effect on the recovery of the development level not visible before. Similarly, for the categorical variables the general patterns of the other categories are upheld. The major exception here is the urban-rural typology: together with the dedicated analysis of the 2000-2003 period of employment resilience performance, these are the only times any significance for these categories has been found. As with the analysis of the 2000-2003 period, a strong positive effect of being an intermediate region can be identified at high levels of significance, at least in this case. Additionally, a negative trend for urban regions becomes visible. Overall this supports the results found by other authors and identified in Chapter 6.3 of a slight trend towards higher employment resilience in intermediate regions (Giannakis and Bruggeman 2017a, 2017b; Faggian et al. 2018; Holl 2018).

In summary regarding employment related resilience performance there is far less variation by shock type to the effects of the different resilience capabilities than in the same analysis for RGVA related resilience performance. The analysis of employment-based resilience performance generally confirms the results already discussed in 7.2. However, as with RGVA-based resilience performance there are some shock-specific findings – such as the strength of

the positive effect of a high employment share of the construction sector for after a LIS shock – but none of them completely contradict the general results discussed in Chapter 7.2.

In contrast the results of the analysis on RGVA performance along the classification of the different shock types, showed significant differences in the effect of several capabilities. This specifically concerned the effect of indicators related to microeconomic market efficiency, social cohesion indicators, the role of international trade, and the importance of different sectoral weights. Still, overall, the differences between the shock types were not strong enough to devalue the conclusions derived from the general analysis and must be seen as amendments to them instead of outright contradictions.

7.3.3 The effect of resilience capabilities in urban, intermediate, and rural areas

For most of the different analyses conducted so far, there was no strong effect of the different regional classifications along the urban-rural typology that was described and analyzed for the first time in 6.3. Only under very specific circumstances, i.e., for the period from 2000-2003 as well as the shock specific analysis of national industry shocks, there was some evidence for a positive effect on employment resilience performance associated with the regional classification as 'intermediate' (cf. Chapters 7.3.1 and 7.3.2).

Still, despite this relatively weak evidence for the importance of this dimension, a short summary of the three regional categories, i.e., urban, intermediate, and rural, and the effect of the different resilience capabilities indicators on their respective resilience performance dimensions will be given. This is justified since potential specific effects applying to only one or the other regional type might have been suppressed using the stepwise approach in the general analysis (as was observed for some effects in the two previous chapters). Furthermore, while the literature is often as inconclusive on the effects that the urban-rural or the related center-periphery cleavage have on regional resilience performance, the many studies on this topic suggest a strong general and scientific interest (cf. i.a. Faggian et al. 2018; Giannakis and Bruggeman 2020; Fratesi and Rodríguez-Pose 2016; Giannakis and Bruggeman 2017b; Holl 2018). Last but not least, as with the other categorical discussions, the analysis of the different regional typologies in separate groups can at the very least serve to confirm the results of the general analysis by serving as a type of control variable.

The results of the stepwise analysis including the categorical variables (except obviously the rural-urban category) in form of an ANCOVA can be found in Tables 36 (RGVA-related

resilience performance) and Table 37 (employment-related resilience performance)[187]. The respective results for each of the categories can be found in the corresponding sub-Tables a-c. Like in Chapter 7.3.2, the analysis of the observations grouped by the urban-rural typology is less interesting with regard to new unobserved effects, but the variations to already observed capability-performance relationships. This means the focus is on the comparative strength of effects as well as effects which are not observable for specific regional types.

The first effect that demands attention regarding the *RGVA resilience performance* of mainly *urban regions* (Table 36a) is related to the different regional sectoral weights. Interestingly, given the predominantly urban nature of the regions concerned, the share of agriculture in the regional RGVA becomes a moderately strong negative factor on the recovery of the development level. It is even stronger than in rural regional types where no effect in this dimension can be discerned. The effect is repeated for intermediate regions but is weaker and focused on both trajectory measures. The conclusion drawn from this is that urban and intermediate areas with strong agricultural sectors seem to be at a disadvantage, which in turn could suggest that regions with mixed-use areas are less resilient. However, the latter conclusion is only hypothesis which needs to be subject of further investigation.

A second important finding concerns the influence of the sectoral weight of the public sector - or, more precisely, the total absence of any effect of this sector (including health, education, and related services) on urban regions. This stands in marked contrast to rural and especially intermediate regions where moderately positive significant effects can be found (as well as for the general analysis). Consequently, this puts into question the role of direct government interventions as a major potential pathway to increasing regional economic resilience for urban regions, especially since the public sector has been marked as such an important factor for regional RGVA economic resilience in the other analytical steps.

In a further deviation from the general analysis in 7.2., urban areas seem to profit significantly from a high level of multimodal accessibility, especially regarding the long-run retention of the RGVA growth trajectory. While rural areas seem to profit from a high accessibility (in the development level dimension) as well, the effect remains strongest in urban areas. This might be a sign of the high dependence of urban centers on access to distant markets and the dependence on surrounding regions of different types for supply with production factors as well as non-urban products and resources (Liu et al. 2020; Morrill et al. 1999; Weisz and Steinberger

[187] Detailed analyses and test results can be found in appendix III.d.i for RGVA-based resilience performance and appendix III.d.ii for employment-based resilience performance.

2010; Girardet 2014). In a similar deviation from the general norm, there is a significant negative effect of cluster activity for the trajectory retention measured over eight years, the consequences of which will be discussed later.

Interestingly, and in contrast to both other types of regional types, indicators for microeconomic market efficiency have only little influence. Both main indicators – high levels of labor protection in the form of either high-level bargaining or high unionization rates – show relatively little effect[188]. While not the most significant contrast, it might be a symptom of differences in the internal workings of urban labor markets and their intermediate and rural counterparts. This could potentially include urban specific variations in educational attainment, the modes of employment exchange, and the role of organized labor in regards to labor protection (Koster et al. 2020; Dillon et al. 2019; Bryden and Bollman 2000; Faggio and Silva 2014; Matthews et al. 2009).

For the different country associations few conclusions can be drawn: No country seems to have a strong bias towards or against urban economies. However, as will be seen later, in contrast to the other regional types this statement has to be reevaluated. What is interesting, however, is the effect of the different crisis periods, where a positive effect for observations falling in the 2008-2009 period can be found for the urban trajectory retention over four years[189]. While this period nearly always shows positive trends for the concerned observations, it is the comparison to the other two regional typologies which creates an insight.

It seems that urban areas fared or at least perform stronger in the 2008-2009 crisis period, especially in comparison to the intermediate and rural areas. This observation is tentative, since some of the results consist only of non-significant trends, but they fit with general patterns already identified in Chapter 6.3. Conversely, rural, and especially intermediate regions seem to perform stronger in the period of 1990-1993 across all resilience performance dimensions. Overall, this hints at a fundamental shift in the relationship between city and countryside when it comes to regional economic resilience performance.

[188] The exception to this being the 8-year growth retention dimension. Still compared to intermediate as well as rural regions the effect across ML_barg and Union in Urban areas is relatively small.
[189] As well as a non-significant positive trend for the 8-year growth trajectory retention.

Table 36: Standardized coefficients for RGVA resilience performance (urban-rural typology)

a) Urban

Independent Variable	Reecovery of Development Level	Retention of Growth Trajecotry (4 years)	Retention of Growth Trajecotry (8 years)
Pop_age			
Mig_net			
Pop_work		-0,108 **	-0,217 ***
Agri_GVA	-0,135 **		
Manu_GVA			
Const_GVA			
Serv_GVA			
Pub_GVA			
HHI	-0,141 *		
GDP_PC			
GFCF_PC			
PROD			-0,176
RnD_GDP			
RnD_EMP			
MM_Ac		0,147 ***	0,337 ***
Avg_bus			
Gov_debt	-0,118 **		
Cur_blc			
Gov_close			
Lab_comp			
Union			-0,540 **
ML_barg			
SHDI			
SC_Org			
EoC			
Clu			-0,203 ***
AT	-0,113		
BE	0,078		0,326 *
DE	0,245 ***		-0,558 **
DK	0,108		1,274 ***
ES	0,233 *		-0,414
FI	-0,256		0,584
FR	0,287 ***		-0,955 **
IT	-0,159		-0,287 **
NL	-0,123		-0,678 ***
PT	-0,179		-1,095 ***
SE	0,150		1,523 ***
UK	-0,141 ***		-0,118
90-93		-0,029	0,015
00-03		-0,235 ***	-0,262 ***
08-09		0,113 ***	0,098
BTW		0,077 ***	0,067
LOC_Ind			
NAT_Eco			
NAT_Ind			
adj R^2	0,097	0,074	0,257
Model F	5,520 ***	10,511 ***	9,865 ***
N	593	593	462

***p<0,01;**p<0,05;*p<0,1

b) Intermediate

Independent Variable	Reecovery of Development Level	Retention of Growth Trajecotry (4 years)	Retention of Growth Trajecotry (8 years)
Pop_age			
Mig_net			
Pop_work			
Agri_GVA		-0,097 **	-0,127 **
Manu_GVA	-0,262 ***		
Const_GVA		0,095 *	
Serv_GVA	-0,117 *		
Pub_GVA		0,182 ***	0,214 ***
HHI			-0,153 **
GDP_PC		-0,122 **	
GFCF_PC			
PROD			
RnD_GDP			
RnD_EMP			
MM_Ac			
Avg_bus			
Gov_debt	-0,168 **	-0,305 ***	-0,417 ***
Cur_blc			
Gov_close			
Lab_comp			
Union			
ML_barg	-0,372 ***	-0,305 ***	
SHDI	0,340 ***	0,325 ***	0,264
SC_Org			
EoC			
Clu		-0,106 ***	-0,127 ***
AT	0,030	-0,149 ***	-0,191 ***
BE	0,148 **	0,019	-0,097
DE	0,258 ***	0,008	0,154
DK	0,004	0,026	0,018
EL	-0,840 ***	-0,201 ***	
ES	0,101	0,221 ***	0,236 ***
FI	0,322 **	0,241 *	0,119
FR	0,102 *	-0,191 ***	-0,154 **
IT	0,093	-0,009	-0,256 **
NL	0,239 ***	0,224 ***	-0,061
PT	0,116	-0,102	-0,241
SE	-0,014	0,149 **	0,284 ***
UK	-0,220 ***	-0,171 ***	0,098 ***
90-93	0,383 ***	0,256 ***	0,102
00-03	-0,177 ***	-0,236 ***	-0,191 ***
08-09	-0,213 ***	-0,099	0,174 *
BTW	0,009	0,045	-0,038
LOC_Ind	-0,116 ***		-0,013
NAT_Eco	0,134 ***		-0,121 **
NAT_Ind	0,017		0,065 *
adj R^2	0,243	0,161	0,289
Model F	12,595 ***	7,624 ***	13,112 ***
N	796	796	658

***p<0,01;**p<0,05;*p<0,1

c) Rural

Independent Variable	Reecovery of Development Level	Retention of Growth Trajecotry (4 years)	Retention of Growth Trajecotry (8 years)
Pop_age			
Mig_net		-0,125	-0,117 *
Pop_work			
Agri_GVA			
Manu_GVA			-0,147 **
Const_GVA	-0,108 **		
Serv_GVA			
Pub_GVA	0,139 ***		
HHI	-0,223 ***	-0,125 **	
GDP_PC			
GFCF_PC	0,130 **		
PROD			
RnD_GDP			
RnD_EMP			
MM_Ac	0,140 **		
Avg_bus			
Gov_debt	0,139		
Cur_blc		-0,228 **	-0,333 ***
Gov_close			
Lab_comp			
Union		-0,585 *	-1,245 ***
ML_barg			
SHDI			
SC_Org			
EoC			
Clu	-0,098 ***	0,212 ***	0,165
AT	0,190 ***	0,022	0,055
BE	0,096	0,366 ***	0,490 ***
DE	0,446 ***	0,168	0,000
DK	-0,008	0,318	0,718 ***
EL	-0,415 ***	-0,139	
ES	0,137	-0,188	-0,487 **
FI	0,051	0,578 **	0,989 ***
FR	0,348 ***	-0,272	-0,785 **
IE	-0,125 *	-0,103	-0,365 ***
IT	0,102	-0,044	-0,010
NL	-0,599 ***	-0,824 ***	-0,831 ***
PT	0,160 **	-0,358 **	-0,771 ***
SE	0,237 **	0,614 ***	0,877 ***
UK	-0,006	-0,080	-0,086
90-93	0,033	0,149 **	0,226 **
00-03	-0,179 ***	-0,292 ***	-0,317 ***
08-09	-0,068	0,008	0,025
BTW	0,109 **	0,071	0,030
LOC_Ind	-0,095		
NAT_Eco	0,226 ***		
NAT_Ind	-0,044		
adj R^2	0,403	0,171	0,354
Model F	14,822 ***	6,015 ***	11,527 ***
N	513	513	386

***p<0,01;**p<0,05;*p<0,1

Table 37: Standardized coefficients for employment resilience performance (urban-rural typology)

a) Urban

Independent Variable	Reecovery of Development Level	Retention of Growth Trajecotry (4 years)	Retention of Growth Trajecotry (8 years)
Pop_age			0,128 *
Mig_net			
Pop_work	-0,292 ***		-0,399 ***
Agri_EMP			
Manu_EMP			
Const_EMP			
Serv_EMP			
Pub_EMP			-0,136 *
HHI			
GDP_PC			
GFCF_PC			
PROD	0,288 ***		
RnD_GDP	0,114 ***		
RnD_EMP			
MM_Ac			
Avg_bus			
Gov_debt		-0,245 ***	
Cur_blc			
Gov_close		0,180 ***	
Lab_comp			
Union	-0,803 **	-0,142 *	-1,252 ***
ML_barg			
SHDI			
SC_Org			
EoC			
Clu			
BE	0,270		0,806 **
DE	-0,762 *		-1,986 ***
DK	1,406 *		2,488 ***
EL	-1,041 ***		
ES	-1,209		-2,315 ***
FI	1,594 ***		3,307 ***
FR	-1,269 **		-1,839 ***
IT	-0,268 **		-0,982 ***
NL	-0,941 ***		-1,730 ***
PT	-0,010		-1,450 ***
SE	1,653 **		3,075 ***
UK	-0,067		-0,556 ***
90-93	0,062	0,235 ***	0,406 ***
00-03	-0,248 ***	-0,270 ***	-0,299 **
08-09	0,073	0,111 ***	-0,062
BTW	0,096 **	0,025	0,044
LOC_Ind		0,107 **	
NAT_Eco		-0,102 **	
NAT_Ind		-0,018	
adj R²	0,292	0,117	0,293
Model F	10,152 ***	7,608 ***	8,514 ***
N	401	401	309

***p<0,01;**p<0,05;*p<0,1

b) Intermediate

Independent Variable	Reecovery of Development Level	Retention of Growth Trajecotry (4 years)	Retention of Growth Trajecotry (8 years)
Pop_age			0,156 **
Mig_net		-0,122	-0,199 ***
Pop_work			
Agri_EMP		-0,136	
Manu_EMP			
Const_EMP	0,123	0,139 **	0,214 ***
Serv_EMP			
Pub_EMP			
HHI			
GDP_PC			
GFCF_PC			
PROD	0,319 ***		0,419 ***
RnD_GDP			
RnD_EMP	-0,171 ***		-0,176 ***
MM_Ac	0,147 *		
Avg_bus		-0,501 ***	
Gov_debt		-0,288 ***	-0,175 **
Cur_blc	0,500 ***	0,240 ***	0,355 ***
Gov_close			
Lab_comp			-0,151 **
Union	-0,791 **		-0,718
ML_barg			
SHDI			
SC_Org			
EoC			
Clu			-0,151 **
AT	-0,132 **	-0,148 **	
BE	-0,047	-0,362 ***	-0,328
DE	-0,632 **	0,553 ***	-0,378
DK	0,213	0,110 *	
EL	0,573 **	0,341 **	0,219
ES	-0,255	0,433 ***	-0,230
FI	0,471	-0,328 ***	0,506
IT	-0,291 **	-0,186	-0,219
NL	-0,777 ***	-0,091	-0,671 ***
PT	0,058	-0,060	-0,119
SE	0,559	0,139 *	1,032 *
UK	-0,139	-0,033	-0,022
90-93	0,045	0,250 ***	0,367 *
00-03	-0,182 **	-0,310 ***	-0,293 **
08-09	0,097	0,088	0,003
BTW	0,037	0,027	0,004
LOC_Ind		0,069	0,027
NAT_Eco		-0,187 ***	-0,226 ***
NAT_Ind		0,050	0,096 **
adj R²	0,227	0,250	0,405
Model F	7,601 ***	7,816 ***	11,389 ***
N	450	450	367

***p<0,01;**p<0,05;*p<0,1

c) Rural

Independent Variable	Reecovery of Development Level	Retention of Growth Trajecotry (4 years)	Retention of Growth Trajecotry (8 years)
Pop_age			0,132 *
Mig_net			
Pop_work		-0,274 **	
Agri_EMP			-0,196
Manu_EMP			
Const_EMP			
Serv_EMP			
Pub_EMP			
HHI			
GDP_PC		-0,109	-0,160 **
GFCF_PC		-0,186 **	-0,276 **
PROD	0,223 *		0,531 ***
RnD_GDP			
RnD_EMP			
MM_Ac	-0,291 **		
Avg_bus			
Gov_debt			
Cur_blc	0,275 ***	0,211 ***	0,513 ***
Gov_close			
Lab_comp			
Union	-0,192 ***		-0,772 **
ML_barg			
SHDI			-0,658 ***
SC_Org			
EoC			
Clu			
AT			0,097
BE			0,015
DE			-0,419 ***
DK			0,804 ***
EL			-0,209
ES			-0,319
FI			0,608 **
FR			-0,789 **
IT			-0,066
NL			-0,474 ***
PT			-0,355
SE			0,465 **
UK			-0,110
90-93	-0,122 *		
00-03	-0,148 *		
08-09	0,000		
BTW	0,160 ***		
LOC_Ind			0,027
NAT_Eco			-0,201 **
NAT_Ind			0,099 **
adj R²	0,152	0,169	0,466
Model F	7,825 ***	14,562 ***	9,196 ***
N	268	268	208

***p<0,01;**p<0,05;*p<0,1

As mentioned already, the shift to the analysis of the *intermediate regions* (cf. Table 36b) sees a return of the positive effect of the public sector on both RGVA trajectory retention measures. Meanwhile the effect of a strong agricultural sector is generally negative on the same dimensions, and manufacturing has a strong negative influence on the recovery of the development level. The latter fits expectations in so far as a stronger immediate loss to manufacturing is expected after a shock, especially in connection to general downturns in the business cycle (cf. Chapter 3.1 and among others Hill et al. 2012). Consequently, the level of development is lowered significantly as well. Additionally, one sees trends for the negative effect of a strong service sector and a slight positive effect of the construction industries – both results are, however, only marginally significant.

For intermediate regions, the microeconomic market efficiency becomes more important again, as can be seen in the strong and highly significant negative effect of high-level labor bargaining. Interestingly, intermediate regions also show one of the few cases of a positive effect of a well-developed SHDI – which might have to do with their role as a supplier of human resources to neighboring urban regions (Morrill et al. 1999; Giannakis and Bruggeman 2020).

Regarding the categorical variables and especially the country associations, the main finding is that within the same countries the effect of the country association seems to vary between the different regional types. For example, while the Dutch association has a strong negative effect on the trajectory retention measured over five years for urban areas as well as a tentative negative trend for the development level, in comparison the effect on intermediate regions of being Dutch is overall positive. This contrast is even starker when analyzing Dutch rural areas, which show strong negative effects across all resilience performance dimensions. Alternatively, the Austrian country association has a negative effect on intermediate regions in the trajectory retention dimensions but a mostly positive effect on rural areas for the development level and the retention dimensions (although the latter is of very low significance). For Spanish regions, there seems to be a more exact reverse trend to the Austrian observations.

Despite some country associations having little effect on the different regional types of resilience performance (France or Germany, for example), this hints at the importance of national specificities for regional economic resilience performance. These results suggest that the national realization of the rural-urban cleavage varies and a region's place within a nation's geographic spectrum matters significantly.

The most remarkable effects of the different indicators on *rural* RGVA resilience performance (cf. Table 36c) have already been mentioned in contrast to the two other regional typologies.

As with intermediate regions, there is evidence for the negative effect of the manufacturing sector on regional RGVA resilience performance as well as for a positive influence of the public sector. While the different sectoral weighs affect different resilience performance dimensions, the trend is nonetheless similar. The negative effect of the agricultural sector found for both other regional types disappears completely but is replaced by the negative influence of the construction sector. The former at least corresponds to the expectation that a relatively strong agricultural base increases or at least stabilizes rural RGVA resilience performance (Holl 2018; Giannakis and Bruggeman 2020, 2017a). Of further note is the positive effect of multimodal accessibility on the development level dimension, the positive effect of GFCF on the same dimension, and the strong negative effect of trade indicated by the current account balance on trajectory retention.

Overall, the analysis of the RGVA related-resilience performance along the urban-rural typology mainly showed how different urban resilience performance in particular reacts to the different capabilities and their indicators. This especially concerns the influence of the respective sectoral weights, specifically the effect of the public sector. It has also become visible that the effect of a region's country association can have a strong influence on the performance in the different regional types, with many countries 'favoring' either urban, intermediate, or rural regions. Two capabilities are, roughly, consistent across all classes. First, an increased microeconomic market efficiency, indicated by multilevel bargaining and unionization levels, seems to be generally beneficial, although the influence is weakest on urban regions. Second, economic concentration as represented by HHI and, to a lesser extent, the regional presence of strong clusters is detrimental to RGVA resilience performance. Again, the effect is weakest in urban areas overall.

As for RGVA related resilience performance, when analyzed *by employment-based resilience performance* the *urban regional* type seems to have the most deviations overall from the general analysis as well as the other regional types (cf. Table 37a). Again, this mostly concerns the relative strength and absence of effects than a general redirection of causal relationships of employment resilience performance and regional resilience capabilities and their indicators.

The first indicator this concerns is the very strong negative effect of the share of economically active population on the development level dimension as well as the trajectory retention measured over eight years. While this effect is reflected in the general analysis from Chapter 7.2 as well as partially in the results on rural regions, the overall intensity of the effect on urban areas is still remarkable. Given this contrast, one simple assumption could be that an oversupply

of labor in cities and more urbanized areas is detrimental to employment resilience performance (as it would be to general employment indicators) (Stiglitz et al. 1999).

The relations to other indicators are weak, as for example for labor productivity or government debt, or non-existent, as for example in the case of the average firm size or any effect of the current account balance. Unique to urban areas are the positive effects of the GDP share of research and development spending on the development level dimension and of higher government closeness on the trajectory retention measured over four years. The former might hint at the potential importance of universities and wider research activities as job creators in urban areas (Bleaney et al. 1992; Howard et al. 2021), while the latter may suggest advantages due to local governments, policies, and local problem solution potentially being more potent in high density areas, as discussed in Chapter 3.2 (Ostrom 1990).

As for the categorical variables, there is little evidence of any strong bias of the country association to any of the regional categories. For the different crisis periods as well as the shock types, the results at least suggest a trend that must be remarked upon.

First, while all regional types see a negative effect for observations falling in the 2000-2003 phase and at least some positive trends for the 1990-1993 period and cases in between, urban regions are the only regional type that show any significant positive relation to the period from 2008-2009 surrounding the GFC. This might hint at a gradual shift towards an increased employment resilience performance in urban areas in the early 21st century and reflects the results on the RGVA resilience performance of urban regions during the same crisis period. Further studies and data would be needed to confirm this trend, however.

Second, while national economic downturns are, as before, generally found to have a negative effect on employment resilience performance in all regional types, there are indicators of a positive effect of local industry shocks in an urban context. Though very tentative, this might hint at a greater flexibility regarding labor in an urban context – i.e. the ability to more easily change career paths or employers (Feldman and Ng 2007; Stumpf 2014).

Intermediate regions (cf. Table 37b) are remarkable mostly in that they are the regional type most affected by migration (negative on an eight-year trajectory retention), and profit most from the presence of a strong construction sector. Like rural areas they profit strongly from a positive current account balance, higher levels of multimodal accessibility, and high labor productivity.

Specific to intermediate regions seems to be a relatively strong negative effect of regional employment in research and development. In addition, intermediate regions see a strong

negative effect of higher average business sizes as well as a negative effect from the presence of regional clusters, and, uniquely, of high standardized labor compensations. These latter points, together with the negative effect of unions, support the thesis of the advantage of economic decentralization and high microeconomic market efficiency, at least for intermediate regions. Additionally, the negative effect of research and development employment, together with the negative effect of clusters on the eight-year trajectory retention, seem to suggest a negative influence of a knowledge-based economy on the employment resilience performance of intermediate regions. This might relate to negative effects of regional overeducation on labor market efficiency (Büchel and van Ham 2003).

The analysis of *rural regions* adds only a few more results to be remarked upon (cf. Table 37c). Most interesting is the seemingly moderately strong negative effect of GFCF on regional employment resilience that might be related to the already discussed "jobless recovery" and automatization (cf. Chapter 7.2.1 and 7.2.5 as well as Jaimovich and Siu 2020). Additionally, there is the very strong negative influence of a high SHDI on the regional employment trajectory retention measured over eight years. Again, the assumption here might be connected to overeducation and rural flight or increased urbanization by educated elites (as the SHDI includes educational variables) (Hofmann and Wan 2013).

Regarding the categorical variables, little is to be remarked upon that has not already been discussed. One exception relates to the surprisingly strong positive effect that falling in between the different crisis spikes exerts on the rural recovery of the development level resilience performance dimension. Furthermore, there is a marginally negative trend to the crisis period of 1990-1993, which goes against the generally positive performance of the other regional types during this period. This might hint at a fundamental change in the rural-urban relationship beginning in 1990 and a structural shift away from agricultural industries (later resulting in the positive urban performance in 2008-2009 discussed in 6.3).

In summary, the results on employment resilience performance in the context of the urban-rural typology hint at a slightly positive bias for urban employment resilience performance over the observed time span. This might be connected to the positive effect research and development spending seems to have in an urban environment – contrasted by the negative effect of research and development-related employment in intermediate regions. Furthermore, it seems employment in urban regions is somewhat more decoupled from national and international trends, while intermediate and rural regions also profit more from globalization than urban areas when it comes to employment resilience. Otherwise, the patterns across the different typologies

are relatively similar: they again show the benefit of a relatively high microeconomic market efficiency (as indicated by the negative effect of high unionization levels), the negative trend on employment resilience in case of national economic downturns observed earlier, and a current account surplus representing international trade influences.

Nevertheless, the urban-rural distinction matters less in the context of employment resilience than it seems for the RGVA-based resilience performance where the effects of the different capabilities, and especially sectoral composition, vary more widely. As for employment-based resilience performance, the analysis of RGVA resilience performance offered support for the importance of microeconomic market efficiency. Unique for RGVA resilience performance, at least in this analytical context, is the apparently negative effect of economic concentration on urban and intermediate regions in the form of clusters. Regarding employment resilience, only intermediate regions show a similar trend. This, however, is made up for by the positive effect of trade integration, as indicated by the current account balance, on employment resilience performance, which is significantly positive in intermediate and rural regions but has little to negative effect on RGVA-related performance measures across all regional types.

7.3.4 The effect of resilience capabilities in different national environments

As mentioned in the introduction to Chapter 7.3, this sub-chapter will not attempt to investigate every country whose regions form part of the analyzed sample of this study. Since for many countries the number of observations that can actually be fully conducted over even a four-year recovery period shrinks quickly, and the methods applied lose reliability with a decreased sample size, the focus will be only on those countries that offer the highest numbers of observations. As such, only the four countries with the most observable regions for employment and RGVA-based resilience performance were analyzed for the effect of the regional resilience capabilities. For RGVA-based resilience performance, these are Germany, the United Kingdom, France, and Italy. For employment-based resilience performance, France is replaced with Spain due to the former's lack of observations – or in a more positive sense, due to its regions' high shock resistance, which leads to fewer observations of employment resilience performance. Additionally, it may be remarked that due to being national and temporal constants (i.e., one fixed value for a country across the whole time series), government closeness and the ease of getting credit indicators have been removed from the analysis[190]. The

[190] To maintain a regularity in readability the codes of both variables codes have been preserved however in the tables presenting the results of the stepwise analysis.

summarized results of the corresponding analyses can be found in Table 38 for RGVA-based resilience performance and in Table 39 for employment-based resilience performance[191].

As mentioned before, for both employment and RGVA-based resilience performance, *German* observations are the numerically biggest group, partly due to the simple relative size of Germany among the countries but partially also for the high number of NUTS 3 regions relative to total population. For RGVA-related resilience performance, this phenomenon is the most extreme: here, German regions (826) are nearly three times as numerous than the next biggest country grouping from the UK (280), or about 43% of all cases included in the stepwise analysis[192].

Given this high share of RGVA-based observations for Germany, it could be expected that the German tendencies with regards to the effect of the different resilience capabilities reflect the relationships observed in the general analysis of 7.2 relatively closely (cf. Table 38a). However, this seems to be the case only for the positive effect of the public sector RGVA share. Otherwise, the results diverge significantly from the general results, as well as from the other country groupings analyzed here.

Of specific interest here are the positive effects of the construction sector on both trajectory retention measures. This, together with the strong positive effect of GFCF and the trend towards a positive effect of the regional RGVA sectoral share of manufacturing, suggests the positive influence of regional capital endowment in German regions on RGVA resilience performance as well as the possibility of construction industries and large-scale public projects serving as sources of regional economic growth and resilience (Grimes 2014).

A further particularity of the German observations is the very strong positive effect of a current account surplus on resilience performance, or rather the retention of the growth trajectory independent of recovery phase duration. While this effect exists for some other countries and the general analysis in Chapter 7.2 as well, the positive effect for German regions of high national exports across the years seems to be strongest overall. This holds true not only for RGVA-related resilience performance, but also for the employment-based resilience performance measures, which will be discussed later. Of the countries observed here, only Italian regions seem to profit from strong exports, as measured by the current account balance,

[191] The details on the RGVA-based country level analyses can be found in appendix III.e.i, the employment based equivalents in appendix III.e.ii.
[192] These numbers apply for the recovery of the development level and the trajectory retention measured over four years.

at a comparable scale to Germany[193]. Since this similarity of Germany and Italy in relation to exports is even stronger for employment-based resilience (cf. Tables 38a and 38c), this suggests that there is a positive effect of trade on regional economic resilience performance, at least in some national contexts and especially the German context of an export focused economy (Jacoby 2020).

A last comment in the context of German RGVA resilience performance needs to be made on the negative effect of higher regional shares of the economically active civilian population. As already discussed during the analysis of the different crisis periods, for parts of the timeline (especially the periods 1990-1993 and 2000-2003, cf. Chapter 7.3.1) Germany showed strongly increased levels of unemployment, which in turn might lead to the observed negative effect on RGVA in regions with an increased population of working age (Burda and Hunt 2011; Burda and Seele 2016).

For the observations from the *United Kingdom* there are surprisingly few significant effects to be found (cf. Table 38b). That said, it seems that the comparatively high number of significant effects by variables in the case of Germany is more the exception than the rule, as will be seen when discussing the results in France and Italy. Still there are a couple of remarkable observations relating to the resilience performance of UK regions.

The first among these is the negative effect of public sector employment on both trajectory retention dimensions. This is remarkable mostly because of the contrast to Germany as well as the general analysis where the same sector had a major positive effect on the very same resilience measures. Potentially, this contrast is simply the result of a different role of the public sector, or more likely, the divergent effect of national and regional policy choices in response to different crisis events.

One example of such a divergence in policy responses having a potential effect on RGVA resilience through the public sector share can be found in the austerity policies implemented during and after the GFC. While the UK started to cut spending on the public sector and shrank the number of public sector employees to lower the sovereign deficit as well as the total public debt, Germany took no such measures but instead continued as before with regards to the public sector, which had already undergone reforms in the years before the crisis (Arestis and Pelagidis 2010; Bach 2016; Keller 2014; Werner Eichhorst; Bosch 2013; Grimshaw 2013). As a result, a scenario explaining the divergence could be found in which UK public spending was slashed

[193] In contrast to the German trajectory retention effect, in Italian regions the effect of the current account balance is focused on the recovery of the development level in the Italian.

during and after the initial shock, leading to reduced regional growth as well as regional resilience performance. Meanwhile in Germany spending in the public sector, as well as public employment, remained steady and could thereby potentially contribute to regional resilience performance, or function as a stabilizing influence at least. This is certainly conjecture and the description only applies to the crisis of 2008-2009. However, it demonstrates the potential effect of policy choice specifically on the public sector and the potential fallout of policy decisions leading to different country related effects for the same indicator.

The negative effect of research and development activities as a share of GDP can be seen in a similar light, considering that many research and development activities are, at least partially, funded through public channels and furthermore include institutes of higher learning, which again form part of the public sector. This is further supported by a similar negative effect on the eight-year trajectory retention for France where the public sector, and especially education through massive staff reductions, came under similar pressure as in the UK after the GFC (Gautié 2013).

Like the case of German regions, in the UK a comparatively higher GDP per capita results in a higher loss to the regional comparative development level. While the effect is moderately strong and significant, it is potentially mostly a sign of which regions are hit hardest since it seems to have no effect on the subsequent retention of the growth trajectory either of four or eight years of recovery. Furthermore, there seems to be a negative effect of migration on the retention of the growth trajectory for UK regions. While the significance of this effect is only marginal for the retention trajectory measured over eight years, the effect is moderately significant over the shorter recovery period of four years. Since negative effects of migration are more expected in connection to employment resilience, one explanation might have to do with the increasing urbanization in the UK directed towards centers potentially hit hardest by shock events like the GFC (French et al. 2009; Talani 2011; Millington 2012). However, a negative effect of migration on RGVA, especially through the demand side, cannot be excluded either.

Table 38: Standardized coefficients for RGVA resilience performance (selected countries)

a) Germany (DE)

Independent Variable	Reecovery of Development Level	Retention of Growth Trajecotry (4 years)	Retention of Growth Trajecotry (8 years)
Pop_age			
Mig_net			
Pop_work		-0,165 **	-0,168 ***
Agri_GVA			
Manu_GVA			0,118 *
Const_GVA		0,123 ***	0,188 ***
Serv_GVA			
Pub_GVA	0,226 ***	0,246 ***	0,377 ***
HHI			
GDP_PC	-0,120 ***		
GFCF_PC		0,129 ***	0,139 ***
PROD			
RnD_GDP			
RnD_EMP			
MM_Ac			0,081
Avg_bus			
Gov_debt			
Cur_blc		0,401 ***	0,533 ***
Gov_close		constant	
Lab_comp			
Union			
ML_barg			
SHDI			
SC_Org			
EoC		constant	
Clu			
90-93			
00-03			
08-09			
BTW			
Urban			
Intermed.			
Rural			
LOC_Ind			
NAT_Eco			
NAT_Ind			
adj R^2	0,144	0,086	0,251
Model F	20,845 ***	13,869 ***	31,633 ***
N	826	826	731

***p<0,01;**p<0,05;*p<0,1

b) United Kingdom (UK)

Independent Variable	Reecovery of Development Level	Retention of Growth Trajecotry (4 years)	Retention of Growth Trajecotry (8 years)
Pop_age			
Mig_net		-0,151 **	-0,144 *
Pop_work	0,175 **		
Agri_GVA			
Manu_GVA			
Const_GVA			
Serv_GVA			
Pub_GVA		-0,175 ***	-0,172 *
HHI			
GDP_PC	-0,194 ***		
GFCF_PC			
PROD			
RnD_GDP			-0,219 ***
RnD_EMP			
MM_Ac	0,128		
Avg_bus			
Gov_debt			
Cur_blc			
Gov_close		constant	
Lab_comp			
Union			
ML_barg			
SHDI			
SC_Org			
EoC		constant	
Clu			
90-93			
00-03			
08-09			
BTW			
Urban			
Intermed.			
Rural			
LOC_Ind			
NAT_Eco			
NAT_Ind			
adj R^2	0,144	0,123	0,159
Model F	8,826 ***	13,984 ***	10,480 ***
N	280	280	202

***p<0,01;**p<0,05;*p<0,1

c) France (FR)

Independent Variable	Reecovery of Development Level	Retention of Growth Trajecotry (4 years)	Retention of Growth Trajecotry (8 years)
Pop_age			0,287 ***
Mig_net			
Pop_work			
Agri_GVA		-0,191 **	
Manu_GVA			
Const_GVA		-0,218 ***	
Serv_GVA	0,181 *		
Pub_GVA			
HHI			
GDP_PC			
GFCF_PC		-0,137	
PROD	0,236 ***		
RnD_GDP			-0,205 **
RnD_EMP			
MM_Ac			
Avg_bus			
Gov_debt		0,773 ***	
Cur_blc			
Gov_close		constant	
Lab_comp			
Union			
ML_barg			
SHDI			
SC_Org			
EoC		constant	
Clu			
90-93			
00-03			
08-09			
BTW			
Urban			
Intermed.			
Rural			
LOC_Ind			
NAT_Eco			
NAT_Ind			
adj R^2	0,446	0,498	0,565
Model F	22,411 ***	20,185 ***	28,688 ***
N	214	214	150

***p<0,01;**p<0,05;*p<0,1

d) Italy (IT)

Independent Variable	Reecovery of Development Level	Retention of Growth Trajecotry (4 years)	Retention of Growth Trajecotry (8 years)
Pop_age			0,258 ***
Mig_net			
Pop_work			
Agri_GVA			
Manu_GVA			
Const_GVA			
Serv_GVA			
Pub_GVA			
HHI			0,149 *
GDP_PC			
GFCF_PC			
PROD			
RnD_GDP			
RnD_EMP			
MM_Ac	0,292 ***	0,208 ***	
Avg_bus			
Gov_debt			
Cur_blc	0,234 **		
Gov_close		constant	
Lab_comp			
Union			
ML_barg			
SHDI			
SC_Org			
EoC		constant	
Clu			
90-93			
00-03			
08-09			
BTW			
Urban			
Intermed.			
Rural			
LOC_Ind			
NAT_Eco			
NAT_Ind			
adj R^2	0,177	0,291	0,364
Model F	10,172 ***	18,556 ***	15,768 ***
N	172	172	130

***p<0,01;**p<0,05;*p<0,1

Table 39: Standardized coefficients for employment resilience performance (selected countries)

a) Germany (DE)

Independent Variable	Reecovery of Development Level	Retention of Growth Trajecotry (4 years)	Retention of Growth Trajecotry (8 years)
Pop_age			0,192 ***
Mig_net		-0,213 ***	-0,176 *
Pop_work	-0,214 ***		
Agri_EMP	0,244 ***	0,224 ***	0,201 **
Manu_EMP	-0,168 ***		
Const_EMP			0,165
Serv_EMP			
Pub_EMP			
HHI			
GDP_PC			
GFCF_PC			
PROD			
RnD_GDP			
RnD_EMP			
MM_Ac	0,170 ***	0,197 ***	0,335 ***
Avg_bus		-0,167 ***	
Gov_debt			
Cur_blc	0,429 ***	0,157 ***	0,443 ***
Gov_close		constant	
Lab_comp			
Union			
ML_barg			
SHDI			
SC_Org			
EoC		constant	
Clu			
90-93			
00-03			
08-09			
BTW			
Urban			
Intermed.			
Rural			
LOC_Ind			
NAT_Eco			
NAT_Ind			
adj R^2	0,292	0,175	0,261
Model F	17,395 ***	13,694 ***	16,005 ***
N	359	359	341

***p<0,01;**p<0,05;*p<0,1

b) United Kingdom (UK)

Independent Variable	Reecovery of Development Level	Retention of Growth Trajecotry (4 years)	Retention of Growth Trajecotry (8 years)
Pop_age	-0,337 **		
Mig_net			
Pop_work		-0,228 **	-0,337 ***
Agri_EMP	0,321		
Manu_EMP			
Const_EMP		-0,201 **	
Serv_EMP		-0,165 *	
Pub_EMP	0,211 **		
HHI			
GDP_PC			
GFCF_PC			
PROD		0,145 *	
RnD_GDP			
RnD_EMP			
MM_Ac		0,332 ***	
Avg_bus			
Gov_debt			
Cur_blc			
Gov_close		constant	
Lab_comp			
Union			
ML_barg			
SHDI			
SC_Org			
EoC		constant	
Clu			
90-93			
00-03			
08-09			
BTW			
Urban			
Intermed.			
Rural			
LOC_Ind			
NAT_Eco			
NAT_Ind			
adj R^2	0,386	0,237	0,211
Model F	18,330 ***	13,830 ***	24,365 ***
N	249	249	176

***p<0,01;**p<0,05;*p<0,1

c) Italy (IT)

Independent Variable	Reecovery of Development Level	Retention of Growth Trajecotry (4 years)	Retention of Growth Trajecotry (8 years)
Pop_age			0,268 **
Mig_net			
Pop_work			
Agri_EMP	-0,175		
Manu_EMP			
Const_EMP			
Serv_EMP			
Pub_EMP			
HHI			
GDP_PC			
GFCF_PC			
PROD			
RnD_GDP			
RnD_EMP			
MM_Ac			
Avg_bus	0,184 **		
Gov_debt			
Cur_blc	0,521 ***	0,260 ***	0,274 **
Gov_close		constant	
Lab_comp			
Union			
ML_barg			
SHDI			
SC_Org			
EoC		constant	
Clu			
90-93			
00-03			
08-09			
BTW			
Urban			
Intermed.			
Rural			
LOC_Ind			
NAT_Eco			
NAT_Ind			
adj R^2	0,253	0,200	0,227
Model F	17,748 ***	25,730 ***	13,324 ***
N	199	199	127

***p<0,01;**p<0,05;*p<0,1

d) Spain (ES)

Independent Variable	Reecovery of Development Level	Retention of Growth Trajecotry (4 years)	Retention of Growth Trajecotry (8 years)
Pop_age			
Mig_net		-0,409 ***	
Pop_work	-0,250 **		
Agri_EMP			
Manu_EMP			
Const_EMP	0,333 ***	0,307 ***	0,335 ***
Serv_EMP			
Pub_EMP			
HHI			
GDP_PC			-0,230 **
GFCF_PC		0,364 ***	
PROD	0,324 ***		
RnD_GDP			
RnD_EMP		-0,217 **	
MM_Ac			
Avg_bus			0,335 ***
Gov_debt			-0,907 ***
Cur_blc			
Gov_close		constant	
Lab_comp			
Union			
ML_barg			
SHDI			
SC_Org			
EoC		constant	
Clu			
90-93			
00-03			
08-09			
BTW			
Urban			
Intermed.			
Rural			
LOC_Ind			
NAT_Eco			
NAT_Ind			
adj R^2	0,503	0,479	0,649
Model F	10,982 ***	15,506 ***	20,286 ***
N	80	80	74

***p<0,01;**p<0,05;*p<0,1

Regarding *French* regional RGVA resilience performance (Table 38c), the first effect to mention is present in Italian regions too, i.e., the positive effect of a high aging index on the retention of the growth trajectory measured over eight years in both countries. This result is also reflected in the general analysis in Chapter 7.2. One reason for this positive effect, as was discussed in other chapters (e.g., Chapter 7.2.3), could be the relative income stability of pensions and other age-related transfer payments, keeping up aggregate demand during and after a shock event as well as their potential contribution to a more efficient credit market[194] (Barr 2006b, 2006a).

Furthermore, if the assumption for the potential of more accumulated resources of an older population holds, these resources could further contribute to increase regional resilience performance (Taylor et al. 2011; Afman 2020; Ihle and Siebert-Meyerhoff 2017). That said, since the aging index only seems to affect the growth retention dimension measured over eight years, the effect and the causal arguments mentioned here should not be overvalued. This holds especially true as the factors discussed seems conceptually to be more suited to stabilizing the level of economic development and contribute less to the long-term retention of the growth trajectory as it does in the analysis presented.

The effects of the different sectoral weights in the French case differ from Germany's[195]. Where there are mainly positive sector-related effects for German regions (from construction, manufacturing, and the public sector), French regions see mostly negative influences, particularly of the agricultural and construction sector. Nevertheless, there is a marginally significant trend for a positive effect of the service sector on the development level dimension. Still, overall, the effects are restricted to singular resilience dimensions. Taken together with the non-effects in Italy and Britain, this seems to indicate that sectoral weights may be less important on a general level, at least for these countries, than the German cases suggest. This lack of effect of the relative sectoral weights is further reflected in the general analysis presented in 7.2.1.

Particular to French regions' RGVA resilience performance is the beneficial influence of a comparatively high regional labor productivity on the recovery of the development level performance dimension. This influence, while not affecting the other countries regions

[194] Though the latter is a function mostly restricted to funded pension systems, while France and Italy both have mainly pay-as-you-go pension systems (Barr 2006b; Barr 2006a).
[195] Since in the British and Italian regions there is no significant effect of sectoral weights this comparison will be omitted.

performance in this country comparison, is also visible in the general analysis. It suggests at least some meaningful level of influence of this indicator for this performance dimension.

Lastly, there seems to be a strong positive effect of the national government deficit on the trajectory retention measured over four years, i.e., a positive effect of a low deficit or even government surplus. Since the direction of the effect of this indicator is reversed for this resilience dimension in the general analysis, it can be assumed that this is a feature specific to French regions and might be a product of national policy making in relation to public spending and debt management. In other words, this might imply a positive effect of austerity politics in the French case.

The most significant effects on the resilience performance of *Italian* regions have already been discussed in the context of the other countries (cf. Table 38d). It must be pointed out that for the Italian observations there are remarkably few effects of any kind that have a high enough significance to be selected by the stepwise approach.

The one feature which has not been discussed yet is the strong positive effect of high levels of accessibility. While this is reflected to a certain extent in the general analysis for the retention of the growth trajectory measured over four years, the effect is stronger for Italian regions and affects the recovery of the development level dimension as well[196]. One suggested explanation of the strength of this effect in the Italian case, suggested by literature as well as a qualitative glance at the accessibility data and individual regions performance, could relate to the sometimes contested Italian economic (and social) North-South divide. Generally, northern Italian regions (roughly the regions above the level of Rome, cf. Maps 1-4) have a higher rating for multimodal accessibility as well as a higher resilience performance. This reflects the general literature and studies on the historically higher levels of economic prosperity in the North compared to the Italian South (Putnam 1992; Cellini and Torrisi 2014; Paolo Di Caro 2017; González 2011; Di Martino et al. 2020; Deleidi et al. 2021; ESPON 2021d).

Looking at this selection of country-based resilience capability and their effects leads to the conclusion of a very strong influence of national particularities on RGVA resilience performance. It seems that the respective regional national association, and therefore national particularities not being able to be covered by this study in full detail, have an immense influence on the results of the regional economic resilience process. This is also suggested by the analysis results in 7.2.4. That said, while there is little commonality among the different

[196] There also exist indications for a positive, though not significant, trend of accessibility in the case of German and UK regions as well.

countries' regions analyzed here, these results do not invalidate the results discussed in 7.2. With some exceptions, e.g., the strong positive effect of a higher government deficit in the French case, the national results either confirm the effects identified in the all-region analysis on an individual basis (e.g., in the case of the effect of the current account balance, accessibility, or the aging index) or at least do not contradict them (e.g., the negative effect of unionization, or economic concentration and firm size). Still, while the general results from 7.2 as well as the other analytical steps in 7.3 still hold some validity, future research into the causes of RGVA resilience performance must take these national particularities into account to a higher degree.

The analysis of the effect of the different resilience capability indicators for *employment-based resilience performance* (Table 39) continues to offer a picture of national disparities in their effects, thus reflecting the findings on RGVA resilience performance. As mentioned above, the analysis once more includes the shock-affected regions of Germany, the United Kingdom and Italy. However, due to French regions' high level of shock resistance, France is replaced by Spain[197].

With positive effects on the trajectory retention over eight years for the aging index, *Germany* (as well as Italy) reflects the general results (cf. Table 39a). Furthermore, this reflects the results seen in the country-based analysis for RGVA resilience performance as well.

More remarkable is the strong negative effect of migration on both trajectory retention measures. While this is reflected in the general results, it is particularly strong in the German case and is not reflected in any of the other countries' regions observed here. Given the high share of German regions (about 32% of observations), it can be assumed that the general results are strongly influenced by the relatively poor German performance in these resilience dimensions for the periods of 1990-1993 and 2000-2003 when net-migration in German regions was relatively high (cf. Tables 33b, c, and appendixes II.n and II.o). Due to Eastern German regions' resilience performance not being observable until 1998 because data was only available from 1990 onwards, and because these Eastern regions were often the source of inter-German migration, the negative effect of net-migration might be exaggerated in the German case – and therefore in the general results too (Heiland 2004).

The negative effect of an increased share of the civil economic active population on employment resilience performance is visible for Germany, but also the UK and Spain in different dimensions, and has been discussed at other places already. It is most likely connected

[197] The totally observable French regions number only 18 in the case of employment resilience performance compared to 80 Spanish regions.

to a simple oversupply of labor but could also be connected to the negative, but disputable, effect of migration that is discussed above (among others Stiglitz et al. 1999; Johnson 1980).

Somewhat surprising, given the analysis on the topic so far, are the effects of the different employment weights of the German regions' economic sectors. While the negative effect of manufacturing on the recovery of the development level dimension of employment resilience performance has a theoretical foundation – discussed in Chapter 3.1 – it has only been identified for intermediate regions so far (cf. Chapter 7.3.3). Now it also seems to be significant in the German cases but this effect is not reflected in Italy and Spain. Despite the share of intermediate regions in the analyzed samples is even slightly higher in the latter two (cf. appendixes III.e.ii.1, III.e.ii.3, and III.e.ii.4). Additionally, there is a surprisingly strong positive effect of the regional employment share of agriculture on the regional resilience performance in all dimensions.

While both effects were discussed in Chapter 3.1 as potentials, their sole significance for the case of German regions is remarkable (though there is a non-significant trend for a similar positive effect in the UK as well). This German feature becomes even more remarkable when considering that in the analyses conducted in Chapters 7.3.1-7.3.3 on employment resilience performance the effect of agriculture, when any was identified, was always negative. It seems that the stabilizing effect of agriculture is a very German feature. Of course, one must consider that only four countries are compared here, and that if additional countries could be included to a greater extent (for example, France, with its strong agricultural sector) the results of this interpretation might vary considerably.

In contrast to the analysis of RGVA-based resilience performance of German regions, multimodal accessibility plays a significant (positive) role in explaining employment resilience performance. This seems true not only for Germany but also for the UK as well as the general analysis, at least for the trajectory retention measured over four years. Conversely, Italy, which saw a strong effect of this indicator on its regions RGVA-based resilience performance, shows no significant effect of accessibility on any dimension in the context of employment resilience performance.

Another feature that points to the unique properties of the German economy can be found in the negative effect of a high average business size on the four-year trajectory retention. While this effect is reflected in the general analysis, effects in the opposite direction (albeit for different performance dimensions) can be found for Italy and Spain. This divergence might reflect the mostly German business culture of the "Mittelstand" (i.e., a firm structure dominated by strong medium-sized enterprises). Meanwhile in Italy, larger firms economically dominate

regions more often, despite SMEs being relatively more common than in Germany (Parella and Hernández 2018; Dominicis et al. 2013; Bartelsman et al. 2005). Given these conflicting results, it seems that firm size as an aspect of economic concentration can be a resilience capability that can have effects in any direction, depending on national setting and business culture. That is, in Italy, economies of scales, resources, and firm-internal redundancy might be a positive feature, while in Germany a higher grade of decentralization works as a positive factor for employment resilience performance.

Last but not least is the strong positive effect of a current account surplus on the German (and Italian) employment-based resilience performance, as already discussed in the context of national RGVA resilience performance. As discussed above as well as implied by the general analysis, trade, and specifically export, seems, for at least some countries, to be a stabilizing feature regarding regional employment resilience performance as well as its RGVA equivalent, though to a lesser extent.

The *United Kingdom* shows some interesting contrasts to the other countries' results (Table 39b). First of all, its regions' employment resilience performance seems to be unique in this four-way comparison in that it is negatively affected by a higher aging index. To qualify this, however, the effect is focused on the recovery of the development level and not, as in the case of other countries' positive effects, on the trajectory retention measures. Still, despite this qualifier, this negative effect might be a symptom of the lower level of labor protection in the UK and the potentially resulting age bias in regards to dismissals during recessions (Grimshaw et al. 2017).

Age is not the only UK indicator having an effect contrary to the trend in the other countries as well as the general analysis. The effect of the construction share of employment, which had a tentatively positive effect on eight-year trajectory retention in the general analysis and has a very strong positive influence on the Spanish regions across all performance measures, is significantly negative on the four-year trajectory resilience. Similarly, there is a marginally significant negative trend of the combined service sector share, while public sector employment has a positive effect on the recovery of the development level dimension of resilience performance. Neither of these results is reflected for employment resilience in the other countries or the general analysis in Chapter 7.2.

The reason for this deviation from the 'norm' could potentially be found in the policy of a rapid shift towards de-industrialization and the service industries since the late 1980s in the UK. This trend existed in most other European countries as well, but found a particular strong expression

in the UK (OECD 2005). The negative effect of the service industry on UK resilience might be further enhanced by the fact that the relative majority of British observations falls in the time period around the GFC (38% of observations). As a crisis to the financial system this crisis affected, initially at least, primarily the service sector and specifically the finance industry, which is traditionally strong in the UK (Bennett and Kottasz 2012; Riley et al. 2014).

Further positive contributors to UK employment resilience can be found in a marginal trend cy labor productivity and the significant effect of regional accessibility. In the British case, both affect the regional retention trajectory measured over four years favorably, and at least the positive effect of regional accessibility is confirmed by other countries' regions' results as well as the general analysis[198].

All the effects on the *Italian* regions' resilience performance have already been discussed in connection to similar effects in other countries (cf. Table 39c). Two main points remain to be underlined however: First is the very lack of many effects of the indicators on resilience performance for Italian regions. An observation which was already part of the discussion of the RGVA-based resilience performance of the Italian observations. The strength of R^2 for the model selected by the stepwise algorithm for Italy, compared to the results for the British as well as German observations, suggests a similar explanatory value despite the reduced number in significant variables. That the main effects seems to center on the annual national current account balance in turn suggests that the differences between Italian regions with respect to employment resilience are simply not very large and more dependent on timing than geographic location. Furthermore, the lack of any effect of accessibility on regional employment resilience performance is interesting, considering the strong effect the same variable had on RGVA-based resilience performance. A conclusion which can be put forward is that the North-South divide, which was discussed above as a reason for the cause of the strong RGVA-resilience performance effect, simply has little effect on employment resilience performance in Italy.

In comparison, the analysis of the *Spanish* regions' resilience performance and the effect of the different capability indicators is more versatile (Table 39d). Again, many of these effects have already been discussed in the context of the analysis of the other countries – i.e., the negative effects of net-migration, economically active population, and average business size; nonetheless, some features remain to be discussed.

[198] There is always a positive effect of productivity identified in the general analysis, however for the recovery of the development level dimension of employment-based resilience performance.

First is the different effect of sectoral weights measured by share of total regional employment. For the Spanish observations, a very strong positive effect of the construction sector is identified. The strength of this effect is unique, albeit partially reflected in the general analysis and as a trend for German regions. The particular effect for Spain is likely connected to the construction boom up to the 2010s and the resulting dominance of this sector in the Spanish economy (Anderson 2014). Overall, the divergent effect different economic sectors have on regional resilience performance in each observed country is quite remarkable.

The results across all analyses conducted in this chapter for employment-based and RGVA-based resilience show that regions in each country benefit or are encumbered differently by the varying weights of the different economic sectors. While for each economic sector and most possible directions of the effect there is some theoretical explanation that can be identified (cf. Chapter 3.1), it seems like there is no generalizable effect applicable to all European regions observed in a unified fashion. Therefore, it must be concluded that the influence of sectoral weights is highly circumstantial and sensitive to national and regional specificities. One way future studies could shed light on this is by using more detailed data on economic structures, thereby giving a higher resolution of each economic sector than was possible for the present pan-European study.

Second, and unique to the Spanish regions is the negative effect of a comparatively high regional GDP per capita on trajectory retention measured over eight years as well as the positive effect of GFCF on trajectory retention measured over four years. This potentially hints at a case of high growth regions in Spain having a hard time recovering their former growth trajectory in the long run. This would contradict the assumption of past acquired resources having a positive effect but aligns with the negative effect of a high GDP per capita found for the UK and Germany in the analysis of RGVA resilience performance. Another possibility, however, is that there is a statistical artefact among the Spanish caused by an overlap of a long recovery period with the sovereign debt crisis that affected Spain and Spanish regions particularly strong (Moro 2014; Perez and Matsaganis 2018). The positive effect of GFCF potentially is connected to the effect of the construction industry since a high weight for employment in that industry naturally suggests an increased rate of gross fixed capital formation.

The positive effect of average business size has already been discussed. However, the Spanish case where the effect is being focused on the trajectory retention over eight years implies an even more sustained positive effect of larger businesses on employment resilience.

The last point to be discussed here is the very strong negative effect of a high government deficit. While at first sight this might imply a long term direct negative effect of high deficit spending on the trajectory retention dimension of employment resilience – for example caused by unsustainable financing – in the Spanish case one cannot ignore the potential long-term detrimental effect of austerity policies enacted in reaction to the sovereign debt crisis (Moro 2014; Perez and Matsaganis 2018). Hence the effect might not be as direct as suggested, but caused by policies that, in turn, were motivated by past deficits (Pavolini et al. 2015; Picot and Tassinari 2017). This point might also explain the divergence of the Spanish results for the effects of this indicator compared to the generally positive effects related to it in the analysis of Chapter 7.2.

In summary it can be concluded that national effects on regional employment resilience performance seem to dominate, as they did for the country-based analysis of RGVA resilience performance. While this was already suggested by the strength of the country association categorical variables in the general analysis, this chapter has shown how disparate the different nations' regions are affected by similar resilience capabilities.

This fact became most visible in the divergent effects of regional sectoral weights. Still as mentioned in the context of RGVA resilience performance, the respective national analyses do not fundamentally contradict the collective analysis of all regions in Chapter 7.2 – the one strong exception to this being the UK which seems to deviate from the common European path in more than one way. Furthermore, some general trends and effects are still reflected in the national effects on employment resilience performance. This includes the tentative affirmation of the benefits of high levels of regional accessibility, the positive influence of labor productivity and a current account surplus, as well as the potential negative effects of migration and a high share of an economic active population potentially being indicative of a labor oversupply.

7.4 Discussion on the effects of resilience capabilities

The purpose of this chapter is to summarize and discuss the results of the empirical analysis of Chapters 7.2 and 7.3. To do so, the results from the general analysis of the collective observations made in Chapter 7.2 will be summarized in a short fashion and then put in contrast to the results of the analyses by category conducted in Chapter 7.3 and consequently amended.

The goal is to give the reader a conclusive overview of the findings of this part of the study. The overall structure of the chapter follows the broad categories introduced in Chapter 3.

The chapter on *structural resilience capabilities* included the analysis of the effects of indicators for regional economic concentration, regional economic structure, innovative capabilities and signal openness, and the regional economic endowment (cf. Chapters 3.1 and 7.2.1). The first of these is the level of *regional economic concentration*, measured by regional RGVA-based HHI, labor productivity, and the average business size (by number of employees).

In general, the negative effect of increased economic concentration was found to be strongest for RGVA-based resilience performance measures. The only exceptions to this are a positive effect of concentration measured by business size on the four-year trajectory retention in the case of national industry shocks and a weak positive trend on the eight-year trajectory measure connected to a high HHI. Labor productivity showed no effect on RGVA-based resilience performance at all.

For employment-based resilience, the effect of economic concentration is far weaker to begin with, and the analysis of selected nations' regions showed that an increased average business size in particular is not necessarily a negative asset in each case (specifically in the Spanish and Italian cases). This latter finding is underlined by the positive effect of labor productivity found in the general analysis on employment resilience performance, which as an indicator for regional specialization suggests tentative evidence for employment resilience-related advantages through higher levels of economic concentration.

Overall, the evidence suggests that a high economic concentration is a negative regional asset primarily for RGVA resilience performance. It seems that diversity is preferable. No clear conclusion can be drawn in the case of employment resilience performance. Nevertheless, it appears that there is a good argument for a potentially positive effect of big regional employers, or at least a higher level or regional specialization. The evidence for this remains tentative, however.

The effect of the *regional economic structure* indicated by sectoral weight (measured in RGVA and total employment share for RGVA and employment performance respectively) remains highly unspecific. Generally, it seems that the sectoral effect on a region's resilience performance is highly dependent on shock timing, regional typology, and country association. The only somewhat consistent effects are a positive influence of the RGVA share of the public sector (including health, education, and related services) on RGVA-based resilience and the construction sector share of employment on the employment resilience performance. While the

former seems to be a solid finding confirmed especially in the context of local industry shocks and national downturns as well as for intermediate and rural regions, the latter shows a relatively high volatility, depending especially on crisis timing as well as country association. A comparatively large construction sector seems therefore a less reliable factor in explaining regional employment resilience performance. Hence, the only reliable conclusion for this class of potential resilience capabilities that can be drawn is a beneficial effect of a high share public sector RGVA share on RGVA resilience performance.

Indicators *relating to regional innovative capabilities and signal openness* (i.e., the regional share of research and development activities by GDP or employment) show only a faint effect, if any, on regional resilience performance by any measure. Furthermore, the research and development share of employment often shows a negative effect on resilience performance, which completely contradicts the hypothesis formulated in Chapter 3.1. As a result, this type of resilience capacity, at least as measured by the selected indicators[199], cannot be ascertained to have a significant positive effect on regional economic resilience performance.

For the indicators related to *regional economic endowment* the analysis showed mixed results. This might have more to do with the nature of the indicators themselves rather than the fundamental concept of regional economic endowment and related path dependence. Arguably, this group of indicators is a catch-all term in which the indicators of several other capabilities could be included. As it turns out, two of the indicators - GDP per capita and GFCF per capita (both standardized) - show little effect in the general analysis in 7.2 and highly divergent results in the analysis by category conducted in 7.3.

For example, there seems to be a tendency of a comparably high GDP per capita to negatively affect the recovery of the regional development level for RGVA resilience especially, but not exclusively, and only under specific circumstances, e.g., during national industry shocks, for the German and UK country association, or in rural areas. While significant in these specific cases, there seems to be no generalizable effect (positive or negative) of a comparatively higher or lower regional GDP per capita. The same conclusion goes for GFCF per capita, where again there is some evidence for a mostly positive effect on different performance dimensions across both employment and RGVA-based measures, but as before the evidence is sparse and not supported by the general analysis. Hence both indicators, at least with regards to a generalizable

[199] The author, in preparation for the analysis, attempted to employ other indicators (among them patent applications, private research and development funding etc.), but available data did not satisfy the needs for a large N study as presented here. However, the results of earlier, small N, analyses based on these indicators did not change the fundamental picture. This might change once these indicators and similar indicators become observable in greater detail and especially longer coverage.

resilience capability, must be disregarded as evidence for the endowment capability, though they might still be positive or negative factors under specific circumstances of place or time.

The one exception to this non-result is the effect of labor productivity on employment-based resilience. While labor productivity was generally used as an indicator for specialization in the context of economic concentration, it is of course also the product of regional economic endowment to a certain extent. Despite having little effect on RGVA-based resilience, the positive effect of increased labor productivity on employment resilience performance is substantial and affirmed not only by the general analysis but also confirmed at least partially in most of the categorical analyses in Chapter 7.3.

Therefore, the general capability category of regional economic endowment must be analyzed with care. It seems to have little effect on regional resilience performance, no matter how rich, poor, or supplied with capital stock a region is at the time of a shock event. But at least the level of labor productivity reached by a region seems to have a significant and strong positive influence on regional employment resilience performance. This is surprising to some extent, considering the non-effect of GFCF (assuming this includes capital increasing labor productivity) and the potential negative effects of productivity increasing measures, like automatization capital, on labor demand and employment markets (cf. i.a. Acemoglu and Restrepo 2019; Jaimovich et al. 2020). That said, the competitive advantage of high labor productivity, especially considering the findings on the effect of exports as discussed later, potentially more than outweighs these effects (Korkmaz and Korkmaz 2017). Why productivity has no positive effect on RGVA-resilience performance for the very same reasons, however, remains unresolved[200]. In conclusion, high labor productivity seems to be an asset for regional employment resilience performance but the general capability grouping of regional economic endowment shows no strong, clear-cut relationship to regional resilience performance.

The grouping termed *institutional resilience capabilities* includes macroeconomic stability, microeconomic market efficiency, good governance, and the existence of regional knowledge networks.

For the purposes of this study, *macroeconomic stability* was mostly associated with a balanced budget – i.e., a low government deficit – and a balanced current account at the national level. Therefore, the general expectation was for macroeconomic stability to have a positive relationship to a low government deficit or even surplus, and negative association with any

[200] There are occasional positive effects for specific countries or other categories analysed in section 7.3

form of current account surplus or deficit. However, the results of the analysis suggest nearly the opposite effect.

For RGVA, the current account surplus has an expected negative effect while a government deficit has a positive effect. These results are put into question by the analyses along categorical lines. There are for example significant moderate positive effects associated with a current account surplus once national economic downturns are considered as well as German and Italian observations. Meanwhile, despite the results on the benefit of deficit spending being put into question to a degree by the French observations, it seems to be an effect which is otherwise relatively stable or at least not falsified.

As discussed in 7.2.2 and 7.3.4, the reason for this unexpected positive effect of a high government deficit on regional resilience performance might have to do with the timely implementation of stabilization policies by national governments to fight crisis events – for example, the quasi-Keynesian measures implemented by many states during the 2008-2009 financial crisis (Ozturk and Sozdemir 2015; Riley et al. 2014). In connection to this, the positive effect of a high public sector RGVA share on RGVA resilience performance must be reevaluated in the light of national stabilization policies as well.

The results on the effect of the government deficit on employment resilience performance are similar to the ones identified for RGVA in the general analysis and across the categorical analyses. The only exception to this are the dedicated analyses of the rural and intermediate regions. Here, the association between deficit and regional employment resilience performance corresponds to the original hypothesis (a negative effect of a high deficit). This might hint at a political bias towards urban centers, assuming the positive effect of a deficit is associated with national stabilization policies.

Nevertheless, the positive effect of the current account balance (i.e., a positive effect of a surplus) on employment resilience is the most consistent observation. Across nearly all categories, some positive effects reflecting the general results can be found. The only significant exception to this can be found in the crisis period of 2008-2009. Here, a strong negative effect on the four-year retention of the growth trajectory can be identified, which is potentially caused by the extreme disruption of international trade during the GFC (Ozturk and Sozdemir 2015; Riley et al. 2014).

In summary, while the findings on the effect of government deficits suggest government stabilization policies as a positive factor in regional economic resilience performance, and high exports expressed in form of a national current account surplus seem to be beneficial as well,

neither of these results suggest macroeconomic stability and balance itself to be beneficial. Quite the opposite, regional economic resilience seems to profit to some extent from national imbalance in the form of deficit spending and trade surpluses.

In contrast to macroeconomic stability, the evidence for the resilience performance benefits of *microeconomic market efficiency* is strong. Of the four indicators used to estimate the effect of this regional capability, two - low unionization levels and a high firm-level flexibility of multilevel labor bargaining - are, with a few exceptions, positively connected to resilience across nearly all categories for RGVA as well as employment-based resilience performance. A third indicator – a measure of the ease of getting credit – shows positive tendencies as well, at least in the general analyses before introducing the country categories. This lends tentative support to observations from the other indicators. The last indicator – standardized labor compensation – shows no influence at all, with one or two exceptions in rare cases. The reason for this might be that as an indicator it is more related to factor cost than the efficiency of regional labor markets themselves.

The lack of clear results for two of the indicators might be related to the underlying nature of the variables (as labor compensation might not be a good indicator for microeconomic market efficiency) or the way the indicator is measured (the ease of getting credit indicator consist of an average national score). Nevertheless, microeconomic market efficiency is one of the strongest candidates for a generalizable beneficial capability that can actually increase regional economic resilience as indicated by RGVA as well as employment-based resilience performance.

Good governance, as measured by the governance closeness index, seems to be a feature that is only tentatively related to regional economic resilience. That said, if analyzed while excluding the country association category, there is a fairly strong positive and significant effect across all dimensions for employment resilience performance. This finding is not surprising, considering the nature of the indicator as a national constant (as it is a one-time measure). Presumably, once the country category is introduced the effect of government closeness is suppressed. Conversely, this suggests that a significant part of the country indicators effect might relate to the respective national government closeness. This view is supported at a low level by the findings of the analyses by categories, where the effect of government closeness occasionally has a positive effect, mostly on the trajectory retention dimensions for employment and RGVA-related resilience performance (e.g., for RGVA observations in 2000-2003, RGVA

local industry shocks, or urban regions in an employment downturn). Still, the evidence for a positive influence of this indicator remains relatively weak.

That said, other features that are identified as positive effects on resilience performance – like the RGVA performance-increasing effect of the regional public sector share, the positive effect of microeconomic market efficiency, or the effect of national stabilization policies implied by the effect of a high governmental deficit – suggest that 'good' governmental decision making can have a positive effect on regional economic resilience in both dimensions. Hence, while the chosen indicator for the capability itself seems not to be the best suited for the analytical task, there are indications that the resilience capability of good government is not necessarily without any effect. While it might be that (fiscal) decentralization, as measured by the government closeness index has little effect, good political decision making in other forms still seems to be a positive resilience factor.

One of the indicators for the existence of *regional knowledge networks* - the regional share of employment in research and development activities - was already shown to have no significant effect. The other indicator chosen for this resilience capability category was the existence of (strong) regional cluster networks as measured by the 'cluster stars' of the European Cluster Observatory (European Cluster Observatory 2015). Contrary to the assumptions made in Chapter 3.2, the effect of this indicator is, with very few exceptions[201], nearly always negative or shows no effect at all. One reason for this could be that while it is an indicator for regional knowledge networks in the form of clusters, clusters themselves are obviously also a phenomenon related to regional specialization and economic concentration, both of which have been shown to have a generally negative effect on regional economic resilience. This finding is supported by the fact that the negative effect of clusters is, like with economic concentration measured by HHI, greater and more sustained for RGVA-related resilience performance than employment-based resilience performance. Overall, there is little evidence of a beneficial effect of regional knowledge networks on economic resilience performance in any dimension.

The second to last grouping of resilience indicators was summarized under the term of *social and demographic resilience capabilities* and includes social development, social cohesion, age demographics, and (inter-)regional migration.

The first of these – *social development* – was mainly measured by employing a subnational version of the human development index (SHDI). As a secondary indicator the use of the

[201] Positive effects could be identified for recovery of the development level measured by employment for the crisis phase of 2008-2009, as well as on the RGVA based four-year trajectory retention specifically in rural areas.

employment share of research and development activities was proposed, which, as was discussed above, shows little effect. By itself, the SHDI shows different effects on RGVA and employment resilience performance. For RGVA-based resilience performance, the SHDI shows generally strong positive effects, mostly focused on the recovery of the development level dimension. Besides the general analysis, evidence for this is strongest in the crisis of 2000-2003, national economic downturns, national industry shocks, and for intermediate regional types. Conversely, employment resilience performance, especially for the trajectory retention dimensions, is exclusively negatively affected by a high SHDI. The reasons for these opposing effects are, likely, to be found in the individual components of the SHDI itself, i.e., purchasing power corrected average income, average and expected years of schooling, and life expectancy.

First, for employment resilience performance, longer and increasing years of schooling as well as an increasing life expectancy might potentially lower the total labor force – which would have negative effects on the long-term growth trajectory of that indicator. Additionally, the effect of more and higher education on an individual's chances for short- and long-term unemployment is not distributed equally across the European countries whose regions are observed. Specifically, countries and regions with high unemployment rates, at least temporarily during the observed time series, show a lower effectiveness of tertiary education on success on the labor market (this is true for Italy, Greece, and Portugal, but also France, Luxembourg, Germany and Sweden) (Núñez and Livanos 2010). Furthermore, studies show that countries in Western Europe with higher degrees of tertiary education (and thus longer average years of schooling) show a higher stratification of their labor markets, resulting in inequalities of occupational outcomes (Triventi 2013). While these factors differ from country to country and the observed effect might possibly be biased by this, the consistency of the negative effect hints that at least some level of 'overdevelopment' in the form of overeducation is possible. Therefore, higher education has a potentially negative effect through the stratification of the labor market, unequal employment possibilities for graduates, and the associated increased chances for unemployment for lower and mid-skill labor especially during and after recessions (Núñez and Livanos 2010; Jaimovich and Siu 2020).

Second, GDP per capita as an additional component of the SHDI might come into play to increase the SHDI's negative effect on employment resilience performance by being indicative of higher labor factor costs and potentially lower regional competitivity. This argument, however, seems less convincing, as neither the standardized GDP per capita nor the level of labor compensation seem to have a negative effect on regional employment resilience as individual variables.

In comparison, the positive effect of the SHDI on RGVA-related resilience performance corresponds to the expectations about the positive influence of social development as a resilience capability. That said, even when considering the categorical analyses, the effect is nearly significant nearly exclusively for the recovery of the development level dimension. Since, as with employment resilience, there is little influence of either labor compensation or GDP per capita, the effect is most probably caused by the other components of the index – i.e., education and life expectancy. The causality for both factors probably connects to the higher stickiness of high-skilled jobs (Jaimovich and Siu 2020; Cortes et al. 2014) and a certain unequal wealth distribution with a bias towards older populations (Ihle and Siebert-Meyerhoff 2017).

In summary, the effect of social development, measured through SHDI, as a regional resilience capability remains disputable. There are trends suggesting it being both an asset (for RGVA resilience) as well as a liability (for employment-resilience performance). At the same time, the overall empirical results are relatively scarce and focused on individual resilience performance measures. Despite this, social development as a resilience capability cannot be disregarded out of hand and better data on many factors - including educational attainment in quantity and quality, inequality, and general population wellbeing - are needed to come to a decisive conclusion. Since such data is nearly impossible to come by for the full time series at the necessary level of detail, as is often the case, the SHDI was a helpful substitute - but, as it turned out, an unreliable approximation. Therefore, conclusions on its interpretation must be subject to further studies.

Social cohesion can be seen as a component or accompanying capability to social development. However, as a concept it is harder to measure than pure material wellbeing or educational achievement, as done by the SHDI. Two indicators were chosen to attempt an estimate of this intangible feature: the comparative regional GDP per capita corrected for purchasing power as an approximation of inter-regional inequality, and the membership in social and political organizations as an indicator of social networks and social capital (cf. Chapter 3.3). The first of these two indicators has already been shown to have relatively little effect on either RGVA-based or employment-based resilience. This is unsurprising because it is of low value as an indicator for inequality. Still, as the analyses along categorical lines have shown, richer regions by standardized comparison tend to see a somewhat lower resilience performance under specific circumstances, e.g., for RGVA-based performance during the crisis phases of 1990-1993 and 2008-2009, or rural regions with regards to employment resilience performance. In general, however, this speaks more to the role of regional endowment – i.e., relatively stronger

economies have more to lose – than to internal inequality affecting the results of the resilience process.

The level of social capital - or, more precisely, the strength of social networks, fairs only marginally better in explaining divergent regional resilience performance. While there is a strong positive effect visible on especially RGVA-based performance dimensions in the early steps of the general analysis, this effect is suppressed once country associations are introduced. This hints at the indicator itself being strongly influenced by national characteristics, which is something that is also visible when looking at the country level data where some countries are shown to have consistently higher organization membership numbers than others (cf. Chapter 7.2.3).

Nevertheless, just because a variable is strongly influenced by national culture and particularities this does not mean it is necessarily without any effect. For some of the analyses along categorical lines, an effect persists even after the introduction of the country association variables. For example, the crisis phase of 2008-2009 shows a positive effect of a comparatively high density of social networks as indicated through organization membership, with the effect being especially prominent across all performance dimensions for RGVA resilience measures. Similarly, a strong positive effect on the RGVA trajectory retention measured over four years can be identified for local industry shocks. This implies a tentative positive effect of social capital, in the form of social networks, on RGVA-based resilience performance especially. However, these results must be treated with care since they cannot be replicated either in the general analysis once regional country association is introduced nor when selected countries are treated individually. Despite this, there is enough evidence to ascribe enough effect to this indicator to justify future investigation into social cohesion (represented by social capital) as a positive resilience capability. This, after all, is broadly supported by several studies on general regional development as well (Putnam 1992; Sabatino 2019). Yet, for the present study and the presented data, neither a positive nor a negative effect of social cohesion as a resilience capability can be fully affirmed.

Tests were undertaken for the following two indicators from the general factor of *age demographics*: (i) aging index and its effect, and (ii) the share of economically active population between 15 and 64. The latter being a more general demographic factor and not solely age related. The aging index had a generally positive effect both on RGVA and employment performance for the trajectory retention measured over a recovery phase of eight years, i.e., a positive effect of having a larger fraction of above 64-year-old persons compared to below 15-

year-old persons. This effect could be replicated in several of the analyses along categorical lines, with one of the stronger relationships for employment resilience performance being identified for the crisis phase from 2000-2003. This suggests that there is at least a slight positive effect of an older population on regional economic resilience in the long run. One factor behind this relationship potentially relates to the aforementioned unequal wealth distribution between young and old with corresponding effects on aggregate demand. Another factor, related specifically to employment, might relate to European employment laws protecting older employees (Lahey 2010).

It is to be noted however that the analysis along country categories showed some bias towards specific countries for this effect. This concerns especially Italy and Germany, both of which have relatively old populations. Hence, the observed effect might hint at an undescribed country-level variable causing regions in specific countries to be more resilient independent of the geriatric population (Eurostat 2021d). Conversely, the negative effect of the same indicator on the employment-based recovery of the development level dimension for the UK and the lower level of worker protection there suggest that an older population can, given the right legal environment, be a stabilizing factor (Grimshaw et al. 2017).

The regional share of civil economically active persons between 15 and 64 years old has in general relatively little effect on RGVA resilience performance. While there is a weak but significant negative effect in the general analysis for the recovery of the development level dimension as well as the trajectory retention measured over four years, a closer look at the categorical analyses shows that this effect is potentially caused by specific circumstances. While this indicator mostly has no or sometimes even positive effects, the strong negative exceptions are found in the crisis phase of 2000-2003, the observations from Germany, and urban regions. As discussed in Chapters 7.3.1 and 7.3.3, the high negative values for the 2000-2003 phase as well as the German observations potentially are connected to the overall high unemployment in Germany during this period. Given the high number of German observations, this potentially creates a bias in the general results. That is not to say this indicator might not have any negative effect, but rather, that this effect is potentially specific to German observations during a very specific period.

The negative effect specifically for urban areas is therefore more interesting. While there still might be a slight overrepresentation of German cases (around 37.5% of observations), there is the potential for a significant negative effect through this class of regions – which in turn might point to an inherent disadvantage of progressing urbanization for RGVA-base resilience

performance. That said, overall, the effect remains very weak on RGVA-based resilience performance.

Concerning employment-based resilience, the negative effect of the population share of economically active persons is stronger. Even so, at least in the general analysis, it is still of little significance and amounts to a weak statistical trend at best. However, as with the effect on RGVA-based resilience, the effect becomes significantly stronger when analyzed along specific categories, i.e., the crisis phase of 1990-1993, urbanized and rural regions, national economic downturns, and German, UK, and Spanish cases. While the effect is not focused in all categories on the same resilience performance dimensions, there once more seems to be a situational negative effect of a high availability of work-capable population[202]. The general mechanism behind this effect, as discussed in Chapter 7.2.3 and 7.3 at varying points, seems mainly related to an abundance of labor as a production factor.

In summary, considering the findings on the aging index as well as the results of the effect of the regional share of economically active population, there seems to be no strong effect related to a region's age demographics. At most there is a slight positive trend associated with an older population and a negative trend with a larger work-able population, which in turn seems to have a stronger effect on employment resilience performance than RGVA-based performance measures.

Inter-regional migration, indicated by the annual net migration per 1.000 inhabitants, i.e., net migration rate, is the last of the factors assembled under the heading of the social and demographic resilience capabilities. In the general analysis the effect of the net migration rate is overall negative. While RGVA resilience performance is only weakly affected in the trajectory retention measured over four years, the effect on employment resilience on both retention trajectory measures is at least moderately strong. Due to the controversy of the topic, at this point it is opportune to point out once more that the regional net migration rate measures any kind of migration into or out of a NUTS 3 region and is not necessarily indicative of either foreign or domestic migration only.

While weak in the general analysis, the effect of migration on RGVA-based resilience performance measures is significantly stronger for some categories of the observations analyzed in Chapter 7.3, as for example in the case of UK regions or the crisis phase from 2000-2003.

[202] As with RGVA there are a few incidents of positive effects as well, specifically for the trajectory retention measured over four years in case of national industry shocks and the same dimension for the cases falling in between the crisis periods.

Still, overall effects of net migration on RGVA resilience performance remains rare and are negligible overall.

The negative effect of migration on employment resilience performance is not only stronger in the general analysis but also more common in the different categorical analyses. That said, the effect of migration remains comparably small and specific to certain categories with the strongest individual negative effects identified for national industry shocks as well as the German and Spanish regional observations.

As mentioned in Chapter 7.2.3, this might be the effect of a regional oversupply of labor lowering demand for low-skilled jobs or the effect of a lowered social cohesion through migration. Both of these theoretical arguments are highly contested (Foster 2012; O'Connor 2020; Agénor and Lim 2018; Constant 2014). Another explanation might be found in the specific circumstances of these negative effects: for example, the large wave of domestic migration following reunification in Germany may not have been balanced out by the origin regions due to a lack of data on eastern German regions up to 1998, which has the potential to create a bias in the estimation of the effect strength of the net migration rate (Möhring 2017).

Disregarding the country-specific effects, the most significant relationship between employment resilience performance and net migration remains for the observations related to national industry shocks. While the causality is hard to assert in this context, one thesis might relate to the fact that net migration, as all indicators, is measured as an initial value at the start of a crisis – i.e., the year of the initial shock event.

Since by the nature of the methodology outlined in 4.1 a national industry shock represents a substantial loss to a regionally as well as nationally strong sector compared to the European average (i.e., an ‘export industry’), it could be assumed that that sector was, up to the shock event, an economic pull factor for regional migration. As a result, and since national industry shock-related downturn observations are the worst performers on average among the two types of industry shocks, any negative effect of migration would potentially be significantly stronger. This is due to the assembled sector-specific labor force being unable to simply search for work in the same sector in neighboring regions because the whole sector and industry concerned are in a national, and not only regional, crisis. In contrast, in a local industry shock the local labor force has the possibility to search for employment in nearby regions or related industries that are generally not affected all at the same time as they are in a national industry shock.

In summary, the effect of migration on RGVA resilience performance is not relevant. Similarly, only a relatively weak negative effect can be identified for employment resilience performance.

The latter, additionally, is extremely specific to national industry shocks and in danger of being biased by country-specific statistical biases (especially in the German context).

The last category of regional resilience capabilities was summarized under the very broad term of capabilities of *geographic endowment*. It included the regional categorization along the rural-urban typology and the level of regional multimodal accessibility. Arguably, geographic endowment further includes the regional country association, which during the analysis in 7.2.4, was consequently treated as such.

Regarding the non-categorical variable – *regional accessibility* – the general analysis only found a positive effect of multi-modal accessibility on the employment trajectory retention measured over four years. Meanwhile, there is no effect to be identified for RGVA resilience performance. Despite these rather weak results for the general all-observation analyses, there seems to be a highly divergent effect of multimodal accessibility with regards to the different categories by which the regions have been analyzed in Chapter 7.3.

Concerning RGVA-based resilience performance measures, urban and rural regions seem to show improved performance as an effect of higher levels of regional accessibility. Similarly, in observations related to national industry shocks a positive effect on the recovery of the development level as well as the retention trajectory measured over four years can be identified. Interestingly, Italian regions show an especially high sensitivity to high levels of accessibility for RGVA-based resilience measures. Here, as discussed in Chapter 7.3.4, the Italian North-South divide might be an explanatory factor.

The analysis by country category is again an area with strong effects of accessibility on employment resilience performance. While in this case Italian regions seem not to benefit from the variable, the effect is strongly positive for Germany across all resilience dimensions. Furthermore, UK regions are positively affected as well, but only in the four-year trajectory retention measure. Remarkably, the strength of the effect also seems dependent on the shock period, with the crises of 2008-2009 and 1990-1993 each showing strong positive effects of accessibility on individual resilience performance dimensions.

In summary, the effect of regional accessibility as a regional resilience capability seems to be tentatively positive. There is, however, a stronger effect on employment resilience performance as well as a strong country dependency of the effect – given particularities of national geographies and shapes, this is not totally surprising, as is easily observable for the Italian case, for example (González 2011; Cellini and Torrisi 2014).

The effect of *urbanization* as indicated by the categorical variable based on a rural-intermediate-urban classification is surprisingly weak. The variable showed no effects in the general analyses and was only in a very few cases significant enough in the different analyses in Chapter 7.3 t to be selected by the stepwise approach. The few cases (i.e., the employment-based development level recovery for the period of 2000-2003 and national industry shocks) in which any effect could be identified hint at a slight positive effect of intermediate regions on employment resilience performance. This result is supported by the findings of the ANOVA analyses conducted in Chapter 6.3 and by the findings of other studies (cf. i.a. Brakman et al. 2015; Giannakis and Bruggeman 2020). Overall, the findings on the effect of the rural-urban typology on regional economic resilience performance remain rather weak and a conclusion cannot be drawn.

Country association as a regional geographic feature seems to have an immense influence on regional economic resilience results compared to most other regional features. Independent of the level or category of the analysis, the regional country association is usually one of the strongest effects on the regional resilience performance. The extent and direction of these effects are too numerous to expand upon here but correspond in general to the observations made in Chapter 6.4 already.

The strong effect of some national level variables – such as the national government deficit and the national current account balance, as well as variables dominated by often national legislature (as education policy or labor law in many countries) – already hinted at a strong influence of national factors on regional economic resilience performance. In addition, one must consider the potential effect of national stabilization policies, the overall reduction of the number of significant effects when the analysis was conducted on a country level (cf. Chapter 7.3.4), and the influence of other national features that are potentially unobservable on a regional level.

Consequently, it is not unexpected to see results which are strongly nationally biased. In fact, similar observations are made by other studies as well (cf. i.a. Crescenzi et al. 2016; Giannakis and Bruggeman 2020; Di Pietro et al. 2020; Faggian et al. 2018). While to some extent disappointing since it might preclude the identification of purely regional ‘resilience recipes’, this finding is important to the extent in which it suggests the high level of importance of national policies and the high level of responsibility put on the shoulders of national decision makers for the resilience of their nations’ regional economies.

Two variables not fitting the general typology of resilience capabilities outlined so far concern the categorical variables of *shock type* and *timing* of the observations within the different phases

of the time series (cf. Chapters 6.1 and 6.2). Therefore, the results of the effects of these categorical variables on resilience performance will be briefly summarized here.

The effect of *shock type* in the broad categories of national economic downturns, national industry shocks, and local industry shocks broadly follows the observations already made in Chapter 6.2. In the general analysis of all observations (Chapter 7.2.5), RGVA-based measures of resilience performance tend to show a positive effect when affected by a national economic downturn, especially for the recovery of the development level dimension of resilience performance. Conversely, RGVA resilience performance sees a slight negative effect of local industry shocks in the same dimensions – national industry shocks showed no significant effects. These effects, as was discussed in Chapter 7.2.4 and 6.2, are possibly related to national economic stabilization policies (or the lack thereof, in the case of local industry shocks). Conversely, employment resilience performance in the measures concerning the retention of the growth trajectory reacts differently and shows a negative effect if a downturn is caused by a national economic downturn. Similarly, the effects for both industry shocks are not significant but show an opposite positive trend in general on employment resilience performance.

When considering the different analyses of the observations along the different categorical lines (i.e., Chapter 7.3) the effect of the shock types becomes less evident, since their effects are often not of a high enough significance level to be selected. Still, in the cases where a significant effect can be identified, the general trend of a positive effect of national economic downturns on RGVA resilience performance and a negative effect on employment performance is affirmed. Similarly, employment resilience performance sees a positive effect in the case of industry shocks and especially local industry shocks. Overall, while not indisputable, this seems to establish a mostly consistent pattern of effect of the shock types on regional economic resilience performance concerning employment and RGVA.

Last, and as mentioned before not really corresponding to any of the resilience capability categories, is the *crisis period of the time series* in which the individual observations take place (or have their first downturn) as a potential variable influencing resilience outcomes. Here, as with the country categories and shock types, an influence of the different phases of the time series consistent with the analyses discussed in Chapter 6 can be identified.

Across all levels of analysis, observations falling into the period of 2000-2003 show a negative effect on their associated regional resilience performance measures (independent of whether they are RGVA, or employment based), while those being observed for the phases of 1990-

1993 and 2008-2009 generally perform stronger[203]. Generally, the crisis of 1990-1993 has the strongest positive effect while the phase 2008-2009 usually performs somewhat weaker (especially in the case of RGVA resilience performance, the recovery of the development level often even sees a negative effect). The observations falling in between these crisis spikes usually seem to be positively affected by that fact, but this effect is, when significant, usually not very large.

It seems that, as stated before, each crisis is significantly different in its nature. Each crisis has different specific effects that can vary widely in the strength of their effect on the different categories of observations, and they generally follow their own individual trajectory that distinguishes them from the other time periods. Therefore, this and future studies must consider the influence of each specific crisis as individual factors, since their nature seems to be a significant independent determinant of regional resilience performance that prevents a 'one size fits all' model of regional resilience performance.

That said, to show the varying effect of resilience capabilities and the differing extent of resilience performance across a long time series and diverse regional subjects is exactly the strength of the methodological approach discussed in this thesis. Afterall, one of the goals of the approach chosen, was to specifically show the restrictions of other studies on regional economic resilience with their often singular focus on individual crisis, countries, or even selected regions. Hence diverse, and sometimes contradictive results are to be expected when discussed and analyzed in conjunction as done in this chapter.

Despite this last statement, some observations on the mechanics behind regional economic resilience performance affecting both types of regional resilience performance – i.e., based on regional employment and RGVA – and the corresponding resilience capabilities can be made:

1. One of the strongest positive effects seems to be caused by high levels of microeconomic market efficiency, especially in the labor market.
2. A high government deficit – potentially indicative of prompt anti-cyclical government spending – has a positive effect on regional resilience performance measures.
3. There is a trend of a positive effect of an older population and a higher regional accessibility – though both are highly country-dependent variables.

Specific to RGVA resilience performance are the negative effects of economic sectoral concentration and a positive effect of a high share of the public sector in the composition of the

[203] Though often only the negative effect of 2000-2003 is significant, and there are exceptions as for example for employment resilience performance in local industry shocks in 2009-2009.

regional RGVA. Additionally, a higher level of social development, social cohesion represented through membership in social networks, as well as a higher share of civil economically active population show positive tendencies on regional RGVA resilience performance.

Employment resilience performance shows to be positively affected by a comparatively high labor productivity as well as a current account surplus. This implies a beneficial effect on the labor market through comparative advantages in (international) trade. Additionally, there seem to be trends suggesting a beneficial effect of a region being classified as an intermediate settlement, and of increased fiscal decentralization. Conversely to RGVA performance, a higher share of economically active persons has negative effects on employment performance measures.

Again, common to both types of resilience performance is the effect of shock type. However, while RGVA resilience performance responds positively to national economic downturns and shows somewhat negative results from (local) industry shocks, the opposite can be observed for employment resilience performance. Both types of resilience performance measures also show a similarly strong response (albeit not always in the same direction) to the different regional country associations (for details see Chapters 6.4, 7.2.4 and Chapter 7.3). This implies a very strong influence of national particularities and potentially unobserved national variables on regional economic resilience performance. Last but not least, a common pattern is also established for the negative influence and generally poor resilience performance in response to the crisis phase from 2000 to 2003.

In summary, across all performance dimensions and for employment as well as RGVA-based measures, high levels of microeconomic market efficiency as well as deficit spending show a major positive effect on regional economic resilience performance. Furthermore, shock type as well as shock timing can have a major influence on regional resilience results (a result confirmed already by the analysis in Chapter 6.1 and 6.2). Specific positive effect on RGVA-based resilience performance can be found in low levels of regional economic concentration, a regionally large public sector, high levels of regional social development, social capital in the form of organizational membership, and through a large economically active population. Meanwhile employment-based resilience performance is positively affected by comparatively high levels of labor productivity and related to this, economic concentration, and specialization, as well as the very strong positive effect of a high national current account surplus and fiscal decentralization.

7.5 Considerations

While the previous chapter focused on a summary of the empirical results and added interpretations where justified, the goal of this chapter is to put the discussion into a wider, more speculative context. The main reasons for this approach are to point out interesting, but not necessarily well supported, observations, shortcomings of the analysis, and to formulate potential research topics and hypotheses for future research.

One, if not the, overarching goals of the analysis in Chapters 6 and 7 was to demonstrate the usefulness of the proposed methodology to measure regional resilience performance outlined in Chapter 4. This was done successfully by showing the versatility of the analysis possible through this methodology in different contexts and with various indicators for different resilience capabilities.

The very multitude of results and their sometimes contradictory nature when compared across categorical lines summarized in Chapter 7.4, showed the very need for an approach to regional economic resilience performance which is not focused on individual shock events or specific shock types. Only an inclusive and comparative way to measure regional economic resilience performance can allow for a critical contextualization of the diverse explanatory approaches on the origins of regional economic resilience which have been proposed in recent years. As such the approach to measure regional economic resilience performance proposed in this thesis has shown its practical value to abundance.

However, the analysis of the extend of the explanatory value of the different resilience capabilities on divergent regional resilience performance itself must be considered more critical. The main issue here is the lack of in-depth data on certain resilience capabilities and the respective chosen indicators. While this lack of detail is result of the broad scope of the analysis and the reliance on pan-European datasets, this potentially prevented a more complete evaluation of the origins of regional economic resilience performance.

An example for this is the exploration of the role of different economic sectors and industries on regional resilience performance. While the European scope necessarily reduced the detail of the analysis to broad sectoral categories, the empirical results and the literature (among others Hill et al. 2012; Angulo et al. 2018; Giannakis and Bruggeman 2020; Faggian et al. 2018) on the topic suggest that a greater level of detail would have been beneficial.

However, while a more detailed analysis was hampered by a lack of data, the results on the effect of the public (service) sectoral share on the RGVA-based resilience performance alone

justify a deeper investigation into the topic (cf. Chapters 7.2.1 and 7.4). Not only do these results underline the potential importance of certain parts of the public sector for regional resilience performance, but they also hint at a greater role of governance in general. Taken together with the observed beneficial effects associated with a high government deficit and the observed positive effect of government closeness on employment-based resilience performance, these results point at the potential importance of policy, political institutions, and governmental decision-making for regional economic resilience.

First, these results could hint at the importance of direct government intervention in the immediate aftermath of a crisis. As indicated by the effect of the government deficit[204], one important factor in this seems to be fiscal interventions in the form of quasi-Keynesian policies. Furthermore, the importance of governance expresses itself through the stabilizing effect of maintaining (or even expanding) a strong public sector. In this context, future studies should focus on specific governmental actions and stabilization policies and their respective realization and effect in regional economies.

Second, the positive effect of good governance in the form of government closeness[205] on employment-based performance implies a strong role of local government in the resilience mechanisms of a region. Here an in-depth evaluation on local government involvement and the effect of its actions on regional economic resilience is necessary. Potentially the extent and independence of regional and municipal spending and employment decisions form an important pillar of regional resilience performance. This pillar might be easily overlooked in large-N studies like the one presented in this thesis.

Another area where the empirical analysis shows a need for improvement concerns the resilience capabilities related to regional innovativeness and adaptability. The two capabilities most related to this subject – i.e., the innovative capabilities and signal openness of regional actors, and the existence of knowledge networks – showed no or only weak effects[206]. These results seem not only to disprove the original hypotheses outlined in Chapters 3.1 and 3.2., but are contrary to a strong body of work on the importance of innovativeness for regional economic development and resilience (among others Clark et al. 2010; Boschma 2015; Piva and Vivarelli 2018; Simmie and Martin 2010; Smith and Romeo 2012). While it might be that

[204] This is further underlined by the comparatively positive regional resilience performance during the crisis phase from 2008-2009, the response to which was shaped by monetary expansion and Keynesian policies (Moro 2014; Perez and Matsaganis 2018; Köhler 2021).
[205] An indicator mostly based on levels of fiscal decentralization.
[206] In the case of the effect of regional knowledge networks in the form of clusters on employment-based resilience performance, the effect is even negative.

the effects of innovativeness and related capabilities are simply overestimated, two qualifications must be made to this statement.

First, as discussed in Chapters 3.2, 7.2.1, and 7.2.2, the indicators chosen for the innovative capabilities and knowledge networks might simply be too blunt as instruments for the purpose. Both the share of research and development spending relative to GDP and the regional share of research personnel are generally considered to be innovation indicators of at best middling quality (Katz 2006). Meanwhile, as discussed in Chapter 7.4, industrial clusters as an indicator seem to be more indicative of regional economic concentration than of knowledge networks.

Second, it might be that the sudden type of shock event central to the analysis of resilience performance proposed in this thesis, is simply the wrong type of event to show any resilience effect of such capabilities. That is to say, the resilience-enhancing effect of innovativeness-related capabilities might potentially have a (positive) effect in the context of a long, slow-burn shock event excluded in the present thesis from observation (cf. Chapters 2.2 and 4.1).

Two examples of this can be found in the works of Simmie and Martin and Howard et al. (Simmie and Martin 2010; Howard et al. 2021). Simmie and Martin conduct two case studies of English regions (Cambridge and Swansea) and discuss their respective resilience performance. They observe that in the long run and in response to fundamental structural economic change, the region of Cambridge can profit from its innovative capital (mainly in the form of flexible human capital). Cambridge manages to adapt to new circumstances and proves more resilient in the long-run than Swansea, which lacks the same levels of innovative capital (Simmie and Martin 2010). In their more recent work Howard et al. analyze the effect of universities on regional employment resilience in a longitudinal study over several decades. They show that regions with universities can offset the negative effects of long-term structural economic change (mainly in form of a declining manufacturing sector) (Howard et al. 2021). Both studies show a positive effect of innovative capabilities and knowledge networks on regional economic resilience, but do so in the context of long-term, slow-burning crises which are not the focus of the analysis conducted in this thesis.

Consequently, signal openness, innovative capability, and knowledge networks cannot be confidently excluded from the discussion of regional economic resilience. Further investigation must aim at evaluating more suitable indicators, a narrower scope with regard to the regions covered, and potentially focus on their effect on shock events which are less sudden than the events observed in this thesis.

Other aspects of the analysis presented in this thesis also need to be illuminated further. For example, despite showing strong results, the indicators chosen for the resilience capability termed 'microeconomic market efficiency' have an overwhelming focus on the employment market. Here a deeper investigation into the effect of financial markets and regulations in particular needs to be part of future investigations. While the analysis included a cumulative, national-level indicator for the ease of getting credit, more detailed and preferably longitudinal data could be beneficial[207]. This, combined with other financial indicators like the availability of foreign direct investment, could lead to greater insights on the role of financial markets and institutions on regional economic resilience performance.

In a similar vein, the results on the strong effect of a current account surplus, especially on the employment-based resilience performance, need further study. Here data on regional exports and imports would be of great value; data which is not available for a long enough timeframe and with European coverage at the moment. Still, the influence of trans-regional trade and, by extension, trade integration should not be underestimated and warrant deeper investigation.

These shortcomings of the underlying data are relevant for several other indicators. Similar problems can be found in the lack of (pan-European) data on municipal and regional deficits at the lowest NUTS levels, the insufficient data relating to the level of regional social organization and cohesion, or the quality of data on education systems beyond simple indicators like those included in the SHDI.

Especially lamentable therein is the lack of reliable data with regard to the effect and influence of social development and social cohesion. While the analysis in this work showed a positive effect of both capabilities mostly for RGVA-based resilience performance, some potentially critical components of these capabilities could be treated only superficially in the current study.

Specifically, inequality on an individual level is a central point of interest here. According to Foster, high levels of income inequality can hamper microeconomic resilience and thereby contribute negatively to a region's overall regional resilience performance in multiple ways (Foster 2012). The benefits of lower inequality for economic and disaster resilience are hinted at in other works too, especially in the context of climate change and the resilience of developing countries' regions (Hallegatte 2014; Yu et al. 2018). Similarly, a paper by Lewin et al. found strong evidence for the negative effect of high income inequality in US urban regions on their economic resistance and resilience in the face of the great recession caused by the

[207] This is especially important in the context of crisis related to a temporal scarcity of credit such as during a financial crisis, like the events surrounding the global financial crisis from 2007-2008.

financial crisis of 2007-2008 (Lewin et al. 2018). Hence further studies must include a stronger emphasis on income inequality on a detailed level. To do so, however, better data sources on this subject must be made available than exist right now for the geographic scope of this thesis. A potential solution could be found in the analysis of individual countries and periods based on national microlevel data. For a Europe-wide study like that conducted in this thesis, such an investigation is currently impossible.

In a similar fashion, educational attainment and related labor market skills merit deeper investigation. As pointed out by several authors, human capital attainment can have a significant influence on the economic resilience and adaptability of a region and individuals (Foster 2012; Briguglio et al. 2009; Pendall et al. 2010; Hill et al. 2012; Fratesi and Perucca 2018; Hane-Weijman et al. 2018). This thesis included essential components of these factors in the form of the SHDI, which was used as a general indicator for regional social development. However, there is need for a more detailed look beyond the superficial components of this index, including average years of actual and expected schooling. In particular, the quality and life-time sustainability of educational attainment need to be included in a more detailed fashion. While this was not possible for the present large-N longitudinal study, future investigations should focus on this aspect on a national or maybe even comparative regional level.

As has become clear through the sections above, the very broad nature of the analysis conducted in this thesis sometimes led to the choice of sub-optimal or superficial indicators out of necessity. Beyond the shortcomings discussed, other features could have been included if a more reliable data foundation were available. Such factors include the investigation of more detailed geospatial data (for example on natural resources), interactions and effects of neighboring regions, data on energy security, security of the natural environment, specific governmental policies, or even regional level corruption.

However, as outlined in the research interest of this thesis, the present investigation of the diverse resilience capabilities was first and foremost of an explorative nature, with the overarching goal to assess a novel way to measure regional economic resilience performance. This goal was achieved. Chapters 6 and 7 amply demonstrate the usefulness of the methodology for the measurement of regional economic resilience performance that was outlined in Chapter 4. The analysis of the diverse resilience capabilities conducted throughout these last chapters must therefore be seen as a strong but incomplete first step towards the future investigation of regional economic resilience performance on the groundwork laid out in this thesis.

One major advantage of the methodology outlined in this thesis lies in its potential scalability and applicability to different research subjects. For example, using the methodology outlined in Chapter 4, it is possible to conduct an in-detail analysis of regional resilience on a national as well as European level. Given the often-greater detail and reliable comparability of data sets gathered on national level – in contrast to less detailed European-level data – this can provide a reliable pathway for the detailed investigation of several of the subjects mentioned above. Naturally, the results of such a national investigation cannot be compared across as wide a geographic scope as that investigated in this thesis. However, more detailed tests of a specific hypothesis can be the result, which in turn can potentially be transferred to other focusses of investigation. Additionally, as was pointed out in Chapter 7.4, the national influence on regional resilience is significant and an investigation centered on individual nation states might contribute to a greater insight in the phenomenon. A similar approach could be taken for specific events and types of shock scenarios – both of which showed significant effects on regional economic resilience performance, as discussed in Chapter 6 and 7.

Furthermore, the underlying methodology for measuring economic resilience performance used in this thesis is not restricted to measurements based on RGVA or employment. Given proper operationalization, other variables can be used as an input for alternative measures of regional resilience performance. One potential example for this was already discussed above: income inequality could, given a large data set, be used as an underlying variable. The result would be a measurement of the (in)equality resilience of a region. This in turn could be used to assess the long-term influence of regional economic developments, as well as the effect and sustainability of redistributive policies and efforts under the influence of acute economic pressures.

Other potential applications could be found beyond the scope of individual regions. This could be achieved by applying the methodology to data of specific socio-economic sub-systems, such as education or health care. While potentially a somewhat abstract proposition at this point, the investigation of the resilience performance of manifold social and economic systems offers great promise for research insight.

Overall, while the investigation of the origins of regional economic resilience in this thesis might have raised more questions than it answered, the fundamental validity of the approach to measuring resilience performance has been amply demonstrated. Future investigations must aim to use and improve the existing toolset and apply it to the phenomenon in different contexts and with fresh, and potentially more specific, hypotheses and research subjects.

8. Conclusion

The central research interest of the present work was the investigation of the mechanisms and nature of the response of regional economies to shock and downturn events. More specifically, the inquiry focused on the measurement of the phenomenon of *regional economic resilience* and the search for explanations of regionally divergent *resilience performance* in the face of adverse economic circumstance. Simply put, the central question asked was: What makes some regions perform stronger than others in the face of economic crisis?

To offer a broad base for such an endeavor, the subject of the empirical investigation was set as broad as feasible, given the available data and the possibilities and limits of the measurement methodology proposed. Instead of focusing on individual countries, regions, or individual shock events as previous studies on resilience did for the most part, the discussion and analysis of the phenomenon of economic resilience was conducted over a time span of 30 years across 15 different European countries at the smallest regional division generally available.

Three overarching steps towards attempting the exploration of European regional economic resilience were set out: First, to identify shock events of relevance at different levels of the economy and to measure the extent of their immediate impact. Second, to create a method to measure the elusive phenomenon of resilience in a way that makes regional economic resilience performance observable and, in particular, comparable in an objective way unbound by restrictions of individual crises or geographic locations. Third, to explore the reasons why some regions thrive, perish, or just reflect the general economic trend in the aftermath of a crisis – i.e., the explanatory value of different regional resilience capabilities – in order to improve their economic resilience performance.

To lay the groundwork for these steps an in-depth discussion of different current theoretical approaches to the phenomenon of (economic) resilience was conducted (Chapter 2 and Chapter 3). After the discussion of several different interdisciplinary approaches, the theoretical framework of *adaptive resilience* proposed by Ron Martin and his co-authors was deemed the most appropriate for the regional economic context (Martin and Sunley 2020, 2015a; Simmie and Martin 2010). This approach describes regional economic resilience as a dynamic process which, through the mechanism of hysteresis, allows for regional economies to not only bounce back after a crisis, but also to adapt and change in an evolutionary fashion throughout the process. Especially the latter allows for a deeper assessment of the relative quality of the

outcomes and an observation of resilience beyond simple, binary, *engineering resilience* (cf. Figure 1).

Using this approach as a theoretical blueprint, this thesis defined the outline of a methodology to identify, assess, and measure the resilience process and its outcomes (Chapter 4). The methodology settled upon after discussing several different approaches, is founded on the work of Hill et al., who conducted a similar large N study on US metropolitan region (Hill et al. 2012). Their fundamental work was amended substantially by the author to take account of the concept of adaptive resilience as outlined by Martin, as well as to adapt it to the European context. The result is a dynamic approach capable of identifying different shock and downturn types and measure resilience performance in two continuous dimensions – i.e., *the recovery of the development level* and *the growth trajectory retention* – across a long time series and a wide geographic scope[208].

This new method to measure multi-dimensional and intertemporal comparable resilience performance was subsequently applied to the European NUTS 3 level, based on data on regional gross value added as well as regional employment (Chapter 5). The purpose of using these two measures of economic performance lay in the consideration that, for the level of local constituents and actors, both factors matter with regards to economic wellbeing. While testing the methodology for robustness, the results of the application offer an in depth look at the regional resilience performance across 30 years of (Western) European history at a level of geographic resolution so far not achieved in the literature to the same extent.

The resulting measures of resilience performance were then analyzed in two separate steps. The first of these mainly concerned the geographic, temporal, and typological distribution of resilience performance among the observations (Chapter 6). The results of this step of the analysis consisted of four main findings[209]: First, that regional economic resilience performance, is highly dependent on timing – e.g., observations falling in the phase from 2000-2003 regularly preformed worst by comparison. Second, the nature of the shock causing a regional economic downturn is a major determinant – e.g., national economic downturns resulted in stronger resilience performance if measured on the basis of RGVA, while (local) industry shocks had the same effect if measured based on employment. Third, country association and country level effects have an outsized influence on resilience performance at a

[208] Additionally, this approach is theoretically scalable to any level and flexible enough to be applied in different scenarios and geographic areas if a substantial database can be provided.
[209] For a more detailed summary cf. section 6.5.

regional level. Last, the urban-rural regional cleavage is less significant than often assumed, at least in context of regional economic resilience[210].

The second step of the analysis concerned the exploration of potential regional characteristics that enhance regional economic resilience performance – i.e., the regional resilience capabilities. As a guideline for this explorative analysis a literature review on the wide variety of explanatory approaches of divergent resilience performance was conducted, the results of which were translated into testable hypotheses and measurable indicators (Chapter 3 and Chapter 7.1). These hypotheses and indicators were then subjected to quantitative analyses across all observations collectively (Chapter 7.2), as well as along several categorical sub-samples (Chapter 7.3).

The main conclusions (cf. Chapter 7.4 for a detailed summary) of this explorative analysis are:

- First, across all measures, high levels of microeconomic market efficiency, especially in the form of liberal and flexible employment markets, have a major positive effect on regional economic resilience performance.
- Second, a positive reaction of regional economic resilience measures on deficit spending hints at the effectiveness of anti-cyclical spending and Keynesian politics in response to economic shock events[211].
- Third, and specific to RGVA-based resilience performance, are the positive effects of low regional economic concentration, a regionally large public sector, high levels of regional social development and social capital in the form of organizational membership, and of a large economically active population.
- Fourth, and specific to employment-based resilience performance, is the positive effect of labor productivity and, related to this, tentative evidence for a positive effect of increased economic concentration and specialization, as well as the very strong positive effect of a high national current account surplus and fiscal decentralization.

Of these main findings only two are potentially mutually exclusive to a certain extent. The effect of regional economic concentration seems to affect RGVA- and employment-based resilience in different ways. This could potentially lead to conflicts in any industrial policy targeting economic concentration as a resilience-enhancing capability. However, as discussed

[210] Though there persists a slight positive bias towards rural and intermediate regions, which however is not constant throughout the time series.
[211] This is further underlined by the analysis along the different periods of the time series where, for example, the crises of 2008-2009, with its more or less Keynesian response, performed regularly stronger than the measures related to the crisis period from 2000-2003 which is often associated with neo-classic responses.

in Chapter 7.3.1 and 7.4, the extent of this effect is, in turn, affected strongly by country association. Furthermore, employment resilience seems to profit mostly from increased productivity and specialization, while the economic concentration measured by HHI shows similar (though tentative) negative tendencies as it does for RGVA resilience performance.

This last observation underlines a general pattern found throughout the analysis: The circumstances of a regional economic shock and downturn are decisive factors influencing the results of the regional resilience process. This means that regional country association, the timing of the shock event, or the specific types of the shock, are decisive factors beyond the individual influence of any single observed resilience capability or its indicators.

On the first glance this last conclusion is somewhat general, though reflective of the results of other long-run studies like the work of Cellini and Torrisi, who in their 120-year analysis of Italian regional economic resilience also could not identify any significant regional specificities influencing post-shock recovery (Cellini and Torrisi 2014). However, just because there is no simple 'one size fits all' solution to regional economic resilience or even a kind of universal resilience function as in some natural sciences (Gao et al. 2016), this does not inherently undermine either the theoretical concept or its empirical investigation.

First, as the application of the proposed methodology on resilience measurement showed in the resilience patterns it revealed, the existence of regional economic resilience as an empirical phenomenon is undeniable. One might argue about the role of resilience as a concept in the greater economic discussion, as well as its value as a stand-alone subject of investigation, however, that regional economic resilience makes a difference to firms, decision makers, as well as citizens, is beyond doubt. As such, and because of the very real consequences that a low regional economic resilience performance has on populations, the phenomenon deserves further study. The method proposed in this thesis to measure regional resilience performance offers a proven blueprint for such investigations which, through its scalability and flexibility, can be applied to a diverse set of scenarios and at all levels of an economic investigation. As such it can be a tool in future investigation into more conceptually guided, detailed, and focused, i.e., country or crisis specific, explorations into the research subject.

Second, even the broad and explorative investigation on the explanatory factors of divergent regional economic resilience performance presented here already offers some implications for resilience-enhancing measures. For example, the effect of microeconomic market efficiency as a regional resilience capability suggests that a more flexible and efficient labor market (and to a lesser extent financial market) with more possibilities for regional firm level employer-

employee compromises and a generally lower level of labor organization can be a very real asset. While the social cost of such a flexible market might be undeniable high in the short run (and may have long-run political implications), the associated regional adaptability seems to be a long run asset which could be targeted by a policy focused on high regional economic resilience.

Another potential pathway towards increased regional economic resilience can potentially be found in the strong positive effect of the regional public sector share of RGVA and the tentative evidence for a positive effect of government closeness on RGVA-based resilience performance. This means an argument can be made in favor of increased regional economic resilience performance through a greater level of fiscal decentralization and political devolution. The resulting higher levels of regional decision powers on the spending of public funds, but also public employment and procurement might positively contribute to a region's resilience capacity.

Other similar suggestions for resilience-enhancing measures could be drawn from a number of results, sometimes more general – such as the seemingly universal positive effect of deficit spending – and sometimes more specific – such as the nearly exclusively urban benefit to regional employment resilience performance of a high share of regional employment in research and development. Still, and despite these examples and results, the simple fact remains that regional economic resilience performance remains a phenomenon which will need further investigation.

This work, through its in-depth investigation of the concept, the design of a new measurement methodology, and the broad explorative analysis on the origins of resilience, must be seen as only one of many steps necessary towards a better understanding and deeper conceptualization of regional resilience patterns. The aim of this work and any research it might inspire must, of course, remain fixed on building more resilient regional economies and the prosperity and wellbeing of regional populations.

9. Publication bibliography

Acemoglu, Daron; Autor, David (2010): Skills, Tasks and Technologies: Implications for Employment and Earnings. Cambridge, MA.

Acemoglu, Daron; Restrepo, Pascual (2019): Automation and New Tasks: How Technology Displaces and Reinstates Labor. In *Journal of Economic Perspectives* 33 (2), pp. 3–30. DOI: 10.1257/jep.33.2.3.

Acemoglu, Daron; Robinson, James A. (2013): Why nations fail. The origins of power, prosperity, and poverty. London: Profile Books.

Affuso, Antonio; Capello, Roberta; Fratesi, Ugo (2011): Globalization and Competitive Strategies in European Vulnerable Regions. In *Regional Studies* 45 (5), pp. 657–675. DOI: 10.1080/00343401003614290.

Afman, Emiel (2020): Income, wealth and intergenerational inequality in the Netherlands. In *Economic Brief* (53). Available online at https://ec.europa.eu/info/sites/info/files/economy-finance/eb053_en.pdf, checked on 3/10/2021.

Afonso, António; Furceri, Davide; Gomes, Pedro (2012): Sovereign credit ratings and financial markets linkages: Application to European data. In *Journal of International Money and Finance* 31 (3), pp. 606–638. DOI: 10.1016/j.jimonfin.2012.01.016.

Agell, Jonas; Lindh, Thomas; Ohlsson, Henry (1999): Growth and the public sector: A reply. In *European Journal of Political Economy* 15 (1), pp. 359–366.

Agénor, Pierre-Richard; Lim, King Yoong (2018): Unemployment, growth and welfare effects of labor market reforms. In *Journal of Macroeconomics* 58, pp. 19–38. DOI: 10.1016/j.jmacro.2018.08.009.

Aït-Sahalia, Yacine; Andritzky, Jochen; Jobst, Andreas; Nowak, Sylwia; Tamirisa, Natalia (2012): Market response to policy initiatives during the global financial crisis. In *Journal of International Economics* 87 (1), pp. 162–177. DOI: 10.1016/j.jinteco.2011.12.001.

Akçomak, İ. Semih; ter Weel, Bas (2009): Social capital, innovation and growth: Evidence from Europe. In *European Economic Review* 53 (5), pp. 544–567. DOI: 10.1016/j.euroecorev.2008.10.001.

Aligica, Paul Dragos; Tarko, Vlad (2014): Institutional Resilience and Economic Systems: Lessons from Elinor Ostrom's Work. In *Comp Econ Stud* 56 (1), pp. 52–76. DOI: 10.1057/ces.2013.29.

Anderson, Bridget (2014): Nations, migration and domestic labor: The case of the UK. In *Women's Studies International Forum* 46, pp. 5–12. DOI: 10.1016/j.wsif.2014.01.005.

Angulo, A. M.; Mur, J.; Trívez, F. J. (2018): Measuring resilience to economic shocks: an application to Spain. In *Ann Reg Sci* 60 (2), pp. 349–373. DOI: 10.1007/s00168-017-0815-8.

Arčabić, Vladimir; Škrinjarić, Tihana (2021): Sharing is caring: Spillovers and synchronization of business cycles in the European Union. In *Economic Modelling* 96, pp. 25–39. DOI: 10.1016/j.econmod.2020.12.023.

Arestis, Philip; Pelagidis, Theodore (2010): Absurd Austerity Policies in Europe. In *Challenge* 53 (6), pp. 54–61. DOI: 10.2753/0577-5132530603.

Artige, L.; Nicolini, Rosella (2006): Labor productivity in Europe: Evidence from a sample of regions. In *CREPP Working Papers* (8). Available online at https://orbi.uliege.be/bitstream/2268/110387/1/labor%20productivity%20crepp-wp200608.pdf.

Bach, Stephen (2016): Deprivileging the public sector workforce: Austerity, fragmentation and service withdrawal in Britain. In *The Economic and Labour Relations Review* 27 (1), pp. 11–28. DOI: 10.1177/1035304615627950.

Barr, N. (2006a): Pensions: Overview of the Issues. In *Oxford Review of Economic Policy* 22 (1), pp. 1–14. DOI: 10.1093/oxrep/grj001.

Barr, N. (2006b): The Economics of Pensions. In *Oxford Review of Economic Policy* 22 (1), pp. 15–39. DOI: 10.1093/oxrep/grj002.

Barro, Robert J. (1977): Long-term contracting, sticky prices, and monetary policy. In *Journal of Monetary Economics* 3 (3), pp. 305–316. DOI: 10.1016/0304-3932(77)90024-1.

Bartelsman, Eric; Scarpetta, Stefano; Schivardi, Fabiano (2005): Comparative analysis of firm demographics and survival: evidence from micro-level sources in OECD countries. In *Industrial and Corporate Change* 14 (3), pp. 365–391. DOI: 10.1093/icc/dth057.

Basile, Roberto (2009): Productivity Polarization across Regions in Europe. In *International Regional Science Review* 32 (1), pp. 92–115. DOI: 10.1177/0160017608326944.

Batchelor, Roy (2001): Confidence indexes and the probability of recession: a Markov switching model. In *Indian Economic Review* 36 (1), pp. 107–124. Available online at http://www.jstor.org/stable/29794227.

Battilossi, Stefano; Foreman-Peck, James; Kling, Gerhard (2010): Business cycles and economic policy, 1945-2007. In Stephen Broadberry, Kevin H. O'Rourke (Eds.): The Cambridge Economic History of Modern Europe: Volume 2, 1870 to the Present. 1st ed. 2 volumes. Cambridge, New York, Melbourne, Madrid, Cape Town, Singapore, Delih, Dubai, Tokyo: Cambridge University Press, pp. 360–389.

Beckert, Jens (1996): What is sociological about economic sociology? Uncertainty and the embeddedness of economic action. In *Theor Soc* 25 (6), pp. 803–840. DOI: 10.1007/BF00159817.

Ben-Gad, Michael (2004): The economic effects of immigration—a dynamic analysis. In *Journal of Economic Dynamics and Control* 28 (9), pp. 1825–1845. DOI: 10.1016/j.jedc.2003.04.008.

Bennett, Roger; Kottasz, Rita (2012): Public attitudes towards the UK banking industry following the global financial crisis. In *Intl Jnl of Bank Marketing* 30 (2), pp. 128–147. DOI: 10.1108/02652321211210877.

Bergman, Michael; Jonung, Lars (2011): Business Cycle Synchronization in Europe: Evidence from the Scandinavian Currency Union. In *The Manchester School* 79 (2), pp. 268–292. DOI: 10.1111/j.1467-9957.2010.02237.x.

Berkhout, Frans; van den Hurk, Bart; Bessembinder, Janette; Boer, Joop de; Bregman, Bram; van Drunen, Michiel (2013): Framing climate uncertainty: socio-economic and climate scenarios in vulnerability and adaptation assessments. In *Reg Environ Change* 39 (6), p. 83. DOI: 10.1007/s10113-013-0519-2.

Bianchi, Nicola; Giorcelli, Michela; Martino, Enrica M. (2021): The Effects of Fiscal Decentralization on Publicly Provided Services and Labor Markets. Available online at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3407825.

Bleaney, Michael F.; Binks, Martin R.; Greenaway, David; Reed, Geoffrey V.; Whynes, David K. (1992): What does a University add to its local economy? In *Applied Economics* 24 (3), pp. 305–311. DOI: 10.1080/00036849200000143.

Boeri, Tito; Jimeno, Juan F. (2016): Learning from the Great Divergence in unemployment in Europe during the crisis. In *Labour Economics* 41, pp. 32–46. DOI: 10.1016/j.labeco.2016.05.022.

Bonam, Dennis; Lukkzen, Jasper (2019): Fiscal and Monetary Policy Coordination, Macroeconomic Stability, and Sovereign Risk Premia. In *Journal of Money, Credit and Banking* 51 (2-3), pp. 581–616. DOI: 10.1111/jmcb.12577.

Bosch, Gerhard (2013): Public sector adjustments in Germany: From cooperative to competitive federalism. In Daniel Vaughan-Whitehead (Ed.): Public sector shock. The impact of policy retrenchment in Europe. Cheltenham UK, Northampton MA USA, Geneva Switzerland: Edward Elgar; International Labour Office, pp. 214–258.

Boschma, Ron (2015): Towards an Evolutionary Perspective on Regional Resilience. In *Regional Studies* 49 (5), pp. 733–751. DOI: 10.1080/00343404.2014.959481.

Brakman, S.; Garretsen, H.; van Marrewijk, C. (2015): Regional resilience across Europe: on urbanisation and the initial impact of the Great Recession. In *Cambridge Journal of Regions, Economy and Society* 8 (2), pp. 225–240. DOI: 10.1093/cjres/rsv005.

Bratti, Massimiliano; Conti, Chiara (2018): The effect of immigration on innovation in Italy. In *Regional Studies* 52 (7), pp. 934–947. DOI: 10.1080/00343404.2017.1360483.

Briguglio, Lino; Cordina, Gordon; Farrugia, Nadia; Vella, Stephanie (2009): Economic Vulnerability and Resilience: Concepts and Measurements. In *Oxford Development Studies* 37 (3), pp. 229–247. DOI: 10.1080/13600810903089893.

Brinkmann, Emile J.; Horvitz, Paul M. (1995): Risk-Based Capital Standards and the Credit Crunch. In *Journal of Money, Credit and Banking* 27 (3), pp. 848–863.

Bristow, G. (2010): Resilient regions: re-'place'ing regional competitiveness. In *Cambridge Journal of Regions, Economy and Society* 3 (1), pp. 153–167. DOI: 10.1093/cjres/rsp030.

Bristow, G.; Healy, A. (2015): Crisis response, choice and resilience: insights from complexity thinking. In *Cambridge Journal of Regions, Economy and Society* 8 (2), pp. 241–256. DOI: 10.1093/cjres/rsv002.

Brooks, Nick; Neil Adger, W.; Mick Kelly, P. (2005): The determinants of vulnerability and adaptive capacity at the national level and the implications for adaptation. In *Global Environmental Change* 15 (2), pp. 151–163. DOI: 10.1016/j.gloenvcha.2004.12.006.

Brown, Lathania; Greenbaum, Robert T. (2017): The role of industrial diversity in economic resilience: An empirical examination across 35 years. In *Urban Studies* 54 (6), pp. 1347–1366. DOI: 10.1177/0042098015624870.

Bruneau, Michel; Chang, Stephanie E.; Eguchi, Ronald T.; Lee, George C.; O'Rourke, Thomas D.; Reinhorn, Andrei M. et al. (2003): A Framework to Quantitatively Assess and Enhance the Seismic Resilience of Communities. In *Earthquake Spectra* 19 (4), pp. 733–752. DOI: 10.1193/1.1623497.

Bryden, John; Bollman, Ray (2000): Rural employment in industrialised countries. In *Agricultural Economics* 22 (2), pp. 185–197. DOI: 10.1111/j.1574-0862.2000.tb00017.x.

Büchel, Felix; van Ham, Maarten (2003): Overeducation, regional labor markets, and spatial flexibility. In *Journal of Urban Economics* 53 (3), pp. 482–493. DOI: 10.1016/S0094-1190(03)00008-1.

Burda, Michael; Hunt, Jennifer (2011): What Explains the German Labor Market Miracle in the Great Recession? Cambridge, MA.

Burda, Michael C.; Seele, Stefanie (2016): No role for the Hartz reforms? Demand and supply factors in the German labor market, 1993-2014. In *Discussion Paper* (10).

Buscher, Herbert S.; Gabrisch, Hubert (2009): Is the European Monetary Union an Endogenous Currency Area? The Example of the Labor Markets. IWH Discussion Papers. Halle (Saale) (7/2009). Available online at http://hdl.handle.net/10419/29977.

Caballero, Ricardo J.; Cowan, Kevin N.; Engel, Eduardo M.R.A.; Micco, Alejandro (2013): Effective labor regulation and microeconomic flexibility. In *Journal of Development Economics* 101, pp. 92–104. DOI: 10.1016/j.jdeveco.2012.08.009.

Capello, Roberta; Caragliu, Andrea; Fratesi, Ugo (2015): Spatial heterogeneity in the costs of the economic crisis in Europe: are cities sources of regional resilience? In *joeg* 15 (5), pp. 951–972. DOI: 10.1093/jeg/lbu053.

Capello, Roberta; Fratesi, Ugo; Resmini, Laura (2011): Globalization and Regional Growth in Europe. Berlin, Heidelberg: Springer Berlin Heidelberg.

Carl Folke; Stephen R. Carpenter; Brian Walker; Marten Scheffer; Terry Chapin; Johan Rockström (2010): Resilience Thinking: Integrating Resilience, Adaptability and Transformability. In *Ecology and Society* 15 (4).

Carniti, Elena; Cerniglia, Floriana; Longaretti, Riccarda; Michelangeli, Alessandra (2019): Decentralization and economic growth in Europe: for whom the bell tolls. In *Regional Studies* 53 (6), pp. 775–789. DOI: 10.1080/00343404.2018.1494382.

Cellini, Roberto; Torrisi, Gianpiero (2014): Regional Resilience in Italy: A Very Long-Run Analysis. In *Regional Studies* 48 (11), pp. 1779–1796. DOI: 10.1080/00343404.2013.861058.

Chauvet, Marcelle; Potter, Simon (2001): Predicting A Recession: Evidence From The Yield Curve In The Presence Of Structural Breaks. In *SSRN Journal*. DOI: 10.2139/ssrn.269494.

Chay Brooks (2017): Governance, civic leadership and resilience. In : Edward Elgar Publishing (Chapters), pp. 125–141. Available online at https://ideas.repec.org/h/elg/eechap/17125_9.html.

Christopherson, S.; Michie, J.; Tyler, P. (2010): Regional resilience: theoretical and empirical perspectives. In *Cambridge Journal of Regions, Economy and Society* 3 (1), pp. 3–10. DOI: 10.1093/cjres/rsq004.

Clark, J.; Huang, H.-I; Walsh, J. P. (2010): A typology of 'innovation districts': what it means for regional resilience. In *Cambridge Journal of Regions, Economy and Society* 3 (1), pp. 121–137. DOI: 10.1093/cjres/rsp034.

Classens, Stijn; Dell'Aricca, Giovanni; Igan, Deniz; Laeven, Luc (2010): Lessons and Policy Implications from the Global Financial Crisis. In *IMF Working Paper* 10 (44).

CnES (2010): Factfile - Economy. Comhairle nan Eilean Siar/Council of Eilean Siar. Internet Archive: Wayback Machine. Available online at https://web.archive.org/web/20100323071423/http://www.cne-siar.gov.uk/factfile/economy/index.asp, checked on 2/18/2021.

Constant, Amelie (2014): Do migrants take the jobs of native workers? In *IZA World of Labor*. DOI: 10.15185/izawol.10.

Corsetti, Giancarlo; Kuester, Keith; Meier, André; Müller, Gernot J. (2013): Sovereign Risk, Fiscal Policy, and Macroeconomic Stability. In *The Economic Journal* 123 (2), pp. 99–132.

Cortes, Guido Matias (2012): Where Have the Routine Workers Gone? A Study of Polarization Using Panel Data. In *Economics Discussion Paper Series* (1224).

Cortes, Guido Matias; Jaimovich, Nir; Nekarda, Christopher; Siu, Henry (2014): The Micro and Macro of Disappearing Routine Jobs: A Flows Approach. Cambridge, MA.

Crafts, Norris (2005): The world economy in the 1990s: a long-run perspective. In Paul W. Rhode, Gianni Toniolo (Eds.): The Global Economy in the 1990s: A Long-Run Perspective. 1st ed. Cambridge: Cambridge University Press, pp. 21–42.

Crescenzi, Riccardo; Luca, Davide; Milio, Simona (2016): The geography of the economic crisis in Europe: national macroeconomic conditions, regional structural factors and short-term economic performance. In *CAMRES* 9 (1), pp. 13–32. DOI: 10.1093/cjres/rsv031.

Cutter, Susan L.; Barnes, Lindsey; Berry, Melissa; Burton, Christopher; Evans, Elijah; Tate, Eric; Webb, Jennifer (2008): A place-based model for understanding community resilience to natural disasters. In *Global Environmental Change* 18 (4), pp. 598–606. DOI: 10.1016/j.gloenvcha.2008.07.013.

Dakhli, Mourad; Clercq, Dirk de (2004): Human capital, social capital, and innovation: a multi-country study. In *Entrepreneurship & Regional Development* 16 (2), pp. 107–128. DOI: 10.1080/08985620410001677835.

Darvas, Zsolt; Szapary, Gyorgy (2004): Business Cycle Synchronization in the Enlarged EU: Comovements in the New and Old Members. In *Magyar Nemzeti Bank Working Paper* (1).

Davies, S. (2011): Regional resilience in the 2008-2010 downturn: comparative evidence from European countries. In *Cambridge Journal of Regions, Economy and Society* 4 (3), pp. 369–382. DOI: 10.1093/cjres/rsr019.

Degiannakis, Stavros; Duffy, David; Filis, George (2014): Business Cycle Synchronization in EU: A Time-Varying Approach. In *Scott J Polit Econ* 61 (4), pp. 348–370. DOI: 10.1111/sjpe.12049.

Deleidi, Matteo; Paternesi Meloni, Walter; Salvati, Luigi; Tosi, Francesca (2021): Output, investment and productivity: the Italian North–South regional divide from a Kaldor–Verdoorn approach. In *Regional Studies*, pp. 1–12. DOI: 10.1080/00343404.2021.1896694.

Di Martino, Paolo; Felice, Emanuele; Vasta, Michelangelo (2020): A tale of two Italies: 'access-orders' and the Italian regional divide. In *Scandinavian Economic History Review* 68 (1), pp. 1–22. DOI: 10.1080/03585522.2019.1631882.

Di Pietro, Filippo; Lecca, Patrizio; Salotti, Simone (2020): Regional economic resilience in the European Union: a numerical general equilibrium analysis. In *Spatial Economic Analysis*, pp. 1–26. DOI: 10.1080/17421772.2020.1846768.

Dillon, Brian; Brummund, Peter; Mwabu, Germano (2019): Asymmetric non-separation and rural labor markets. In *Journal of Development Economics* 139, pp. 78–96. DOI: 10.1016/j.jdeveco.2018.12.008.

Dixon, Sylvia (2003): Implications of population ageing for the labour market. In *Labour Market trends* 111 (2), pp. 67–76. DOI: 10.1007/SpringerReference_25233.

Dominicis, Laura de; Arbia, Giuseppe; Groot, Henri L.F. de (2013): Concentration of Manufacturing and Service Sector Activities in Italy: Accounting for Spatial Dependence and Firm Size Distribution. In *Regional Studies* 47 (3), pp. 405–418. DOI: 10.1080/00343404.2011.579593.

Doran, Justin; Fingleton, Bernard (2016): Employment Resilience in Europe and the 2008 Economic Crisis: Insights from Micro-Level Data. In *Regional Studies* 50 (4), pp. 644–656. DOI: 10.1080/00343404.2015.1088642.

Dubé, Jean; Polèse, Mario (2016): Resilience Revisited: Assessing the Impact of the 2007–09 Recession on 83 Canadian Regions with Accompanying Thoughts on an Elusive Concept. In *Regional Studies* 50 (4), pp. 615–628. DOI: 10.1080/00343404.2015.1020291.

Duval, Romain; Elmeskov, Jörge; Vogel, Lukas (2007): Strucural Policies and Economic REsilience to Shocks. In *OECD Working Paper* (567).

ECB (2014): Monthly Bulletin April 2014. European Central Bank. Frankfurt. Available online at https://www.ecb.europa.eu/pub/pdf/mobu/mb201404en.pdf.

Escribano, Álvaro; Stucchi, Rodolfo (2014): Does recession drive convergence in firms' productivity? Evidence from Spanish manufacturing firms. In *J Prod Anal* 41 (3), pp. 339–349. DOI: 10.1007/s11123-013-0368-5.

ESM (2021): Financial Assistance. European Stability Mechanism. Available online at https://www.esm.europa.eu/financial-assistance, checked on 4/1/2021.

ESPON (2021a): Intramural R&D expenditure. (GERD). Id: 332. European Observation Network for Territorial Development and Cohesion. Brussels. Available online at https://database.espon.eu/maindata/#/, checked on 3/14/2021.

ESPON (2021b): Population (total) - age group 0-14. (pop_t_0-14). Id: 154. European Observation Network for Territorial Development and Cohesion. Brussels. Available online at https://database.espon.eu/maindata/#/, checked on 3/14/2021.

ESPON (2021c): Population (total) - age group 65+. (pop_t_65+). Id: 156. European Observation Network for Territorial Development and Cohesion. Brussels. Available online at https://database.espon.eu/maindata/#/, checked on 3/14/2021.

ESPON (2021d): Potential multimodal accessibility. (potaccmu). Id: 1541. European Observation Network for Territorial Development and Cohesion. Brussels. Available online at https://database.espon.eu/maindata/#/, checked on 3/14/2021.

ESPON (2021e): R&D personnel and researchers (TOTAL). Id: 335. European Observation Network for Territorial Development and Cohesion. Brussels. Available online at https://database.espon.eu/maindata/#/, checked on 3/14/2021.

European Cluster Observatory (2015): Cluster Mapping 2015. European Commission. Brussels. Available online at https://irp-cdn.multiscreensite.com/bcb8bbe3/files/uploaded/ecodataset20150420.csv.zip, checked on 3/14/2021.

European Commision (2017): CPA 2008 structure only - EN.

European Commission (2001): The EU economy 2001 review. Investing in the future. Directorate General for Economic and Financial Affairs. (European Economy, 73).

European Commission (2003): Regulation (EC) No 1059/2003 of the European Parliament and of the Council of 26 May 2003 on the establishment of a common classification of territorial units for statistics (NUTS), NUTS, revised 2/18/2018. Source: EUR-Lex. In : Commission Regulation. Available online at https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:02003R1059-20180118&from=EN.

European Commission (2006): Regulation (EC) No 1893/2006 of the European Parliament and of the Council of 20 December 2006 establishing the statistical classification of economic activities NACE Revision 2 and amending Council Regulation (EEC) No 3037/90 as well as certain EC Regulations on specific statistical domains Text with EEA relevance. In *Official Journal of the European Union*.

European Commission (2019). Agri-food trade in 2018. In *Monitoring Agri-trade Policy* 1.

European Commission (2021a): Monitoring EU Agri-Food Trade: Developments January-October 2020. In *EU Agricultural Economic briefs* October.

European Commission (2021b): Annual Regional Database of the European Commission's Directorate General for Regional and Urban Policy (ARDECO). European Commission. Brussels. Available online at https://knowledge4policy.ec.europa.eu/territorial/ardeco-online_en, updated on 2/25/2021, checked on 3/14/2021.

European Commission (2021c): ARDECO: Active Population (Labour Force Survey). (RNLCN). European Commission. Brussels. Available online at https://knowledge4policy.ec.europa.eu/sites/default/files/rnlcn_-_active_population_civilian_labour_force.ods, updated on 2/25/2021, checked on 3/14/2021.

European Commission (2021d): ARDECO: Compensation of Employees (at current prices). (RUWCD). European Commission. Brussels. Available online at

https://knowledge4policy.ec.europa.eu/sites/default/files/ruwcz_-_compensation_of_employees_by_sector.ods, updated on 2/25/2021, checked on 3/14/2021.

European Commission (2021e): ARDECO: Employment (Regional Accounts). (RNETZ). European Commission. Brussels. Available online at https://knowledge4policy.ec.europa.eu/sites/default/files/rnetz_-_sectoral_employment.ods, updated on 2/25/2021, checked on 3/14/2021.

European Commission (2021f): ARDECO: GDP (at current prices). (RUVGD). European Commission. Brussels. Available online at https://knowledge4policy.ec.europa.eu/sites/default/files/ruwcz_-_compensation_of_employees_by_sector.ods, updated on 2/25/2021, checked on 3/14/2021.

European Commission (2021g): ARDECO: GDP per head of population. (RHVGDP). European Commission. Brussels. Available online at https://knowledge4policy.ec.europa.eu/sites/default/files/rhvgdp_-_gdp_per_head_of_population.ods, updated on 2/25/2021, checked on 3/14/2021.

European Commission (2021h): ARDECO: Gross Fixed Capital Formation (at constant prices). (ROIGT). European Commission. Brussels. Available online at https://knowledge4policy.ec.europa.eu/sites/default/files/roigt_-_gfcf_at_constant_prices_2015.ods, updated on 2/25/2021, checked on 3/14/2021.

European Commission (2021i): ARDECO: GVA at constant prices. (ROVGZ). European Commission. Brussels. Available online at https://knowledge4policy.ec.europa.eu/sites/default/files/rovgz_-_sectoral_gva_at_constant_prices.ods, updated on 2/25/2021, checked on 3/14/2021.

European Commission (2021j): ARDECO: Hours Worked. (RNLHZ). European Commission. Brussels. Available online at https://knowledge4policy.ec.europa.eu/sites/default/files/rnlhz_-_hours_worked_by_sector.ods, updated on 2/25/2021, checked on 3/14/2021.

European Commission (2021k): ARDECO: Total Population (Demographic Statistics). (RNPTN). European Commission. Brussels. Available online at https://knowledge4policy.ec.europa.eu/sites/default/files/RNPTN.ods, updated on 2/25/2021, checked on 3/14/2021.

Eurostat (2019): List of Urban-rural regions (NUTS-2016). Eurostat. Brussels. Available online at https://ec.europa.eu/eurostat/documents/35209/35256/Urban-rural-NUTS-2016.xlsx, updated on 1/17/2019, checked on 2/28/2021.

Eurostat (2021a): Deaths (total) by NUTS 3 region. demo_r_deaths. Eurostat. Brussels. Available online at https://ec.europa.eu/eurostat/estat-navtree-portlet-prod/BulkDownloadListing?file=data/demo_r_deaths.tsv.gz, checked on 3/13/2021.

Eurostat (2021b): History of NUTS. Eurostat. Available online at https://ec.europa.eu/eurostat/web/nuts/history, checked on 2/17/2021.

Eurostat (2021c): Live births (total) by NUTS 3 region. demo_r_births. Eurostat. Brussels. Available online at https://ec.europa.eu/eurostat/estat-navtree-portlet-prod/BulkDownloadListing?file=data/demo_r_births.tsv.gz, checked on 3/13/2021.

Eurostat (2021d): Population on 1 January by age and sex. demo_pjan. Eurostat. Brussels. Available online at https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=demo_pjan&lang=en, checked on 3/20/2021.

Eurostat (2021e): SBS data by NUTS 2 regions and NACE Rev. 2 (from 2008 onwards). sbs_r_nuts06_r2. Eurostat. Brussels. Available online at https://ec.europa.eu/eurostat/estat-navtree-portlet-prod/BulkDownloadListing?file=data/sbs_r_nuts06_r2.tsv.gz, checked on 3/13/2021.

Eurostat (2021f): Urban-Rural Typology. Eurostat. Brussels. Available online at https://ec.europa.eu/eurostat/web/rural-development/methodology, checked on 2/28/2021.

Evenhuis, Emil (2017): Institutional change in cities and regions: a path dependency approach. In *Cambridge Journal of Regions, Economy and Society* 10 (3), pp. 509–526. DOI: 10.1093/cjres/rsx014.

Evenhuis, Emil; Dawley, Stuart (2017): Evolutionary perspectives on economic resilience in regional development. In : Creating Resilient Economies: Entrepreneurship, Growth and Development in Uncertain Times, pp. 192–205.

Faggian, Alessandra; Gemmiti, Roberta; Jaquet, Timothy; Santini, Isabella (2018): Regional economic resilience: the experience of the Italian local labor systems. In *Ann Reg Sci* 60 (2), pp. 393–410. DOI: 10.1007/s00168-017-0822-9.

Faggio, Giulia; Silva, Olmo (2014): Self-employment and entrepreneurship in urban and rural labour markets. In *Journal of Urban Economics* 84, pp. 67–85. DOI: 10.1016/j.jue.2014.09.001.

Fahrmeir, Ludwig (2004): Statistik. Der Weg zur Datenanalyse. 5., verb. Aufl. Berlin: Springer (Springer-Lehrbuch).

Feldman, Daniel C.; Ng, Thomas W. H. (2007): Careers: Mobility, Embeddedness, and Success. In *Journal of Management* 33 (3), pp. 350–377. DOI: 10.1177/0149206307300815.

Fernald, John (2014): Productivity and Potential Output Before, During, and After the Great Recession. Cambridge, MA.

Fingleton, Bernard; Garretsen, Harry; Martin, Ron (2012): Recessionary Shocks and Regional Employment: Evidence on the Resilience of U.K. Regions. In *Journal of Regional Science* 52 (1), pp. 109–133. DOI: 10.1111/j.1467-9787.2011.00755.x.

Fingleton, Bernard; Garretsen, Harry; Martin, Ron (2015): Shocking aspects of monetary union: the vulnerability of regions in Euroland. In *J Econ Geogr* 15 (5), pp. 907–934. DOI: 10.1093/jeg/lbu055.

Fletcher, David; Sarkar, Mustafa (2013): Psychological Resilience. In *European Psychologist* 18 (1), pp. 12–23. DOI: 10.1027/1016-9040/a000124.

Fochesato, Mattia (2018): Origins of Europe's north-south divide: Population changes, real wages and the 'little divergence' in early modern Europe. In *Explorations in Economic History* 70, pp. 91–131. DOI: 10.1016/j.eeh.2018.07.002.

Folke, Carl (2006): Resilience: The emergence of a perspective for social–ecological systems analyses. In *Global Environmental Change* 16 (3), pp. 253–267. DOI: 10.1016/j.gloenvcha.2006.04.002.

Folke, Carl; Carpenter, Steve; Elmqvist, Thomas; Gunderson, Lance; Holling, C. S.; Walker, Brian (2002): Resilience and Sustainable Development: Building Adaptive Capacity in a World of Transformations. In *AMBIO: A Journal of the Human Environment* 31 (5), pp. 437–440. DOI: 10.1579/0044-7447-31.5.437.

Fölster, Stefan; Henrekson, Magnus (1999): Growth and the public sector: a critique of the critics. In *European Journal of Political Economy* 15 (2), pp. 337–358. DOI: 10.1016/S0176-2680(99)00010-5.

Foote, Christopher; Ryan, Richard (2015): Labor Market Polarization Over the Business Cycle. Cambridge, MA.

Formosa, Ingrid (2008): Measuring Market Efficiency: A Comparative Study. In *Bank of Valletta Review* (38), pp. 8–28.

Foster, Kathryn A. (2007): A Case Study Approachto Understanding Regional Resilience. In *IURD Working Paper Series* (8). Available online at https://escholarship.org/uc/item/8tt02163.

Foster, Kathryn A. (2012): In Search of Regional Resilience. In Margaret Weir, Nancy Pindus, Howard Wial, Harold Wolman, Howard Wial, Harold Wolman et al. (Eds.): Urban and Regional Policy and its Effets // Urban and regional policy and its effects. Volume 4: Building resilient regions, vol. 4. Washington, D.C: Brookings Institution Press (Building Resilient Regions, 4), pp. 24–59.

Fratesi, Ugo; Perucca, Giovanni (2018): Territorial capital and the resilience of European regions. In *Ann Reg Sci* 60 (2), pp. 241–264. DOI: 10.1007/s00168-017-0828-3.

Fratesi, Ugo; Perucca, Giovanni (2019): EU regional development policy and territorial capital: A systemic approach. In *Pap Reg Sci* 98 (1), pp. 265–281. DOI: 10.1111/pirs.12360.

Fratesi, Ugo; Rodríguez-Pose, Andrés (2016): The crisis and regional employment in Europe: what role for sheltered economies? In *CAMRES* 9 (1), pp. 33–57. DOI: 10.1093/cjres/rsv032.

Freedom House (2020): Freedom in the World 2020. A Leaderless Struggle for Democracy. Freedom House. Washington, D.C. Available online at https://freedomhouse.org/sites/default/files/2020-02/FIW_2020_REPORT_BOOKLET_Final.pdf.

French, S.; Leyshon, A.; Thrift, N. (2009): A very geographical crisis: the making and breaking of the 2007-2008 financial crisis. In *Cambridge Journal of Regions, Economy and Society* 2 (2), pp. 287–302. DOI: 10.1093/cjres/rsp013.

Gao, Jianxi; Barzel, Baruch; Barabási, Albert-László (2016): Universal resilience patterns in complex networks. In *Nature* 530, pp. 307–310.

Garavan, Thomas N.; Morley, Michael; Gunnigle, Patrick; Collins, Eammon (2001): Human capital accumulation: the role of human resource development. In *Jnl Euro Industrial Training* 25 (2/3/4), pp. 48–68. DOI: 10.1108/EUM0000000005437.

Gardner, Stephen (2009): EU stimulus packages. Estimating the size of the European stimulus packages for 2009: an update. In *Bruegel Policy* (2).

Garmestani, Ahjond S.; Allem Craig R.; Mittelstaedt, John D.; Stow, Craig A.; Ward, William A. (2006): Firm size diversity, functional richness, and resilience. In *Envir. Dev. Econ.* 11 (4), pp. 533–551. DOI: 10.1017/S1355770X06003081.

Gautié, Jérôme (2013): France: The public service under pressure. In Daniel Vaughan-Whitehead (Ed.): Public sector shock. The impact of policy retrenchment in Europe. Cheltenham UK, Northampton MA USA, Geneva Switzerland: Edward Elgar; International Labour Office, pp. 174–213.

Gehrke, Britta; Lechthaler, Wolfgang; Merkl, Christian (2019): The German labor market during the Great Recession: Shocks and institutions. In *Economic Modelling* 78, pp. 192–208. DOI: 10.1016/j.econmod.2018.09.022.

GESIS (2016): European Social Survey. Round 1-8. GESIS - Leibniz Institute for the Social Sciences. 2016. Available online at https://www.europeansocialsurvey.org/data/round-index.html, updated on 2016, checked on 3/16/2021.

Giannakis, Elias; Bruggeman, Adriana (2017a): Determinants of regional resilience to economic crisis: a European perspective. In *European Planning Studies* 25 (8), pp. 1394–1415. DOI: 10.1080/09654313.2017.1319464.

Giannakis, Elias; Bruggeman, Adriana (2017b): Economic crisis and regional resilience: Evidence from Greece. In *Papers in Regional Science* 96 (3), pp. 451–476. DOI: 10.1111/pirs.12206.

Giannakis, Elias; Bruggeman, Adriana (2020): Regional disparities in economic resilience in the European Union across the urban–rural divide. In *Regional Studies* 54 (9), pp. 1200–1213. DOI: 10.1080/00343404.2019.1698720.

Girardet, Herbert (2014): The Metabolism of Cities. In Stephen M. Wheeler, Timothy Beatley (Eds.): Sustainable Urban Development Reader. 3rd ed. Hoboken: Taylor and Francis (Routledge Urban Reader Series), pp. 319–331.

Global Data Lab (2020): Subnational Human Development Index. Radboud University. Nijmegen. Available online at https://globaldatalab.org/shdi/, checked on 3/10/2021.

Gonzalez, Libertad; Ortega, Francesc (2013): IMMIGRATION AND HOUSING BOOMS: EVIDENCE FROM SPAIN*. In *Journal of Regional Science* 53 (1), pp. 37–59. DOI: 10.1111/jors.12010.

González, Sara (2011): The North/South divide in Italy and England: Discursive construction of regional inequality. In *European Urban and Regional Studies* 18 (1), pp. 62–76. DOI: 10.1177/0969776410369044.

Grimes, Arthur (2014): Infrastructure and Regional Economic Growth. In Manfred M. Fischer, Peter Nijkamp (Eds.): Handbook of Regional Science. Berlin, Heidelberg: Springer Berlin Heidelberg, pp. 331–352.

Grimshaw, Damian (2013): Austerity, privatization and levelling down: Public sector reforms in the United Kingdom. In Daniel Vaughan-Whitehead (Ed.): Public sector shock. The impact of policy retrenchment in Europe. Cheltenham UK, Northampton MA USA, Geneva Switzerland: Edward Elgar; International Labour Office, pp. 576–626.

Grimshaw, Damian; Johnson, Mat; Keizer, Arjan; Rubery, Jill (2017): The governance of employment protection in the UK: how the state and employers are undermining decent standards. In Agnieszka Piasna, Martin Myant (Eds.): Myths of employment deregulation. How it neither creates jobs nor reduces labour market segmentation. Brussels: ETUI, pp. 225–246.

Gunton, Thomas (2003): Natural Resources and Regional Development: An Assessment of Dependency and Comparative Advantage Paradigms. In *Economic Geography* 79 (1), pp. 67–94. DOI: 10.1111/j.1944-8287.2003.tb00202.x.

Gylfason, Thorvaldur; Holmström, Bengt; Korkman, Sixten; Söderström, Hans Tson; Vihriälä, Vesa (2010): Nordics in global crisis. Vulnerability and resilience. Helsinki: ETLA (ETLA B, 242).

Hall, John B.; Ludwig, Udo (2007): Explaining Persistent Unemployment in Eastern Germany. In *Journal of Post Keynesian Economics* 29 (4), pp. 601–619.

Hallegatte, Stephane (2014): Economic Resilience. Definition and Measurement. In *World Bank Policy Research Working Papers* (6852).

Handler, Heinz; Koebel, Bertrand; Reiss, J. Philipp; Schratzenstaller, Margit (2006): The Size and Performance of Public Sector Activities in Europe: An Overview*. In *Acta Oeconomica* 56 (4), pp. 399–422. DOI: 10.1556/aoecon.56.2006.4.2.

Hane-Weijman, Emelie; Eriksson, Rikard H.; Henning, Martin (2018): Returning to work: regional determinants of re-employment after major redundancies. In *Regional Studies* 52 (6), pp. 768–780. DOI: 10.1080/00343404.2017.1395006.

Harwell, Michael R.; Rubinstein, Elaine N.; Hayes, William S.; Olds, Corley C. (1992): Summarizing Monte Carlo Results in Methodological Research: The One- and Two-Factor Fixed Effects ANOVA Cases. In *Journal of Educational Statistics* 17 (4), pp. 315–339. DOI: 10.3102/10769986017004315.

Hausmann, Ricardo; Pritchett, Lant; Rodrik, Dani (2005): Growth Accelerations. In *Journal of Economic Growth* 10 (4), pp. 303–329. DOI: 10.1007/s10887-005-4712-0.

Heiland, Frank (2004): Trends in East-West German Migration from 1989 to 2002. In *DemRes* 11, pp. 173–194. DOI: 10.4054/DemRes.2004.11.7.

Helliwell, John (2001): Social Capital, the Economy and Well-beeing. In Andrew Sharpe, Keith Banting (Eds.): The Review of Economic Performance and Social Progress 2001: The Longest Decade: Canada in the 1990s: Centre for the Study of Living Standards; The Institutute for Research on Public Policy (The Review of Economic Performance and Social Progress, 1).

Hill, Edward; Travis St. Clair; Howard Wial; Harold Wolman; Patricia Atkins; Pamela Blumenthal et al. (2012): Economic Shocks and Regional Economic Resilience. In Margaret Weir, Nancy Pindus, Howard Wial, Harold Wolman, Howard Wial, Harold Wolman et al. (Eds.): Urban and Regional Policy and its Effets // Urban and regional policy and its effects. Volume 4: Building resilient regions. Washington, D.C: Brookings Institution Press (Building Resilient Regions, 4), pp. 193–274.

Hill, Edward; Wial, Howard; and Wolmanm Harold (2008): Exploring Regional Economic Resilience. In *IURD Working Paper Series* (04). Available online at http://escholarship.org/uc/item/7fq4n2cv.

Hirschman, Albert O. (1964): The Paternity of an Index. In *The American Economic Review* 54 (5), pp. 761–762.

Hofmann, Anett; Wan, Guanghua (2013): Determinants of Urbanization. In *SSRN Journal*. DOI: 10.2139/ssrn.2295736.

Holl, Adelheid (2018): Local employment growth patterns and the Great Recession: The case of Spain. In *J Regional Sci* 58 (4), pp. 837–863. DOI: 10.1111/jors.12392.

Holling, C. S. (1973): Resilience and Stability of Ecological Systems. In *Annual Review of Ecology and Systematics* 4, pp. 1–23.

Howard, Greg; Weinstein, Russel; Yang, Yuhao (2021): Do Universities Improve Local Economic Resilience? In *IZA Discussion Paper Series* (14422).

Howarth, David; Rommerskirchen, Charlotte (2016): Inflation aversion in the European Union: exploring the myth of a North–South divide. In *Socioecon Rev*, mww008. DOI: 10.1093/ser/mww008.

Ihle, Dorothee; Siebert-Meyerhoff, Andrea (2017): The Older, The Richer. A decomposition of Wealth Inequality by Age Subgroups. In *CAWM Discussion Paper* (97). Available online at https://www.econstor.eu/bitstream/10419/170712/1/1001286758.pdf.

IMF (2020a): Current account balance, percent of GDP. Percent of GDP. International Monetary Fund. Available online at https://www.imf.org/external/datamapper/BCA_NGDPD@WEO/DEU/CHN, checked on 3/14/2021.

IMF (2020b): General government net lending/borrowing. Percent of GDP. International Monetary Fund. Available online at https://www.imf.org/external/datamapper/GGXCNL_NGDP@WEO/OEMDC/AD, checked on 3/14/2021.

Innis, Harold Adams (2001): The fur trade in Canada. An introduction to Canadian economic history. Reprint; Reprint. of the 1956 rev. ed. with a new introductory essay. Toronto: Univ. of Toronto Press.

Ivanyna, Maksym; Shah, Anwar (2014): How Close Is Your Government to Its People? Worldwide Indicators on Localization and Decentralization. In *Economics E-Journal* 8 (2014-3), p. 1. DOI: 10.5018/economics-ejournal.ja.2014-3.

Iyer, Rajkamal; Peydró, José-Luis; da-Rocha-Lopes, Samuel; Schoar, Antoinette (2014): Interbank Liquidity Crunch and the Firm Credit Crunch: Evidence from the 2007–2009 Crisis. In *Rev. Financ. Stud.* 27 (1), pp. 347–372. DOI: 10.1093/rfs/hht056.

Jacoby, Wade (2020): Surplus Germany. In *German Politics* 29 (3), pp. 498–521. DOI: 10.1080/09644008.2019.1707188.

Jaimovich, Nir; Saporta-Eksten, Itay; Siu, Henry; Yedid-Levi, Yaniv (2020): The Macroeconomics of Automation: Data, Theory, and Policy Analysis. Cambridge, MA.

Jaimovich, Nir; Siu, Henry E. (2020): Job Polarization and Jobless Recoveries. In *The Review of Economics and Statistics* 102 (1), pp. 129–147. DOI: 10.1162/rest_a_00875.

Jeffery, Charlie; Pamphilis, Niccole M.; Rowe, Carolyn; Turner, Ed (2014): Regional policy variation in Germany: the diversity of living conditions in a 'unitary federal state'. In *Journal of European Public Policy* 21 (9), pp. 1350–1366. DOI: 10.1080/13501763.2014.923022.

Johnson, George E. (1980): The Labor Market Effects of Immigration. In *Industrial and Labor Relations Review* 33 (3), pp. 331–341.

Kakderi, Christina; Tasopoulou, Anastasia (2017): Regional economic resilience: the role of national and regional policies. In *European Planning Studies* 25 (8), pp. 1435–1453. DOI: 10.1080/09654313.2017.1322041.

Karadağ Ataş, Özge; Aktaş Altunay, Serpil (2011): Optimal Sample Size Determination for the ANOVA Designs. In *International Journal of Applied Mathematics and Statistics* 25, pp. 127–134.

Katz, J. Sylvan (2006): Indicators for complex innovation systems. In *Research Policy* 35 (7), pp. 893–909. DOI: 10.1016/j.respol.2006.03.007.

Kebir, Lei¨la; Crevoisier, Olivier (2008): Cultural Resources and Regional Development: The Case of the Cultural Legacy of Watchmaking. In *European Planning Studies* 16 (9), pp. 1189–1205. DOI: 10.1080/09654310802401607.

Keller, Berndt (2014): The continuation of early austerity measures: the special case of Germany. In *Transfer: European Review of Labour and Research* 20 (3), pp. 387–402. DOI: 10.1177/1024258914538192.

Ketels, Christian; Protsiv, Sergiy (2016): European Cluster Panorama 2016. European Commission. Brussels. Available online at https://irp-cdn.multiscreensite.com/bcb8bbe3/files/uploaded/doc_1820.pdf, checked on 3/10/2021.

Keynes, John Maynard (1936): The general theory of employment, interest and money. [2007, New ed.]. Basingstoke, Hampshire: Palgrave Macmillan.

Kluge, Jan; Weber, Michael (2018): Decomposing the German East-West wage gap. In *Econ Transit* 26 (1), pp. 91–125. DOI: 10.1111/ecot.12137.

Knight, Frank H. (1964): Risk, Uncertainty, and Profit. New York: August M. Kelley.

Knuth, Matthias (2009): Path Shifting and Path Dependence: Labor Market Policy Reforms Under German Federalism. In *International Journal of Public Administration* 32 (12), pp. 1048–1069. DOI: 10.1080/01900690903135934.

Köhler, Ingo (2021): Bazookas for recovery. The renaissance of Keynesian stimulus plans since the financial crisis. In *J Mod Eur Hist* 19 (1), pp. 19–25. DOI: 10.1177/1611894420974255.

Koopman, Siem Jan; Lit, Rutger; Lucas, Andre (2016): Model-Based Business Cycle and Financial Cycle Decomposition for Europe and the U.S. In *SSRN Journal*. DOI: 10.2139/ssrn.2807763.

Kopelman, Jason L.; Rosen, Harvey S. (2016): Are Public Sector Jobs Recession-proof? Were They Ever? In *Public Finance Review* 44 (3), pp. 370–396. DOI: 10.1177/1091142114565042.

Korkmaz, Suna; Korkmaz, Oya (2017): The Relationship between Labor Productivity and Economic Growth in OECD Countries. In *IJEF* 9 (5), p. 71. DOI: 10.5539/ijef.v9n5p71.

Koster, Sierdjan; Brouwer, Aleid E.; van Leeuwen, Eveline S. (2020): Diversity as the key to success? Urban and rural employment dynamics in the Netherlands. In *Regional Studies* 54 (9), pp. 1187–1199. DOI: 10.1080/00343404.2019.1699652.

Kyriacou, Andreas; Muinelo-Gallo, Roca-Sagalès (2015): Fiscal decentralization and regional disparities: The importance of good governance. In *Papers in Regional Science* 94 (1).

Lagravinese, R. (2015): Economic crisis and rising gaps North-South: evidence from the Italian regions. In *Cambridge Journal of Regions, Economy and Society* 8 (2), pp. 331–342. DOI: 10.1093/cjres/rsv006.

Lahey, Joanna N. (2010): International Comparison of Age Discrimination Laws. In *Research on aging* 32 (6), pp. 679–697. DOI: 10.1177/0164027510379348.

Landesmann, Michael (2013): 'The New North-South Divide in Europe: Can the European Convergence Model be Resuscitated?'. In *Vienna Institute Monthly Report* 2013, pp. 3–13.

Landry, Réjean; Amara, Nabil; Lamari, Moktar (2002): Does social capital determine innovation? To what extent? In *Technological Forecasting and Social Change* 69 (7), pp. 681–701. DOI: 10.1016/S0040-1625(01)00170-6.

Lane, Philip R.; Milesi-Ferretti, Gian Maria (2011): The Cross-Country Incidence of the Global Crisis. In *IMF Econ Rev* 59 (1), pp. 77–110. DOI: 10.1057/imfer.2010.12.

Lester, T. William; Nguyen, Mai Thi (2016): The Economic Integration of Immigrants and Regional Resilience. In *Journal of Urban Affairs* 38 (1), pp. 42–60. DOI: 10.1111/juaf.12205.

Lewin, Paul A.; Watson, Philip; Brown, Anna (2018): Surviving the Great Recession: the influence of income inequality in US urban counties. In *Regional Studies* 52 (6), pp. 781–792. DOI: 10.1080/00343404.2017.1305492.

Liu, Yupeng; Li, Jiajia; Duan, Linlin; Dai, Min; Chen, Wei-qiang (2020): Material dependence of cities and implications for regional sustainability. In *Regional Sustainability* 1 (1), pp. 31–36. DOI: 10.1016/j.regsus.2020.07.001.

Lix, Lisa M.; Keselman, Joanne C.; Keselman, H. J. (1996): Consequences of Assumption Violations Revisited: A Quantitative Review of Alternatives to the One-Way Analysis of Variance "F" Test. In *Review of Educational Research* 66 (4), pp. 579–619. DOI: 10.2307/1170654.

Lovász, Anna; Rigó, Mariann (2013): Vintage effects, aging and productivity. In *Labour Economics* 22, pp. 47–60. DOI: 10.1016/j.labeco.2012.08.005.

Mackintosh, W. A.; Dales, J. H. (1964): Economic background of Dominion-provincial relations. Appendix III of the Royal Commission Report on Dominion-provincial relations ; edited and introduced by J.H. Dales. Toronto: McClelland and Stewart (Carleton library, no.13).

Malizia, Emil E.; Ke, Shanzi (1993): THE INFLUENCE OF ECONOMIC DIVERSITY ON UNEMPLOYMENT AND STABILITY*. In *Journal of Regional Science* 33 (2), pp. 221–235. DOI: 10.1111/j.1467-9787.1993.tb00222.x.

Manning, Alan; Petrongolo, Barbara (2017): How Local Are Labor Markets? Evidence from a Spatial Job Search Model. In *American Economic Review* 107 (10), pp. 2877–2907. DOI: 10.1257/aer.20131026.

Marin, Dalia (2005): A New International Division of Labor in Europe: Outsourcing and Offshoring to Eastern Europe. In *SSRN Journal*. DOI: 10.2139/ssrn.869820.

Martin, R. (2012): Regional economic resilience, hysteresis and recessionary shocks. In *Journal of Economic Geography* 12 (1), pp. 1–32. DOI: 10.1093/jeg/lbr019.

Martin, Ron; Sunley, Peter (2015a): On the notion of regional economic resilience: conceptualization and explanation. In *J Econ Geogr* 15 (1), pp. 1–42. DOI: 10.1093/jeg/lbu015.

Martin, Ron; Sunley, Peter (2015b): Towards a Developmental Turn in Evolutionary Economic Geography? In *Regional Studies* 49 (5), pp. 712–732. DOI: 10.1080/00343404.2014.899431.

Martin, Ron; Sunley, Peter (2020): Regional economic resilience: evolution and evaluation. In Gillian Bristow, Adrian Healy (Eds.): Handbook on regional economic resilience. Cheltenham, UK: Edward Elgar Publishing, pp. 10–35.

Martin, Ron; Sunley, Peter; Gardiner, Ben; Tyler, Peter (2016): How Regions React to Recessions: Resilience and the Role of Economic Structure. In *Regional Studies* 50 (4), pp. 561–585. DOI: 10.1080/00343404.2015.1136410.

Matthews, Ralph; Pendakur, Ravi; Young, Nathan (2009): Social Capital, Labour Markets, and Job-Finding in Urban and Rural Regions: comparing paths to employment in prosperous cities and stressed rural communities in Canada. In *The Sociological Review* 57 (2), pp. 306–330.

Maurer, Andreas; Degain, Christophe (2012): Globalization and Trade Flows: What you see is not what you get! In *J. Intl Econ. Comm. Policy.* 03 (03), p. 1250019. DOI: 10.1142/S1793993312500196.

Meyer, J. Patrick; Seaman, Michael A. (2013): A Comparison of the Exact Kruskal-Wallis Distribution to Asymptotic Approximations for All Sample Sizes up to 105. In *The Journal of Experimental Education* 81 (2), pp. 139–156. DOI: 10.1080/00220973.2012.699904.

Mihaela, Mihai; Ţiţan, Emilia (2014): Education and Innovation in the Context of Economies Globalization. In *Procedia Economics and Finance* 15, pp. 1042–1046. DOI: 10.1016/S2212-5671(14)00667-4.

Millington, Gareth (2012): The outer-inner city: urbanization, migration and 'race' in London and New York. In *Urban Research & Practice* 5 (1), pp. 6–25. DOI: 10.1080/17535069.2012.656447.

Modica, Marco; Reggiani, Aura (2015): Spatial Economic Resilience: Overview and Perspectives. In *Netw Spat Econ* 15 (2), pp. 211–233. DOI: 10.1007/s11067-014-9261-7.

Möhring, Maren (2017): Mobilität und Migration in und zwischen Ost und West. In Frank Bösch (Ed.): Geteilte Geschichte. Ost- und Westdeutschland 1970–2000. Göttingen: Vandenhoeck & Ruprecht, pp. 369–410. Available online at https://zeitgeschichte-digital.de/doks/frontdoor/index/index/docId/748.

Möller, Joachim (2010): The German labor market response in the world recession – de-mystifying a miracle. In *ZAF* 42 (4), pp. 325–336. DOI: 10.1007/s12651-009-0026-6.

Moro, Beniamino (2014): Lessons from the European economic and financial great crisis: A survey. In *European Journal of Political Economy* 34, S9-S24. DOI: 10.1016/j.ejpoleco.2013.08.005.

Morrill, Richard; Cromartie, John; Hart, Gary (1999): Metropolitan, Urban, and Rural Commuting Areas: Toward a better depiction of the United States. In *Urban Geography* 20 (8), pp. 727–748. DOI: 10.2747/0272-3638.20.8.727.

Navarro-Espigares, José Luis; Martín-Segura, José Aureliano; Hernández-Torres, Elisa (2012): The role of the service sector in regional economic resilience. In *The Service Industries Journal* 32 (4), pp. 571–590. DOI: 10.1080/02642069.2011.596535.

NBER (2020): US Business Cycle Expansions and Contractions. The National Bureau of Economic Research. Cambridge, MA. Available online at http://www.nber.org/cycles/cyclesmain.html.

Norris, Fran H.; Stevens, Susan P.; Pfefferbaum, Betty; Wyche, Karen F.; Pfefferbaum, Rose L. (2008): Community resilience as a metaphor, theory, set of capacities, and strategy for disaster readiness. In *American journal of community psychology* 41 (1-2), pp. 127–150. DOI: 10.1007/s10464-007-9156-6.

Núñez, Imanol; Livanos, Ilias (2010): Higher education and unemployment in Europe: an analysis of the academic subject and national effects. In *High Educ* 59 (4), pp. 475–487. DOI: 10.1007/s10734-009-9260-7.

Nyström, Kristina (2012): Labor mibility and entrepreneurship: whod o new firms employ? In Charlie Karlsson, B. Johansson, Roger Stough (Eds.): Entrepreneurship, social capital and governance. Directions for the sustainable development and competitiveness of regions. Cheltenham: Northampton MA; Edward Elgar (New horizons in regional science), pp. 102–114.

O'Connor, Kelsey J. (2020): The effect of immigration on natives' well-being in the European Union. In *Journal of Economic Behavior & Organization* 180, pp. 257–274. DOI: 10.1016/j.jebo.2020.10.006.

OECD (2005): Enhancing the Performance of the Services Sector. Paris: OECD Publishing.

Ohlin, Bertil (1935): Interretional and International Trade. Cambridge: Havard University Press (Havard Economic Studies, 39).

Oprea, Florin; Onofrei, Mihaela; Lupu, Dan; Vintila, Georgeta; Paraschiv, Gigel (2020): The Determinants of Economic Resilience. The Case of Eastern European Regions. In *Sustainability* 12 (10), p. 4228. DOI: 10.3390/su12104228.

Östh, John; Reggiani, Aura; Galiazzo, Giacomo (2015): Spatial economic resilience and accessibility: A joint perspective. In *Computers, Environment and Urban Systems* 49, pp. 148–159. DOI: 10.1016/j.compenvurbsys.2014.07.007.

Ostrom, Elinor (1990): Governing the Commons. The evolution of institutions for collective action. 8th ed. Cambridge: Cambridge University Press.

Ozturk, Serdar; Sozdemir, Ali (2015): Effects of Global Financial Crisis on Greece Economy. In *Procedia Economics and Finance* 23, pp. 568–575. DOI: 10.1016/S2212-5671(15)00441-4.

Palekiene, Oksana; Simanaviciene, Zaneta; Bruneckiene, Jurgita (2015): The Application of Resilience Concept in the Regional Development Context. In *Procedia - Social and Behavioral Sciences* 213, pp. 179–184. DOI: 10.1016/j.sbspro.2015.11.423.

Palier, Bruno; Palme, Joakim; Morel, Nathalie (Eds.) (2012): Towards a social investment welfare state? Ideas, policies and challenges. Bristol: Policy Press. Available online at http://www.jstor.org/stable/10.2307/j.ctt9qgqfg.

Paolo Di Caro (2017): Local economic resilience in Italy. In : Edward Elgar Publishing (Chapters), pp. 175–191. Available online at https://ideas.repec.org/h/elg/eechap/17125_12.html.

Parella, Jordi F.; Hernández, Gemma C. (2018): The German Business Model: The Role of the Mittelstand. In *Journal of Management Policies and Practices* 6 (1), pp. 10–16.

Parente, Francesca (2019): Inequality and social capital in the EU regions: a multidimensional analysis. In *Regional Studies, Regional Science* 6 (1), pp. 1–24. DOI: 10.1080/21681376.2018.1558105.

Pastor; Manuel; Mollenkopf, John (2012): Struggling over Stranges or Receiving with Resilience? The Metropolitics if Immigrant Integration. In Margaret Weir, Nancy Pindus, Howard Wial, Harold Wolman, Howard Wial, Harold Wolman et al. (Eds.): Urban and Regional Policy and its Effets // Urban and regional policy and its effects. Volume 4: Building resilient regions. Washington, D.C: Brookings Institution Press (Building Resilient Regions, 4).

Pavolini, Emmanuele; León, Margarita; Guillén, Ana M.; Ascoli, Ugo (2015): From austerity to permanent strain? The EU and welfare state reform in Italy and Spain. In *Comp Eur Polit* 13 (1), pp. 56–76. DOI: 10.1057/cep.2014.41.

Pendall, R.; Foster, K. A.; Cowell, M. (2010): Resilience and regions: building understanding of the metaphor. In *Cambridge Journal of Regions, Economy and Society* 3 (1), pp. 71–84. DOI: 10.1093/cjres/rsp028.

Perez, Sofia A.; Matsaganis, Manos (2018): The Political Economy of Austerity in Southern Europe. In *New Political Economy* 23 (2), pp. 192–207. DOI: 10.1080/13563467.2017.1370445.

Perucca, Giovanni (2014): The Role of Territorial Capital in Local Economic Growth: Evidence from Italy. In *European Planning Studies* 22 (3), pp. 537–562. DOI: 10.1080/09654313.2013.771626.

Picot, Georg; Tassinari, Arianna (2017): All of one kind? Labour market reforms under austerity in Italy and Spain. In *Socio-Economic Review* 15 (2), pp. 461–482. DOI: 10.1093/ser/mww042.

Pike, A.; Dawley, S.; Tomaney, J. (2010): Resilience, adaptation and adaptability. In *Cambridge Journal of Regions, Economy and Society* 3 (1), pp. 59–70. DOI: 10.1093/cjres/rsq001.

Pimm, Stuart L. (1984): The complexity and stability of ecosystems. In *Nature* 307 (5949), pp. 321–326. DOI: 10.1038/307321a0.

Piva, Mariacristina; Vivarelli, Marco (2018): Technological change and employment: is Europe ready for the challenge? In *Eurasian Bus Rev* 8 (1), pp. 13–32. DOI: 10.1007/s40821-017-0100-x.

Poole, William (2009): The Credit Crunch of 2007–08: Lessons Private and Public. In *Bus Econ* 44 (1), pp. 38–40. DOI: 10.1057/be.2008.1.

Porter, Michael E. (2008): On competition. Updated and expanded ed. Boston MA: Harvard Business School Pub (The Harvard business review book series).

Postoiu, Constantin (2015): Regional Growth Patterns in the European Union. In *Procedia Economics and Finance* 30, pp. 656–663. DOI: 10.1016/S2212-5671(15)01284-8.

Preedy, Victor R.; Watson, Ronald Ross (Eds.) (2010): Handbook of disease burdens and quality of life measures. With 1001 tables. New York, NY: Springer.

Priewe, Jan (2018): A Time Bomb for the Euro? Understanding Germany's Current Account Plus. In *IMK Study* (59).

Prskawetz, Alexia; Sambt, Jože (2014): Economic support ratios and the demographic dividend in Europe. In *DemRes* 30, pp. 963–1010. DOI: 10.4054/DemRes.2014.30.34.

Putnam, Robert D. (1992): Making Democracy Work. Civic Traditions in Modern Italy. 3rd ed. Princeton: Princeton University Press.

Putnam, Robert D. (2000): Bowling Alone. The Collapse and Revival of American Community. 4th ed. New York: Simon & Schuster Paperbacks.

Qian, Yingyi; Weingast, Barry R. (1997): Federalism as a Commitment to Preserving Market Incentives. In *Journal of Economic Perspectives* 11 (4), pp. 83–92. DOI: 10.7551/mitpress/9780262534246.003.0009.

Ragnitz, Joachim (2019): Schlechter als erwartet, besser als gedacht: Die wirtschafliche Situation in Ostdeutschland 30 Jahre nach dem Mauerfall. In *ifo Dresden berichtet* 26 (5), pp. 3–8.

Reggiani, Aura; Bucci, Pietro; Russo, Giovanni; Haas, Anette; Nijkamp, Peter (2011): Regional labour markets and job accessibility in City Network systems in Germany. In *Journal of Transport Geography* 19 (4), pp. 528–536. DOI: 10.1016/j.jtrangeo.2010.05.008.

Reggiani, Aura; Graaff, Thomas de; Nijkamp, Peter (2002): Resilience: An Evolutionary Approach to Spatial Economic Systems. In *Networks and Spatial Economics* 2 (2), pp. 211–229. DOI: 10.1023/A:1015377515690.

Reis, Ricardo (2015): Looking for a Success in the Euro Crisis Adjustment Programs: The Case of Portugal. In *Brookings Papers on Economic Activity* 2015 (2), pp. 433–458. DOI: 10.1353/eca.2015.0010.

Rhoades, Stephen A. (1993): Federal Reserve Bulletin. The Herfindahl-Hirschman index. In *Federal Reserve Bulletin* (3), pp. 188–189.

Riley, Rebecca; Rosazza-Bondibene, Chiara; Young, Garry (2014): The Financial Crisis, Bank Lending and UK Productivity: Sectoral and Firm-Level Evidence. In *Natl. Inst. econ. rev.* 228, R17-R34. DOI: 10.1177/002795011422800103.

Rocchetta, Silvia; Mina, Andrea (2019): Technological coherence and the adaptive resilience of regional economies. In *Regional Studies* 53 (10), pp. 1421–1434. DOI: 10.1080/00343404.2019.1577552.

Rodriguez-Pose, A.; Ezcurra, R. (2010): Does decentralization matter for regional disparities? A cross-country analysis. In *Journal of Economic Geography* 10 (5), pp. 619–644. DOI: 10.1093/jeg/lbp049.

Rose, Adam (2004): Defining and measuring economic resilience to disasters. In *Disaster Prev and Management* 13 (4), pp. 307–314. DOI: 10.1108/09653560410556528.

Rose, Adam (2007): Economic resilience to natural and man-made disasters: Multidisciplinary origins and contextual dimensions. In *Environmental Hazards* 7 (4), pp. 383–398. DOI: 10.1016/j.envhaz.2007.10.001.

Roza, Marja; van den Bosch, Frans A.J.; Volberda, Henk W. (2011): Offshoring strategy: Motives, functions, locations, and governance modes of small, medium-sized and large firms. In *International Business Review* 20 (3), pp. 314–323. DOI: 10.1016/j.ibusrev.2011.02.002.

Sabatino, Michele (2019): Economic resilience and social capital of the Italian region. In *International Review of Economics & Finance* 61, pp. 355–367. DOI: 10.1016/j.iref.2019.02.011.

Samuelson, Paul A. (1948): International Trade and the Equalisation of Factor Prices. In *The Economic Journal* 58 (230).

Schaal, Edouard (2011): Uncertainty, Productivity and Unemployment in the Great Depression. Society for Economic Dynamics (Meeting Papers, 1450). Available online at https://EconPapers.repec.org/RePEc:red:sed011:1450.

Schmeisser, Bjoern (2013): A Systematic Review of Literature on Offshoring of Value Chain Activities. In *Journal of International Management* 19 (4), pp. 390–406. DOI: 10.1016/j.intman.2013.03.011.

Seeliger, Leanne; Turok, Ivan (2013): Towards Sustainable Cities: Extending Resilience with Insights from Vulnerability and Transition Theory. In *Sustainability* 5 (5), pp. 2108–2128. DOI: 10.3390/su5052108.

Sensier, Marianne; Bristow, Gillian; Healy, Adrian (2016): Measuring Regional Economic Resilience across Europe: Operationalizing a complex concept. In *Spatial Economic Analysis* 11 (2), pp. 128–151. DOI: 10.1080/17421772.2016.1129435.

Sherrieb, Kathleen; Norris, Fran H.; Galea, Sandro (2010): Measuring Capacities for Community Resilience. In *Soc Indic Res* 99 (2), pp. 227–247. DOI: 10.1007/s11205-010-9576-9.

Silke Meyer (2012): Economic Agents and the Culture of Debt. In Jan Logemann (Ed.): The Development of Consumer Credit in Global Perspective. Business, Regulatuion, and Culture. 1st ed. New York: Palgrave Macmillan, pp. 257–274.

Simmie, J.; Martin, R. (2010): The economic resilience of regions: towards an evolutionary approach. In *Cambridge Journal of Regions, Economy and Society* 3 (1), pp. 27–43. DOI: 10.1093/cjres/rsp029.

Simmie, James (2014): Regional Economic Resilience: A Schumpeterian Perspective. In *Raumforsch Raumordn* 72 (2), pp. 103–116. DOI: 10.1007/s13147-014-0274-y.

Sinn, Hans-Werner (2006): The Pathological Export Boom and the Bazaar Effect: How to Solve the German Puzzle. In *World Economy* 29 (9), pp. 1157–1175. DOI: 10.1111/j.1467-9701.2006.00841.x.

Smith, Helen Lawton; Romeo, Saverio (2012): Entrepreneurship and innovation: Oxfordshire's high-tech economy – firm survival, growth and innovation. In Charlie Karlsson, B. Johansson, Roger Stough (Eds.): Entrepreneurship, social capital and governance. Directions for the sustainable development and competitiveness of regions. Cheltenham: Northampton MA; Edward Elgar (New horizons in regional science), pp. 27–52.

Stefan Berger; Jana Golombek; Christian Wicke (2018): A Postindustrial Mindscape? The mainstreaming and touristification of industrial heritage in the Ruhr. In Christian Wicke, Stefan Berger, Jana Golombek (Eds.): Industrial heritage and regional identities. London, New York, NY: Routledge (Routledge cultural heritage and tourism series). Available online at https://www.researchgate.net/profile/christian_wicke/publication/336851979_a_postindustrial_mindscape_the_mainstreaming_and_touristification_of_industrial_heritage_in_the_ruhr.

Stiglitz, Joseph; Genicot, Garance; Basu, Kaushik (1999): Household Labor Supply, Unemployment, and Minimum Wage Legislation: The World Bank.

Stolper, Wolfgang F.; Samuelson, Paul A. (1941): Protection and Real Wages. In *The Review of Economic Studies* 9 (1), pp. 58–73.

Stumpf, Stephen A. (2014): A longitudinal study of career success, embeddedness, and mobility of early career professionals. In *Journal of Vocational Behavior* 85 (2), pp. 180–190. DOI: 10.1016/j.jvb.2014.06.002.

Sutherland, D.; Hoeller, P. (2012): Debt and Macroeconomic Stability: An Overview of the Literature and Some Empirics. In *OECD Economic Depeartment Working Papers* (1006). DOI: 10.1787/5k8xb75txzf5-en.

Sycheva, I.N.; Chernyshova, O.V.; Panteleeva, T.A.; Moiseeva, O.A.; Chernyavskaya, S.A.; Khout, S.Y. (2019): Human capital as a base for regional development: a case study. In *International Journal of Economics and Business Administration* VII (I).

Tainter, Joseph A.; Taylor, Temis G. (2014): Complexity, problem-solving, sustainability and resilience. In *Building Research & Information* 42 (2), pp. 168–181. DOI: 10.1080/09613218.2014.850599.

Talani, Leila Simona (2011): The Impact of the Global Financial Crisis on the City of London: Towards the End of Hegemony? In *Competition & Change* 15 (1), pp. 11–30. DOI: 10.1179/102452911X12905309381932.

Tansey, Paul; Meng, Xianhai; Cleland, David (2014): A critical review of response strategies adopted by construction companies during an economic recession. In *Proceedings 29th Annual Association of Researchers in Construction Management Conference, ARCOM 2013*, pp. 679–689.

Tansey, Paul; Spillane, John (2014): Government influence on the construction industry during the economic recession 2007-2013. In *Proceedings 30th Annual Association of Researchers in Construction Management Conference, ARCOM 2014*, pp. 1101–1110.

Taylor, Paul; Fry, Richard; Cohn, D'Vera; Livingston, Gretchen; Kochhar, Rakesh; Motel,, Seth; Patten, Eileen (2011): The Old Prosper Relative to the Young. The Rising Age Gap in Economic Well-being. PewResearchCenter. Washington, D.C. Available online at https://www.pewresearch.org/social-trends/wp-content/uploads/sites/3/2011/11/WealthReportFINAL.pdf, checked on 3/10/2021.

Tomić, Iva (2017): What drives youth unemployment in Europe? Economic vs. non-economic determinants. In *International Labour Review*. DOI: 10.1111/ilr.12060.

Triventi, Moris (2013): Stratification in Higher Education and Its Relationship with Social Inequality: A Comparative Study of 11 European Countries. In *European Sociological Review* 29 (3), pp. 489–502. DOI: 10.1093/esr/jcr092.

Van der Gaag; Nicole; van Wissen, Leo (2008): Economic Determinants of Inernal Migration Rates: A Comparsion across five European Countries. In *Tijdschrift voor Economische en Sociale Geografie* 99 (2), pp. 209–222.

Ville, Ferdi de; Vermeiren, Mattias (2016): MMEs: Outcompeted by Low-Cost Economies. In Ferdi de Ville, Mattias Vermeiren (Eds.): Rising Powers and Economic Crisis in the Euro Area. London: Palgrave Macmillan UK, pp. 97–125.

Visser, Jelle (2019): ICTWSS Database. Amsterdam Institute for Advanced Labour Studies (AIAS), University of Amsterdam. Amsterdam. Available online at http://uva-aias.net/en/ictwss, checked on 3/9/2021.

Webber, Don J.; Healy, Adrian; Bristow, Gillian (2018): Regional Growth Paths and Resilience: A European Analysis. In *Economic Geography* 94 (4), pp. 355–375. DOI: 10.1080/00130095.2017.1419057.

Weeks, John R. (2008): Population. An introduction to Concepts and Issues. 10th ed. Belmont: Thomson Wadsworth.

Weiss, Thomas G. (2000): Governance, good governance and global governance: Conceptual and actual challenges. In *Third World Quarterly* 21 (5), pp. 795–814. DOI: 10.1080/713701075.

Weisz, Helga; Steinberger, Julia K. (2010): Reducing energy and material flows in cities. In *Current Opinion in Environmental Sustainability* 2 (3), pp. 185–192. DOI: 10.1016/j.cosust.2010.05.010.

Welfens, Paul J. J. (1999): Globalization of the Economy, Unemployment and Innovation_ Structural Change, Schumpetrian Adjustment, and New Policy Challenges (1999, Springer-Verlag Berlin Heidelberg) - libgen.lc. 1st ed. Berlin, Heidelberg: Springer-Verlag.

Werner Eichhorst, Anke Hassel: Are There Austerity-Related Policy Changes in Germany?

World Bank (2020): Doing Business: Measuring Business Regulations. Historical data - complete data with score. The World Bank. Washington, D.C. Available online at https://www.doingbusiness.org/content/dam/doingBusiness/excel/db2020/Historical-data---COMPLETE-dataset-with-scores.xlsx, checked on 3/9/2021.

Wu, Wann-Yih; Chang, Man-Ling; Chen, Chih-Wei (2008): Promoting innovation through the accumulation of intellectual capital, social capital, and entrepreneurial orientation. In *R&D Management* 38 (3), pp. 265–277. DOI: 10.1111/1467-9914.00120-i1.

Xlstat (2021): Linear Regression. Addinsoft. Paris. Available online at https://www.xlstat.com/en/solutions/features/linear-regression, checked on 3/16/2021.

Yao, Shujie; Zhang, Jing (2011): On Economic Theory and Recovery of the Financial Crisis. In *The World Economy* 34 (5), pp. 764–777. DOI: 10.1111/j.1467-9701.2011.01347.x.

Young, Brigitte; Semmler, Willi (2011): The European Sovereign Debt Crisis: Is Germany to Blame? In *German Politics and Society* 29 (1), pp. 1–24. DOI: 10.3167/gps.2011.290101.

Yu, Haichao; Liu, Yan; Liu, Chengliang; Fan, Fei (2018): Spatiotemporal Variation and Inequality in China's Economic Resilience across Cities and Urban Agglomerations. In *Sustainability* 10 (12), p. 4754. DOI: 10.3390/su10124754.

Zeibote, Zane; Volkova, Tatjana; Todorov, Kiril (2019): The impact of globalization on regional development and competitiveness: cases of selected regions. In *IRD* 1 (1), pp. 33–47. DOI: 10.9770/ird.2019.1.1(3).

Ženka, Jan; Pavlík, Adam; Slach, Ondřej (2017): Resilience of metropolitan, urban and rural regions: a Central European perspective. In *GeoScape* 11 (1), pp. 25–40. DOI: 10.1515/geosc-2017-0003.

Ženka, Jan; Slach, Ondřej; Pavlík, Adam (2019): Economic resilience of metropolitan, old industrial, and rural regions in two subsequent recessionary shocks. In *European Planning Studies* 27 (11), pp. 2288–2311. DOI: 10.1080/09654313.2019.1638346.

10. Résumé en français

1. Introduction

L'observation centrale de cette enquête est que les performances économiques pendant et après les chocs économiques et les récessions diffèrent largement entre les régions. Alors que certaines régions se rétablissent facilement et peuvent même tirer profit d'une crise, d'autres économies régionales connaissent un ralentissement prolongé de leurs activités. (Davies 2011; Giannakis and Bruggeman 2017a). La présente analyse suit une perspective évolutionniste de l'économie spatiale et se concentre sur le processus de *résilience économique (régionale)* pour expliquer cette divergence. (Simmie 2014; Dubé and Polèse 2016; Martin et al. 2016; Briguglio et al. 2009). Plus précisément, l'enquête se concentre sur la *mesure* du phénomène de la résilience économique régionale et sur la recherche d'explications de la *performance* divergente de la *résilience* régionale face à des circonstances économiques défavorables. En d'autres termes, la question centrale est la suivante : pourquoi certaines régions se comportent-elles mieux que d'autres à la suite d'une crise économique ?

La résilience économique régionale décrit le développement économique régional à travers une perspective évolutionniste de l'économie spatiale. Cette approche postule que les mécanismes de sélection naturelle sont à l'origine du maintien, du changement ou de l'adaptation des caractéristiques fondamentales d'une région pendant et après un événement de crise. (Martin and Sunley 2020). Dans le cadre de la présente étude, les déterminants de ces mécanismes sont appelés *capacités de résilience régionale*. Dans des circonstances favorables, ils peuvent permettre à l'économie d'une région d'atténuer les effets négatifs d'une crise, voire de prospérer à la suite de celle-ci. En revanche, les régions dont les capacités de résilience sont insuffisantes (ou moins prononcées) peuvent, par exemple, être prises dans un cycle économique négatif de déclin. (Modica and Reggiani 2015; Christopherson et al. 2010; Simmie and Martin 2010).

Dans leur nature fondamentale, les capacités de résilience économique régionale ressemblent aux divers facteurs du développement économique régional général qui sont souvent résumés sous le terme de " capital territorial (Fratesi and Perucca 2018). Toutefois, la causalité de leur effet sur la résilience économique régionale peut différer considérablement de leur effet général sur le développement économique à long terme. (Simmie and Martin 2010; Fratesi and Perucca 2018; Perucca 2014).

Afin d'étudier la résilience économique régionale et la manière dont elle est influencée par les capacités régionales, ce document concentre son analyse sur la *performance de la résilience*

économique régionale des États occidentaux de l'UE15 entre 1988 et 2018 au niveau régional NUTS 3, c'est-à-dire la plus petite unité géographique standardisée dans les données standardisées recueillies par l'office statistique de l'UE (Eurostat) auprès de ses membres[212].

L'enquête elle-même est fondée d'abord sur la discussion des origines théoriques du concept de résilience, ses différentes interprétations ainsi que l'état général de l'art. Un autre point central de cette discussion sera l'exploration de différentes approches des déterminants (c'est-à-dire des différentes capacités de résilience) de la capacité de résilience des économies régionales, à partir desquels des hypothèses seront dérivées pour être testées sur les mesures de performance de résilience réalisées dans ce travail.

La méthodologie utilisée dans l'analyse empirique est basée sur les travaux d'Edward Hill et al. qui ont analysé la performance en matière de résilience des régions métropolitaines américaines dans le cadre d'une étude à large N (Hill et al. 2012). Cette approche sera ensuite sensiblement modifiée par des facteurs adaptés aux objectifs de cette étude - à savoir l'observation des trajectoires de croissance et de développement ultérieures au choc dans un cadre comparatif - qui s'inspire à son tour d'autres auteurs plus récents sur le thème de la résilience économique régionale.

La méthodologie décrite constitue ensuite la base de la mesure empirique de la performance de résilience économique régionale dans une analyse de séries chronologiques. Cette enquête quantitative prendra en compte non seulement l'ensemble de la série chronologique de 1988 à 2018, mais examinera également différentes sections spatiales et temporelles de l'ensemble des données pour tirer des conclusions sur la performance de résilience régionale de pays spécifiques, de types de régions, ainsi que sur les effets potentiels de différents événements de choc et de leur moment.

Ensuite, à l'aide de ces observations et des mesures effectuées sur la performance de résilience, l'auteur étudie le pouvoir explicatif d'un cadre de déterminants de la capacité de résilience économique régionale - c'est-à-dire les capacités de résilience en tant qu'aspects du capital territorial régional dont on suppose qu'ils sont de nature bénéfique ou préjudiciable à la performance de résilience économique régionale. L'objectif est d'identifier les facteurs qui façonnent la performance de résilience immédiate des régions en réponse à une crise. Enfin, les

[212] La nomenclature des unités territoriales statistiques (NUTS) comprend quatre niveaux d'unités régionales statistiques : La NUTS 0 correspond aux pays proprement dits ; la NUTS 1 est constituée d'unités régionales comptant entre trois et sept millions d'habitants ; la NUTS 2 est constituée d'unités régionales comptant entre 800 000 et trois millions d'habitants ; la NUTS 3 est constituée d'unités régionales comptant entre 150 000 et 800 000 habitants.... (European Commission 2003).

résultats de ces étapes seront discutés et les conséquences pour la recherche sur la résilience économique régionale et les implications potentielles pour la politique seront explorées.

2. Les grandes lignes théoriques de la résilience économique régionale

La survie à long terme des systèmes écologiques complexes - et des systèmes complexes en général - dépend de leur capacité de résilience, c'est-à-dire de leur capacité à changer (s'adapter) en permanence tout en restant dans certains seuils (survivre) (Carl Folke et al. 2010; Rose 2007; Holling 1973). En tant que telle, la résilience décrit la réponse d'un système aux chocs et autres pressions extérieures qui perturbent les équilibres existants. Il est relativement facile de trouver une définition générale de la *résilience économique régionale*, par exemple cette définition concise de Kathryn Foster qui décrit la résilience régionale comme "ability of a region to anticipate, prepare for, respond to, and recover from disturbance". (Foster 2012, p. 29). Cependant, la définition exacte, le rôle et surtout les processus qui sous-tendent la résilience économique régionale ont fait l'objet de discussions animées ces dernières années, et un certain nombre de concepts et de modèles de recherche ont été proposés. (Modica and Reggiani 2015; Palekiene et al. 2015).

La distinction entre la *vulnérabilité* (ou la *résistance* positive *aux chocs)* et la *résilience* d'un système économique régional est au cœur de toutes les approches. La vulnérabilité d'un système ou, à l'inverse, sa capacité à résister à des chocs de nature diverse est une qualité qui détermine si, ou dans quelle mesure, un choc affecte un système en premier lieu et, en tant que telle, existe *avant et pendant* un événement de choc. La résilience, quant à elle, est liée à la capacité, au type et à la qualité d'un système à réagir *après* un choc lorsque le système affecté négativement est confronté à un environnement d'incertitude accrue, de pénurie et d'autres pressions - comme un taux de chômage élevé ou une baisse de la productivité... (Seeliger and Turok 2013; Briguglio et al. 2009).

Au-delà de cette distinction, il existe deux grandes tendances dans l'analyse de la résilience en général. L'une est souvent résumée comme la *résilience d'ingénierie* (ou résilience d'équilibre), *l'*autre est désignée comme la *résilience écologique* (Modica and Reggiani 2015). *La* résilience de l'ingénierie décrit la capacité d'un système économique (régional) à revenir à un état stable, comme dans le modèle d'équilibre général. (Norris et al. 2008; Christopherson et al. 2010). Au-delà des modèles simples à état unique, la résilience technique peut englober des notions d'adaptation dans un système économique, ce qui reflète le concept d'équilibres multiples.

(Simmie 2014). Inversement, la résilience écologique fait référence à la survie continue des systèmes écologiques dans des circonstances de non-équilibre, c'est-à-dire dans des situations d'incertitude dominante. (Holling 1973; Knight 1964). Si la ‘survie’ littérale des régions et de leurs économies est rarement remise en question, le maintien de la stabilité de la qualité de vie dans une région en cas d'incertitude macroéconomique prolongée n'en est pas moins un défi. Tout comme les systèmes biologiques, les systèmes socio-économiques doivent être capables de survivre pendant des périodes de pression environnementale sans équilibre stable perceptible. (Beckert 1996; Berkhout et al. 2013).

L'approche conceptuelle choisie pour l'étude quantitative présentée est qualifiée de *résilience adaptative* car elle englobe des éléments des deux approches (Martin 2012). Selon Martin et Sunley, la résilience adaptative décrit " the ability of a system to resist external and internal disturbances and disruptions if necessary by undergoing drastic change in some aspect of its structure and components in order to maintain or restore certain core performances or functionalities " (Martin and Sunley 2020, p. 14). Cette interprétation s'appuie fortement sur les concepts de la théorie de l'organisation et des sciences psychologiques, trouve des parallèles dans le domaine de l'économie évolutive et englobe à la fois des éléments d'ingénierie et de résilience écologique. (Martin and Sunley 2020).

Si la résilience adaptative décrit la résilience économique régionale comme un processus dépendant de la trajectoire, elle peut également donner lieu à de multiples résultats distinctifs identifiables en observant la mesure dans laquelle une région retrouve son niveau global de développement et sa trajectoire de croissance. Par conséquent, le degré de résilience d'une région dépend, selon Martin, de sa dotation économique et de sa capacité à réaligner sa trajectoire de croissance par l'adaptation. (Martin 2012).

Selon Martin, ce processus peut conduire à cinq résultats différents qui se distinguent par leur récupération respective du *niveau* global du *développement* (sur la base de mesures économiques absolues comme la production économique totale ou les tendances de l'emploi projetées dans le temps, c'est-à-dire la trajectoire de tendance) et la direction et l'étendue de la *trajectoire de croissance* régionale *après la récupération* (Martin 2012; Martin and Sunley 2020, 2015b).

Le premier scénario concerne les régions qui rebondissent dans le sens classique de la résilience de l'ingénierie, grâce à une trajectoire de croissance élevée dans la phase de reprise, qui se stabilise ensuite aux niveaux antérieurs au choc (cf. figure 1a, section principale). Ces régions

seront qualifiées de "*performantes".* [213](Martin 2012). Deux autres scénarios décrivent un niveau de développement réduit, qui se distingue par son taux de croissance après la reprise. Les régions *sous-performantes stables* affichent, malgré l'impact négatif sur le niveau de développement (c'est-à-dire un niveau total d'emploi ou de développement économique régional durablement inférieur), une performance de résilience positive sous la forme d'une reprise de leur trajectoire de croissance pré-choc (cf. figure 1b, section principale). A l'inverse, les *entreprises moins performantes* (cf. Figure 1c, section principale) connaissent une contraction du niveau de développement économique régional ainsi qu'une trajectoire de croissance réduite de façon permanente. (Martin 2012).

Deux autres scénarios se concentrent sur des résultats qui montrent un niveau de développement accru. Ces scénarios se distinguent par la durabilité des niveaux de croissance après la phase de redressement. Dans le cas des *surperformances stables*, le taux de croissance initialement élevé après la récession s'aplatit pour atteindre les niveaux d'avant la crise (cf. figure 1d, section principale). (Martin 2012). Dans le même temps, *les sur-performants en croissance* peuvent maintenir le taux de croissance plus élevé de l'après-crise, ce qui donne une région en plein essor, avec non seulement un niveau de développement plus élevé, mais aussi une trajectoire de croissance toujours plus élevée (c'est-à-dire des taux de croissance plus élevés qu'avant le choc). (Martin 2012).

La nature du choc lui-même est presque aussi importante que la définition du concept sous-jacent de résilience économique régionale, car sans choc, la résilience régionale ne peut être rendue observable (Martin and Sunley 2020). Comme la présente analyse vise à inclure une grande variété de chocs dans une vaste zone géographique (UE15) sur une série chronologique relativement longue (1988-2018), la méthode choisie pour identifier les chocs doit fonctionner à tous les niveaux géographiques. D'une part, elle doit être capable d'identifier les différents chocs nationaux sur la base des cycles économiques nationaux respectifs. D'autre part, elle doit être capable d'identifier des événements de portée essentiellement locale, comme la fermeture d'un grand employeur ou un ralentissement économique régional causé par une catastrophe naturelle. (Pendall et al. 2010; Sensier et al. 2016; Martin and Sunley 2020). En ce qui concerne la dimension temporelle des chocs analysés, cet article suivra l'approche de plusieurs auteurs travaillant sur la mesure empirique de la performance de résilience, et se concentrera uniquement sur les chocs soudains, excluant ainsi les changements structurels à long terme et

[213] Les noms des différents scénarios de résilience sont choisis par l'auteur.

les chocs à combustion lente. (Martin and Sunley 2020; Foster 2012; Sensier et al. 2016; Hill et al. 2012; Hill et al. 2008).

Après avoir établi ce cadre, le présent document propose une mesure relative de la performance de la résilience économique régionale européenne basée sur des scénarios de référence contrefactuels spécifiques à la région comme points de référence pour les mesures de résilience continues. L'argument en faveur de cette approche est que la comparaison avec un scénario contrefactuel spécifique à une région permet de mesurer une région par rapport à ses propres performances passées et donc de comparer diverses régions indépendamment de leurs contextes différents (les régions à forte ou à faible croissance sont uniquement jugées par rapport à leur propre alternative). (Sensier et al. 2016). En outre, une mesure de résilience relative - c'est-à-dire une comparaison transrégionale continue de différentes variables - permettra de dépasser les simples déclarations binaires ou catégorielles sur la résilience. Cela permet ensuite d'approfondir la discussion sur l'effet des différentes capacités de résilience et leur contribution relative à la résilience globale d'une région. (Martin 2012; Briguglio et al. 2009).

3. Capacités déterminant la capacité de résilience régionale

Toujours à partir des recherches approfondies de Martin sur la résilience économique régionale, la capacité de résilience d'une économie régionale - c'est-à-dire la somme des effets des capacités régionales influençant les résultats de la résilience régionale - peut être décrite selon quatre dimensions générales, à savoir la (cap)capacité de *résistance, de récupération, de renouvellement et de réorientation d'*une région. (Martin 2012).

La *résistance* est liée au concept de vulnérabilité d'un système économique régional aux événements de choc et à la possibilité de résistance initiale aux chocs décrite ci-dessus. La *récupération* correspond aux mesures de la résilience classique de l'ingénierie et décrit la " speed and degree of recovery of [a] regional economy from a recessionary shock; [and the] extent of return to [a] pre-recession growth path " (Martin 2012, p. 12). Le *renouvellement* concerne l'ampleur du changement de la trajectoire de croissance d'une région, par exemple le suivi d'une trajectoire de croissance antérieure à la crise ou un changement hystérétique vers une nouvelle trajectoire (supérieure ou inférieure). Enfin, la *réorientation* décrit la mesure dans laquelle les capacités régionales permettent (ou empêchent) l'adaptation d'un système économique régional en réaction à un choc. (Martin 2012).

En décrivant ces dimensions de la capacité de résilience régionale, Martin souligne que, malgré l'accent mis sur les processus adaptatifs dynamiques, les capacités déterminant ces dimensions peuvent être à la fois ‘ad hoc’ - c'est-à-dire des réponses spontanées à un événement choc tel qu'un changement de comportement des acteurs économiques, la formation de nouveaux réseaux, etc. et ‘path dependent’, c'est-à-dire déterminées par des facteurs existants acquis dans le passé ou inhérents à une région.

De toute évidence, il existe un grand nombre d'hypothèses, de théories et de modèles concernant les diverses capacités de résilience, la direction et la nature de leurs effets, et la manière dont leurs interactions peuvent conduire à une capacité et à une performance de résilience régionale plus ou moins élevées. Un résumé court mais incomplet de ces différents mécanismes est proposé par Simmie et Martin, qui exposent quatre modèles généraux sur les interactions de divers déterminants de la performance de résilience régionale.

Le *darwinisme généralisé* est centré sur l'idée de variété, de nouveauté et de sélection comme moteurs de la résilience au sein des régions. La *dépendance au sentier*, en revanche, se rapproche de l'idée de ‘verrouillage’ de certaines trajectoires de développement régional (Simmie, Martin 2010). La *théorie de la complexité* décrit les systèmes adaptatifs par leurs fonctions et leurs relations entre les différents composants d'un système, par exemple, *la connectivité et l'interconnexion d'un système - c'*est-à-dire une interconnexion élevée entre les acteurs économiques régionaux comme une caractéristique positive. Parallèlement, la *panarchie* décrit un modèle en quatre phases d'ajustement continu des systèmes sociaux en réponse à un changement externe ou à une pression interne, dont le résultat est à nouveau déterminé par la connexité et la connectivité d'un système. (Simmie and Martin 2010, p. 33).

Bien que les approches de Simmie et Martin et d'autres décrites ci-dessus soient utiles pour comprendre les mécanismes de la résilience et donnent un cadre pour la classification des capacités de résilience, une discussion de si haut niveau est rarement applicable directement à une enquête empirique. Pour créer une certaine structure dans cette multitude d'indicateurs et de thèses sur les origines de la capacité de résilience économique régionale, cette section suivra l'exemple de Cutter et al. et Briguglio et al. et divisera la discussion de ces différentes approches en quatre grandes catégories (Cutter et al. 2008; Briguglio et al. 2009): Les *facteurs structurels*, les *facteurs institutionnels*, les *facteurs sociaux et démographiques,* et les *facteurs de dotation et de dépendance au sentier*. Ces catégories ne sont évidemment pas strictement exclusives, et

elles servent simplement à structurer la discussion et à garder une vue d'ensemble de la discussion générale, ainsi que des variables et des hypothèses dérivées [214].

Les *facteurs structurels* résument les capacités expliquant les différences de capacité de résilience économique régionale en fonction de la structure de l'économie régionale elle-même, c'est-à-dire les capacités concernant des facteurs tels que la composition économique sectorielle, les types spécifiques d'industries, la dotation en capital et d'autres facteurs "matériels" déterminants. Les *facteurs institutionnels de résilience* résument l'effet du cadre institutionnel régional (c'est-à-dire le gouvernement, le droit, les structures et l'organisation du marché) sur les performances de résilience. En tant que telles, les capacités de résilience abordées ici varient dans leur type et leur relation causale avec la résilience. Les *facteurs de résilience sociaux et démographiques* comprennent les capacités liées à la démographie d'une région, ainsi que le cadre général façonné par la société au sein d'une région - autrement dit, ce chapitre couvre une combinaison de facteurs durs et mous concernant la population d'une région au sens général. Alors que la plupart des capacités de résilience décrites jusqu'à présent sont le produit d'une dotation régionale et sont déterminées par une certaine trajectoire de développement régional, les capacités de résilience résumées dans la rubrique des *facteurs de dotation et de trajectoire* sont permanentes, c'est-à-dire qu'il s'agit de caractéristiques géographiques ou régionales fixes.

Ces catégories de capacités de résilience sont délibérément destinées à former un large éventail de relations potentielles entre les caractéristiques régionales et les performances de résilience économique régionale. L'objectif est double : premièrement, tester et démontrer l'utilité de la nouvelle approche de mesure de la performance de résilience décrite dans les sections suivantes. Deuxièmement, former la base d'autres recherches sur les origines de la performance de résilience et formuler des recommandations politiques provisoires concernant la résilience économique régionale.

4. Méthodologie : Observation du choc, de la résilience et de la performance de résilience

Comme mentionné ci-dessus, les étapes initiales de la méthodologie de mesure de la performance de résilience s'inspirent des travaux de Hill et al. et de leur étude sur la résilience

[214] Un résumé de toutes les capacités, hypothèses et indicateurs correspondants se trouve dans le tableau 1 à la fin de la section 3.5 de la partie principale en anglais.

économique des régions métropolitaines aux États-Unis (Martin 2012; Hill et al. 2012). Leur approche est divisée en trois grandes étapes méthodologiques :

1) L'identification des événements de chocs économiques ;
2) l'observation de l'effet de ces chocs sur une économie régionale, c'est-à-dire la vulnérabilité d'une région à un événement de choc ; et
3) une distinction binaire entre régions résilientes et non résilientes (Hill et al. 2012).

Le premier type d'événements de choc est constitué par les *ralentissements économiques nationaux*, définis par un recul national des indicateurs de performance[215] de plus de deux points de pourcentage par rapport au taux de croissance annuel moyen des huit dernières années [216](Hill et al. 2012). Les deuxième et troisième types de chocs sont les *chocs industriels, c'*est-à-dire les chocs subis par des secteurs spécifiques de grande importance régionale.[217] Si un secteur d'importance régionale subit une baisse annuelle d'au moins 0,75 % de l'emploi ou de la production régionale totale sur un an, la région correspondante est définie comme subissant un choc industriel. Si un secteur subit un choc au niveau national[218]niveau régional, ce choc est défini comme un *choc industriel national. Les* chocs industriels d'importance purement régionale sont appelés *chocs industriels locaux.* (Hill et al. 2012)

L'effet d'un choc, c'est-à-dire si un choc entraîne un *ralentissement* économique régional*,* est déterminé en comparant le taux de croissance annuel d'une région dans l'emploi total ou la VAB avec le taux de croissance moyen des huit années précédentes. Une région est définie comme connaissant un ralentissement économique si elle connaît une réduction comparative de la croissance annuelle d'au moins deux points de pourcentage dans les deux années suivant le choc. Les régions qui ne connaissent pas de ralentissement économique sont *résistantes aux chocs* (Hill et al. 2012).

Selon Hill et al., la *résilience ou la non-résilience* des régions touchées par un ralentissement économique est déterminée par le retour du taux de croissance annuel d'une région à son taux moyen d'avant le choc dans les quatre années suivant le dernier ralentissement. Si une région y

[215] À l'origine, le produit métropolitain brut (PMB) et l'emploi. Aux fins de cette analyse, la valeur ajoutée brute régionale a été utilisée à la place du PMB.
[216] Cette approche est basée sur la méthode de Hausmann et al. dans leur travail sur les accélérations de croissance, elle utilise la régression exponentielle pour estimer les taux de croissance moyens et prend des mesures supplémentaires pour tenir compte des régions à forte croissance (plus de quatre pour cent de croissance moyenne). (Hausmann et al. 2005; Hill et al. 2012).. Pour le contexte européen, la valeur de référence nationale est utilisée pour tenir compte des différents cycles économiques nationaux.
[217] Un secteur économique est d'une grande importance régionale si sa part relative de l'emploi régional ou de la valeur ajoutée brute est équivalente à au moins un pour cent du total régional et dépasse la part du même secteur au niveau national d'au moins 80 pour cent au cours d'une année donnée (Edward Hill et al. 2012, p. 8). Actuellement, la moyenne nationale correspond à la moyenne européenne (UE15).
[218] Sur la base d'une baisse de deux pour cent du taux de croissance national moyen sur huit ans de ce secteur.

parvient, elle est considérée comme résiliente et, dans le cas contraire, comme non résiliente, ce qui donne une mesure binaire de la résilience régionale. (Hill et al. 2012).

Cependant, le retour aux niveaux de croissance d'avant le choc n'est que le début de la *phase de récupération* du processus de résilience dans l'approche empirique présentée ici. La qualité et le résultat du processus de résilience, c'est-à-dire la performance de résilience, ne deviennent apparents que pendant et après la phase de récupération en évaluant la durabilité du taux de croissance après le ralentissement et la récupération globale des niveaux de développement (cf. Figure 2, section principale).

Pour en tenir compte, la méthodologie présentée prend le retour aux niveaux de croissance d'avant la crise comme date de début de la période de reprise (cf. t2 dans la figure 2, section principale)[219]. À partir de ce point, l'analyse observe la distance relative annuelle moyenne entre les niveaux de développement régionaux totaux réels et un scénario contrefactuel sans récession au cours des quatre années suivantes[220]. Le résultat est une estimation de la *récupération du niveau de développement de l'*économie régionale (cf. t2-t3 dans la figure 2, section principale). La durabilité et la direction de la trajectoire de croissance après la reprise sont mesurées par l'écart absolu (en points de pourcentage) du taux de croissance moyen au cours de la phase de reprise de quatre ans[221] (cf. t2 et suivants dans la figure 2, section principale) par rapport à la trajectoire de croissance moyenne avant le choc. Cette mesure du *maintien de la trajectoire de croissance* est en outre étendue à une observation sur huit ans (c'est-à-dire une extension de la période de reprise de quatre ans à huit ans). Ces mesures combinées permettent de placer les régions individuelles dans le spectre des résultats de résilience décrit par Martin 2012 (cf. Figure 1, section principale). Bien qu'une telle classification soit avantageuse à des fins descriptives et qualitatives, l'analyse quantitative ultérieure sera basée sur les mesures individuelles du niveau de récupération et sur l'étendue du maintien de la trajectoire sur quatre et huit ans.

Cette approche présente des restrictions méthodologiques évidentes. Tout d'abord, les différentes limites temporelles fixées par les intervalles de quatre ans et de huit ans (sur la base de Hill et al.) sont, bien que justifiables, méthodologiquement problématiques[222]. Deuxièmement, l'expansion de l'approche originale de Hill et al. étend naturellement la période

[219] En l'absence d'un tel retour, la limite de quatre ans sert de date de départ pour les mesures de la période de recouvrement.
[220] Le niveau d'emploi et de VAB estimé sur la base des niveaux de croissance sur huit ans avant la crise.
[221] Mesurée de la même manière que la trajectoire de croissance de huit ans avant le choc.
[222] Comme d'autres hypothèses de la méthodologie. Comparez la section principale pour une discussion de la robustesse des différentes hypothèses et constantes faites par la méthodologie.

d'observation nécessaire après la baisse de quatre à douze ans. Étant donné que les données sous-jacentes ne s'étendent que de 1988 à 2018, cette extension pourrait automatiquement exclure une série d'observations potentiellement intéressantes.

Cependant, malgré ces restrictions, les mesures proposées de la performance de résilience des régions permettent d'analyser les facteurs régionaux influençant la performance de résilience économique régionale - c'est-à-dire les *capacités de résilience* discutées ci-dessus.

5. Variations de la résilience dans l'espace et le temps

Pour des raisons de brièveté relative, les détails descriptifs de l'application de la méthodologie décrite dans la section 4 de ce résumé ainsi que le test de robustesse associé ne seront pas reproduits dans ce résumé. Veuillez consulter le chapitre 5 de la section principale en anglais pour plus de détails sur ces étapes. Ce chapitre se concentrera plutôt sur la synthèse de l'analyse empirique des résultats de la mesure de la performance de la résilience économique régionale dans les régions européennes selon différentes catégories d'observations.

La première analyse catégorielle concerne l'étude des performances de résilience dans le temps. Elle se concentre sur trois périodes de crise de premiers pics de récession (1990-1993, 2000-2003 et 2008-2009), chacune représentant une période de crise distincte de plus grande ampleur (cf. figure 8, section principale), ainsi que sur les cas se situant entre ces événements en tant que groupe distinct d'observations.

La deuxième catégorie d'analyse est basée sur la cause des divers ralentissements observés. Dans cette catégorie, l'effet et les modèles de résilience correspondant aux différents types de chocs décrits dans la section 4 ci-dessus sont examinés.

Ensuite, l'accent est mis sur la typologie socio-géographique des régions. Ceci est fait à une résolution relativement faible en examinant la distinction urbain-rural et l'effet potentiel de cette typologie sur la performance de résilience régionale.

Enfin, l'effet de la nationalité sur les performances régionales en matière de résilience est étudié. Comme l'indiquent plusieurs auteurs, les facteurs nationaux sont des déterminants importants de la performance de résilience économique régionale (i.a. Giannakis and Bruggeman 2017a, 2020; Crescenzi et al. 2016; Doran and Fingleton 2016; Davies 2011). Il s'ensuit de supposer que l'expérience de résilience de la région respective diffère significativement en fonction de sa nationalité.

L'objectif de cette partie de l'analyse est double : Premièrement, elle vise à donner au lecteur une meilleure compréhension de la distribution temporelle et géographique de la performance de résilience. Deuxièmement, elle constitue la première partie de l'analyse des facteurs influençant la performance de résilience d'une région.

Seul un résumé des principaux résultats de l'analyse sera donné ici. Pour plus de détails sur les analyses ainsi que sur les méthodes choisies, voir les chapitres 6.1-6.4 de la partie principale en anglais.

Dans l'ensemble, l'analyse menée dans la section principale et résumée ici a conduit à plusieurs conclusions qui, bien qu'elles ne soient pas toujours tranchées, permettent une certaine interprétation des modèles de résilience et de l'effet des circonstances sur la capacité de résilience régionale :

1. Le choix du moment est important. Indépendamment de la dimension de la performance de résilience ou de la nature de la récession, la variance entre les différentes périodes de crise de la série chronologique est suffisamment importante pour souligner le caractère unique de chaque période de crise et pour justifier, voire nécessiter, leur étude individuelle.
2. Le type spécifique de choc affectant une région peut faire une différence significative. Toutefois, l'effet des différents chocs varie en fonction de la nature de la récession régionale. Dans le cas des ralentissements de la valeur ajoutée brute régionale (VABR), il existe des preuves significatives d'une meilleure performance pour les ralentissements causés par des ralentissements économiques nationaux, tandis que pour les ralentissements de l'emploi, on peut s'attendre à une meilleure performance à la suite de chocs industriels et plus particulièrement de chocs industriels locaux. En conséquence, cela pourrait également impliquer que les facteurs explicatifs liés à la performance de résilience pour les ralentissements de l'emploi et de la valeur ajoutée brute diffèrent significativement dans leur effet. Cela pourrait concerner en particulier l'effet de la disponibilité des ressources locales et nationales/européennes sur la performance de résilience dans chaque cas.
3. L'effet du statut urbain ou rural (et intermédiaire) d'une région n'est absolument pas clair. Si, d'une manière générale, le niveau de résilience semble légèrement plus élevé dans les régions rurales et de type immédiat, la situation change, en particulier pour les ralentissements de l'emploi vers la fin de la série chronologique. Autour de la crise financière mondiale (GFC), les régions urbaines affichent soudainement une

performance de résilience nettement plus forte qu'auparavant. Cela pourrait indiquer soit un changement général de la direction de la tendance vers une plus grande résilience des régions urbaines, soit les caractéristiques spécifiques de la crise financière mondiale et en particulier les réponses politiques à celle-ci.

4. Les effets et les facteurs au niveau national peuvent également jouer un rôle important. Toutefois, la valeur ajoutée brute et les performances en matière de résilience de l'emploi ne sont pas des quantités nationales constantes "inhérentes". Elles changent d'une crise à l'autre et ne sont jamais constantes de manière fiable pour un pays donné[223]. Les facteurs nationaux semblent avoir une influence très importante, mais changeante, sur les résultats de la résilience. De même qu'aucune crise n'est semblable à une autre, les pays observés (ou plutôt les régions qui les composent) ne présentent pas non plus un niveau élevé de synchronisation dans leurs performances en matière de résilience.

Pour l'analyse ultérieure, tous ces facteurs devront être pris en compte. Par conséquent, le lien entre les capacités de résilience discutées dans la section 3 de ce résumé (voir le chapitre 3 principal en anglais pour plus de détails) et les performances régionales en matière de résilience observées ici ne sera pas seulement analysé dans l'ensemble de la série temporelle, mais aussi pour chacune des périodes discutées de fréquence accrue de ralentissement économique (cf. chapitre 6.1, section principale). En tant que telles, ces périodes de crise servent de variables de quasi-contrôle. De même, il est devenu clair que le type de choc et la typologie régionale doivent être traités de manière similaire puisqu'ils ont une valeur explicative propre. En outre, bien que l'association des pays ne puisse pas être utilisée dans toute son ampleur dans la suite de l'analyse, principalement en raison du faible nombre d'observations dans certains pays, les effets au niveau du pays - qu'ils prennent la forme d'institutions, de variables macroéconomiques ou de facteurs culturels - sont évidemment significatifs. Le chapitre 7 de la section principale anglaise (ici résumée dans la section 6) tente donc en plus une analyse au niveau national du lien entre les capacités de résilience et les performances pour un nombre sélectionné de pays qui présentent suffisamment d'observations pour rendre une comparaison significative.

[223] L'exception potentielle à cette règle, étonnamment, pourrait être la France.

6. Analyse - Capacités de resilience

Ce chapitre poursuit l'analyse des performances de résilience selon les lignes catégorielles décrites ci-dessus. Cependant, au lieu de se concentrer sur des variables catégorielles de caractéristiques régionales descriptives, il se concentre sur la valeur explicative des différentes capacités de résilience résumées dans la section 3 (cf. le tableau 1 de la section principale pour un résumé des différentes hypothèses).

À cette fin, différents indicateurs sont sélectionnés pour représenter les différentes capacités de résilience. Pour plus de détails sur les sources respectives de ces indicateurs, la méthodologie d'opérationnalisation, ainsi qu'une discussion sur les défauts de certains d'entre eux, comparez le chapitre 7.1 principal en anglais.

Ensuite, l'effet des différents indicateurs sur la performance de la résilience régionale est analysé. Les outils utilisés sont une régression linéaire multiple et une analyse de covariance. Cette dernière a pour but de prendre en compte les variables catégorielles déjà évoquées. Compte tenu du nombre relativement élevé de variables indépendantes (26 au total), l'algorithme de sélection de modèles par étapes est utilisé pour identifier les variables ayant le pouvoir explicatif le plus élevé concernant la dimension de performance de résilience respective. Les résultats de cette analyse générale sont ensuite discutés dans le contexte des hypothèses théoriques décrites ci-dessus.

Cette étape analytique est répétée plusieurs fois : d'abord pour chacune des différentes périodes de crise, ensuite selon les classifications régionales urbaines-rurales, et enfin pour les différents types de chocs. En outre, une analyse plus approfondie est menée sur la performance de résilience des régions au sein des pays sélectionnés.

L'analyse des *capacités de résilience structurelle* a porté sur les effets des indicateurs de concentration économique régionale, de structure économique régionale, de capacités d'innovation et d'ouverture des signaux, ainsi que sur la dotation économique régionale.

La *concentration économique régionale* est mesurée par l'IHH régional basé sur le RGVA, la productivité du travail et la taille moyenne des entreprises (nombre d'employés). Globalement, les données suggèrent qu'une forte concentration économique est un atout régional négatif, principalement pour la performance de résilience RGVA. Il semble que la diversité soit préférable. Aucune conclusion claire ne peut être tirée dans le cas de la performance de résilience de l'emploi. Néanmoins, il semble qu'il y ait de bons arguments en faveur d'un effet

potentiellement positif des grands employeurs régionaux, ou au moins d'un niveau plus élevé de spécialisation régionale. Les preuves à cet égard restent toutefois provisoires.

L'effet de la *structure économique régionale* indiqué par le poids sectoriel (mesuré en VABR et en part d'emploi total pour la VABR et la performance en matière d'emploi respectivement) reste très peu spécifique. De manière générale, il semble que l'effet sectoriel sur la performance de résilience d'une région dépende fortement du moment du choc, de la typologie régionale et de l'association des pays. Les seuls effets quelque peu cohérents sont une influence positive de la part du RGVA du secteur public (y compris la santé, l'éducation et les services connexes) sur la résilience basée sur le RGVA et la part de l'emploi du secteur de la construction sur la performance de résilience de l'emploi. Alors que le premier résultat semble solidement confirmé, notamment dans le contexte de chocs industriels locaux et de ralentissements nationaux, ainsi que pour les régions intermédiaires et rurales, le second montre une volatilité relativement élevée, dépendant notamment du moment de la crise et de l'association des pays. Par conséquent, la seule conclusion fiable que l'on puisse tirer pour cette catégorie de capacités de résilience potentielles est un effet bénéfique d'une part élevée de la valeur ajoutée brute du secteur public sur la performance de résilience de la valeur ajoutée brute.

Les indicateurs *relatifs aux capacités d'innovation régionales et à l'ouverture des signaux* (c'est-à-dire la part régionale des activités de recherche et développement dans le PIB ou l'emploi) n'ont qu'un faible effet, voire aucun, sur les performances régionales en matière de résilience, quelle que soit la mesure utilisée. La part de l'emploi dans la recherche et le développement a souvent un effet négatif sur les performances en matière de résilience. Par conséquent, on ne peut pas affirmer que ce type de capacité de résilience, du moins telle que mesurée par les indicateurs sélectionnés, a un effet positif significatif sur les performances de résilience économique régionale.

Pour les indicateurs liés à la *dotation économique régionale,* l'analyse a donné des résultats mitigés. Cela pourrait avoir plus à voir avec la nature des indicateurs eux-mêmes qu'avec le concept fondamental de dotation économique régionale et de la dépendance au sentier qui y est liée. On peut soutenir que ce groupe d'indicateurs est un terme fourre-tout dans lequel les indicateurs de plusieurs autres capacités pourraient être inclus. Il s'avère que deux des indicateurs - le PIB par habitant et la FBCF par habitant (tous deux normalisés) - ont peu d'effet dans l'analyse générale et des résultats très divergents dans l'analyse par catégorie. La seule exception à ce non-résultat est l'effet positif déjà évoqué de la productivité du travail sur la résilience basée sur l'emploi. Si la productivité du travail a généralement été utilisée comme un

indicateur de spécialisation dans le contexte de la concentration économique, elle est bien sûr aussi, dans une certaine mesure, le produit de la dotation économique régionale.

Le groupe appelé "*capacités de résilience institutionnelle"* comprend la stabilité macroéconomique, l'efficacité du marché microéconomique, la bonne gouvernance et l'existence de réseaux de connaissances régionaux.

Aux fins de cette étude, la stabilité macroéconomique a été principalement associée à un budget équilibré - c'est-à-dire un faible déficit public - et à un compte courant équilibré au niveau national. Par conséquent, on s'attendait généralement à ce que la stabilité macroéconomique ait une relation positive avec un faible déficit ou même un excédent public, et une association négative avec toute forme d'excédent ou de déficit du compte courant. Cependant, les résultats de l'analyse suggèrent presque l'effet inverse.

Pour la RVVA, comme prévu, un excédent du compte courant a un effet négatif sur la performance de résilience de la RVVA dans l'analyse générale. Plus inattendu est l'effet positif d'un déficit public élevé sur la performance de résilience RGVA régionale. Cela pourrait être lié à la mise en œuvre opportune de politiques de stabilisation par les gouvernements nationaux afin de lutter contre les événements de crise tels que la crise financière (Ozturk et Sozos). (Ozturk and Sozdemir 2015; Riley et al. 2014)

Les résultats concernant l'effet du déficit public sur les performances de résilience de l'emploi sont similaires à ceux identifiés pour la RGVA. Cependant, l'effet positif d'un excédent de la balance courante sur les performances en matière de résilience de l'emploi, qui est cohérent dans la plupart des analyses catégorielles des observations, est plus remarquable.

En résumé, alors que les résultats sur l'effet des déficits publics suggèrent que les politiques de stabilisation gouvernementales sont un facteur positif dans la performance de la résilience économique régionale, et que des exportations élevées exprimées sous la forme d'un excédent de la balance courante nationale semblent également être bénéfiques, aucun de ces résultats ne suggère que la stabilité et l'équilibre macroéconomiques soient en eux-mêmes bénéfiques. Bien au contraire, la résilience économique régionale semble profiter dans une certaine mesure du déséquilibre national sous forme de déficit et d'excédent commercial.

Contrairement à la stabilité macroéconomique, les preuves des avantages de l'*efficacité des marchés microéconomiques en matière* de résilience sont solides. Sur les quatre indicateurs utilisés pour estimer l'effet de cette capacité régionale, deux d'entre eux - un faible taux de syndicalisation et une flexibilité élevée de la négociation du travail à plusieurs niveaux au

niveau de l'entreprise - sont, à quelques exceptions près, positivement liés à la résilience dans presque toutes les catégories pour la VABR ainsi que pour la performance de résilience basée sur l'emploi. Un troisième indicateur - une mesure de la facilité d'obtention de crédit - montre également des tendances positives, du moins dans les analyses générales avant l'introduction des catégories de pays et apporte un soutien provisoire aux observations des autres indicateurs. Le dernier indicateur - la rémunération normalisée du travail - ne montre aucune influence, à une ou deux exceptions près dans de rares cas. La raison en est peut-être qu'en tant qu'indicateur, il est davantage lié au coût des facteurs qu'à l'efficacité des marchés du travail régionaux eux-mêmes.

L'absence de résultats clairs pour deux des indicateurs peut être liée à la nature sous-jacente des variables (la rémunération du travail n'est peut-être pas un bon indicateur de l'efficacité du marché microéconomique) ou à la manière dont l'indicateur est mesuré (l'indicateur de facilité d'obtention de crédit consiste en un score national moyen). Néanmoins, l'efficacité du marché microéconomique est l'un des meilleurs candidats pour une capacité bénéfique généralisable qui peut augmenter la résilience économique régionale comme l'indique la RGVA ainsi que la performance de résilience basée sur l'emploi.

La *bonne gouvernance,* telle que mesurée par l'indice de proximité de la gouvernance, semble être une caractéristique qui n'est que provisoirement liée à la résilience économique régionale. Cela dit, si l'on analyse en excluant la catégorie de l'association de pays, on constate un effet positif et significatif assez fort dans toutes les dimensions pour les performances en matière de résilience de l'emploi. Ce résultat n'est pas surprenant, compte tenu de la nature de l'indicateur en tant que constante nationale (puisqu'il s'agit d'une mesure ponctuelle). Inversement, cela suggère qu'une partie significative de l'effet des indicateurs nationaux pourrait être liée à la proximité du gouvernement national respectif. Néanmoins, les preuves d'une influence positive de cet indicateur restent relativement faibles.

Cela dit, d'autres caractéristiques identifiées comme ayant des effets positifs sur la performance en matière de résilience - comme l'effet d'augmentation de la performance RGVA de la part du secteur public régional, l'effet positif de l'efficacité du marché microéconomique ou l'effet des politiques nationales de stabilisation impliqué par l'effet d'un déficit public élevé - suggèrent qu'une " bonne " prise de décision gouvernementale peut avoir un effet positif sur la résilience économique régionale dans les deux dimensions. Ainsi, bien que l'indicateur choisi pour la capacité elle-même ne semble pas être le mieux adapté à la tâche analytique, certains éléments indiquent que la capacité de résilience d'un bon gouvernement n'est pas nécessairement sans

effet. S'il se peut que la décentralisation (fiscale), telle que mesurée par l'indice de proximité du gouvernement, ait peu d'effet, une bonne prise de décision politique sous d'autres formes semble toujours être un facteur de résilience positif.

Il a déjà été démontré que l'un des indicateurs de l'existence de *réseaux de connaissances régionaux* - la part régionale de l'emploi dans les activités de recherche et de développement - n'avait pas d'effet significatif. L'autre indicateur choisi pour cette catégorie de capacité de résilience était l'existence de réseaux de clusters régionaux (solides), mesurée par les "étoiles de cluster" de l'Observatoire européen des clusters. (European Cluster Observatory 2015). Contrairement aux hypothèses formulées, l'effet de cet indicateur est, à quelques exceptions près[224], presque toujours négatif ou nul.

L'avant-dernier groupe d'indicateurs de résilience a été résumé sous le terme de *capacités de résilience sociale et démographique* et comprend le développement social, la cohésion sociale, la démographie par âge et la migration (inter)régionale.

Le premier d'entre eux - le développement social - a été principalement mesuré en utilisant une version infranationale de l'indice de développement humain (SHDI). L'utilisation de la part de l'emploi dans les activités de recherche et de développement a été proposée comme indicateur secondaire, mais son effet est faible. En soi, l'indice SHDI a des effets différents sur la performance de résilience basée sur la valeur ajoutée brute et l'emploi. Pour les performances de résilience basées sur le RGVA, le SHDI montre des effets positifs généralement forts, principalement axés sur la récupération de la dimension du niveau de développement. A l'inverse, la performance de résilience de l'emploi, en particulier pour les dimensions de maintien de la trajectoire, est exclusivement affectée négativement par un indice SHDI élevé. Les raisons de ces effets opposés se trouvent probablement dans les composantes individuelles de l'IDSS lui-même, c'est-à-dire le revenu moyen corrigé du pouvoir d'achat, les années de scolarité moyennes et prévues, et l'espérance de vie.

En résumé, l'effet du développement social, mesuré par l'indice SHDI, en tant que capacité de résilience régionale reste discutable. Certaines tendances suggèrent qu'il s'agit à la fois d'un atout (pour la résilience RGVA) et d'un handicap (pour les performances en matière de résilience de l'emploi). Dans le même temps, les résultats empiriques globaux sont relativement rares et se concentrent sur des mesures de performance de résilience individuelles. Malgré cela,

[224] Des effets positifs ont pu être identifiés pour la récupération du niveau de développement mesuré par l'emploi pour la phase de crise de 2008-2009, ainsi que sur le maintien de la trajectoire quadriennale basée sur le RGVA, en particulier dans les zones rurales.

le développement social en tant que capacité de résilience ne peut être écarté d'emblée et de meilleures données sur de nombreux facteurs - y compris le niveau d'éducation en quantité et en qualité, les inégalités et le bien-être général de la population - sont nécessaires pour parvenir à une conclusion décisive.

La *cohésion sociale* peut être considérée comme une composante ou une capacité d'accompagnement du développement social. Cependant, en tant que concept, elle est plus difficile à mesurer que le bien-être matériel pur ou la réussite scolaire, comme le fait l'indice SHDI. Deux indicateurs ont été choisis pour tenter d'estimer cette caractéristique intangible : le PIB régional comparatif par habitant corrigé du pouvoir d'achat comme approximation de l'inégalité interrégionale, et l'appartenance à des organisations sociales et politiques comme indicateur des réseaux sociaux et du capital social. Il a déjà été démontré que le premier de ces deux indicateurs a relativement peu d'effet sur la résilience basée sur le RGVA ou sur l'emploi.

Le niveau de capital social - ou, plus précisément, la force des réseaux sociaux - n'est que légèrement meilleur pour expliquer les performances régionales divergentes en matière de résilience. Alors qu'un effet positif important est visible sur les dimensions de performance basées sur le RGVA dans les premières étapes de l'analyse générale, cet effet est supprimé une fois que les associations de pays sont introduites. Cela indique que l'indicateur lui-même est fortement influencé par les caractéristiques nationales, ce qui est également visible lorsque l'on examine les données au niveau national, où l'on constate que certains pays ont un nombre de membres d'organisations systématiquement plus élevé que d'autres (cf. chapitre 7.2.3 de la section principale).

Néanmoins, ce n'est pas parce qu'une variable est fortement influencée par la culture et les particularités nationales qu'elle est nécessairement sans effet. Pour certaines analyses selon des lignes catégorielles, un effet persiste même après l'introduction des variables d'association de pays. Par exemple, la phase de crise de 2008-2009 montre un effet positif d'une densité relativement élevée de réseaux sociaux, comme l'indique l'appartenance à une organisation, l'effet étant particulièrement important dans toutes les dimensions de performance pour les mesures de résilience RGVA. Ceci implique un effet positif provisoire du capital social, sous la forme de réseaux sociaux, sur la performance de résilience basée sur le RGVA en particulier. Cependant, ces résultats doivent être traités avec précaution car ils ne peuvent être reproduits ni dans l'analyse générale une fois l'association régionale des pays introduite, ni lorsque les pays sélectionnés sont traités individuellement. Par conséquent, pour la présente étude et les données

présentées, aucun effet positif ou négatif de la cohésion sociale en tant que capacité de résilience ne peut être pleinement affirmé.

Des tests ont été entrepris pour les deux indicateurs suivants du facteur général de la *démographie par âge* : (i) l'indice de vieillissement et son effet, et (ii) la part de la population économiquement active entre 15 et 64 ans. Ce dernier est un facteur démographique plus général et n'est pas uniquement lié à l'âge. L'indice de vieillissement a eu un effet généralement positif à la fois sur la valeur ajoutée brute et sur les performances de l'emploi pour le maintien de la trajectoire mesurée sur une phase de reprise de huit ans, c'est-à-dire un effet positif de la présence d'une fraction plus importante de personnes âgées de plus de 64 ans par rapport aux personnes âgées de moins de 15 ans. Cela suggère qu'il existe au moins un léger effet positif d'une population plus âgée sur la résilience économique régionale à long terme.

Il convient toutefois de noter que l'analyse selon les catégories de pays a montré un certain biais en faveur de pays spécifiques pour cet effet. Cela concerne en particulier l'Italie et l'Allemagne, qui ont toutes deux des populations relativement âgées. Par conséquent, l'effet observé pourrait indiquer qu'une variable non décrite au niveau du pays rend les régions de certains pays plus résilientes, indépendamment de la population gériatrique. (Eurostat 2021d). Inversement, l'effet négatif du même indicateur sur la reprise basée sur l'emploi de la dimension du niveau de développement pour le Royaume-Uni et le niveau plus faible de protection des travailleurs dans ce pays suggèrent qu'une population plus âgée peut, dans un environnement juridique approprié, être un facteur de stabilisation. (Grimshaw et al. 2017).

La part régionale de personnes civiles économiquement actives âgées de 15 à 64 ans a en général relativement peu d'effet sur la résilience RGVA. En ce qui concerne la résilience basée sur l'emploi, l'effet négatif de la part de population des personnes économiquement actives est plus fort. Malgré cela, du moins dans l'analyse générale, il reste peu significatif et équivaut au mieux à une faible tendance statistique.

En résumé, si l'on prend en compte les résultats de l'indice de vieillissement ainsi que ceux de l'effet de la part régionale de la population active, il ne semble pas y avoir d'effet fort lié à la démographie par âge d'une région. Tout au plus observe-t-on une légère tendance positive associée à une population plus âgée et une tendance négative avec une population apte au travail plus importante, ce qui semble avoir un effet plus marqué sur la performance de résilience de l'emploi que les mesures de performance basées sur la RVVA.

La migration interrégionale, indiquée par le solde migratoire annuel pour 1 000 habitants, c'est-à-dire le taux de migration net, est le dernier des facteurs réunis sous la rubrique des capacités

de résilience sociale et démographique. Dans l'analyse générale, l'effet du taux de migration net est globalement négatif. Alors que la performance de résilience RGVA n'est que faiblement affectée dans la trajectoire de rétention mesurée sur quatre ans, l'effet sur la résilience de l'emploi sur les deux mesures de trajectoire de rétention est au moins modérément fort.

L'effet négatif de la migration sur les performances en matière de résilience de l'emploi est non seulement plus marqué dans l'analyse générale mais aussi plus fréquent dans les différentes analyses catégorielles. Cela dit, l'effet de la migration reste comparativement faible et spécifique à certaines catégories, les effets négatifs individuels les plus forts étant identifiés pour les chocs industriels nationaux ainsi que pour les observations régionales allemandes et espagnoles.

Comme nous l'avons vu au chapitre 7.2.3 de la partie principale en anglais, il pourrait s'agir de l'effet d'une offre excédentaire régionale de main-d'œuvre réduisant la demande d'emplois peu qualifiés ou de l'effet d'une baisse de la cohésion sociale par la migration. Ces deux arguments théoriques sont très contestés (Foster 2012; O'Connor 2020; Agénor and Lim 2018; Constant 2014). Une autre explication pourrait être trouvée dans les circonstances spécifiques de ces effets négatifs : par exemple, la grande vague de migration intérieure qui a suivi la réunification de l'Allemagne n'a peut-être pas été compensée par les régions d'origine en raison du manque de données sur les régions d'Allemagne de l'Est jusqu'en 1998, ce qui peut créer un biais dans l'estimation de la force de l'effet du taux de migration net. (Möhring 2017).

En résumé, l'effet de la migration sur la performance de résilience RGVA n'est pas pertinent. De même, seul un effet négatif relativement faible peut être identifié pour la performance de résilience de l'emploi.

La dernière grande catégorie de capacités de résilience régionale a été résumée sous le terme très large de capacités de *dotation géographique*. Elle comprend la catégorisation régionale selon la typologie rurale-urbaine et le niveau d'accessibilité multimodale régionale. On peut soutenir que la dotation géographique comprend également l'association régionale des pays, qui a été traitée comme telle lors de l'analyse du point 7.2.4.

En ce qui concerne la variable non catégorique - l'accessibilité régionale - l'analyse générale n'a trouvé qu'un effet positif de l'accessibilité multimodale sur le maintien de la trajectoire de l'emploi mesuré sur quatre ans. En revanche, aucun effet n'est identifié pour la performance de résilience RGVA. Malgré ces résultats plutôt faibles pour les analyses générales de toutes les observations, il semble y avoir un effet très divergent de l'accessibilité multimodale en ce qui concerne les différentes catégories par lesquelles les observations ont été analysées en plus.

En résumé, l'effet de l'accessibilité régionale en tant que capacité de résilience régionale semble être provisoirement positif. Il existe toutefois un effet plus fort sur la performance de résilience de l'emploi ainsi qu'une forte dépendance de l'effet à l'égard du pays - étant donné les particularités des géographies et des formes nationales, cela n'est pas totalement surprenant, comme on peut facilement l'observer dans le cas italien, par exemple (González 2011; Cellini and Torrisi 2014).

L'effet de l'urbanisation tel qu'indiqué par la variable catégorielle basée sur une classification rurale-intermédiaire-urbaine est étonnamment faible. La variable n'a montré aucun effet dans les analyses générales et n'a été que dans très peu de cas suffisamment significative dans les différentes analyses par catégories pour être sélectionnée par l'approche par étapes. Dans l'ensemble, cependant, les résultats concernant l'effet de la typologie rurale-urbaine sur les performances régionales en matière de résilience économique restent assez faibles et il est impossible de tirer une conclusion.

L'association de pays, en tant que caractéristique géographique régionale, semble avoir une influence considérable sur les résultats de la résilience économique régionale par rapport à la plupart des autres caractéristiques régionales. Indépendamment du niveau ou de la catégorie de l'analyse, l'association régionale des pays est généralement l'un des effets les plus forts sur les performances de résilience régionale. L'étendue et la direction de ces effets sont trop nombreuses pour être développées ici, mais correspondent en général aux observations déjà décrites dans le chapitre 5 de ce résumé (cf. chapitre 6.4 de la section principale).

Le fort effet de certaines variables de niveau national - telles que le déficit public national et le solde du compte courant national, ainsi que les variables dominées par une législature souvent nationale (comme la politique d'éducation ou le droit du travail dans de nombreux pays) - laissait déjà entrevoir une forte influence des facteurs nationaux sur les performances de résilience économique régionale. A cela s'ajoutent les considérations sur l'effet des politiques nationales de stabilisation, la réduction globale du nombre d'effets significatifs lorsque l'analyse a été menée au niveau national, et l'influence d'autres caractéristiques nationales qui sont potentiellement inobservables au niveau régional. En fait, des observations similaires sont faites par d'autres études également (cf. i.a. Crescenzi et al. 2016; Giannakis and Bruggeman 2020; Di Pietro et al. 2020; Faggian et al. 2018).

Deux variables ne correspondant pas à la typologie générale des capacités de résilience esquissée jusqu'ici concernent les variables catégorielles du type de choc et du moment des observations dans les différentes phases de la série chronologique.

L'effet du *type de choc* dans les grandes catégories des ralentissements économiques nationaux, des chocs industriels nationaux et des chocs industriels locaux suit largement les observations déjà résumées au chapitre 5 de ce résumé. Dans l'analyse générale de toutes les observations (section principale du chapitre 7.2.5), les mesures de la performance de résilience basées sur le RGVA ont tendance à montrer un effet positif lorsqu'elles sont affectées par un ralentissement économique national, en particulier pour la récupération de la dimension du niveau de développement de la performance de résilience. Inversement, la performance de résilience RGVA voit un léger effet négatif des chocs industriels locaux dans les mêmes dimensions - les chocs industriels nationaux n'ont montré aucun effet significatif. Ces effets, comme nous l'avons vu, sont peut-être liés aux politiques nationales de stabilisation économique (ou à leur absence, dans le cas des chocs industriels locaux). Inversement, la performance de résilience de l'emploi dans les mesures concernant le maintien de la trajectoire de croissance réagit différemment et montre un effet négatif si un ralentissement est causé par une récession économique nationale. De même, les effets pour les deux chocs industriels ne sont pas significatifs mais montrent une tendance positive opposée en général sur la performance de résilience de l'emploi.

Lorsque l'on considère les différentes analyses des observations le long des différentes lignes catégorielles, l'effet des types de chocs devient moins évident, car leurs effets ne sont souvent pas d'un niveau de signification assez élevé pour être sélectionnés. Néanmoins, dans les cas où un effet significatif peut être identifié, les tendances générales observées ci-dessus sont confirmées.

Enfin, et comme mentionné précédemment, ne correspondant pas vraiment à l'une des catégories de capacité de résilience, la *période de crise de la série chronologique* au cours de laquelle les observations individuelles ont lieu (ou connaissent leur premier ralentissement) est une variable potentielle influençant les résultats de la résilience. Ici, comme pour les catégories de pays et les types de chocs, on peut identifier une influence des différentes phases de la série temporelle en accord avec les analyses discutées au chapitre 5.

À tous les niveaux d'analyse, les observations de la période 2000-2003 ont un effet négatif sur les mesures de résilience régionale associées (qu'elles soient basées sur la valeur ajoutée brute ou sur l'emploi), tandis que celles des phases 1990-1993 et 2008-2009 sont généralement plus performantes[225]. En général, la crise de 1990-1993 a l'effet positif le plus fort, tandis que la

[225] Bien que souvent, seul l'effet négatif de 2000-2003 soit significatif, il y a des exceptions comme par exemple pour la performance de la résilience de l'emploi dans les chocs industriels locaux en 2009-2009.

phase 2008-2009 est généralement un peu plus faible (surtout dans le cas de la performance de résilience RGVA, la récupération du niveau de développement a même souvent un effet négatif). Les observations qui se situent entre ces pics de crise sont généralement affectées positivement par ce fait, mais cet effet, lorsqu'il est significatif, n'est généralement pas très important.

Il semble que, comme nous l'avons déjà dit, chaque crise soit de nature sensiblement différente. Chaque crise a des effets spécifiques différents qui peuvent varier considérablement dans la force de leur effet sur les différentes catégories d'observations, et elles suivent généralement leur propre trajectoire individuelle qui les distingue des autres périodes. Par conséquent, cette étude et les études futures doivent prendre en compte l'influence de chaque crise spécifique en tant que facteur individuel, car leur nature semble être un déterminant indépendant important de la performance de résilience régionale qui empêche un modèle " taille unique " de la performance de résilience régionale.

Malgré cette dernière affirmation, il est possible de formuler quelques observations sur les mécanismes qui sous-tendent les performances de résilience économique régionale et qui affectent les deux types de performances de résilience régionale - c'est-à-dire basées sur l'emploi régional et la VABR - et les capacités de résilience correspondantes :

1. L'un des effets positifs les plus importants semble être dû à des niveaux élevés d'efficacité du marché microéconomique, en particulier sur le marché du travail.
2. Un déficit public élevé - potentiellement indicatif de dépenses publiques anticycliques rapides - a un effet positif sur les mesures de performance de la résilience régionale.
3. On observe une tendance à l'effet positif d'une population plus âgée et d'une plus grande accessibilité régionale - bien que ces deux variables dépendent fortement du pays.

Les effets négatifs de la concentration économique sectorielle et l'effet positif d'une part élevée du secteur public dans la composition de la RGVA régionale sont spécifiques à la performance de résilience de la RGVA. En outre, un niveau plus élevé de cohésion sociale, représenté par l'appartenance à des réseaux sociaux, ainsi qu'une part plus importante de la population civile active ont des tendances positives sur la performance de résilience RGVA régionale.

Les performances en matière de résilience de l'emploi montrent un effet positif important d'une productivité du travail comparativement élevée ainsi qu'un effet positif d'un excédent de la balance courante. Cela implique un effet bénéfique sur le marché du travail grâce à des avantages comparatifs dans le commerce (international). En outre, il semble y avoir une tendance suggérant un effet bénéfique de la classification d'une région comme établissement

intermédiaire. À l'inverse de la performance RGVA, une proportion plus élevée de personnes actives a des effets négatifs sur les mesures de la performance de l'emploi, alors que certains éléments indiquent que la concentration et la spécialisation économiques sont bénéfiques.

Là encore, l'effet du type de choc est commun aux deux types de performance de résilience. Cependant, alors que la performance de résilience RGVA réagit positivement aux ralentissements économiques nationaux et présente des résultats quelque peu négatifs en cas de chocs industriels (locaux), l'inverse est vrai pour la performance de résilience de l'emploi. Les deux types de mesures de la performance de résilience montrent également une réponse tout aussi forte (bien que pas toujours dans la même direction) aux différentes associations régionales de pays. Cela implique une très forte influence des particularités nationales et des variables nationales potentiellement non observées sur la performance de résilience économique régionale. Enfin, un modèle commun est également établi pour l'influence négative et les performances de résilience généralement faibles en réponse à la phase de crise de 2000 à 2003.

En résumé, pour toutes les dimensions de la performance et pour les mesures basées sur l'emploi et la valeur ajoutée brute, des niveaux élevés d'efficacité du marché microéconomique ainsi que des dépenses déficitaires ont un effet positif majeur sur la performance de la résilience économique régionale. En outre, le type de choc ainsi que le moment du choc peuvent avoir une influence majeure sur les résultats de la résilience régionale. Un effet positif spécifique sur la performance de résilience basée sur la valeur ajoutée régionale peut être trouvé dans de faibles niveaux de concentration économique régionale, un secteur public régional important, des niveaux élevés de capital social régional sous la forme d'adhésion à des organisations, et à travers une grande population économiquement active. Dans le même temps, les performances de résilience basées sur l'emploi sont positivement affectées par des niveaux comparativement élevés de productivité du travail et par la concentration économique et la spécialisation qui y sont liées, ainsi que par le très fort effet positif d'un excédent national élevé de la balance courante.

7. Conclusion

L'intérêt central de ce travail de recherche était l'étude des mécanismes et de la nature de la réponse des économies régionales aux chocs et aux événements de récession. Plus précisément, l'enquête s'est concentrée sur la mesure du phénomène de la *résilience économique régionale*

et sur la recherche d'explications des *performances de résilience* divergentes d'une région à l'autre face à des circonstances économiques défavorables. En d'autres termes, la question centrale posée était la suivante : Qu'est-ce qui fait que certaines régions européennes sont plus performantes que d'autres face à une crise économique ?

Trois étapes primordiales ont été définies pour tenter d'explorer la résilience économique régionale européenne : Premièrement, identifier les événements chocs pertinents à différents niveaux de l'économie et mesurer l'étendue de leur impact immédiat. Deuxièmement, créer une méthode pour mesurer le phénomène insaisissable de la résilience d'une manière qui rende la performance de la résilience économique régionale observable et, en particulier, comparable d'une manière objective non liée aux restrictions des crises individuelles ou des emplacements géographiques. Troisièmement, explorer les raisons pour lesquelles certaines régions prospèrent, périssent ou reflètent simplement la tendance économique générale au lendemain d'une crise - c'est-à-dire la valeur explicative des différentes capacités de résilience régionale - afin d'améliorer leur performance en matière de résilience économique.

Pour jeter les bases de ces étapes, une discussion approfondie des différentes approches théoriques actuelles du phénomène de la résilience (économique) a été menée. Après la discussion de plusieurs approches interdisciplinaires différentes, le cadre théorique de la *résilience adaptative* proposé par Ron Martin et ses co-auteurs a été considéré comme le plus approprié au contexte économique régional. (Martin and Sunley 2020, 2015a; Simmie and Martin 2010). Cette approche décrit la résilience économique régionale comme un processus dynamique qui, grâce au mécanisme d'hystérésis, permet aux économies régionales non seulement de rebondir après une crise, mais aussi de s'adapter et de changer de manière évolutive tout au long du processus. Ce dernier point en particulier permet une évaluation plus approfondie de la qualité relative des résultats et une observation de la résilience au-delà de la *résilience* simple, binaire et *technique*.

En utilisant cette approche comme schéma théorique, cette thèse a défini les grandes lignes d'une méthodologie pour identifier, évaluer et mesurer le processus de résilience et ses résultats. La méthodologie choisie, après avoir discuté de plusieurs approches différentes, est fondée sur le travail de Hill et al. qui ont mené une étude similaire sur une région métropolitaine américaine. (Hill et al. 2012). Leur travail fondamental a été modifié de manière substantielle par l'auteur afin de prendre en compte le concept de résilience adaptative tel qu'il a été défini par Martin, ainsi que pour l'adapter au contexte européen. Le résultat est une approche dynamique capable d'identifier différents types de chocs et de ralentissements et de mesurer la

performance de la résilience dans deux dimensions continues - c'est-à-dire *le rétablissement du niveau de développement* et le *maintien de la trajectoire de croissance* - sur une longue série temporelle et une large couverture géographique.

Cette nouvelle méthode de mesure de la performance de résilience multidimensionnelle et intertemporelle comparable a ensuite été appliquée au niveau européen NUTS 3, sur la base de données sur la valeur ajoutée brute régionale ainsi que sur l'emploi régional. Le but de l'utilisation de ces deux mesures de la performance économique était de considérer que, au niveau des acteurs et des constituants locaux, ces deux facteurs sont importants pour le bien-être économique. Tout en testant la robustesse de la méthodologie, les résultats de l'application offrent un regard approfondi sur la performance de la résilience régionale à travers 30 ans d'histoire de l'Europe (occidentale) à un niveau de résolution géographique qui n'a pas encore été atteint dans la littérature dans la même mesure.

Les mesures de la performance de résilience ainsi obtenues ont ensuite été analysées en deux étapes distinctes. La première concernait principalement la distribution géographique, temporelle et typologique de la performance de résilience parmi les observations. Les résultats de cette étape de l'analyse ont consisté en quatre constatations principales : Premièrement, la performance de la résilience économique régionale dépend fortement de la période - par exemple, les observations tombant dans la phase 2000-2003 ont régulièrement obtenu les pires résultats en comparaison. Deuxièmement, la nature du choc à l'origine d'un ralentissement économique régional est un facteur déterminant - par exemple, les ralentissements économiques nationaux ont entraîné une meilleure performance de résilience s'ils sont mesurés sur la base de la VABR, tandis que les chocs industriels (locaux) ont eu le même effet s'ils sont mesurés sur la base de l'emploi. Troisièmement, les effets d'association et de niveau de pays ont une influence démesurée sur la performance de résilience au niveau régional. Enfin, le clivage régional urbain-rural est moins important qu'on ne le pense souvent, du moins dans le contexte de la résilience économique régionale[226].

La deuxième étape de l'analyse a consisté à explorer les caractéristiques régionales potentielles qui améliorent la performance de résilience économique régionale, c'est-à-dire les capacités de résilience régionales. Pour guider cette analyse exploratoire, une revue de la littérature a été réalisée sur la grande variété d'approches explicatives des performances de résilience divergentes, dont les résultats ont été traduits en hypothèses testables et en indicateurs

[226] Cependant, il persiste un léger biais positif en faveur des régions rurales et intermédiaires, qui n'est toutefois pas constant tout au long de la série chronologique.

mesurables. Ces hypothèses et indicateurs ont ensuite été soumis à des analyses quantitatives sur l'ensemble des observations, ainsi que sur plusieurs sous-échantillons catégoriels.

Les principales conclusions de cette analyse exploratoire sont les suivantes :

- Premièrement, toutes mesures confondues, des niveaux élevés d'efficacité du marché microéconomique, notamment sous la forme de marchés de l'emploi libéraux et flexibles, ont un effet positif majeur sur les performances de résilience économique régionale.
- Deuxièmement, une réaction positive des mesures de résilience économique régionale sur les dépenses de déficit suggère l'efficacité des dépenses anticycliques et des politiques keynésiennes en réponse aux chocs économiques[227].
- Troisièmement, et spécifiquement pour la performance de résilience basée sur la RGVA, les effets positifs d'une faible concentration économique régionale, d'un secteur public régional important, de niveaux élevés de capital social régional sous forme d'adhésion à des organisations, et d'une population économiquement active importante.
- Quatrièmement, et spécifiquement pour les performances de résilience basées sur l'emploi, il y a l'effet positif de la productivité du travail et, en relation avec cela, de la concentration et de la spécialisation économiques, ainsi que l'effet positif très fort d'un excédent élevé de la balance courante nationale.

Parmi ces principaux résultats, seuls deux sont potentiellement mutuellement exclusifs dans une certaine mesure, c'est-à-dire que l'effet de la concentration économique régionale semble affecter de manière différente la résilience basée sur la valeur ajoutée brute et celle basée sur l'emploi. Cela pourrait potentiellement conduire à des conflits dans toute politique industrielle ciblant la concentration économique comme une capacité d'amélioration de la résilience. Cependant, comme nous l'avons vu dans la section principale en anglais, l'ampleur de cet effet est, à son tour, fortement affectée par l'association des pays.

Cette dernière observation souligne un schéma général que l'on retrouve tout au long de l'analyse : Les circonstances d'un choc et d'un ralentissement économique régional sont des facteurs décisifs qui influencent les résultats du processus de résilience régionale. Cela signifie que l'association régionale des pays, le moment du choc ou les types spécifiques de choc sont

[227] Cela est encore souligné par l'analyse des différentes périodes de la série chronologique où, par exemple, les crises de 2008-2009, avec sa réponse plus ou moins keynésienne, ont obtenu des résultats régulièrement plus forts que les mesures liées à la période de crise de 2000-2003 qui est souvent associée à des réponses néoclassiques.

des facteurs décisifs qui dépassent l'influence individuelle d'une seule capacité de résilience observée ou de ses indicateurs.

À première vue, cette dernière conclusion est quelque peu générale, bien qu'elle reflète les résultats d'autres études à long terme, comme celles de Cellini et Torrisi, qui, dans leur analyse de la résilience économique régionale italienne sur 120 ans, n'ont pas non plus pu identifier de spécificités régionales significatives influençant la reprise après le choc. (Cellini and Torrisi 2014). Cependant, ce n'est pas parce qu'il n'y a pas de solution unique à la résilience économique régionale, ni même une sorte de fonction de résilience universelle comme dans certaines sciences naturelles, qu'il faut en conclure qu'il n'y a pas de solution universelle. (Gao et al. 2016)cela ne remet pas en cause de manière inhérente le concept théorique ou son étude empirique.

Comme l'a montré l'application de la méthodologie proposée pour mesurer la résilience dans les modèles de résilience qu'elle a révélés, l'existence de la résilience économique régionale en tant que phénomène empirique est indéniable. On peut discuter du rôle de la résilience en tant que concept dans le débat économique général, ou de sa valeur en tant que sujet d'investigation autonome. Cependant, il ne fait aucun doute que la résilience économique régionale fait une différence pour les entreprises, les décideurs et les citoyens. En tant que tel, et en raison des conséquences très réelles qu'une faible performance de résilience économique régionale a sur les populations, le phénomène mérite une étude plus approfondie. La méthode proposée dans cette thèse pour mesurer la performance de résilience régionale offre un modèle éprouvé pour de telles investigations. Cette approche, grâce à son évolutivité et sa flexibilité, peut être appliquée à un ensemble diversifié de scénarios et à tous les niveaux d'une enquête économique. En tant que telle, elle peut être un outil pour de futures investigations plus conceptuelles, détaillées et ciblées, c'est-à-dire spécifiques à un pays ou à une crise, sur le sujet de recherche.

Dans ce contexte, ce travail, par son étude approfondie du concept, la conception d'une nouvelle méthodologie de mesure et la vaste analyse exploratoire des origines de la résilience, doit être considéré comme l'une des nombreuses étapes nécessaires à une meilleure compréhension et une conceptualisation plus approfondie des modèles de résilience régionale. L'objectif de ce travail et de toute recherche qu'il pourrait inspirer doit, bien entendu, rester fixé sur la construction d'économies régionales plus résilientes et sur la prospérité et le bien-être des populations régionales.

11. Appendix

Remark by the author:

The following appendix contains the main results of all statistical analyses and tests conducted for the thesis which are referred to in text. The section also includes a series of summaries of data and observations which were similarly referred to. Care was given to include all material which was used as a foundation for the present work. Any additional data, tests, or other material necessary can be requested by writing to the author of this thesis at:

andreas.hummler@gmail.com

Content of Appendix

I. Appendix to Section 5.

I.a. National Economic Downturns by Country and Year

National Economic Shocks - GVA

Country	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	TOTAL	NED by Country
AT	0	0	0	0	0	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35	0	0	0	0	0	0	0	0	0	70	2
BE	0	0	0	0	0	44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	0	0	0	0	0	0	0	0	0	88	2
DE	0	0	0	0	401	401	401	401	401	0	0	0	0	0	0	401	0	0	0	0	0	401	0	0	0	0	0	0	0	0	0	2807	7
DK	0	0	0	0	0	0	0	0	0	0	0	0	0	11	11	11	0	0	0	0	0	11	0	0	0	0	0	0	0	0	0	44	4
EL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52	0	0	52	52	52	52	52	0	0	0	0	0	0	312	6
ES	0	0	0	0	59	59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59	59	59	59	59	0	0	0	0	0	0	413	7
FI	0	0	19	19	19	0	0	0	0	0	0	0	0	0	19	19	0	0	0	0	0	19	0	0	19	0	0	0	0	0	0	133	7
FR	0	0	0	0	0	101	0	0	0	0	0	0	0	0	0	101	0	0	0	0	0	101	0	0	0	0	0	0	0	0	0	303	3
IE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	8	8	0	0	8	0	0	6	0	0	0	38	5
IT	0	0	0	0	110	110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	110	0	0	110	0	0	0	0	0	0	440	4
NL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	40	0	0	0	0	0	40	0	0	40	0	0	0	0	0	0	160	4
PT	0	0	0	0	25	25	25	0	0	0	0	0	0	0	25	25	0	0	0	0	0	25	0	0	25	0	0	0	0	0	0	175	7
SE	0	0	0	21	21	21	0	0	0	0	0	0	0	21	0	0	0	0	0	0	21	21	0	0	21	0	0	0	0	0	0	147	7
UK	0	0	179	179	179	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	179	179	0	0	0	0	0	0	0	0	0	895	5
LU	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	1	0	0	0	0	0	0	6	6
TOTAL	0	0	198	219	814	796	426	402	402	0	0	0	0	32	95	606	0	52	0	0	320	1106	111	111	335	0	0	6	0	0	0	6031	17
Affected Countries	0	0	2	3	7	8	2	2	2	0	0	0	0	2	4	8	0	1	0	0	6	15	2	2	9	0	0	1	0	0	0	76	17

National Economic Shocks - Employment

Country	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	TOTAL	NED by Country
AT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DE	0	0	0	0	401	401	401	401	401	401	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2406	6
DK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	11	0	0	0	0	0	0	0	0	22	2
EL	0	0	0	52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52	52	52	52	0	0	0	0	0	0	260	5
ES	0	0	0	0	59	59	59	0	0	0	0	0	0	0	0	0	0	0	0	0	59	59	59	59	59	0	0	0	0	0	0	472	8
FI	0	0	0	19	19	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	0	0	0	0	0	0	0	0	0	76	4
FR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	8	0	0	0	0	8	8	8	8	0	0	0	0	0	0	0	48	6
IT	0	0	0	0	0	110	110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	110	0	0	0	0	0	0	0	0	0	330	3
NL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	80	2
PT	0	0	0	0	25	25	25	0	0	0	0	0	0	0	0	25	25	0	0	0	0	25	0	0	25	0	0	0	0	0	0	175	7
SE	0	0	0	21	21	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21	0	0	0	0	0	0	0	0	0	84	4
UK	0	0	0	179	179	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	179	0	0	0	0	0	0	0	0	0	537	3
LU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2	2
TOTAL	0	0	0	271	704	635	595	401	401	401	0	0	0	0	8	74	65	0	0	0	67	485	130	119	136	0	0	0	0	0	0	4492	15
Affected Countries	0	0	0	4	6	6	4	1	1	1	0	0	0	0	1	4	2	0	0	0	2	10	4	3	3	0	0	0	0	0	0	52	15

I.b. Robustness for varying duration for the measurement of average pre-shock growth on NED identification

Normality tests for robustness tests of carying measurement lengths of pre-shock average growth

RGVA

Shapiro-Wilk test (8-years):

W	0,965
p-value (Two-tailed)	< 0,0001
alpha	0,05

Shapiro-Wilk test (6-years):

W	0,962
p-value (Two-tailed)	< 0,0001
alpha	0,05

Shapiro-Wilk test (10-years):

W	0,965
p-value (Two-tailed)	< 0,0001
alpha	0,05

Kolmogorov-Smirnov test (8-years):

D	0,058
p-value (Two-tailed)	0,130
alpha	0,05

Kolmogorov-Smirnov test (6-years):

D	0,060
p-value (Two-tailed)	0,107
alpha	0,05

Kolmogorov-Smirnov test (10-years):

D	0,054
p-value (Two-tailed)	0,188
alpha	0,05

Employment

Shapiro-Wilk test (8-years):

W	0,947
p-value (Two-tailed)	< 0,0001
alpha	0,05

Shapiro-Wilk test (6-years):

W	0,951
p-value (Two-tailed)	< 0,0001
alpha	0,05

Shapiro-Wilk test (10-years):

W	0,935
p-value (Two-tailed)	< 0,0001
alpha	0,05

Kolmogorov-Smirnov test (8-years):

D	0,130
p-value (Two-tailed)	< 0,0001
alpha	0,05

Kolmogorov-Smirnov test (6-years):

D	0,109
p-value (Two-tailed)	< 0,0001
alpha	0,05

Kolmogorov-Smirnov test (10-years):

D	0,141
p-value (Two-tailed)	< 0,0001
alpha	0,05

ANOVA for robustness tests of carying measurement lengths of pre-shock average growth

RGVA based

Correlation matrix:

	10-years	6-years	8-years	Y
10-years	**1**	0,502	-0,861	0,004
6-years	0,502	**1**	-0,871	-0,001
8-years	-0,861	-0,871	**1**	-0,002
Y	0,004	-0,001	-0,002	**1**

Goodness of fit statistics (Y):

Observations	1281
Sum of weigl	1281
DF	1278
R^2	0,000
Adjusted R^2	-0,002
MSE	0,000
RMSE	0,016
MAPE	203,673
DW	0,646
Cp	3,000
AIC	-10605,732
SBC	-10590,266
PC	1,005

Settings:
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Use least squares means: Yes

Analysis of variance (Y):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	2	0,000	0,000	0,023	0,977
Error	1278	0,324	0,000		
Corrected Total	1280	0,324			

Computed against model Y=Mean(Y)

Model parameters (Y):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,022	0,000	48,313	**<0,0001**	0,021	0,022
10-years	0,000	0,001	0,210	0,834	-0,001	0,001
6-years	0,000	0,001	-0,151	0,880	-0,001	0,001
8-years	0,000	0,001	-0,065	0,948	-0,001	0,001

Employment based

Correlation matrix:

	10-years	6-years	8-years	Y
10-years	**1**	0,501	-0,862	0,009
6-years	0,501	**1**	-0,871	-0,008
8-years	-0,862	-0,871	**1**	0,000
Y	0,009	-0,008	0,000	**1**

Goodness of fit statistics (Y):

Observations	1395
Sum of weigl	1395
DF	1392
R^2	0,000
Adjusted R^2	-0,001
MSE	0,000
RMSE	0,014
MAPE	574,256
DW	0,723
Cp	3,000
AIC	-11927,424
SBC	-11911,702
PC	1,004

Settings:
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Use least squares means: Yes

Analysis of variance (Y):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	2	0,000	0,000	0,204	0,815
Error	1392	0,269	0,000		
Corrected Total	1394	0,269			

Computed against model Y=Mean(Y)

Model parameters (Y):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,009	0,000	23,620	**<0,0001**	0,008	0,010
10-years	0,000	0,001	0,562	0,574	-0,001	0,001
6-years	0,000	0,001	-0,546	0,585	-0,001	0,001
8-years	0,000	0,001	-0,034	0,973	-0,001	0,001

Kruskal-Wallis test for robustness tests of carying measurement lengths of pre-shock average growth

RGVA based

Kruskal-Wallis test / Two-tailed test:

K (Observed value)	0,241
K (Critical value)	5,991
DF	2
p-value (one-tailed)	0,887
alpha	0,05

An approximation has been used to compute the p-value.

Settings:
Significance level (%): 5
p-value: Asymptotic p-value
Continuity correction: Yes

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
6-years	457	290203,000	635,018	A
8-years	427	273880,000	641,405	A
10-years	397	257038,000	647,451	A

Pairwise comparisons:

Differences:

	8-years	6-years	10-years
8-years	0	6,388	-6,046
6-years	-6,388	0	-12,433
10-years	6,046	12,433	0

Employment based

Kruskal-Wallis test / Two-tailed test:

K (Observed value)	0,048
K (Critical value)	5,991
DF	2
p-value (one-tailed)	0,976
alpha	0,05

An approximation has been used to compute the p-value.

Settings:
Significance level (%): 5
p-value: Asymptotic p-value
Continuity correction: Yes

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
6-years	495	344159,000	695,271	A
8-years	465	324592,000	698,047	A
10-years	435	304959,000	701,055	A

Pairwise comparisons:

Differences:

	8-years	6-years	10-years
8-years	0	2,777	-3,008
6-years	-2,777	0	-5,784
10-years	3,008	5,784	0

I.c. Robustness tests of the Identification of Export Industries

Increased regional export industry weight threshold to 8%

	Export Industries by RGVA						
	A	B-E	F	G-J	K-N	O-U	Total
AT	414	148	231	53	0	0	**846**
BE	147	33	59	34	0	41	**314**
DE	2166	2460	1091	46	83	261	**6107**
DK	24	0	0	0	0	0	**24**
EL	927	81	44	147	0	14	**1213**
FI	377	8	26	14	0	18	**443**
FR	1438	0	72	0	19	118	**1647**
IE	28	54	0	0	0	0	**82**
IT	1749	101	122	28	0	9	**2009**
NL	407	116	19	0	0	93	**635**
PT	612	64	225	0	0	0	**901**
SE	186	4	0	0	0	8	**198**
UK	639	416	523	39	93	208	**1918**
LU	0	0	0	0	0	0	**0**
Total	**10363**	**3520**	**2820**	**521**	**195**	**842**	**18261**
Share	**56,7%**	**19,3%**	**15,4%**	**2,9%**	**1,1%**	**4,6%**	

Increased export ind weight threshold to 8%

	Export Industries by Employment						
	A	B-E	F	G-J	K-N	O-U	Total
AT	683	91	23	13	0	0	**810**
BE	117	50	15	1	12	1	**196**
DE	907	2864	749	18	132	39	**4709**
DK	14	0	0	0	31	1	**46**
EL	1655	17	153	57	0	13	**1895**
FI	383	0	13	5	0	0	**401**
FR	866	0	23	0	58	95	**1042**
IE	243	0	21	0	0	0	**264**
IT	1357	592	86	0	0	5	**2040**
NL	109	0	8	8	281	0	**406**
PT	858	141	151	0	0	0	**1150**
SE	15	8	0	0	0	24	**47**
UK	301	162	352	65	656	7	**1543**
LU	0	0	0	0	0	0	**0**
Total	**8576**	**3961**	**2002**	**233**	**1170**	**250**	**16192**
Share	**53,0%**	**24,5%**	**12,4%**	**1,4%**	**7,2%**	**1,5%**	

Varied European export industry size threshold down to 1,5 (50% above EU average)

	Export Industries by RGVA						
	A	B-E	F	G-J	K-N	O-U	Total
AT	657	278	553	155	0	1	**1644**
BE	390	126	164	39	16	359	**1094**
DE	4096	4795	2154	137	281	1102	**12565**
DK	105	7	0	2	15	27	**156**
EL	1035	124	62	334	9	89	**1653**
ES	1567	226	991	335	2	87	**3208**
FI	587	74	69	39	0	103	**872**
FR	2201	3	345	6	107	458	**3120**
IE	81	76	0	1	0	1	**159**
IT	2516	569	313	224	33	126	**3781**
NL	737	187	70	51	8	214	**1267**
PT	752	127	360	29	1	51	**1320**
SE	397	84	34	0	0	86	**601**
UK	980	910	1306	131	347	703	**4377**
LU	0	0	0	0	26	0	**26**
Total	**16101**	**7586**	**6421**	**1483**	**845**	**3407**	**35843**
Share	**44,9%**	**21,2%**	**17,9%**	**4,1%**	**2,4%**	**9,5%**	

Varied European export industry size threshold down to 1,5 (50% above EU average)

	Export Industries by Employment						
	A	B-E	F	G-J	K-N	O-U	Total
AT	957	277	84	92	0	0	**1410**
BE	317	240	103	32	64	67	**823**
DE	2449	5124	1627	98	470	299	**10067**
DK	80	3	0	2	36	31	**152**
EL	1704	60	268	237	11	19	**2299**
ES	1362	170	797	178	6	79	**2592**
FI	582	76	40	27	0	9	**734**
FR	1834	26	62	1	125	247	**2295**
IE	272	0	51	0	7	1	**331**
IT	2024	1102	263	5	5	82	**3481**
NL	224	4	78	71	687	0	**1064**
PT	920	217	316	1	0	0	**1454**
SE	107	65	8	0	0	210	**390**
UK	585	552	839	305	1299	29	**3609**
LU	0	0	22	0	32	0	**54**
Total	**13417**	**7916**	**4558**	**1049**	**2742**	**1073**	**30755**
Share	**43,6%**	**25,7%**	**14,8%**	**3,4%**	**8,9%**	**3,5%**	

Varied European export industry size threshold up to 2 (100% above EU average)

	Export Industries by RGVA						
	A	B-E	F	G-J	K-N	O-U	Total
AT	484	63	116	31	0	0	**694**
BE	194	9	28	4	0	12	**247**
DE	2622	1440	749	3	53	75	**4942**
DK	46	0	0	0	0	0	**46**
EL	978	70	34	85	0	7	**1174**
ES	1344	13	198	65	0	68	**1688**
FI	436	1	12	6	0	3	**458**
FR	1627	0	17	0	9	80	**1733**
IE	46	34	0	0	0	0	**80**
IT	1958	9	75	7	0	0	**2049**
NL	491	60	13	0	0	64	**628**
PT	651	37	155	0	0	0	**843**
SE	258	2	0	0	0	0	**260**
UK	741	202	299	1	65	138	**1446**
LU	0	0	0	0	0	0	**0**
Total	**11876**	**1940**	**1696**	**202**	**127**	**447**	**16288**
Share	**72,9%**	**11,9%**	**10,4%**	**1,2%**	**0,8%**	**2,7%**	

Varied European export industry size threshold up to 2 (100% above EU average)

	Export Industries by Employment						
	A	B-E	F	G-J	K-N	O-U	Total
AT	731	42	10	4	0	0	**787**
BE	128	20	10	0	0	0	**158**
DE	924	1711	481	3	93	23	**3235**
DK	10	0	0	0	21	0	**31**
EL	1663	6	132	21	0	13	**1835**
ES	1127	14	263	14	0	11	**1429**
FI	346	0	9	0	0	0	**355**
FR	1056	0	7	0	28	64	**1155**
IE	245	0	7	0	0	0	**252**
IT	1501	287	25	0	0	0	**1813**
NL	127	0	3	1	145	0	**276**
PT	885	98	86	0	0	0	**1069**
SE	43	0	0	0	0	5	**48**
UK	328	60	242	7	408	1	**1046**
LU	0	0	0	0	0	0	**0**
Total	**9114**	**2238**	**1275**	**50**	**695**	**117**	**13489**
Share	**67,6%**	**16,6%**	**9,5%**	**0,4%**	**5,2%**	**0,9%**	

Changed reference to National Export industry reference (instead EU)

	Export Industries by RGVA						
	A	B-E	F	G-J	K-N	O-U	Total
AT	584	104	51	29	0	0	**768**
BE	821	87	201	8	0	5	**1122**
DE	5907	693	1777	123	75	379	**8954**
DK	120	0	0	0	8	0	**128**
EL	567	137	162	39	4	11	**920**
ES	835	56	56	16	9	72	**1044**
FI	225	14	11	14	0	1	**265**
FR	1611	18	32	0	4	80	**1745**
IE	58	8	3	0	0	2	**71**
IT	1441	60	171	0	0	125	**1797**
NL	432	174	63	0	0	50	**719**
PT	473	84	81	0	1	0	**639**
SE	331	0	0	0	0	0	**331**
UK	1656	543	369	47	94	127	**2836**
LU	0	0	0	0	0	0	**0**
Total	**15061**	**1978**	**2977**	**276**	**195**	**852**	**21339**
Share	**70,6%**	**9,3%**	**14,0%**	**1,3%**	**0,9%**	**4,0%**	

Changed reference to National Export industry reference (instead EU)

	Export Industries by Employment						
	A	B-E	F	G-J	K-N	O-U	Total
AT	499	38	22	5	0	0	**564**
BE	690	67	59	0	1	0	**817**
DE	5212	714	1076	50	144	45	**7241**
DK	68	0	0	0	21	0	**89**
EL	709	170	166	23	79	22	**1169**
ES	737	67	113	15	12	74	**1018**
FI	179	0	11	10	0	0	**200**
FR	1472	54	24	0	36	54	**1640**
IE	24	0	0	0	20	0	**44**
IT	1221	165	129	0	4	4	**1523**
NL	321	60	7	0	17	4	**409**
PT	269	72	46	0	29	0	**416**
SE	199	7	1	0	0	0	**207**
UK	1585	562	215	6	137	12	**2517**
LU	0	0	0	0	0	0	**0**
Total	**13185**	**1976**	**1869**	**109**	**500**	**215**	**17854**
Share	**73,8%**	**11,1%**	**10,5%**	**0,6%**	**2,8%**	**1,2%**	

I.d.European (EU15) Sectoral Shares

Sectoral share of European GVA

YEAR	A	B-E	F	G-J	K-N	O-U
1980	1,9%	23,4%	9,5%	22,6%	21,4%	21,2%
1981	1,9%	22,8%	9,2%	22,7%	21,6%	21,8%
1982	2,0%	22,4%	9,0%	23,3%	21,9%	21,4%
1983	1,9%	22,4%	8,9%	23,1%	22,0%	21,7%
1984	2,0%	22,3%	8,6%	23,1%	22,2%	21,8%
1985	1,9%	22,6%	8,3%	23,0%	22,6%	21,6%
1986	1,9%	22,3%	8,2%	23,2%	22,9%	21,5%
1987	1,9%	22,1%	8,3%	23,2%	23,0%	21,6%
1988	1,8%	22,1%	8,4%	23,1%	23,1%	21,4%
1989	1,8%	22,1%	8,5%	23,0%	23,3%	21,2%
1990	1,8%	21,9%	8,5%	22,9%	23,6%	21,3%
1991	1,7%	21,8%	8,4%	22,8%	23,7%	21,4%
1992	1,8%	21,4%	8,3%	22,8%	24,2%	21,6%
1993	1,7%	20,7%	8,0%	23,2%	24,8%	21,5%
1994	1,6%	21,0%	7,9%	23,2%	25,3%	21,0%
1995	1,7%	21,0%	7,6%	23,6%	25,4%	20,7%
1996	1,7%	20,8%	7,4%	23,5%	25,9%	20,7%
1997	1,7%	20,8%	7,1%	23,6%	26,0%	20,8%
1998	1,6%	20,7%	6,9%	23,6%	26,1%	21,0%
1999	1,7%	20,5%	6,8%	23,6%	26,2%	21,2%
2000	1,6%	20,6%	6,8%	24,2%	25,6%	21,2%
2001	1,5%	20,3%	6,7%	24,6%	25,6%	21,3%
2002	1,5%	20,0%	6,7%	24,5%	25,6%	21,6%
2003	1,4%	19,8%	6,7%	24,3%	25,9%	21,8%
2004	1,6%	19,9%	6,7%	24,1%	26,0%	21,8%
2005	1,4%	19,8%	6,6%	23,9%	26,4%	21,9%
2006	1,4%	19,8%	6,6%	23,7%	26,8%	21,8%
2007	1,4%	19,8%	6,5%	23,6%	27,3%	21,4%
2008	1,4%	19,3%	6,2%	23,7%	27,5%	21,9%
2009	1,5%	17,8%	6,0%	23,7%	27,7%	23,3%
2010	1,4%	18,7%	5,8%	23,4%	27,4%	23,2%
2011	1,4%	18,9%	5,7%	23,4%	27,6%	23,0%
2012	1,4%	18,6%	5,4%	23,4%	28,0%	23,2%
2013	1,4%	18,4%	5,2%	23,4%	28,3%	23,2%
2014	1,5%	18,5%	5,2%	23,5%	28,4%	23,0%
2015	1,5%	18,4%	5,2%	23,6%	28,5%	22,9%
2016	1,4%	18,6%	5,3%	23,6%	28,3%	22,8%
2017	1,3%	18,8%	5,3%	23,8%	28,1%	22,6%
2018	1,3%	18,9%	5,3%	23,9%	28,0%	22,6%

Sectoral share of European Employment

YEAR	A	B-E	F	G-J	K-N	O-U
1980	8,7%	26,2%	8,7%	22,9%	10,4%	23,0%
1981	8,5%	25,5%	8,4%	23,4%	10,7%	23,6%
1982	8,2%	25,0%	8,2%	23,8%	11,0%	23,9%
1983	8,1%	24,4%	8,1%	24,1%	11,1%	24,2%
1984	7,8%	23,9%	7,8%	24,5%	11,4%	24,6%
1985	7,5%	23,6%	7,6%	24,8%	11,7%	24,9%
1986	7,2%	23,3%	7,5%	25,0%	11,9%	25,2%
1987	6,9%	22,8%	7,5%	25,3%	12,0%	25,5%
1988	6,5%	22,5%	7,5%	25,5%	12,3%	25,7%
1989	6,2%	22,3%	7,6%	25,7%	12,4%	25,9%
1990	5,8%	22,0%	7,6%	25,8%	12,6%	26,2%
1991	5,3%	21,6%	7,7%	25,9%	12,7%	26,7%
1992	5,1%	20,8%	7,6%	26,3%	12,9%	27,3%
1993	5,0%	20,1%	7,4%	26,5%	13,1%	27,9%
1994	4,8%	19,7%	7,4%	26,6%	13,3%	28,2%
1995	4,6%	19,5%	7,4%	26,7%	13,4%	28,5%
1996	4,4%	19,2%	7,3%	26,8%	13,6%	28,7%
1997	4,3%	18,9%	7,2%	26,9%	13,8%	28,8%
1998	4,1%	18,8%	7,2%	27,1%	13,9%	28,9%
1999	3,9%	18,3%	7,2%	27,3%	14,2%	29,1%
2000	3,8%	17,9%	7,3%	27,3%	14,4%	29,3%
2001	3,7%	17,6%	7,3%	27,5%	14,7%	29,3%
2002	3,6%	17,1%	7,3%	27,6%	14,9%	29,6%
2003	3,5%	16,7%	7,3%	27,6%	15,0%	29,9%
2004	3,4%	16,2%	7,3%	27,7%	15,2%	30,1%
2005	3,3%	15,8%	7,4%	27,6%	15,6%	30,2%
2006	3,2%	15,5%	7,5%	27,6%	16,0%	30,2%
2007	3,1%	15,2%	7,7%	27,6%	16,3%	30,0%
2008	3,1%	15,1%	7,5%	27,7%	16,6%	30,1%
2009	3,0%	14,6%	7,1%	27,7%	16,5%	31,0%
2010	3,1%	14,2%	6,9%	27,7%	16,7%	31,4%
2011	3,0%	14,2%	6,6%	27,8%	17,0%	31,4%
2012	3,0%	14,1%	6,4%	27,8%	17,2%	31,5%
2013	2,9%	14,0%	6,3%	27,8%	17,3%	31,7%
2014	2,9%	13,8%	6,2%	27,8%	17,6%	31,8%
2015	2,8%	13,7%	6,1%	28,0%	17,8%	31,6%
2016	2,8%	13,5%	6,1%	28,1%	17,9%	31,6%
2017	2,8%	13,5%	6,1%	28,1%	18,0%	31,5%
2018	2,8%	13,4%	6,1%	28,2%	18,2%	31,4%

I.e. Robustness test of the Identification of Industry Shocks

Varied sectoral loss threshold from 0,75% to 1,5%

	Total Industry Shocks by Employment								Total Industry Shocks by RGVA							
	A	**B-E**	**F**	**G-J**	**K-N**	**O-U**	**Total**	**% export industry**	**A**	**B-E**	**F**	**G-J**	**K-N**	**O-U**	**Total**	**% export industry**
AT	17	2	0	0	0	0	**19**	**2,0%**	6	10	9	1	0	0	**26**	**2,6%**
BE	3	2	0	0	1	0	**6**	**2,4%**	2	4	0	2	0	1	**9**	**2,1%**
DE	30	209	82	0	6	2	**329**	**6,3%**	112	371	166	4	8	18	**679**	**9,6%**
DK	1	0	0	0	4	0	**5**	**7,8%**	0	0	0	0	0	0	**0**	**0,0%**
EL	337	4	6	3	0	1	**351**	**18,2%**	35	18	6	23	0	3	**85**	**6,6%**
ES	151	4	40	3	0	1	**199**	**11,1%**	51	5	35	3	0	10	**104**	**5,0%**
FI	19	0	0	1	0	0	**20**	**4,1%**	10	3	1	4	0	3	**21**	**3,7%**
FR	36	0	0	0	1	9	**46**	**3,0%**	47	0	1	0	1	10	**59**	**2,9%**
IE	15	0	2	0	0	0	**17**	**6,1%**	0	10	0	0	0	0	**10**	**8,6%**
IT	125	50	1	0	0	0	**176**	**7,4%**	31	6	7	0	0	0	**44**	**1,8%**
NL	10	0	0	0	7	0	**17**	**3,8%**	6	26	0	0	0	5	**37**	**4,6%**
PT	118	16	11	0	0	0	**145**	**12,2%**	26	9	23	0	0	0	**58**	**6,0%**
SE	1	1	0	0	0	0	**2**	**2,1%**	4	1	0	0	0	0	**5**	**1,5%**
UK	36	14	18	2	23	0	**93**	**5,6%**	28	50	33	0	5	16	**132**	**6,3%**
LU	0	0	0	0	0	0	**0**		0	0	0	0	0	0	**0**	
Total	899	302	160	9	42	13	**1425**	**7,8%**	358	513	281	37	14	66	**1269**	**6,0%**
% export industry	**8,5%**	**7,6%**	**8,0%**	**3,9%**	**3,6%**	**5,2%**	**7,8%**		**2,7%**	**14,6%**	**10,0%**	**7,1%**	**7,2%**	**7,8%**	**6,0%**	

I.f. Detailed Descriptive Statistics on First Downturns and their Duration

	Employment				RGVA			
Statistic	FDT Duration	Years to growth equivalency*	Years to recovery phase*	Total Duration: FDT-Recovery*	FDT Duration	Years to growth equivalency*	Years to recovery phase*	Total Duration: FDT-Recovery*
Nbr. of observations	1455	1316	1028	1028	2422	2269	1967	1967
Minimum	0,00	1,00	1,00	1,00	0,00	1,00	1,00	1,00
Maximum	16,00	20,00	4,00	15,00	24,00	19,00	4,00	25,00
1st Quartile	0,00	1,00	1,00	2,00	0,00	1,00	1,00	1,00
Median	1,00	2,00	2,00	3,00	0,00	2,00	1,00	2,00
3rd Quartile	2,00	4,00	3,00	5,00	2,00	3,00	2,00	5,00
Mean	1,44	3,26	2,15	3,43	1,56	2,43	1,79	3,26
Variance (n-1)	4,05	7,40	1,08	4,51	6,05	4,22	0,94	7,18
Standard deviation (n-1)	2,01	2,72	1,04	2,12	2,46	2,06	0,97	2,68
Lower bound on mean (95%)	1,34	3,11	2,08	3,30	1,46	2,35	1,75	3,14
Upper bound on mean (95%)	1,54	3,41	2,21	3,56	1,66	2,52	1,83	3,37

*First downturns never returning to their former levels of growth whithin the data set, as well as those out of range were omitted

I.g. Robustness for varying duration for the measurement of average regional pre-shock growth for regional downturn identification

Normality tests for robustness tests of carying measurement lengths of pre-shock average regional growth

RGVA

Shapiro-Wilk test (8-years):

W	0,968
p-value (Two-tailed)	< 0,0001
alpha	0,05

Shapiro-Wilk test (6-years):

W	0,961
p-value (Two-tailed)	< 0,0001
alpha	0,05

Shapiro-Wilk test (10-years):

W	0,970
p-value (Two-tailed)	< 0,0001
alpha	0,05

Kolmogorov-Smirnov test (8-years):

D	0,040
p-value (Two-tailed)	< 0,0001
alpha	0,05

Kolmogorov-Smirnov test (6-years):

D	0,040
p-value (Two-tailed)	< 0,0001
alpha	0,05

Kolmogorov-Smirnov test (10-years):

D	0,040
p-value (Two-tailed)	< 0,0001
alpha	0,05

Employment

Shapiro-Wilk test (8-years):

W	0,958
p-value (Two-tailed)	< 0,0001
alpha	0,05

Shapiro-Wilk test (6-years):

W	0,955
p-value (Two-tailed)	< 0,0001
alpha	0,05

Shapiro-Wilk test (10-years):

W	0,958
p-value (Two-tailed)	< 0,0001
alpha	0,05

Kolmogorov-Smirnov test (8-years):

D	0,056
p-value (Two-tailed)	< 0,0001
alpha	0,05

Kolmogorov-Smirnov test (6-years):

D	0,057
p-value (Two-tailed)	< 0,0001
alpha	0,05

Kolmogorov-Smirnov test (10-years):

D	0,056
p-value (Two-tailed)	< 0,0001
alpha	0,05

ANOVA for robustness tests of carying measurement lengths of pre-shock average regional growth

RGVA based

Correlation matrix:

	10-years	6-years	8-years	Y
10-years	**1**	0,501	-0,862	0,000
6-years	0,501	**1**	-0,871	-0,002
8-years	-0,862	-0,871	**1**	0,001
Y	0,000	-0,002	0,001	**1**

Goodness of fit statistics (Y):

Observations	97578
Sum of weigl	97578
DF	97575
R^2	0,000
Adjusted R^2	0,000
MSE	0,000
RMSE	0,019
MAPE	375,900
DW	0,562
Cp	3,000
AIC	-771420,505
SBC	-771392,040
PC	1,000

Settings:

Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Use least squares means: Yes

Analysis of variance (Y):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	2	0,000	0,000	0,209	0,811
Error	97575	35,969	0,000		
Corrected Total	97577	35,969			

Computed against model Y=Mean(Y)

Model parameters (Y):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,018	0,000	297,797	**<0,0001**	0,018	0,018
10-years	0,000	0,000	0,380	0,704	0,000	0,000
6-years	0,000	0,000	-0,644	0,520	0,000	0,000
8-years	0,000	0,000	0,247	0,805	0,000	0,000

Employment based

Correlation matrix:

	10-years	6-years	8-years	Y
10-years	**1**	0,501	-0,862	0,003
6-years	0,501	**1**	-0,871	-0,005
8-years	-0,862	-0,871	**1**	0,001
Y	0,003	-0,005	0,001	**1**

Goodness of fit statistics (Y):

Observations	100317
Sum of weigl	100317
DF	100314
R^2	0,000
Adjusted R^2	0,000
MSE	0,000
RMSE	0,014
MAPE	432,505
DW	0,554
Cp	3,000
AIC	-856523,464
SBC	-856494,915
PC	1,000

Settings:

Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Use least squares means: Yes

Analysis of variance (Y):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	2	0,001	0,001	3,502	0,030
Error	100314	19,646	0,000		
Corrected Total	100316	19,647			

Computed against model Y=Mean(Y)

Model parameters (Y):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,006	0,000	144,956	**<0,0001**	0,006	0,007
10-years	0,000	0,000	2,136	**0,033**	0,000	0,000
6-years	0,000	0,000	-2,423	**0,015**	0,000	0,000
8-years	0,000	0,000	0,212	0,832	0,000	0,000

Kruskal-Wallis test for robustness tests of carying measurement lengths of pre-shock average regional growth

RGVA based

Kruskal-Wallis test / Two-tailed test:

Settings:
Significance level (%): 5
p-value: Asymptotic p-value
Continuity correction: Yes

K (Observed value)	0,664
K (Critical value)	5,991
DF	2
p-value (one-tailed)	0,717
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
6-years	34738	1691537431	48694,151	A
8-years	32526	1587883981	48818,914	A
10-years	30314	1481360419	48867,204	A

Pairwise comparisons:

Differences:

	8-years	6-years	10-years
8-years	0	124,762	-48,290
6-years	-124,762	0	-173,053
10-years	48,290	173,053	0

p-values:

	8-years	6-years	10-years
8-years	1	0,566	0,830
6-years	0,566	1	0,434
10-years	0,830	0,434	1

Bonferroni corrected significance level: 0,0167

Employment based

Kruskal-Wallis test / Two-tailed test:

Settings:
Significance level (%): 5
p-value: Asymptotic p-value
Continuity correction: Yes

K (Observed value)	3,622
K (Critical value)	5,991
DF	2
p-value (one-tailed)	0,163
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
6-years	35651	1780485084	49942,080	A
8-years	33439	1678614106	50199,291	A
10-years	31227	1572701213	50363,506	A

Pairwise comparisons:

Differences:

	8-years	6-years	10-years
8-years	0	257,212	-164,215
6-years	-257,212	0	-421,427
10-years	164,215	421,427	0

p-values:

	8-years	6-years	10-years
8-years	1	0,243	0,471
6-years	0,243	1	0,060
10-years	0,471	0,060	1

Bonferroni corrected significance level: 0,0167

I.h. Robustness test on varying cut-off durations for the entry into the recovery phase

Varied longest duration to growth rate equivalency to 5 years

RGVA Shocks					
	First Downturns (FDT)	Return to growth trajectory within four years		Out of Range	Years to recovery phase from FDT
AT	74	67	90,5%	0,0%	2,82
BE	80	71	88,8%	0,0%	2,46
DE	912	861	94,4%	1,6%	3,50
DK	18	17	94,4%	0,0%	2,53
EL	52	27	51,9%	1,9%	8,70
ES	120	83	69,2%	0,0%	6,05
FI	52	46	88,5%	1,9%	3,98
FR	234	203	86,8%	2,1%	2,64
IE	8	6	75,0%	25,0%	9,17
IT	216	177	81,9%	0,0%	4,00
NL	75	66	88,0%	1,3%	4,91
PT	65	36	55,4%	1,5%	4,28
SE	54	53	98,1%	0,0%	3,87
UK	352	276	78,4%	1,7%	3,55
LU	2	1	50,0%	0,0%	4,00
TOTAL	2314	1990	86,0%	1,4%	3,67

Varied longest duration to growth rate equivalency to 6 years

RGVA Shocks					
	First Downturns (FDT)	Return to growth trajectory within four years		Out of Range	Years to recovery phase from FDT
AT	70	67	95,7%	0,0%	3,57
BE	80	74	92,5%	0,0%	2,61
DE	674	633	93,9%	3,4%	5,66
DK	12	10	83,3%	0,0%	6,00
EL	52	27	51,9%	5,8%	8,70
ES	119	86	72,3%	1,7%	6,10
FI	44	34	77,3%	4,5%	4,38
FR	194	166	85,6%	5,2%	3,92
IE	8	6	75,0%	25,0%	9,17
IT	212	180	84,9%	0,0%	4,22
NL	52	38	73,1%	5,8%	7,89
PT	50	23	46,0%	2,0%	4,91
SE	54	54	100,0%	0,0%	3,96
UK	344	286	83,1%	1,7%	3,90
LU	2	1	50,0%	0,0%	4,00
TOTAL	1967	1685	85,7%	2,6%	4,86

Varied longest duration to growth rate equivalency to 5 years

Employment Shocks					
	First Downturns (FDT)	Return to growth trajectory within four years		Out of Range	Years to recovery phase from FDT
AT	13	12	92,3%	0,0%	2,83
BE	7	6	85,7%	0,0%	2,33
DE	398	274	68,8%	0,8%	4,16
DK	13	12	92,3%	0,0%	4,00
EL	114	94	82,5%	5,3%	3,83
ES	124	82	66,1%	0,0%	5,96
FI	37	35	94,6%	0,0%	3,20
FR	25	25	100,0%	0,0%	2,68
IE	16	12	75,0%	0,0%	3,92
IT	206	157	76,2%	0,0%	3,84
NL	40	28	70,0%	0,0%	2,89
PT	56	44	78,6%	0,0%	5,75
SE	38	36	94,7%	0,0%	3,03
UK	315	278	88,3%	1,6%	3,41
LU	2	1	50,0%	0,0%	4,00
TOTAL	1404	1096	78,1%	1,0%	3,93

Varied longest duration to growth rate equivalency to 5 years

Employment Shocks					
	First Downturns (FDT)	Return to growth trajectory within four years		Out of Range	Years to recovery phase from FDT
AT	13	12	92,3%	0,0%	2,83
BE	7	6	85,7%	0,0%	2,33
DE	389	297	76,3%	1,3%	4,55
DK	13	12	92,3%	0,0%	4,00
EL	107	90	84,1%	7,5%	4,31
ES	119	79	66,4%	2,5%	6,62
FI	37	35	94,6%	0,0%	3,20
FR	24	24	100,0%	0,0%	2,96
IE	12	7	58,3%	0,0%	6,57
IT	200	160	80,0%	1,5%	4,46
NL	40	28	70,0%	0,0%	2,89
PT	47	38	80,9%	2,1%	8,21
SE	38	37	97,4%	0,0%	3,16
UK	306	277	90,5%	1,6%	3,70
LU	1	0	0,0%	0,0%	
TOTAL	1353	1102	81,4%	1,8%	4,39

I.i. Normality rests and Kruskal-Wallis test on both resilience performance dimensions compared between employment and RGVA

Normality tests for both measures or resilience performance (RGVA and employment)

Shapiro-Wilk test (Recovery of the development level - RGVA):

W	0,947
p-value (Two-tailed)	< 0,0001
alpha	0,05

Shapiro-Wilk test (Recovery of the development level - Employment):

W	0,946
p-value (Two-tailed)	< 0,0001
alpha	0,05

Kolmogorov-Smirnov test (Recovery of the development level - RGVA):

D	0,072
p-value (Two-tailed)	< 0,0001
alpha	0,05

Kolmogorov-Smirnov test (Recovery of the development level - Employment):

D	0,056
p-value (Two-tailed)	0,000
alpha	0,05

Shapiro-Wilk test (Growth trajectory retention - RGVA):

W	0,955
p-value (Two-tailed)	< 0,0001
alpha	0,05

Shapiro-Wilk test (Growth trajectory retention - Employment):

W	0,932
p-value (Two-tailed)	< 0,0001
alpha	0,05

Kolmogorov-Smirnov test (Growth trajectory retention - RGVA):

D	0,063
p-value (Two-tailed)	< 0,0001
alpha	0,05

Kolmogorov-Smirnov test (Growth trajectory retention - Employment):

D	0,068
p-value (Two-tailed)	< 0,0001
alpha	0,05

Kruskal-Wallis test - comparison of recovery of the development level performance

Settings:
Significance level (%): 5
p-value: Asymptotic p-value
Continuity correction: Yes

Kruskal-Wallis test / Two-tailed test:

K (Observed value)	81,193
K (Critical value)	3,841
DF	1
p-value (one-tailed)	< 0,0001
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
Employment	1323	2024811,000	1530,469	A
RGVA	2124	3917817,000	1844,547	B

Kruskal-Wallis test - comparison of growth trajectory retention

Settings:
Significance level (%): 5
p-value: Asymptotic p-value
Continuity correction: Yes

Kruskal-Wallis test / Two-tailed test:

K (Observed value)	29,617
K (Critical value)	3,841
DF	1
p-value (one-tailed)	< 0,0001
alpha	0,05

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
RGVA	2124	3507136,000	1651,194	A
Employment	1323	2435492,000	1840,886	B

I.j. Robustness test on resilience performance measures under variance of maximum duration to entry into recovery period

Robustness test for variation of (last) entry date into recovery phase: RGVA

Normality tests:

Shapiro-Wilk test (Recovery of development level 4-years entry):

W	0,955
p-value (Two-tailed)	< 0,0001
alpha	0,05

Shapiro-Wilk test (Growth trajectory retention 4-years entry):

W	0,959
p-value (Two-tailed)	< 0,0001
alpha	0,05

Shapiro-Wilk test (Recovery of development level 5-years entry):

W	0,942
p-value (Two-tailed)	< 0,0001
alpha	0,05

Shapiro-Wilk test (Growth trajectory retention 5-years entry):

W	0,962
p-value (Two-tailed)	< 0,0001
alpha	0,05

Shapiro-Wilk test (Recovery of development level 6-years entry):

W	0,934
p-value (Two-tailed)	< 0,0001
alpha	0,05

Shapiro-Wilk test (Growth trajectory retention 6-years entry):

W	0,940
p-value (Two-tailed)	< 0,0001
alpha	0,05

Kolmogorov-Smirnov test (Recovery of development level 4-years entry):

D	0,072
p-value (Two-tailed)	< 0,0001
alpha	0,05

Kolmogorov-Smirnov test (Growth trajectory retention 4-years entry):

D	0,063
p-value (Two-tailed)	< 0,0001
alpha	0,05

Kolmogorov-Smirnov test (Recovery of development level 5-years entry):

D	0,061
p-value (Two-tailed)	< 0,0001
alpha	0,05

Kolmogorov-Smirnov test (Growth trajectory retention 5-years entry):

D	0,057
p-value (Two-tailed)	< 0,0001
alpha	0,05

Kolmogorov-Smirnov test (Recovery of development level 6-years entry):

D	0,075
p-value (Two-tailed)	< 0,0001
alpha	0,05

Kolmogorov-Smirnov test (Growth trajectory retention 6-years entry):

D	0,073
p-value (Two-tailed)	< 0,0001
alpha	0,05

Robustness test for variation of (last) entry date into recovery phase: RGVA

ANOVA - Recovery of development level

Correlation matrix:

	4-years entry	5-years entry	6-years entry	Y
4-years entry	**1**	-0,566	-0,475	0,030
5-years entry	-0,566	**1**	-0,456	0,043
6-years entry	-0,475	-0,456	**1**	-0,079
Y	0,030	0,043	-0,079	**1**

Goodness of fit statistics (Y):

Observations	5723
Sum of weigl	5723
DF	5720
R²	0,006
Adjusted R²	0,006
MSE	0,012
RMSE	0,111
MAPE	1092,138
DW	1,683
Cp	3,000
AIC	-25172,242
SBC	-25152,286
PC	0,995

Settings:
Constraints: a1=0
Confidence interval (%): 95
Tolerance: 0,0001
Use least squares means: Yes

Analysis of variance (Y):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	2	0,445	0,222	18,090	**<0,0001**
Error	5720	70,300	0,012		
Corrected Total	5722	70,744			

Computed against model Y=Mean(Y)

Model parameters (Y):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,081	0,002	-33,587	**<0,0001**	-0,086	-0,076
4-years entry	0,000	0,000				
5-years entry	0,002	0,003	0,632	0,528	-0,005	0,009
6-years entry	-0,019	0,004	-5,035	**<0,0001**	-0,026	-0,011

ANOVA - Growth trajectory retention

Correlation matrix:

	4-years entry	5-years entry	6-years entry	Y
4-years entry	**1**	-0,566	-0,475	0,003
5-years entry	-0,566	**1**	-0,456	0,008
6-years entry	-0,475	-0,456	**1**	-0,012
Y	0,003	0,008	-0,012	**1**

Goodness of fit statistics (Y):

Observations	5723
Sum of weigl	5723
DF	5720
R²	0,000
Adjusted R²	0,000
MSE	0,001
RMSE	0,024
MAPE	321,490
DW	1,718
Cp	3,000
AIC	-42451,291
SBC	-42431,335
PC	1,001

Settings:
Constraints: a1=0
Confidence interval (%): 95
Tolerance: 0,0001
Use least squares means: Yes

Analysis of variance (Y):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	2	0,001	0,000	0,425	0,654
Error	5720	3,433	0,001		
Corrected Total	5722	3,434			

Computed against model Y=Mean(Y)

Model parameters (Y):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,009	0,001	-17,778	**<0,0001**	-0,010	-0,008
4-years entry	0,000	0,000				
5-years entry	0,000	0,001	0,227	0,821	-0,001	0,002
6-years entry	-0,001	0,001	-0,692	0,489	-0,002	0,001

Robustness test for variation of (last) entry date into recovery phase: RGVA

Kruskal-Wallis - Recovery of development level

Settings:
Significance level (%): 5
p-value: Asymptotic p-value
Continuity correction: Yes

Kruskal-Wallis test / Two-tailed test:

K (Observed value)	39,488
K (Critical value)	5,991
DF	2
p-value (one-tailed)	< 0,0001
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
6-years entry	1585	4190720,000	2643,987	A
4-years entry	2124	6195192,000	2916,757	B
5-years entry	2014	5993314,000	2975,826	B

Pairwise comparisons:

Differences:

	4-years entry	5-years entry	6-years entry
4-years entry	0	-59,069	**272,770**
5-years entry	59,069	0	**331,839**
6-years entry	**-272,770**	**-331,839**	0

p-values:

	4-years entry	5-years entry	6-years entry
4-years entry	1	0,250	**<0,0001**
5-years entry	0,250	1	**<0,0001**
6-years entry	**<0,0001**	**<0,0001**	1

Bonferroni corrected significance level: 0,0167

Kruskal-Wallis - Growth trajectory retention

Settings:
Significance level (%): 5
p-value: Asymptotic p-value
Continuity correction: Yes

Kruskal-Wallis test / Two-tailed test:

K (Observed value)	1,788
K (Critical value)	5,991
DF	2
p-value (one-tailed)	0,409
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
6-years entry	1585	4462179,500	2815,255	A
4-years entry	2124	6107189,000	2875,324	A
5-years entry	2014	5809857,500	2884,736	A

Pairwise comparisons:

Differences:

	4-years entry	5-years entry	6-years entry
4-years entry	0	-9,411	60,069
5-years entry	9,411	0	69,480
6-years entry	-60,069	-69,480	0

p-values:

	4-years entry	5-years entry	6-years entry
4-years entry	1	0,855	0,273
5-years entry	0,855	1	0,210
6-years entry	0,273	0,210	1

Bonferroni corrected significance level: 0,0167

Robustness test for variation of (last) entry date into recovery phase: Employment

Normality tests:

Shapiro-Wilk test (Recovery of development level 4-years entry):

W	0,952
p-value (Two-tailed)	< 0,0001
alpha	0,05

Shapiro-Wilk test (Growth trajectory retention 4-years entry):

W	0,931
p-value (Two-tailed)	< 0,0001
alpha	0,05

Shapiro-Wilk test (Recovery of development level 5-years entry):

W	0,946
p-value (Two-tailed)	< 0,0001
alpha	0,05

Shapiro-Wilk test (Growth trajectory retention 5-years entry):

W	0,935
p-value (Two-tailed)	< 0,0001
alpha	0,05

Shapiro-Wilk test (Recovery of development level 6-years entry):

W	0,946
p-value (Two-tailed)	< 0,0001
alpha	0,05

Shapiro-Wilk test (Growth trajectory retention 6-years entry):

W	0,937
p-value (Two-tailed)	< 0,0001
alpha	0,05

Kolmogorov-Smirnov test (Recovery of development level 4-years entry):

D	0,041
p-value (Two-tailed)	0,021
alpha	0,05

Kolmogorov-Smirnov test (Growth trajectory retention 4-years entry):

D	0,068
p-value (Two-tailed)	< 0,0001
alpha	0,05

Kolmogorov-Smirnov test (Recovery of development level 5-years entry):

D	0,052
p-value (Two-tailed)	0,002
alpha	0,05

Kolmogorov-Smirnov test (Growth trajectory retention 5-years entry):

D	0,067
p-value (Two-tailed)	< 0,0001
alpha	0,05

Kolmogorov-Smirnov test (Recovery of development level 6-years entry):

D	0,056
p-value (Two-tailed)	0,001
alpha	0,05

Kolmogorov-Smirnov test (Growth trajectory retention 6-years entry):

D	0,068
p-value (Two-tailed)	< 0,0001
alpha	0,05

Robustness test for variation of (last) entry date into recovery phase: Employment

ANOVA - Recovery of development level

Correlation matrix:

	4-years entry	5-years entry	6-years entry	Y
4-years entry	**1**	-0,524	-0,498	0,027
5-years entry	-0,524	**1**	-0,478	-0,004
6-years entry	-0,498	-0,478	**1**	-0,023
Y	0,027	-0,004	-0,023	**1**

Goodness of fit statistics (Y):

Observations	3750
Sum of weigl	3750
DF	3747
R^2	0,001
Adjusted R^2	0,000
MSE	0,011
RMSE	0,106
MAPE	417,297
DW	1,417
Cp	3,000
AIC	-16799,580
SBC	-16780,891
PC	1,001

Settings:
Constraints: a1=0
Confidence interval (%): 95
Tolerance: 0,0001
Use least squares means: Yes

Analysis of variance (Y):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	2	0,035	0,018	1,561	0,210
Error	3747	42,437	0,011		
Corrected Total	3749	42,472			

Computed against model Y=Mean(Y)

Model parameters (Y):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,095	0,003	-32,526	**<0,0001**	-0,101	-0,089
4-years entry	0,000	0,000				
5-years entry	-0,004	0,004	-1,064	0,287	-0,013	0,004
6-years entry	-0,007	0,004	-1,748	0,081	-0,016	0,001

ANOVA - Growth trajectory retention

Correlation matrix:

	4-years entry	5-years entry	6-years entry	Y
4-years entry	**1**	-0,524	-0,498	-0,005
5-years entry	-0,524	**1**	-0,478	0,000
6-years entry	-0,498	-0,478	**1**	0,005
Y	-0,005	0,000	0,005	**1**

Goodness of fit statistics (Y):

Observations	3750
Sum of weigl	3750
DF	3747
R^2	0,000
Adjusted R^2	-0,001
MSE	0,001
RMSE	0,024
MAPE	203,365
DW	1,465
Cp	3,000
AIC	-28061,134
SBC	-28042,445
PC	1,002

Settings:
Constraints: a1=0
Confidence interval (%): 95
Tolerance: 0,0001
Use least squares means: Yes

Analysis of variance (Y):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	2	0,000	0,000	0,055	0,947
Error	3747	2,106	0,001		
Corrected Total	3749	2,106			

Computed against model Y=Mean(Y)

Model parameters (Y):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,005	0,001	-7,752	**<0,0001**	-0,006	-0,004
4-years entry	0,000	0,000				
5-years entry	0,000	0,001	0,165	0,869	-0,002	0,002
6-years entry	0,000	0,001	0,331	0,741	-0,002	0,002

Robustness test for variation of (last) entry date into recovery phase: Employment

Kruskal-Wallis - Recovery of development level

Kruskal-Wallis test / Two-tailed test:

K (Observed value)	1,512
K (Critical value)	5,991
DF	2
p-value (one-tailed)	0,470
alpha	0,05

An approximation has been used to compute the p-value.

Settings:
Significance level (%): 5
p-value: Asymptotic p-value
Continuity correction: Yes

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
6-years entry	1171	2165561,500	1849,327	A
5-years entry	1256	2350795,000	1871,652	A
4-years entry	1323	2516768,500	1902,319	A

Pairwise comparisons:

Differences:

	4-years entry	5-years entry	6-years entry
4-years entry	0	30,667	52,993
5-years entry	-30,667	0	22,325
6-years entry	-52,993	-22,325	0

p-values:

	4-years entry	5-years entry	6-years entry
4-years entry	1	0,472	0,222
5-years entry	0,472	1	0,612
6-years entry	0,222	0,612	1

Bonferroni corrected significance level: 0,0167

Kruskal-Wallis - Growth trajectory retention

Kruskal-Wallis test / Two-tailed test:

K (Observed value)	0,056
K (Critical value)	5,991
DF	2
p-value (one-tailed)	0,972
alpha	0,05

An approximation has been used to compute the p-value.

Settings:
Significance level (%): 5
p-value: Asymptotic p-value
Continuity correction: Yes

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
6-years entry	1171	2191570,500	1871,538	A
5-years entry	1256	2352878,000	1873,311	A
4-years entry	1323	2488676,500	1881,086	A

Pairwise comparisons:

Differences:

	4-years entry	5-years entry	6-years entry
4-years entry	0	7,775	9,548
5-years entry	-7,775	0	1,773
6-years entry	-9,548	-1,773	0

p-values:

	4-years entry	5-years entry	6-years entry
4-years entry	1	0,855	0,826
5-years entry	0,855	1	0,968
6-years entry	0,826	0,968	1

Bonferroni corrected significance level: 0,0167

I.k. Robustness test on resilience performance measured under variance of different recovery phase duration

Robustness test for variation of duration of recovery phase: RGVA

Normality tests:

Shapiro-Wilk test (Recovery of development level):

W	0,947
p-value (Two-tailed)	< 0,0001
alpha	0,05

Kolmogorov-Smirnov test (Recovery of development level):

D	0,072
p-value (Two-tailed)	< 0,0001
alpha	0,05

Shapiro-Wilk test (Growth trajectory retention):

W	0,955
p-value (Two-tailed)	< 0,0001
alpha	0,05

Kolmogorov-Smirnov test (Growth trajectory retention):

D	0,063
p-value (Two-tailed)	< 0,0001
alpha	0,05

Shapiro-Wilk test (Recovery of development level 6 years):

W	0,967
p-value (Two-tailed)	< 0,0001
alpha	0,05

Kolmogorov-Smirnov test (Recovery of development level 6 years):

D	0,060
p-value (Two-tailed)	< 0,0001
alpha	0,05

Shapiro-Wilk test (Growth trajectory retention 6 years):

W	0,955
p-value (Two-tailed)	< 0,0001
alpha	0,05

Kolmogorov-Smirnov test (Growth trajectory retention 6 years):

D	0,067
p-value (Two-tailed)	< 0,0001
alpha	0,05

Shapiro-Wilk test (Recovery of development level 8 years):

W	0,976
p-value (Two-tailed)	< 0,0001
alpha	0,05

Kolmogorov-Smirnov test (Recovery of development level 8 years):

D	0,051
p-value (Two-tailed)	0,000
alpha	0,05

Shapiro-Wilk test (Growth trajectory retention 8 years):

W	0,957
p-value (Two-tailed)	< 0,0001
alpha	0,05

Kolmogorov-Smirnov test (Growth trajectory retention 8 years):

D	0,058
p-value (Two-tailed)	< 0,0001
alpha	0,05

Shapiro-Wilk test (Recovery of development level 10 years):

W	0,977
p-value (Two-tailed)	< 0,0001
alpha	0,05

Kolmogorov-Smirnov test (Recovery of development level 10 years):

D	0,043
p-value (Two-tailed)	0,018
alpha	0,05

Shapiro-Wilk test (Growth trajectory retention 10 years):

W	0,959
p-value (Two-tailed)	< 0,0001
alpha	0,05

Kolmogorov-Smirnov test (Growth trajectory retention 10 years):

D	0,061
p-value (Two-tailed)	0,000
alpha	0,05

Robustness test for variation of duration of recovery phase: RGVA

ANOVA - Recovery of development level

Correlation matrix:

	Baseline (4 years)	10 years	6 years	8 years	Y
Baseline (4 years)	**1**	-0,313	-0,402	-0,372	0,053
10 years	-0,313	**1**	-0,290	-0,268	-0,091
6 years	-0,402	-0,290	**1**	-0,345	0,027
8 years	-0,372	-0,268	-0,345	**1**	-0,003
Y	0,053	-0,091	0,027	-0,003	**1**

Goodness of fit statistics (Y):

Observations	7010
Sum of weigl	7010
DF	7006
R^2	0,009
Adjusted R^2	0,009
MSE	0,012
RMSE	0,110
MAPE	1028,393
DW	0,426
Cp	4,000
AIC	-30886,122
SBC	-30858,702
PC	0,992

Settings:
Constraints: a1=0
Confidence interval (%): 95
Tolerance: 0,0001
Use least squares means: Yes

Analysis of variance (Y):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	3	0,797	0,266	21,794	**<0,0001**
Error	7006	85,451	0,012		
Corrected Total	7009	86,248			

Computed against model Y=Mean(Y)

Model parameters (Y):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,081	0,002	-33,715	**<0,0001**	-0,085	-0,076
Baseline (4 years)	0,000	0,000				
10 years	-0,030	0,004	-7,730	**<0,0001**	-0,038	-0,023
6 years	-0,004	0,003	-1,121	0,262	-0,011	0,003
8 years	-0,009	0,004	-2,601	**0,009**	-0,016	-0,002

ANOVA - Growth trajectory retention

Correlation matrix:

	Baseline (4 years)	10 years	6 years	8 years	Y
Baseline (4 years)	**1**	-0,313	-0,402	-0,372	0,052
10 years	-0,313	**1**	-0,290	-0,268	-0,067
6 years	-0,402	-0,290	**1**	-0,345	0,006
8 years	-0,372	-0,268	-0,345	**1**	-0,001
Y	0,052	-0,067	0,006	-0,001	**1**

Goodness of fit statistics (Y):

Observations	7010
Sum of weigl	7010
DF	7006
R^2	0,006
Adjusted R^2	0,005
MSE	0,000
RMSE	0,022
MAPE	413,059
DW	0,623
Cp	4,000
AIC	-53592,319
SBC	-53564,899
PC	0,996

Settings:
Constraints: a1=0
Confidence interval (%): 95
Tolerance: 0,0001
Use least squares means: Yes

Analysis of variance (Y):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	3	0,019	0,006	12,999	**<0,0001**
Error	7006	3,350	0,000		
Corrected Total	7009	3,368			

Computed against model Y=Mean(Y)

Model parameters (Y):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,009	0,000	-19,920	**<0,0001**	-0,010	-0,009
Baseline (4 years)	0,000	0,000				
10 years	-0,005	0,001	-6,225	**<0,0001**	-0,006	-0,003
6 years	-0,002	0,001	-2,183	**0,029**	-0,003	0,000
8 years	-0,002	0,001	-2,475	**0,013**	-0,003	0,000

Robustness test for variation of duration of recovery phase: RGVA

Kruskal-Wallis - Recovery of development level

Settings:
Significance level (%): 5
p-value: Asymptotic p-value
Continuity correction: Yes

Kruskal-Wallis test / Two-tailed test:

K (Observed value)	75,488
K (Critical value)	7,815
DF	3
p-value (one-tailed)	< 0,0001
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups		
10 years	1288	3986683,000	3095,251	A		
8 years	1696	5905947,000	3482,280		B	
6 years	1902	6828726,000	3590,287		B	C
Baseline (4 years)	2124	7852199,000	3696,892			C

Pairwise comparisons:

Differences:

	Baseline (4 years)	6 years	8 years	10 years
Baseline (4 years)	0	106,605	**214,612**	**601,641**
6 years	-106,605	0	108,007	**495,036**
8 years	**-214,612**	-108,007	0	**387,029**
10 years	**-601,641**	**-495,036**	**-387,029**	0

p-values:

	Baseline (4 years)	6 years	8 years	10 years
Baseline (4 years)	1	0,095	**0,001**	**<0,0001**
6 years	0,095	1	0,110	**<0,0001**
8 years	**0,001**	0,110	1	**<0,0001**
10 years	**<0,0001**	**<0,0001**	**<0,0001**	1

Bonferroni corrected significance level: 0,0083

Kruskal-Wallis - Growth trajectory retention

Settings:
Significance level (%): 5
p-value: Asymptotic p-value
Continuity correction: Yes

Kruskal-Wallis test / Two-tailed test:

K (Observed value)	59,823
K (Critical value)	7,815
DF	3
p-value (one-tailed)	< 0,0001
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups		
10 years	1288	4047029,000	3142,103	A		
8 years	1696	5944545,000	3505,038		B	
6 years	1902	6746151,000	3546,872		B	C
Baseline (4 years)	2124	7835830,000	3689,185			C

Pairwise comparisons:

Differences:

	Baseline (4 years)	6 years	8 years	10 years
Baseline (4 years)	0	142,313	**184,147**	**547,082**
6 years	-142,313	0	41,834	**404,769**
8 years	**-184,147**	-41,834	0	**362,935**
10 years	**-547,082**	**-404,769**	**-362,935**	0

p-values:

	Baseline (4 years)	6 years	8 years	10 years
Baseline (4 years)	1	0,026	**0,005**	**<0,0001**
6 years	0,026	1	0,536	**<0,0001**
8 years	**0,005**	0,536	1	**<0,0001**
10 years	**<0,0001**	**<0,0001**	**<0,0001**	1

Bonferroni corrected significance level: 0,0083

Robustness test for variation of duration of recovery phase: Employment

Normality tests:

Shapiro-Wilk test (Recovery of development level):

W	0,946
p-value (Two-tailed)	< 0,0001
alpha	0,05

Kolmogorov-Smirnov test (Recovery of development level):

D	0,056
p-value (Two-tailed)	0,000
alpha	0,05

Shapiro-Wilk test (Recovery of development level 6 years):

W	0,936
p-value (Two-tailed)	< 0,0001
alpha	0,05

Kolmogorov-Smirnov test (Recovery of development level 6 years):

D	0,053
p-value (Two-tailed)	0,002
alpha	0,05

Shapiro-Wilk test (Recovery of development level 8 years):

W	0,985
p-value (Two-tailed)	< 0,0001
alpha	0,05

Kolmogorov-Smirnov test (Recovery of development level 8 years):

D	0,037
p-value (Two-tailed)	0,103
alpha	0,05

Shapiro-Wilk test (Recovery of development level 10 years):

W	0,978
p-value (Two-tailed)	< 0,0001
alpha	0,05

Kolmogorov-Smirnov test (Recovery of development level 10 years):

D	0,036
p-value (Two-tailed)	0,146
alpha	0,05

Shapiro-Wilk test (Growth trajectory retention):

W	0,932
p-value (Two-tailed)	< 0,0001
alpha	0,05

Kolmogorov-Smirnov test (Growth trajectory retention):

D	0,068
p-value (Two-tailed)	< 0,0001
alpha	0,05

Shapiro-Wilk test (Growth trajectory retention 6 years):

W	0,974
p-value (Two-tailed)	< 0,0001
alpha	0,05

Kolmogorov-Smirnov test (Growth trajectory retention 6 years):

D	0,041
p-value (Two-tailed)	0,037
alpha	0,05

Shapiro-Wilk test (Growth trajectory retention 8 years):

W	0,981
p-value (Two-tailed)	< 0,0001
alpha	0,05

Kolmogorov-Smirnov test (Growth trajectory retention 8 years):

D	0,042
p-value (Two-tailed)	0,042
alpha	0,05

Shapiro-Wilk test (Growth trajectory retention 10 years):

W	0,978
p-value (Two-tailed)	< 0,0001
alpha	0,05

Kolmogorov-Smirnov test (Growth trajectory retention 10 years):

D	0,041
p-value (Two-tailed)	0,068
alpha	0,05

Robustness test for variation of duration of recovery phase: Employment

ANOVA - Recovery of development level

Correlation matrix:

	Baseline (4 years)	10 years	6 years	8 years	Y
Baseline (4 years)	**1**	-0,336	-0,380	-0,351	0,038
10 years	-0,336	**1**	-0,313	-0,290	-0,064
6 years	-0,380	-0,313	**1**	-0,327	0,034
8 years	-0,351	-0,290	-0,327	**1**	-0,014
Y	0,038	-0,064	0,034	-0,014	**1**

Settings:
Constraints: a1=0
Confidence interval (%): 95
Tolerance: 0,0001
Use least squares means: Yes

Goodness of fit statistics (Y):

Observations	4569
Sum of weigl	4569
DF	4565
R^2	0,005
Adjusted R^2	0,005
MSE	0,012
RMSE	0,112
MAPE	557,196
DW	0,372
Cp	4,000
AIC	-20038,099
SBC	-20012,391
PC	0,997

Analysis of variance (Y):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	3	0,297	0,099	7,949	**<0,0001**
Error	4565	56,806	0,012		
Corrected Total	4568	57,102			

Computed against model Y=Mean(Y)

Model parameters (Y):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,108	0,003	-35,169	**<0,0001**	-0,114	-0,102
Baseline (4 years)	0,000	0,000				
10 years	-0,020	0,005	-4,290	**<0,0001**	-0,029	-0,011
6 years	0,000	0,004	-0,029	0,977	-0,009	0,009
8 years	-0,009	0,005	-2,046	**0,041**	-0,018	0,000

ANOVA - Growth trajectory retention

Correlation matrix:

	Baseline (4 years)	10 years	6 years	8 years	Y
Baseline (4 years)	**1**	-0,336	-0,380	-0,351	0,052
10 years	-0,336	**1**	-0,313	-0,290	-0,038
6 years	-0,380	-0,313	**1**	-0,327	0,004
8 years	-0,351	-0,290	-0,327	**1**	-0,022
Y	0,052	-0,038	0,004	-0,022	**1**

Settings:
Constraints: a1=0
Confidence interval (%): 95
Tolerance: 0,0001
Use least squares means: Yes

Goodness of fit statistics (Y):

Observations	4569
Sum of weigl	4569
DF	4565
R^2	0,003
Adjusted R^2	0,003
MSE	0,000
RMSE	0,021
MAPE	352,409
DW	0,507
Cp	4,000
AIC	-35322,758
SBC	-35297,050
PC	0,998

Analysis of variance (Y):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	3	0,007	0,002	5,236	**0,001**
Error	4565	2,002	0,000		
Corrected Total	4568	2,009			

Computed against model Y=Mean(Y)

Model parameters (Y):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,005	0,001	-8,776	**<0,0001**	-0,006	-0,004
Baseline (4 years)	0,000	0,000				
10 years	-0,003	0,001	-3,669	**0,000**	-0,005	-0,002
6 years	-0,002	0,001	-1,868	0,062	-0,003	0,000
8 years	-0,003	0,001	-2,932	**0,003**	-0,004	-0,001

Robustness test for variation of duration of recovery phase: Employment

Kruskal-Wallis - Recovery of development level

Settings:
Significance level (%): 5
p-value: Asymptotic p-value
Continuity correction: Yes

Kruskal-Wallis test / Two-tailed test:

K (Observed value)	29,819
K (Critical value)	7,815
DF	3
p-value (one-tailed)	< 0,0001
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups	
10 years	992	2090477,000	2107,336	A	
8 years	1061	2382635,000	2245,650	A	B
6 years	1193	2824175,000	2367,288		B
Baseline (4 years)	1323	3142878,000	2375,569		B

Pairwise comparisons:

Differences:

	Baseline (4 years)	6 years	8 years	10 years
Baseline (4 years)	0	8,281	129,919	**268,233**
6 years	-8,281	0	121,638	**259,953**
8 years	-129,919	-121,638	0	138,315
10 years	**-268,233**	**-259,953**	-138,315	0

p-values:

	Baseline (4 years)	6 years	8 years	10 years
Baseline (4 years)	1	0,875	0,017	**<0,0001**
6 years	0,875	1	0,029	**<0,0001**
8 years	0,017	0,029	1	0,018
10 years	**<0,0001**	**<0,0001**	0,018	1

Bonferroni corrected significance level: 0,0083

Kruskal-Wallis - Growth trajectory retention

Settings:
Significance level (%): 5
p-value: Asymptotic p-value
Continuity correction: Yes

Kruskal-Wallis test / Two-tailed test:

K (Observed value)	24,271
K (Critical value)	7,815
DF	3
p-value (one-tailed)	< 0,0001
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups	
10 years	992	2142608,000	2159,887	A	
8 years	1061	2361952,000	2226,156	A	
6 years	1193	2738494,000	2295,469	A	B
Baseline (4 years)	1323	3197111,000	2416,562		B

Pairwise comparisons:

Differences:

	Baseline (4 years)	6 years	8 years	10 years
Baseline (4 years)	0	121,093	**190,405**	**256,675**
6 years	-121,093	0	69,312	135,581
8 years	**-190,405**	-69,312	0	66,269
10 years	**-256,675**	-135,581	-66,269	0

p-values:

	Baseline (4 years)	6 years	8 years	10 years
Baseline (4 years)	1	0,021	**0,000**	**<0,0001**
6 years	0,021	1	0,213	0,017
8 years	**0,000**	0,213	1	0,255
10 years	**<0,0001**	0,017	0,255	1

Bonferroni corrected significance level: 0,0083

II. Appendix to Section 6.

II.a. Descriptive statistics on resilience performance year by year (by year of first downturn)

RGVA	Retention of growth trajectory																								
Statistic	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Nbr. of observations	15	28	201	84	296	188	22	17	9	3	7	7	32	57	90	269	1	25	12	15	198	543	N/A	N/A	5
Nbr. of missing values	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N/A	N/A	0
Minimum	-0,059	-0,146	-0,097	-0,085	-0,075	-0,052	-0,046	-0,044	-0,079	-0,013	-0,039	-0,082	-0,107	-0,091	-0,110	-0,125	-0,025	-0,062	-0,051	-0,059	-0,042	-0,094	N/A	N/A	-0,003
Maximum	0,189	0,055	0,083	0,138	0,057	0,072	0,055	0,048	0,055	0,035	0,026	0,029	0,051	0,033	0,064	0,068	-0,025	0,038	0,015	0,019	0,069	0,088	N/A	N/A	0,026
1st Quartile	-0,018	-0,019	-0,029	-0,031	-0,021	-0,012	-0,016	-0,020	-0,043	0,001	-0,032	0,000	-0,034	-0,042	-0,050	-0,033	-0,025	-0,027	-0,027	-0,028	-0,017	-0,015	N/A	N/A	0,012
Median	0,011	-0,005	-0,006	-0,015	-0,006	0,000	-0,006	-0,010	-0,019	0,015	-0,019	0,005	-0,003	-0,020	-0,038	-0,017	-0,025	-0,005	-0,017	-0,020	-0,006	-0,006	N/A	N/A	0,012
3rd Quartile	0,043	0,022	0,012	-0,005	0,003	0,007	0,015	0,008	0,004	0,025	-0,003	0,015	0,008	0,001	-0,015	0,003	-0,025	0,009	-0,002	0,000	0,004	0,005	N/A	N/A	0,015
Mean	0,027	-0,006	-0,009	-0,016	-0,011	-0,003	-0,002	-0,006	-0,016	0,012	-0,014	-0,003	-0,011	-0,023	-0,032	-0,015	-0,025	-0,009	-0,015	-0,016	-0,006	-0,005	N/A	N/A	0,012
Variance (n-1)	0,005	0,002	0,001	0,001	0,000	0,000	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001	-0,025	0,001	0,000	0,001	0,000	0,000	N/A	N/A	0,000
Standard deviation (n-1)	0,071	0,043	0,031	0,027	0,021	0,016	0,024	0,024	0,039	0,024	0,023	0,037	0,034	0,027	0,031	0,028	-0,025	0,027	0,020	0,024	0,016	0,017	N/A	N/A	0,011
Lower bound on mean	-0,012	-0,022	-0,013	-0,022	-0,013	-0,005	-0,012	-0,019	-0,046	-0,047	-0,036	-0,037	-0,023	-0,030	-0,039	-0,018	-0,025	-0,020	-0,028	-0,029	-0,008	-0,007	N/A	N/A	-0,001
on mean (95%)	0,067	0,011	-0,004	-0,010	-0,008	0,000	0,009	0,006	0,013	0,072	0,007	0,031	0,001	-0,016	-0,026	-0,011	-0,025	0,002	-0,002	-0,003	-0,003	-0,004	N/A	N/A	0,025

RGVA	Recovery of development level																								
Statistic	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Nbr. of observations	15	28	201	84	296	188	22	17	9	3	7	7	32	57	90	269	1	25	12	15	198	543	N/A	N/A	5
Nbr. of missing values	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N/A	N/A	0
Minimum	-0,330	-0,732	-0,590	-0,569	-0,405	-0,487	-0,117	-0,111	-0,171	-0,122	-0,261	-0,368	-0,311	-0,464	-0,424	-0,490	-0,027	-0,590	-0,489	-0,384	-0,521	-0,266	N/A	N/A	-0,093
Maximum	0,337	0,055	0,198	0,198	0,252	0,278	0,091	0,155	0,149	0,213	0,190	0,165	0,057	0,509	0,158	0,234	-0,027	0,176	0,054	0,045	0,065	0,257	N/A	N/A	0,040
1st Quartile	-0,188	-0,177	-0,195	-0,202	-0,101	-0,082	-0,104	-0,049	-0,123	-0,019	-0,097	-0,048	-0,141	-0,144	-0,187	-0,121	-0,027	-0,352	-0,265	-0,292	-0,158	-0,096	N/A	N/A	-0,055
Median	0,033	-0,136	-0,121	-0,132	-0,054	-0,038	-0,055	0,021	-0,055	0,084	-0,050	0,042	-0,091	-0,095	-0,133	-0,068	-0,027	-0,213	-0,198	-0,227	-0,102	-0,054	N/A	N/A	-0,039
3rd Quartile	0,092	-0,053	-0,048	-0,088	-0,003	0,005	-0,023	0,071	-0,004	0,148	0,010	0,048	-0,047	-0,026	-0,068	-0,027	-0,027	-0,070	-0,133	-0,150	-0,067	-0,017	N/A	N/A	-0,021
Mean	-0,030	-0,152	-0,130	-0,150	-0,052	-0,040	-0,050	0,014	-0,050	0,058	-0,042	-0,023	-0,094	-0,094	-0,129	-0,075	-0,027	-0,219	-0,199	-0,208	-0,111	-0,056	N/A	N/A	-0,034
Variance (n-1)	0,041	0,029	0,014	0,013	0,009	0,007	0,003	0,006	0,010	0,028	0,020	0,030	0,007	0,020	0,009	0,008	-0,027	0,041	0,022	0,016	0,005	0,004	N/A	N/A	0,002
Standard deviation (n-1)	0,204	0,169	0,117	0,113	0,094	0,084	0,059	0,078	0,098	0,169	0,140	0,172	0,084	0,143	0,093	0,089	-0,027	0,201	0,149	0,128	0,074	0,066	N/A	N/A	0,049
on mean (95%)	-0,143	-0,217	-0,146	-0,175	-0,062	-0,052	-0,076	-0,026	-0,125	-0,361	-0,172	-0,182	-0,125	-0,132	-0,149	-0,086	-0,027	-0,302	-0,294	-0,279	-0,121	-0,062	N/A	N/A	-0,095
on mean (95%)	0,083	-0,086	-0,113	-0,126	-0,041	-0,028	-0,024	0,054	0,025	0,477	0,087	0,136	-0,064	-0,056	-0,110	-0,065	-0,027	-0,136	-0,104	-0,137	-0,100	-0,051	N/A	N/A	0,027

Employment	**Retention of growth trajectory**																										
Statistic	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Nbr. of observations	14	22	71	258	259	114	17	20	9	4	10	19	46	19	53	59	18	10	6	5	23	259	3	N/A	2	3
Nbr. of missing values	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N/A	0	0
Minimum	-0,030	-0,046	-0,036	-0,182	-0,140	-0,041	-0,035	-0,030	-0,023	-0,023	-0,012	-0,040	-0,075	-0,058	-0,120	-0,105	-0,108	-0,027	-0,038	-0,040	-0,065	-0,051	-0,009	N/A	0,013	0,003
Maximum	0,057	0,073	0,083	0,139	0,082	0,051	0,062	0,009	0,021	0,017	0,021	0,056	0,023	0,034	0,026	0,033	0,054	0,009	0,007	0,003	0,013	0,064	0,020	N/A	0,034	0,008
1st Quartile	-0,007	-0,006	-0,004	-0,018	-0,021	-0,010	-0,015	-0,018	-0,018	-0,015	0,001	0,001	-0,012	-0,027	-0,029	-0,037	-0,010	-0,023	-0,028	-0,032	-0,018	-0,013	-0,006	N/A	0,018	0,005
Median	0,008	0,006	0,001	-0,003	-0,007	0,003	-0,009	-0,010	-0,009	-0,001	0,012	0,011	-0,005	0,002	-0,011	-0,025	-0,001	-0,017	-0,020	-0,014	-0,006	-0,001	-0,003	N/A	0,024	0,008
3rd Quartile	0,026	0,018	0,016	0,007	0,003	0,011	0,014	-0,003	0,015	0,012	0,017	0,023	0,006	0,017	0,001	-0,012	0,003	-0,004	-0,008	-0,011	0,001	0,008	0,009	N/A	0,029	0,008
Mean	0,010	0,006	0,007	-0,005	-0,009	0,001	0,002	-0,011	-0,003	-0,002	0,008	0,011	-0,006	-0,006	-0,019	-0,027	-0,008	-0,013	-0,017	-0,019	-0,009	-0,002	0,003	N/A	0,024	0,006
Variance (n-1)	0,001	0,001	0,001	0,001	0,001	0,000	0,001	0,000	0,000	0,000	0,000	0,000	0,000	0,001	0,001	0,000	0,001	0,000	0,000	0,000	0,000	0,000	0,000	N/A	0,000	0,000
Standard deviation (n-1)	0,024	0,031	0,024	0,029	0,022	0,017	0,028	0,012	0,017	0,019	0,011	0,022	0,018	0,027	0,030	0,021	0,035	0,013	0,017	0,017	0,018	0,017	0,015	N/A	0,015	0,002
on mean (95%)	-0,003	-0,007	0,002	-0,009	-0,012	-0,002	-0,012	-0,017	-0,016	-0,032	0,001	0,001	-0,012	-0,019	-0,028	-0,032	-0,026	-0,023	-0,035	-0,040	-0,016	-0,004	-0,035	N/A	-0,113	0,000
on mean (95%)	0,024	0,020	0,013	-0,002	-0,006	0,004	0,016	-0,006	0,010	0,028	0,016	0,022	-0,001	0,008	-0,011	-0,021	0,009	-0,004	0,000	0,003	-0,001	0,000	0,041	N/A	0,160	0,012
Employment	**Recovery of development level**																										
Statistic	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Nbr. of observations	14	22	71	258	259	114	17	20	9	4	10	19	46	19	53	59	18	10	6	5	23	259	3	N/A	2	3
Nbr. of missing values	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N/A	0	0
Minimum	-0,411	-0,374	-0,257	-0,393	-0,453	-0,345	-0,168	-0,196	-0,138	-0,093	-0,148	-0,257	-0,379	-0,333	-0,393	-0,645	-0,272	-0,337	-0,323	-0,237	-0,391	-0,375	-0,049	N/A	0,011	-0,005
Maximum	0,234	0,177	0,260	0,095	0,128	0,065	0,060	0,009	0,092	0,042	0,194	0,189	0,093	0,076	0,002	0,009	0,899	0,007	-0,057	-0,121	-0,025	0,123	-0,024	N/A	0,018	0,010
1st Quartile	-0,215	-0,132	-0,105	-0,195	-0,176	-0,106	-0,081	-0,092	-0,097	-0,014	-0,039	-0,080	-0,185	-0,131	-0,196	-0,210	-0,059	-0,236	-0,274	-0,169	-0,285	-0,128	-0,040	N/A	0,013	-0,005
Median	-0,055	-0,049	-0,054	-0,149	-0,124	-0,077	-0,024	-0,067	-0,030	0,025	0,013	-0,034	-0,118	-0,081	-0,098	-0,122	-0,010	-0,130	-0,238	-0,159	-0,182	-0,075	-0,031	N/A	0,014	-0,004
3rd Quartile	0,016	0,000	-0,016	-0,092	-0,074	-0,050	0,009	-0,039	0,010	0,038	0,037	-0,004	-0,057	0,016	-0,071	-0,080	0,044	-0,084	-0,219	-0,135	-0,120	-0,028	-0,028	N/A	0,016	0,003
Mean	-0,088	-0,073	-0,059	-0,142	-0,132	-0,085	-0,039	-0,071	-0,036	0,000	0,012	-0,034	-0,123	-0,083	-0,138	-0,150	0,009	-0,152	-0,226	-0,164	-0,199	-0,079	-0,035	N/A	0,014	0,000
Variance (n-1)	0,033	0,016	0,011	0,007	0,008	0,004	0,005	0,003	0,006	0,004	0,011	0,010	0,010	0,013	0,011	0,013	0,063	0,013	0,008	0,002	0,011	0,005	0,000	N/A	0,000	0,000
Standard deviation (n-1)	0,183	0,126	0,104	0,084	0,087	0,062	0,070	0,052	0,075	0,063	0,103	0,100	0,100	0,116	0,103	0,114	0,250	0,116	0,092	0,045	0,104	0,072	0,013	N/A	0,005	0,008
on mean (95%)	-0,194	-0,129	-0,083	-0,152	-0,143	-0,097	-0,075	-0,095	-0,094	-0,101	-0,062	-0,082	-0,153	-0,139	-0,166	-0,180	-0,116	-0,235	-0,322	-0,220	-0,244	-0,088	-0,067	N/A	-0,030	-0,021
on mean (95%)	0,017	-0,017	-0,034	-0,132	-0,122	-0,074	-0,003	-0,046	0,021	0,100	0,085	0,014	-0,093	-0,027	-0,109	-0,120	0,133	-0,069	-0,130	-0,108	-0,154	-0,071	-0,003	N/A	0,059	0,021

II.b. Descriptive statistics on resilience performance for the different periods of the time series

RGVA: Descriptive statistics on regional resilience performance by time period

Descriptive statistics (Quantitative data):

Statistic	Recovery of development level | 1: BTW	Recovery of development level | 2: 90-93	Recovery of development level | 3: 00-03	Recovery of development level | 4: 08-09	Growth trajectory retention (4 years) | 1: BTW	Growth trajectory retention (4 years) | 2: 90-93	Growth trajectory retention (4 years) | 3: 00-03	Growth trajectory retention (4 years) | 4: 08-09	Growth trajectory retention (8 years) | 1: BTW	Growth trajectory retention (8 years) | 2: 90-93	Growth trajectory retention (8 years) | 3: 00-03	Growth trajectory retention (8 years) | 4: 08-09
Nbr. of observations	166	769	448	741	166	769	448	741	166	769	448	741
Nbr. of missing values	0	0	0	0	0	0	0	0	38	2	14	374
Minimum	-0,732	-0,590	-0,490	-0,521	-0,146	-0,097	-0,125	-0,094	-0,132	-0,093	-0,098	-0,035
Maximum	0,337	0,278	0,509	0,257	0,189	0,138	0,068	0,088	0,103	0,065	0,031	0,047
1st Quartile	-0,184	-0,131	-0,146	-0,112	-0,022	-0,021	-0,039	-0,015	-0,021	-0,021	-0,031	-0,010
Median	-0,090	-0,073	-0,082	-0,070	-0,006	-0,006	-0,020	-0,006	-0,009	-0,010	-0,018	-0,001
3rd Quartile	0,009	-0,013	-0,037	-0,028	0,014	0,005	0,002	0,005	0,006	0,000	-0,007	0,008
Mean	-0,105	-0,080	-0,090	-0,071	-0,004	-0,009	-0,019	-0,005	-0,009	-0,012	-0,019	-0,001
Variance (n-1)	0,028	0,012	0,010	0,005	0,001	0,001	0,001	0,000	0,001	0,000	0,000	0,000
Standard deviation (n-1)	0,168	0,109	0,100	0,072	0,036	0,024	0,030	0,017	0,031	0,018	0,019	0,013
Lower bound on mean (95%)	-0,131	-0,088	-0,099	-0,076	-0,010	-0,011	-0,022	-0,007	-0,014	-0,013	-0,021	-0,002
Upper bound on mean (95%)	-0,080	-0,072	-0,081	-0,066	0,001	-0,007	-0,016	-0,004	-0,003	-0,011	-0,018	0,000

Employment: Descriptive statistics on regional resilience performance by time period

Descriptive statistics (Quantitative data):

Statistic	Recovery of development level | 1: BTW	Recovery of development level | 2: 90-93	Recovery of development level | 3: 00-03	Recovery of development level | 4: 08-09	Growth trajectory retention (4 years) | 1: BTW	Growth trajectory retention (4 years) | 2: 90-93	Growth trajectory retention (4 years) | 3: 00-03	Growth trajectory retention (4 years) | 4: 08-09	Growth trajectory retention (8 years) | 1: BTW	Growth trajectory retention (8 years) | 2: 90-93	Growth trajectory retention (8 years) | 3: 00-03	Growth trajectory retention (8 years) | 4: 08-09
Nbr. of observations	162	702	177	282	162	702	177	282	162	702	177	282
Nbr. of missing values	0	0	0	0	0	0	0	0	27	1	10	223
Minimum	-0,411	-0,453	-0,645	-0,391	-0,108	-0,182	-0,120	-0,065	-0,062	-0,058	-0,113	-0,027
Maximum	0,899	0,260	0,093	0,123	0,073	0,139	0,034	0,064	0,060	0,058	0,027	1,000
1st Quartile	-0,129	-0,173	-0,194	-0,132	-0,015	-0,017	-0,029	-0,014	-0,017	-0,018	-0,033	-0,006
Median	-0,047	-0,118	-0,112	-0,083	-0,001	-0,003	-0,012	-0,001	-0,006	-0,007	-0,016	0,007
3rd Quartile	0,006	-0,061	-0,062	-0,032	0,012	0,007	-0,001	0,008	0,011	0,004	-0,006	0,013
Mean	-0,058	-0,121	-0,132	-0,089	0,000	-0,004	-0,017	-0,002	-0,003	-0,007	-0,020	0,022
Variance (n-1)	0,019	0,008	0,012	0,007	0,001	0,001	0,001	0,000	0,000	0,000	0,001	0,017
Standard deviation (n-1)	0,136	0,089	0,109	0,082	0,025	0,025	0,026	0,017	0,020	0,017	0,022	0,130
Lower bound on mean (95%)	-0,079	-0,127	-0,148	-0,099	-0,004	-0,006	-0,021	-0,004	-0,007	-0,008	-0,023	-0,012
Upper bound on mean (95%)	-0,037	-0,114	-0,116	-0,080	0,003	-0,002	-0,013	0,000	0,000	-0,005	-0,016	0,056

II.c. Analysis of resilience performance across the time series (crisis periods)

Analysis of RGVA-based resilience performance across the time series (crisis periods)

Normality tests:

Shapiro-Wilk test (Recovery of development level | BTW):

W	0,971
p-value (Two-tailed)	0,001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4-years) | BTW):

W	0,892
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8-years) | BTW):

W	0,910
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Recovery of development level | 90-93):

W	0,963
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4-years) | 90-93):

W	0,957
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8-years) | 90-93):

W	0,966
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Recovery of development level | 00-03):

W	0,946
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4-years) | 00-03):

W	0,994
p-value (Two-tailed)	0,087
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8-years) | 00-03):

W	0,979
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Recovery of development level | 08-09):

W	0,976
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4-years) | 08-09):

W	0,972
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8-years) | 08-09):

W	0,995
p-value (Two-tailed)	0,268
alpha	0,050

Analysis of RGVA-based resilience performance across the time series (crisis periods)

Normality tests:

Kolmogorov-Smirnov test (BTW | Recovery of development level):

D	0,072
p-value (Two-tailed)	<0,0001
alpha	0,050

Kolmogorov-Smirnov test (BTW | Growth trajectory retention (4-years)):

D	0,063
p-value (Two-tailed)	<0,0001
alpha	0,050

Kolmogorov-Smirnov test (BTW | Growth trajectory retention (8-years)):

D	0,058
p-value (Two-tailed)	<0,0001
alpha	0,050

Kolmogorov-Smirnov test (90-93 | Recovery of development level):

D	0,078
p-value (Two-tailed)	0,000
alpha	0,050

Kolmogorov-Smirnov test (90-93 | Growth trajectory retention (4-years)):

D	0,072
p-value (Two-tailed)	0,001
alpha	0,050

Kolmogorov-Smirnov test (90-93 | Growth trajectory retention (8-years)):

D	0,071
p-value (Two-tailed)	0,001
alpha	0,050

Kolmogorov-Smirnov test (00-03 | Recovery of development level):

D	0,056
p-value (Two-tailed)	0,112
alpha	0,050

Kolmogorov-Smirnov test (00-03 | Growth trajectory retention (4-years)):

D	0,028
p-value (Two-tailed)	0,877
alpha	0,050

Kolmogorov-Smirnov test (00-03 | Growth trajectory retention (8-years)):

D	0,044
p-value (Two-tailed)	0,347
alpha	0,050

Kolmogorov-Smirnov test (08-09 | Recovery of development level):

D	0,047
p-value (Two-tailed)	0,076
alpha	0,050

Kolmogorov-Smirnov test (08-09 | Growth trajectory retention (4-years)):

D	0,053
p-value (Two-tailed)	0,030
alpha	0,050

Kolmogorov-Smirnov test (08-09 | Growth trajectory retention (8-years)):

D	0,022
p-value (Two-tailed)	0,991
alpha	0,050

Analysis of RGVA-based resilience performance across the time series (crisis periods)

Correlation matrix:

	BTW	90-93	00-03	08-09	Growth trajectory retention (4-years)	Recovery of development level	Growth trajectory retention (8-years)
BTW	**1**	0,703	0,712	-0,898	-0,068	-0,089	-0,200
90-93	0,703	**1**	0,566	-0,880	-0,056	-0,037	-0,170
00-03	0,712	0,566	**1**	-0,858	-0,185	-0,072	-0,310
08-09	-0,898	-0,880	-0,858	**1**	0,118	0,072	0,270
Growth trajectory retention (4-years)	-0,068	-0,056	-0,185	0,118	**1**	0,479	0,729
Recovery of development level	-0,089	-0,037	-0,072	0,072	0,479	**1**	0,443
Growth trajectory retention (8-years)	-0,200	-0,170	-0,310	0,270	0,729	0,443	**1**

Analysis of RGVA-based resilience performance across the time series (crisis periods)

ANOVA - Recovery of development level

Goodness of fit statistics (Recovery of development level):

Observations	2124
Sum of weigl	2124
DF	2120
R²	0,009
Adjusted R²	0,008
MSE	0,010
RMSE	0,102
MAPE	2317,328
DW	1,300
Cp	4,000
AIC	-9680,425
SBC	-9657,781
PC	0,994

Settings (for all ANOVA):
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Use least squares means: Yes

Analysis of variance (Recovery of development level):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	3	0,212	0,071	6,740	**0,000**
Error	2120	22,190	0,010		
Corrected Total	2123	22,402			

Computed against model Y=Mean(Y)

Model parameters (Recovery of development level):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,086	0,003	-32,364	**<0,0001**	-0,092	-0,081
BTW	-0,019	0,006	-3,026	**0,003**	-0,031	-0,007
90-93	0,007	0,004	1,758	0,079	-0,001	0,014
00-03	-0,003	0,004	-0,792	0,429	-0,012	0,005
08-09	0,016	0,004	4,163	**<0,0001**	0,008	0,023

ANOVA - Growth trajectory retention (4-year recovery period)

Goodness of fit statistics (Growth trajectory retention (4-years)):

Observations	2124
Sum of weigl	2124
DF	2120
R²	0,043
Adjusted R²	0,042
MSE	0,001
RMSE	0,025
MAPE	280,582
DW	1,459
Cp	4,000
AIC	-15740,267
SBC	-15717,623
PC	0,961

Analysis of variance (Growth trajectory retention (4-years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	3	0,057	0,019	31,660	**<0,0001**
Error	2120	1,280	0,001		
Corrected Total	2123	1,337			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (4-years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,009	0,001	-14,717	**<0,0001**	-0,011	-0,008
BTW	0,005	0,001	3,311	**0,001**	0,002	0,008
90-93	0,001	0,001	0,674	0,500	-0,001	0,002
00-03	-0,010	0,001	-9,185	**<0,0001**	-0,012	-0,008
08-09	0,004	0,001	4,443	**<0,0001**	0,002	0,006

Analysis of RGVA-based resilience performance across the time series (crisis periods)

ANOVA - Growth trajectory retention (8-year recovery period)

Goodness of fit statistics (Growth trajectory retention (8-years)):

Observations	1696
Sum of weights	1696
DF	1692
R²	0,103
Adjusted R²	0,101
MSE	0,000
RMSE	0,019
MAPE	615,086
DW	1,319
Cp	4,000
AIC	-13454,062
SBC	-13432,318
PC	0,902

Analysis of variance (Growth trajectory retention (8-years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	3	0,069	0,023	64,570	**<0,0001**
Error	1692	0,606	0,000		
Corrected Total	1695	0,675			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (8-years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,010	0,001	-18,217	**<0,0001**	-0,011	-0,009
BTW	0,002	0,001	1,179	0,239	-0,001	0,004
90-93	-0,002	0,001	-2,194	**0,028**	-0,003	0,000
00-03	-0,009	0,001	-10,794	**<0,0001**	-0,011	-0,008
08-09	0,009	0,001	10,369	**<0,0001**	0,008	0,011

Kruskal-Wallis - Recovery of development level

Kruskal-Wallis test / Two-tailed test (Recovery of development level):

K (Observed value)	12,704
K (Critical value)	7,815
DF	3
p-value (one-tailed)	0,005
alpha	0,05

An approximation has been used to compute the p-value.

Settings (for all K-W-tests):
Significance level (%): 5
p-value: Asymptotic p-value
Continuity correction: Yes

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups	
3: 00-03	448	441505,000	985,502	A	
1: BTW	166	167278,000	1007,699	A	B
2: 90-93	769	827521,000	1076,100	A	B
4: 08-09	741	820446,000	1107,215		B

Pairwise comparisons (Recovery of development level):

Differences:

	1: BTW	2: 90-93	3: 00-03	4: 08-09
1: BTW	0	-68,401	22,197	-99,516
2: 90-93	68,401	0	90,598	-31,114
3: 00-03	-22,197	-90,598	0	**-121,712**
4: 08-09	99,516	31,114	**121,712**	0

p-values:

	1: BTW	2: 90-93	3: 00-03	4: 08-09
1: BTW	1	0,193	0,690	0,059
2: 90-93	0,193	1	0,013	0,324
3: 00-03	0,690	0,013	1	**0,001**
4: 08-09	0,059	0,324	**0,001**	1

Bonferroni corrected significance level: 0,0083

Analysis of RGVA-based resilience performance across the time series (crisis periods)

Kruskal-Wallis - Growth trajectory retention (4-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (4-years)):

K (Observed value)	86,721
K (Critical value)	7,815
DF	3
p-value (one-tailed)	< 0,0001
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups	
3: 00-03	448	371679,000	829,641	A	
2: 90-93	769	837739,000	1089,388		B
1: BTW	166	188927,000	1138,114		B
4: 08-09	741	858405,000	1158,441		B

Pairwise comparisons (Growth trajectory retention (4-years)):

Differences:

	1: BTW	2: 90-93	3: 00-03	4: 08-09
1: BTW	0	48,727	**308,474**	-20,327
2: 90-93	-48,727	0	**259,747**	-69,054
3: 00-03	**-308,474**	**-259,747**	0	**-328,801**
4: 08-09	20,327	69,054	**328,801**	0

p-values:

	1: BTW	2: 90-93	3: 00-03	4: 08-09
1: BTW	1	0,353	**<0,0001**	0,700
2: 90-93	0,353	1	**<0,0001**	0,029
3: 00-03	**<0,0001**	**<0,0001**	1	**<0,0001**
4: 08-09	0,700	0,029	**<0,0001**	1

Bonferroni corrected significance level: 0,0083

Kruskal-Wallis - Growth trajectory retention (8-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (8-years)):

K (Observed value)	213,485
K (Critical value)	7,815
DF	3
p-value (one-tailed)	< 0,0001
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups		
3: 00-03	434	272048,000	626,839	A		
2: 90-93	767	636407,000	829,735		B	
1: BTW	128	115642,000	903,453		B	
4: 08-09	367	414959,000	1130,678			C

Pairwise comparisons (Growth trajectory retention (8-years)):

Differences:

	1: BTW	2: 90-93	3: 00-03	4: 08-09
1: BTW	0	73,718	**276,614**	**-227,225**
2: 90-93	-73,718	0	**202,897**	**-300,943**
3: 00-03	**-276,614**	**-202,897**	0	**-503,840**
4: 08-09	**227,225**	**300,943**	**503,840**	0

p-values:

	1: BTW	2: 90-93	3: 00-03	4: 08-09
1: BTW	1	0,115	**<0,0001**	**<0,0001**
2: 90-93	0,115	1	**<0,0001**	**<0,0001**
3: 00-03	**<0,0001**	**<0,0001**	1	**<0,0001**
4: 08-09	**<0,0001**	**<0,0001**	**<0,0001**	1

Bonferroni corrected significance level: 0,0083

Analysis of Employment-based resilience performance across the time series (crisis periods)

Normality tests:

Shapiro-Wilk test (Recovery of development level | BTW):

W	0,859
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4-years) | BTW):

W	0,974
p-value (Two-tailed)	0,003
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8-years) | BTW):

W	0,977
p-value (Two-tailed)	0,023
alpha	0,050

Shapiro-Wilk test (Recovery of development level | 90-93):

W	0,976
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4-years) | 90-93):

W	0,904
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8-years) | 90-93):

W	0,994
p-value (Two-tailed)	0,005
alpha	0,050

Shapiro-Wilk test (Recovery of development level | 00-03):

W	0,955
p-value (Two	<0,0001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4-years) | 00-03):

W	0,950
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8-years) | 00-03):

W	0,934
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Recovery of development level | 08-09):

W	0,956
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4-years) | 08-09):

W	0,987
p-value (Two-tailed)	0,012
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8-years) | 08-09):

W	0,980
p-value (Two-tailed)	0,437
alpha	0,050

Analysis of Employment-based resilience performance across the time series (crisis periods)

Normality tests:

Kolmogorov-Smirnov test (BTW | Recovery of development level):

D	0,112
p-value (Two-tailed)	0,031
alpha	0,050

Kolmogorov-Smirnov test (BTW | Growth trajectory retention (4-years)):

D	0,061
p-value (Two-tailed)	0,569
alpha	0,050

Kolmogorov-Smirnov test (BTW | Growth trajectory retention (8-years)):

D	0,075
p-value (Two-tailed)	0,413
alpha	0,050

Kolmogorov-Smirnov test (90-93 | Recovery of development level):

D	0,049
p-value (Two-tailed)	0,064
alpha	0,050

Kolmogorov-Smirnov test (90-93 | Growth trajectory retention (4-years)):

D	0,082
p-value (Two-tailed)	0,000
alpha	0,050

Kolmogorov-Smirnov test (90-93 | Growth trajectory retention (8-years)):

D	0,026
p-value (Two-tailed)	0,703
alpha	0,050

Kolmogorov-Smirnov test (00-03 | Recovery of development level):

D	0,101
p-value (Two-tailed)	0,051
alpha	0,050

Kolmogorov-Smirnov test (00-03 | Growth trajectory retention (4-years)):

D	0,109
p-value (Two-tailed)	0,027
alpha	0,050

Kolmogorov-Smirnov test (00-03 | Growth trajectory retention (8-years)):

D	0,098
p-value (Two-tailed)	0,077
alpha	0,050

Kolmogorov-Smirnov test (08-09 | Recovery of development level):

D	0,074
p-value (Two-tailed)	0,085
alpha	0,050

Kolmogorov-Smirnov test (08-09 | Growth trajectory retention (4-years)):

D	0,047
p-value (Two-tailed)	0,536
alpha	0,050

Kolmogorov-Smirnov test (08-09 | Growth trajectory retention (8-years)):

D	0,096
p-value (Two-tailed)	0,627
alpha	0,050

Analysis of Employment-based resilience performance across the time series (crisis periods)

Correlation matrix:

	BTW	90-93	00-03	08-09	Growth trajectory retention (4-years)	Recovery of development level	Growth trajectory retention (8-years)
BTW	**1**	0,527	0,617	-0,827	-0,001	0,037	-0,062
90-93	0,527	**1**	0,509	-0,855	-0,011	-0,136	-0,031
00-03	0,617	0,509	**1**	-0,821	-0,155	-0,124	-0,268
08-09	-0,827	-0,855	-0,821	**1**	0,061	0,098	0,155
Growth trajectory retention (4-years)	-0,001	-0,011	-0,155	0,061	**1**	0,528	0,760
Recovery of development level	0,037	-0,136	-0,124	0,098	0,528	**1**	0,524
Growth trajectory retention (8-years)	-0,062	-0,031	-0,268	0,155	0,760	0,524	**1**

Analysis of Employment-based resilience performance across the time series (crisis periods)

ANOVA - Recovery of development level

Goodness of fit statistics (Recovery of development level):

Observations	1323
Sum of weigl	1323
DF	1319
R²	0,055
Adjusted R²	0,053
MSE	0,009
RMSE	0,097
MAPE	481,642
DW	1,261
Cp	4,000
AIC	-6161,677
SBC	-6140,926
PC	0,951

Settings (for all ANOVA):
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Use least squares means: Yes

Analysis of variance (Recovery of development level):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	3	0,726	0,242	25,573	**<0,0001**
Error	1319	12,482	0,009		
Corrected Total	1322	13,208			

Computed against model Y=Mean(Y)

Model parameters (Recovery of development level):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,100	0,003	-31,721	**<0,0001**	-0,106	-0,094
BTW	0,042	0,006	6,734	**<0,0001**	0,030	0,054
90-93	-0,021	0,004	-5,105	**<0,0001**	-0,029	-0,013
00-03	-0,032	0,006	-5,305	**<0,0001**	-0,044	-0,020
08-09	0,011	0,005	2,098	**0,036**	0,001	0,021

ANOVA - Growth trajectory retention (4-year recovery period)

Goodness of fit statistics (Growth trajectory retention (4-years)):

Observations	1323
Sum of weigl	1323
DF	1319
R²	0,040
Adjusted R²	0,038
MSE	0,001
RMSE	0,024
MAPE	208,275
DW	1,277
Cp	4,000
AIC	-9920,041
SBC	-9899,291
PC	0,965

Analysis of variance (Growth trajectory retention (4-years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	3	0,031	0,010	18,482	**<0,0001**
Error	1319	0,729	0,001		
Corrected Total	1322	0,759			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (4-years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,006	0,001	-7,775	**<0,0001**	-0,007	-0,004
BTW	0,006	0,002	3,702	**0,000**	0,003	0,009
90-93	0,002	0,001	1,634	0,103	0,000	0,004
00-03	-0,011	0,001	-7,434	**<0,0001**	-0,014	-0,008
08-09	0,004	0,001	2,937	**0,003**	0,001	0,006

Analysis of Employment-based resilience performance across the time series (crisis periods)

ANOVA - Growth trajectory retention (8-year recovery period)

Goodness of fit statistics (Growth trajectory retention (8-years)):

Observations	1061
Sum of weights	1061
DF	1057
R²	0,094
Adjusted R²	0,091
MSE	0,000
RMSE	0,018
MAPE	567,770
DW	1,007
Cp	4,000
AIC	-8469,758
SBC	-8449,890
PC	0,913

Analysis of variance (Growth trajectory retention (8-years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	3	0,037	0,012	36,575	**<0,0001**
Error	1057	0,359	0,000		
Corrected Total	1060	0,397			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (8-years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,006	0,001	-7,518	**<0,0001**	-0,008	-0,005
BTW	0,003	0,001	2,070	**0,039**	0,000	0,006
90-93	0,000	0,001	-0,321	0,748	-0,002	0,002
00-03	-0,014	0,001	-10,458	**<0,0001**	-0,016	-0,011
08-09	0,011	0,002	5,818	**<0,0001**	0,007	0,015

Kruskal-Wallis - Recovery of development level

Kruskal-Wallis test / Two-tailed test (Recovery of development level):

K (Observed value)	79,415
K (Critical value)	7,815
DF	3
p-value (one-tailed)	< 0,0001
alpha	0,05

An approximation has been used to compute the p-value.

Settings (for all K-W-tests):
Significance level (%): 5
p-value: Asymptotic p-value
Continuity correction: Yes

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups	
3: 00-03	177	103785,000	586,356	A	
2: 90-93	702	422205,000	601,432	A	
4: 08-09	282	212232,000	752,596		B
1: BTW	162	137604,000	849,407		B

Pairwise comparisons (Recovery of development level):

Differences:

	1: BTW	2: 90-93	3: 00-03	4: 08-09
1: BTW	0	**247,976**	**263,051**	96,812
2: 90-93	**-247,976**	0	15,076	**-151,164**
3: 00-03	**-263,051**	-15,076	0	**-166,240**
4: 08-09	-96,812	**151,164**	**166,240**	0

p-values:

	1: BTW	2: 90-93	3: 00-03	4: 08-09
1: BTW	1	**<0,0001**	**<0,0001**	0,010
2: 90-93	**<0,0001**	1	0,639	**<0,0001**
3: 00-03	**<0,0001**	0,639	1	**<0,0001**
4: 08-09	0,010	**<0,0001**	**<0,0001**	1

Bonferroni corrected significance level: 0,0083

Analysis of Employment-based resilience performance across the time series (crisis periods)

Kruskal-Wallis - Growth trajectory retention (4-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (4-years)):

K (Observed value)	48,060
K (Critical value)	7,815
DF	3
p-value (one-tailed)	< 0,0001
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups	
3: 00-03	177	86112,000	486,508	A	
2: 90-93	702	470079,000	669,628		B
4: 08-09	282	201115,000	713,174		B
1: BTW	162	118520,000	731,605		B

Pairwise comparisons (Growth trajectory retention (4-years)):

Differences:

	1: BTW	2: 90-93	3: 00-03	4: 08-09
1: BTW	0	61,977	**245,096**	18,431
2: 90-93	-61,977	0	**183,120**	-43,546
3: 00-03	**-245,096**	**-183,120**	0	**-226,665**
4: 08-09	-18,431	43,546	**226,665**	0

p-values:

	1: BTW	2: 90-93	3: 00-03	4: 08-09
1: BTW	1	0,063	**<0,0001**	0,625
2: 90-93	0,063	1	**<0,0001**	0,106
3: 00-03	**<0,0001**	**<0,0001**	1	**<0,0001**
4: 08-09	0,625	0,106	**<0,0001**	1

Bonferroni corrected significance level: 0,0083

Kruskal-Wallis - Growth trajectory retention (8-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (8-years)):

K (Observed value)	82,757
K (Critical value)	7,815
DF	3
p-value (one-tailed)	< 0,0001
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups		
3: 00-03	167	61364,000	367,449	A		
2: 90-93	701	379026,000	540,693		B	
1: BTW	135	79490,000	588,815		B	
4: 08-09	58	43511,000	750,190			C

Pairwise comparisons (Growth trajectory retention (8-years)):

Differences:

	1: BTW	2: 90-93	3: 00-03	4: 08-09
1: BTW	0	48,122	**221,366**	**-161,375**
2: 90-93	-48,122	0	**173,244**	**-209,496**
3: 00-03	**-221,366**	**-173,244**	0	**-382,741**
4: 08-09	**161,375**	**209,496**	**382,741**	0

p-values:

	1: BTW	2: 90-93	3: 00-03	4: 08-09
1: BTW	1	0,095	**<0,0001**	**0,001**
2: 90-93	0,095	1	**<0,0001**	**<0,0001**
3: 00-03	**<0,0001**	**<0,0001**	1	**<0,0001**
4: 08-09	**0,001**	**<0,0001**	**<0,0001**	1

Bonferroni corrected significance level: 0,0083

II.d. Descriptive statistics on resilience performance by shock type

RGVA: Descriptive statistics on regional resilience performance by shock type

Descriptive statistics (Quantitative data):

Statistic	Recovery of development level | LIS	Recovery of development level | NED	Recovery of development level | NED-NIS	Recovery of development level | NED-LIS	Recovery of development level | NIS	Growth trajectory retention (4 years) | LIS	Growth trajectory retention (4 years) | NED	Growth trajectory retention (4 years) | NED-NIS	Growth trajectory retention (4 years) | NED-LIS	Growth trajectory retention (4 years) | NIS	Growth trajectory retention (8 years) | LIS	Growth trajectory retention (8 years) | NED	Growth trajectory retention (8 years) | NED-NIS	Growth trajectory retention (8 years) | NED-LIS	Growth trajectory retention (8 years) | NIS
Nbr. of observations	213	1702	74	12	123	213	1702	74	12	123	213	1702	74	12	123
Nbr. of missing values	0	0	0	0	0	0	0	0	0	0	20	366	14	3	25
Minimum	-0,732	-0,590	-0,451	-0,437	-0,490	-0,146	-0,095	-0,071	-0,097	-0,125	-0,132	-0,097	-0,098	-0,067	-0,091
Maximum	0,509	0,278	0,188	-0,042	0,190	0,189	0,088	0,083	0,028	0,064	0,103	0,065	0,050	0,018	0,026
1st Quartile	-0,175	-0,118	-0,139	-0,213	-0,201	-0,025	-0,021	-0,025	-0,034	-0,026	-0,029	-0,020	-0,023	-0,042	-0,027
Median	-0,100	-0,066	-0,100	-0,142	-0,117	-0,006	-0,008	-0,012	-0,025	-0,007	-0,010	-0,009	-0,012	-0,016	-0,015
3rd Quartile	-0,025	-0,020	-0,047	-0,074	-0,039	0,011	0,005	0,003	-0,006	0,005	0,004	0,001	0,000	-0,010	-0,001
Mean	-0,102	-0,073	-0,099	-0,162	-0,133	-0,006	-0,009	-0,011	-0,023	-0,014	-0,012	-0,011	-0,013	-0,023	-0,016
Variance (n-1)	0,020	0,008	0,010	0,013	0,019	0,001	0,001	0,001	0,001	0,001	0,001	0,000	0,001	0,001	0,000
Standard deviation (n-1)	0,142	0,092	0,099	0,113	0,136	0,037	0,022	0,028	0,032	0,031	0,030	0,018	0,022	0,025	0,021
Lower bound on mean (95%)	-0,121	-0,077	-0,122	-0,234	-0,157	-0,011	-0,010	-0,017	-0,044	-0,020	-0,017	-0,012	-0,018	-0,042	-0,020
Upper bound on mean (95%)	-0,082	-0,069	-0,075	-0,091	-0,109	-0,001	-0,008	-0,004	-0,003	-0,009	-0,008	-0,010	-0,007	-0,003	-0,012

Employment: Descriptive statistics on regional resilience performance by shock type

Descriptive statistics (Quantitative data):

Statistic	Recovery of development level | LIS	Recovery of development level | NED	Recovery of development level | NED-NIS	Recovery of development level | NED-LIS	Recovery of development level | NIS	Growth trajectory retention (4 years) | LIS	Growth trajectory retention (4 years) | NED	Growth trajectory retention (4 years) | NED-NIS	Growth trajectory retention (4 years) | NED-LIS	Growth trajectory retention (4 years) | NIS	Growth trajectory retention (8 years) | LIS	Growth trajectory retention (8 years) | NED	Growth trajectory retention (8 years) | NED-NIS	Growth trajectory retention (8 years) | NED-LIS	Growth trajectory retention (8 years) | NIS
Nbr. of observations	288	768	103	21	143	288	768	103	21	143	288	768	103	21	143
Nbr. of missing values	0	0	0	0	0	0	0	0	0	0	56	171	17	8	9
Minimum	-0,453	-0,423	-0,391	-0,392	-0,645	-0,077	-0,140	-0,182	-0,120	-0,108	-0,113	-0,086	-0,050	-0,076	-0,093
Maximum	0,899	0,128	0,065	-0,004	0,177	0,083	0,139	0,082	0,018	0,073	0,060	1,000	0,044	0,012	0,053
1st Quartile	-0,155	-0,166	-0,166	-0,172	-0,155	-0,013	-0,020	-0,012	-0,024	-0,011	-0,015	-0,021	-0,017	-0,039	-0,016
Median	-0,079	-0,109	-0,096	-0,135	-0,086	-0,001	-0,006	0,000	-0,006	-0,001	-0,003	-0,010	-0,004	-0,011	-0,005
3rd Quartile	-0,015	-0,059	-0,038	-0,073	-0,031	0,011	0,005	0,009	0,003	0,010	0,010	0,002	0,006	0,000	0,004
Mean	-0,088	-0,115	-0,113	-0,138	-0,101	-0,001	-0,007	-0,003	-0,020	-0,002	-0,004	-0,008	-0,006	-0,017	-0,006
Variance (n-1)	0,017	0,007	0,009	0,010	0,012	0,001	0,001	0,001	0,001	0,001	0,000	0,002	0,000	0,001	0,001
Standard deviation (n-1)	0,131	0,083	0,096	0,102	0,108	0,023	0,023	0,025	0,038	0,026	0,021	0,045	0,017	0,026	0,023
Lower bound on mean (95%)	-0,103	-0,121	-0,132	-0,185	-0,119	-0,004	-0,009	-0,008	-0,037	-0,006	-0,006	-0,011	-0,009	-0,033	-0,010
Upper bound on mean (95%)	-0,073	-0,109	-0,094	-0,092	-0,083	0,001	-0,005	0,002	-0,002	0,002	-0,001	-0,004	-0,002	-0,002	-0,002

II.e. Analysis of resilience performance by shock type

Analysis of RGVA-based resilience performance by shock type

Normality tests:

Shapiro-Wilk test (Recovery of development level | LIS):

W	0,958
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4-year) | LIS):

W	0,899
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8-year) | LIS):

W	0,952
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Recovery of development level | NED):

W	0,954
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4-year) | NED):

W	0,980
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8-year) | NED):

W	0,972
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Recovery of development level | NED-NIS):

W	0,956
p-value (Two-tailed)	0,011
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4-year) | NED-NIS):

W	0,960
p-value (Two-tailed)	0,021
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8-year) | NED-NIS):

W	0,941
p-value (Two-tailed)	0,006
alpha	0,050

Shapiro-Wilk test (Recovery of development level | NED-LIS):

W	0,888
p-value (Two-tailed)	0,112
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4-year) | NED-LIS):

W	0,946
p-value (Two-tailed)	0,583
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8-year) | NED-LIS):

W	0,973
p-value (Two-tailed)	0,917
alpha	0,050

Shapiro-Wilk test (Recovery of development level | NIS):

W	0,948
p-value (Two-tailed)	0,000
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4-year) | NIS):

W	0,940
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8-year) | NIS):

W	0,973
p-value (Two-tailed)	0,040
alpha	0,050

Analysis of RGVA-based resilience performance by shock type

Normality tests:

Kolmogorov-Smirnov test (LIS | Recovery of development level):

D	0,070
p-value (Two-tailed)	0,233
alpha	0,050

Kolmogorov-Smirnov test (LIS | Growth trajectory retention (4-year)):

D	0,110
p-value (Two-tailed)	0,011
alpha	0,050

Kolmogorov-Smirnov test (LIS | Growth trajectory retention (8-year)):

D	0,065
p-value (Two-tailed)	0,367
alpha	0,050

Kolmogorov-Smirnov test (NED | Recovery of development level):

D	0,066
p-value (Two-tailed)	<0,0001
alpha	0,050

Kolmogorov-Smirnov test (NED | Growth trajectory retention (4-year)):

D	0,054
p-value (Two-tailed)	<0,0001
alpha	0,050

Kolmogorov-Smirnov test (NED | Growth trajectory retention (8-year)):

D	0,052
p-value (Two-tailed)	0,001
alpha	0,050

Kolmogorov-Smirnov test (NED-NIS | Recovery of development level):

D	0,105
p-value (Two-tailed)	0,367
alpha	0,050

Kolmogorov-Smirnov test (NED-NIS | Growth trajectory retention (4-year)):

D	0,102
p-value (Two-tailed)	0,397
alpha	0,050

Kolmogorov-Smirnov test (NED-NIS | Growth trajectory retention (8-year)):

D	0,112
p-value (Two-tailed)	0,411
alpha	0,050

Kolmogorov-Smirnov test (NED-LIS | Recovery of development level):

D	0,169
p-value (Two	0,829
alpha	0,050

Kolmogorov-Smirnov test (NED-LIS | Growth trajectory retention (4-year)):

D	0,164
p-value (Two-tailed)	0,854
alpha	0,050

Kolmogorov-Smirnov test (NED-LIS | Growth trajectory retention (8-year)):

D	0,178
p-value (Two-tailed)	0,893
alpha	0,050

Kolmogorov-Smirnov test (NIS | Recovery of development level):

D	0,138
p-value (Two-tailed)	0,017
alpha	0,050

Kolmogorov-Smirnov test (NIS | Growth trajectory retention (4-year)):

D	0,111
p-value (Two-tailed)	0,087
alpha	0,050

Kolmogorov-Smirnov test (NIS | Growth trajectory retention (8-year)):

D	0,075
p-value (Two-tailed)	0,610
alpha	0,050

Analysis of RGVA-based resilience performance by shock type

Correlation matrix:

	LIS	NED	NED-NIS	NED-LIS	NIS	Growth trajectory retention (4-year)	Recovery of development level	Growth trajectory retention (8-year)
LIS	**1**	0,121	0,490	0,616	-0,653	0,059	0,023	0,019
NED	0,121	**1**	0,446	0,709	-0,781	0,026	0,162	0,070
NED-NIS	0,490	0,446	**1**	0,757	-0,798	0,030	0,077	0,037
NED-LIS	0,616	0,709	0,757	**1**	-0,953	0,032	0,101	0,042
NIS	-0,653	-0,781	-0,798	-0,953	**1**	-0,047	-0,126	-0,058
Growth trajectory retention (4-year)	0,059	0,026	0,030	0,032	-0,047	**1**	0,479	0,729
Recovery of development level	0,023	0,162	0,077	0,101	-0,126	0,479	**1**	0,443
Growth trajectory retention (8-year)	0,019	0,070	0,037	0,042	-0,058	0,729	0,443	**1**

Analysis of RGVA-based resilience performance by shock type

ANOVA - Recovery of development level

Goodness of fit statistics (Recovery of development level):

Observations	2124
Sum of weigl	2124
DF	2119
R²	0,028
Adjusted R²	0,027
MSE	0,010
RMSE	0,101
MAPE	2133,532
DW	1,338
Cp	5,000
AIC	-9719,414
SBC	-9691,109
PC	0,976

Settings (for all ANOVA):
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0.0001
Use least squares means: Yes

Analysis of variance (Recovery of development level):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	4	0,636	0,159	15,473	**<0,0001**
Error	2119	21,766	0,010		
Corrected Total	2123	22,402			

Computed against model Y=Mean(Y)

Model parameters (Recovery of development level):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,114	0,007	-16,904	**<0,0001**	-0,127	-0,101
LIS	0,012	0,009	1,402	0,161	-0,005	0,029
NED	0,041	0,007	5,823	**<0,0001**	0,027	0,054
NED-NIS	0,015	0,011	1,345	0,179	-0,007	0,037
NED-LIS	-0,049	0,024	-2,059	**0,040**	-0,095	-0,002
NIS	-0,019	0,010	-1,984	**0,047**	-0,039	0,000

ANOVA - Growth trajectory retention (4-year recovery period)

Goodness of fit statistics (Growth trajectory retention (4-year)):

Observations	2124
Sum of weigh	2124
DF	2119
R²	0,005
Adjusted R²	0,004
MSE	0,001
RMSE	0,025
MAPE	306,600
DW	1,414
Cp	5,000
AIC	-15656,717
SBC	-15628,412
PC	0,999

Analysis of variance (Growth trajectory retention (4-year)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	4	0,007	0,002	2,886	**0,021**
Error	2119	1,330	0,001		
Corrected Total	2123	1,337			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (4-year)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,013	0,002	-7,701	**<0,0001**	-0,016	-0,010
LIS	0,006	0,002	3,015	**0,003**	0,002	0,011
NED	0,003	0,002	2,009	**0,045**	0,000	0,007
NED-NIS	0,002	0,003	0,747	0,455	-0,003	0,008
NED-LIS	-0,011	0,006	-1,815	0,070	-0,022	0,001
NIS	-0,001	0,002	-0,572	0,567	-0,006	0,003

Analysis of RGVA-based resilience performance by shock type

ANOVA - Growth trajectory retention (8-year recovery period)

Goodness of fit statistics (Growth trajectory retention (8-year)):

Observations	1696
Sum of weigl	1696
DF	1691
R^2	0,006
Adjusted R^2	0,004
MSE	0,000
RMSE	0,020
MAPE	489,107
DW	1,210
Cp	5,000
AIC	-13279,086
SBC	-13251,906
PC	0,999

Analysis of variance (Growth trajectory retention (8-year)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	4	0,004	0,001	2,715	**0,029**
Error	1691	0,671	0,000		
Corrected Total	1695	0,675			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (8-year)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,015	0,002	-9,839	**<0,0001**	-0,018	-0,012
LIS	0,003	0,002	1,343	0,179	-0,001	0,006
NED	0,004	0,002	2,741	**0,006**	0,001	0,007
NED-NIS	0,002	0,002	0,926	0,355	-0,003	0,007
NED-LIS	-0,008	0,005	-1,512	0,131	-0,019	0,002
NIS	-0,001	0,002	-0,473	0,636	-0,005	0,003

Kruskal-Wallis - Recovery of development level

Kruskal-Wallis test / Two-tailed test (Recovery of development level):

K (Observed value)	52,796
K (Critical value)	9,488
DF	4
p-value (one-tailed)	< 0,0001
alpha	0,05

An approximation has been used to compute the p-value.

Settings (for all K-W-tests):
Significance level (%): 5
p-value: Asymptotic p-value
Continuity correction: Yes

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups	
NED-LIS	12	7139,000	594,917	A	
NIS	123	101016,000	821,268	A	
LIS	213	194203,000	911,751	A	
NED-NIS	74	67650,000	914,189	A	B
NED	1702	1886742,000	1108,544		B

Pairwise comparisons (Recovery of development level):

Differences:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	0	**-196,793**	-2,438	316,835	90,483
NED	**196,793**	0	194,355	**513,627**	**287,276**
NED-NIS	2,438	-194,355	0	319,273	92,921
NED-LIS	-316,835	**-513,627**	-319,273	0	-226,352
NIS	-90,483	**-287,276**	-92,921	226,352	0

p-values:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	1	**<0,0001**	0,976	0,082	0,193
NED	**<0,0001**	1	0,008	**0,004**	**<0,0001**
NED-NIS	0,976	0,008	1	0,094	0,303
NED-LIS	0,082	**0,004**	0,094	1	0,222
NIS	0,193	**<0,0001**	0,303	0,222	1

Bonferroni corrected significance level: 0,005

Analysis of RGVA-based resilience performance by shock type

Kruskal-Wallis - Growth trajectory retention (4-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (4-year)):

K (Observed value)	6,662
K (Critical value)	9,488
DF	4
p-value (one-tailed)	0,155
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
NED-LIS	12	8973,000	747,750	A
NED-NIS	74	71899,000	971,608	A
NIS	123	125540,000	1020,650	A
NED	1702	1814004,000	1065,807	A
LIS	213	236334,000	1109,549	A

Pairwise comparisons (Growth trajectory retention (4-year)):

Differences:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	0	43,742	137,941	361,799	88,899
NED	-43,742	0	94,199	318,057	45,157
NED-NIS	-137,941	-94,199	0	223,858	-49,042
NED-LIS	-361,799	-318,057	-223,858	0	-272,900
NIS	-88,899	-45,157	49,042	272,900	0

p-valaes:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	1	0,326	0,096	0,047	0,201
NED	0,326	1	0,196	0,073	0,430
NED-NIS	0,096	0,196	1	0,241	0,587
NED-LIS	0,047	0,073	0,241	1	0,141
NIS	0,201	0,430	0,587	0,141	1

Bonferroni corrected significance level: 0,005

Kruskal-Wallis - Growth trajectory retention (8-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (8-year)):

K (Observed value)	9,997
K (Critical value)	9,488
DF	4
p-value (one-tailed)	0,040
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
NED-LIS	9	5353,000	594,778	A
NIS	98	71849,000	733,153	A
NED-NIS	60	48635,000	810,583	A
LIS	193	159094,000	824,321	A
NED	1336	1154125,000	863,866	A

Pairwise comparisons (Growth trajectory retention (8-year)):

Differences:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	0	-39,545	13,738	229,543	91,168
NED	39,545	0	53,283	269,088	130,713
NED-NIS	-13,738	-53,283	0	215,806	77,430
NED-LIS	-229,543	-269,088	-215,806	0	-138,375
NIS	-91,168	-130,713	-77,430	138,375	0

p-values:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	1	0,294	0,849	0,169	0,133
NED	0,294	1	0,410	0,100	0,011
NED-NIS	0,849	0,410	1	0,218	0,335
NED-LIS	0,169	0,100	0,218	1	0,417
NIS	0,133	0,011	0,335	0,417	1

Bonferroni corrected significance level: 0,005

Analysis of Employment-based resilience performance by shock type

Normality tests:

Shapiro-Wilk test (Recovery of development level | LIS):

W	0,901
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4-year) | LIS):

W	0,971
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8-year) | LIS):

W	0,963
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Recovery of development level | NED):

W	0,989
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4-year) | NED):

W	0,942
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8-year) | NED):

W	0,992
p-value (Two-tailed)	0,002
alpha	0,050

Shapiro-Wilk test (Recovery of development level | NED-NIS):

W	0,942
p-value (Two-tailed)	0,000
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4-year) | NED-NIS):

W	0,731
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8-year) | NED-NIS):

W	0,991
p-value (Two-tailed)	0,804
alpha	0,050

Shapiro-Wilk test (Recovery of development level | NED-LIS):

W	0,943
p-value (Two-tailed)	0,251
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4-year) | NED-LIS):

W	0,758
p-value (Two-tailed)	0,000
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8-year) | NED-LIS):

W	0,906
p-value (Two-tailed)	0,160
alpha	0,050

Shapiro-Wilk test (Recovery of development level | NIS):

W	0,941
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4-year) | NIS):

W	0,901
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8-year) | NIS):

W	0,926
p-value (Two-tailed)	<0,0001
alpha	0,050

Analysis of Employment-based resilience performance by shock type

Normality tests:

Kolmogorov-Smirnov test (LIS | Recovery of development level):

D	0,108
p-value (Two-tailed)	0,002
alpha	0,050

Kolmogorov-Smirnov test (LIS | Growth trajectory retention (4-year)):

D	0,070
p-value (Two-tailed)	0,111
alpha	0,050

Kolmogorov-Smirnov test (LIS | Growth trajectory retention (8-year)):

D	0,065
p-value (Two-tailed)	0,261
alpha	0,050

Kolmogorov-Smirnov test (NED | Recovery of development level):

D	0,046
p-value (Two-tailed)	0,072
alpha	0,050

Kolmogorov-Smirnov test (NED | Growth trajectory retention (4-year)):

D	0,060
p-value (Two-tailed)	0,008
alpha	0,050

Kolmogorov-Smirnov test (NED | Growth trajectory retention (8-year)):

D	0,042
p-value (Two-tailed)	0,238
alpha	0,050

Kolmogorov-Smirnov test (NED-NIS | Recovery of development level):

D	0,088
p-value (Two-tailed)	0,377
alpha	0,050

Kolmogorov-Smirnov test (NED-NIS | Growth trajectory retention (4-year)):

D	0,134
p-value (Two-tailed)	0,045
alpha	0,050

Kolmogorov-Smirnov test (NED-NIS | Growth trajectory retention (8-year)):

D	0,059
p-value (Two-tailed)	0,905
alpha	0,050

Kolmogorov-Smirnov test (NED-LIS | Recovery of development level):

D	0,128
p-value (Two-tailed)	0,839
alpha	0,050

Kolmogorov-Smirnov test (NED-LIS | Growth trajectory retention (4-year)):

D	0,295
p-value (Two-tailed)	0,040
alpha	0,050

Kolmogorov-Smirnov test (NED-LIS | Growth trajectory retention (8-year)):

D	0,179
p-value (Two-tailed)	0,734
alpha	0,050

Kolmogorov-Smirnov test (NIS | Recovery of development level):

D	0,138
p-value (Two-tailed)	0,017
alpha	0,050

Kolmogorov-Smirnov test (NIS | Growth trajectory retention (4-year)):

D	0,111
p-value (Two-tailed)	0,087
alpha	0,050

Kolmogorov-Smirnov test (NIS | Growth trajectory retention (8-year)):

D	0,075
p-value (Two-tailed)	0,610
alpha	0,050

Analysis of Employment-based resilience performance by shock type

Correlation matrix:

	LIS	NED	NED-NIS	NED-LIS	NIS	Growth trajectory retention (4-year)	Recovery of development level	Growth trajectory retention (8-year)
LIS	**1**	0,147	0,462	0,621	-0,690	0,037	0,064	0,064
NED	0,147	**1**	0,417	0,654	-0,751	-0,087	-0,072	-0,090
NED-NIS	0,462	0,417	**1**	0,720	-0,785	-0,017	-0,027	0,000
NED-LIS	0,621	0,654	0,720	**1**	-0,930	-0,070	-0,036	-0,043
NIS	-0,690	-0,751	-0,785	-0,930	**1**	0,045	0,024	0,025
Growth trajectory retention (4-year)	0,037	-0,087	-0,017	-0,070	0,045	**1**	0,528	0,760
Recovery of development level	0,064	-0,072	-0,027	-0,036	0,024	0,528	**1**	0,524
Growth trajectory retention (8-year)	0,064	-0,090	0,000	-0,043	0,025	0,760	0,524	**1**

Analysis of Employment-based resilience performance by shock type

ANOVA - Recovery of development level

Goodness of fit statistics (Recovery of development level):

Observations	1323
Sum of weigh	1323
DF	1318
R^2	0,014
Adjusted R^2	0,011
MSE	0,010
RMSE	0,099
MAPE	470,811
DW	1,196
Cp	5,000
AIC	-6103,392
SBC	-6077,453
PC	0,994

Settings (for all ANOVA):
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Use least squares means: Yes

Analysis of variance (Recovery of development level):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	4	0,184	0,046	4,643	**0,001**
Error	1318	13,024	0,010		
Corrected Total	1322	13,208			

Computed against model Y=Mean(Y)

Model parameters (Recovery of development level):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,111	0,005	-21,259	**<0,0001**	-0,121	-0,101
LIS	0,023	0,007	3,350	**0,001**	0,010	0,037
NED	-0,004	0,006	-0,669	0,504	-0,016	0,008
NED-NIS	-0,002	0,009	-0,235	0,814	-0,020	0,016
NED-LIS	-0,027	0,018	-1,543	0,123	-0,062	0,007
NIS	0,010	0,008	1,217	0,224	-0,006	0,026

ANOVA - Growth trajectory retention (4-year recovery period)

Goodness of fit statistics (Growth trajectory retention (4-year)):

Observations	1323
Sum of weigh	1323
DF	1318
R^2	0,018
Adjusted R^2	0,015
MSE	0,001
RMSE	0,024
MAPE	191,896
DW	1,243
Cp	5,000
AIC	-9887,081
SBC	-9861,143
PC	0,990

Analysis of variance (Growth trajectory retention (4-year)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	4	0,013	0,003	5,910	**0,000**
Error	1318	0,746	0,001		
Corrected Total	1322	0,759			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (4-year)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,007	0,001	-5,271	**<0,0001**	-0,009	-0,004
LIS	0,005	0,002	3,237	**0,001**	0,002	0,009
NED	0,000	0,001	-0,245	0,807	-0,003	0,002
NED-NIS	0,004	0,002	1,646	0,100	-0,001	0,008
NED-LIS	-0,013	0,004	-3,154	**0,002**	-0,022	-0,005
NIS	0,005	0,002	2,338	**0,020**	0,001	0,009

Analysis of Employment-based resilience performance by shock type

ANOVA - Growth trajectory retention (8-year recovery period)

Goodness of fit statistics (Growth trajectory retention (8-year)):

Observations	1061
Sum of weigl	1061
DF	1056
R^2	0,018
Adjusted R^2	0,015
MSE	0,000
RMSE	0,019
MAPE	708,840
DW	0,937
Cp	5,000
AIC	-8382,629
SBC	-8357,794
PC	0,991

Analysis of variance (Growth trajectory retention (8-year)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	4	0,007	0,002	4,938	**0,001**
Error	1056	0,389	0,000		
Corrected Total	1060	0,397			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (8-year)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,008	0,001	-6,903	**<0,0001**	-0,011	-0,006
LIS	0,005	0,002	3,033	**0,002**	0,002	0,008
NED	-0,001	0,001	-0,714	0,475	-0,004	0,002
NED-NIS	0,003	0,002	1,388	0,165	-0,001	0,007
NED-LIS	-0,009	0,004	-2,031	**0,042**	-0,017	0,000
NIS	0,002	0,002	1,218	0,224	-0,001	0,006

Kruskal-Wallis - Recovery of development level

Kruskal-Wallis test / Two-tailed test (Recovery of development level):

K (Observed value)	20,558
K (Critical value)	9,488
DF	4
p-value (one-tailed)	0,000
alpha	0,05

An approximation has been used to compute the p-value.

Settings (for all K-W-tests):
Significance level (%): 5
p-value: Asymptotic p-value
Continuity correction: Yes

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
NED-LIS	21	11796,000	561,714	A
NED	768	482208,000	627,875	A
NED-NIS	103	68481,000	664,864	A
NIS	143	101321,000	708,538	A
LIS	288	212020,000	736,181	A

Pairwise comparisons (Recovery of development level):

Differences:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	0	**108,306**	71,316	174,466	27,642
NED	**-108,306**	0	-36,989	66,161	-80,663
NED-NIS	-71,316	36,989	0	103,150	-43,674
NED-LIS	-174,466	-66,161	-103,150	0	-146,824
NIS	-27,642	80,663	43,674	146,824	0

p-values:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	1	**<0,0001**	0,104	0,043	0,479
NED	**<0,0001**	1	0,356	0,434	0,020
NED-NIS	0,104	0,356	1	0,259	0,376
NED-LIS	0,043	0,434	0,259	1	0,100
NIS	0,479	0,020	0,376	0,100	1

Bonferroni corrected significance level: 0,005

Analysis of Employment-based resilience performance by shock type

Kruskal-Wallis - Growth trajectory retention (4-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (4-year)):

K (Observed value)	25,148
K (Critical value)	9,488
DF	4
p-value (one-tailed)	< 0,0001
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
NED-LIS	21	11586,000	551,714	A
NED	768	477033,000	621,137	A
LIS	288	207984,000	722,167	A
NED-NIS	103	74800,000	726,214	A
NIS	143	104423,000	730,231	A

Pairwise comparisons (Growth trajectory retention (4-year)):

Differences:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	0	**101,030**	-4,047	170,452	-8,064
NED	**-101,030**	0	-105,077	69,422	**-109,094**
NED-NIS	4,047	105,077	0	174,499	-4,017
NED-LIS	-170,452	-69,422	-174,499	0	-178,516
NIS	8,064	**109,094**	4,017	178,516	0

p-values:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	1	**0,000**	0,926	0,048	0,837
NED	**0,000**	1	0,009	0,411	**0,002**
NED-NIS	0,926	0,009	1	0,056	0,935
NED-LIS	0,048	0,411	0,056	1	0,046
NIS	0,837	**0,002**	0,935	0,046	1

Bonferroni corrected significance level: 0,005

Kruskal-Wallis - Growth trajectory retention (8-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (8-year)):

K (Observed value)	24,255
K (Critical value)	9,488
DF	4
p-value (one-tailed)	< 0,0001
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
NED-LIS	13	5753,000	442,538	A
NED	596	293833,000	493,008	A
NED-NIS	86	48621,000	565,360	A
NIS	134	77252,000	576,507	A
LIS	232	137932,000	594,534	A

Pairwise comparisons (Growth trajectory retention (8-year)):

Differences:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	0	**101,526**	29,174	151,996	18,027
NED	**-101,526**	0	-72,352	50,470	**-83,499**
NED-NIS	-29,174	72,352	0	122,822	-11,147
NED-LIS	-151,996	-50,470	-122,822	0	-133,969
NIS	-18,027	**83,499**	11,147	133,969	0

p-values:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	1	**<0,0001**	0,451	0,082	0,588
NED	**<0,0001**	1	0,041	0,557	**0,004**
NED-NIS	0,451	0,041	1	0,178	0,792
NED-LIS	0,082	0,557	0,178	1	0,132
NIS	0,588	**0,004**	0,792	0,132	1

Bonferroni corrected significance level: 0,005

II.f. Descriptive summary on resilience performance by shock type and crisis periods

RGVA

Type	N BTW	Mean BTW	N 90-93	90-93 Mean	N 00-03	00-03 Mean	N 08-09	08-09 Mean
Recovery of development level								
All	166	-0,105	769	-0,080	448	-0,090	741	-0,071
LIS	74	-0,097	87	-0,114	46	-0,087	6	-0,098
NED	51	-0,099	637	-0,070	327	-0,083	687	-0,069
NIS	33	-0,132	18	-0,178	55	-0,136	17	-0,078
NED+LIS	1	-0,437	5	-0,177	3	-0,090	3	-0,120
NED+NIS	7	-0,071	22	-0,122	17	-0,082	28	-0,097
Retention of growth trajecotry - 4 year recovery phase								
All	166	-0,004	769	-0,009	448	-0,019	741	-0,005
LIS	74	0,001	87	-0,007	46	-0,020	6	0,002
NED	51	-0,011	637	-0,009	327	-0,018	687	-0,005
NIS	33	-0,007	18	-0,015	55	-0,022	17	-0,002
NED+LIS	1	-0,027	5	-0,029	3	-0,017	3	-0,019
NED+NIS	7	-0,003	22	-0,010	17	-0,021	28	-0,006
Retention of growth trajecotry - 8 year recovery phase								
All	128	-0,009	767	-0,012	434	-0,019	367	-0,001
LIS	63	-0,005	86	-0,013	42	-0,022	2	0,012
NED	36	-0,016	636	-0,011	323	-0,018	341	-0,001
NIS	23	-0,006	18	-0,019	50	-0,022	7	0,002
NED+LIS	-	-	5	-0,027	3	-0,019	1	-0,016
NED+NIS	6	-0,006	22	-0,009	16	-0,028	16	-0,005

EMPLOYMENT

Type	N BTW	Mean BTW	N 90-93	90-93 Mean	N 00-03	00-03 Mean	N 08-09	08-09 Mean
Recovery of development level								
All	162	-0,058	702	-0,121	177	-0,132	282	-0,089
LIS	96	-0,061	98	-0,102	64	-0,111	129	-0,080
NED	41	-0,051	464	-0,131	42	-0,158	98	-0,086
NIS	23	-0,059	50	-0,083	67	-0,131	3	-0,049
NED+LIS	-	-	8	-0,146	3	-0,216	10	-0,109
NED+NIS	2	-0,059	82	-0,108	1	-0,194	18	-0,139
Retention of growth trajecotry - 4 year recovery phase								
All	162	0,000	702	-0,004	177	-0,017	282	-0,002
LIS	96	0,001	98	0,004	64	-0,010	129	-0,004
NED	41	-0,005	464	-0,007	42	-0,032	98	-0,002
NIS	23	0,004	50	0,007	67	-0,011	3	-0,003
NED+LIS	-	-	8	-0,012	3	-0,073	10	-0,010
NED+NIS	2	-0,009	82	-0,004	1	-0,027	18	0,005
Retention of growth trajecotry - 8 year recovery phase								
All	135	-0,003	701	-0,007	167	-0,020	58	0,005
LIS	74	0,001	98	-0,002	58	-0,013	2	0,003
NED	39	-0,011	464	-0,009	41	-0,032	52	0,074
NIS	20	-0,001	50	0,005	64	-0,017	-	-
NED+LIS	-	-	8	-0,005	3	-0,053	2	0,014
NED+NIS	2	-0,020	81	-0,006	1	-0,018	2	0,040

II.g. Analysis of resilience performance by shock type and crisis periods

Analysis of RGVA-based resilience performance by shock type for observations falling between crisis periods

Correlation matrix:

	LIS	NED	NED-NIS	NED-LIS	NIS	Growth trajectory retention (4 years)	Recovery of development level	Growth trajectory retention (8 years)
LIS	**1**	0,321	0,668	0,788	-0,813	0,110	0,072	0,046
NED	0,321	**1**	0,660	0,763	-0,785	-0,063	0,063	-0,124
NED-NIS	0,668	0,660	**1**	0,885	-0,903	0,031	0,087	-0,026
NED-LIS	0,788	0,763	0,885	**1**	-0,982	0,022	0,049	
NIS	-0,813	-0,785	-0,903	-0,982	**1**	-0,032	-0,080	0,039
Growth trajectory retention (4 years)	0,110	-0,063	0,031	0,022	-0,032	**1**	0,409	0,836
Recovery of development level	0,072	0,063	0,087	0,049	-0,080	0,409	**1**	0,448
Growth trajectory retention (8 years)	0,046	-0,124	-0,026		0,039	0,836	0,448	**1**

Analysis of RGVA-based resilience performance by shock type for observations falling between crisis periods

ANOVA - Recovery of development level

Goodness of fit statistics (Recovery of development level):

Observations	166
Sum of weigh	166
DF	161
R²	0,032
Adjusted R²	0,008
MSE	0,028
RMSE	0,167
MAPE	556,258
DW	1,338
Cp	5,000
AIC	-588,453
SBC	-572,893
PC	1,028

Settings (for all ANOVA):
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Use least squares means: Yes

Analysis of variance (Recovery of development level):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	4	0,150	0,037	1,335	0,259
Error	161	4,512	0,028		
Corrected Total	165	4,662			

Computed against model Y=Mean(Y)

Model parameters (Recovery of development level):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,167	0,037	-4,543	**<0,0001**	-0,240	-0,094
LIS	0,071	0,040	1,776	0,078	-0,008	0,149
NED	0,068	0,041	1,668	0,097	-0,013	0,149
NED-NIS	0,096	0,061	1,561	0,120	-0,025	0,217
NED-LIS	-0,269	0,135	-1,999	**0,047**	-0,536	-0,003
NIS	0,035	0,043	0,807	0,421	-0,050	0,120

ANOVA - Growth trajectory retention (4-year recovery period)

Goodness of fit statistics (Growth trajectory retention (4 years)):

Observations	166
Sum of weigh	166
DF	161
R²	0,025
Adjusted R²	0,001
MSE	0,001
RMSE	0,036
MAPE	241,226
DW	1,491
Cp	5,000
AIC	-1094,418
SBC	-1078,858
PC	1,035

Analysis of variance (Growth trajectory retention (4 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	4	0,006	0,001	1,046	0,385
Error	161	0,214	0,001		
Corrected Total	165	0,220			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (4 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,009	0,008	-1,174	0,242	-0,025	0,006
LIS	0,011	0,009	1,243	0,216	-0,006	0,028
NED	-0,002	0,009	-0,206	0,837	-0,019	0,016
NED-NIS	0,006	0,013	0,471	0,638	-0,020	0,033
NED-LIS	-0,018	0,029	-0,607	0,545	-0,076	0,040
NIS	0,003	0,009	0,277	0,782	-0,016	0,021

Analysis of RGVA-based resilience performance by shock type for observations falling between crisis periods

ANOVA - Growth trajectory retention (8-year recovery period)

Goodness of fit statistics (Growth trajectory retention (8 years)):

Observations	128
Sum of weights	128
DF	124
R²	0,024
Adjusted R²	0,000
MSE	0,001
RMSE	0,031
MAPE	130,089
DW	2,043
Cp	4,000
AIC	-882,798
SBC	-871,390
PC	1,039

Analysis of variance (Growth trajectory retention (8 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	3	0,003	0,001	1,016	0,388
Error	124	0,122	0,001		
Corrected Total	127	0,125			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (8 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,008	0,004	-2,074	**0,040**	-0,016	0,000
LIS	0,003	0,005	0,519	0,605	-0,007	0,012
NED	-0,008	0,006	-1,493	0,138	-0,019	0,003
NED-NIS	0,002	0,011	0,180	0,858	-0,019	0,023
NED-LIS	0,000	0,000				
NIS	0,002	0,005	0,401	0,689	-0,008	0,012

Kruskal-Wallis - Recovery of development level

Kruskal-Wallis test / Two-tailed test (Recovery of development level):

K (Observed value)	3,867
K (Critical value)	9,488
DF	4
p-value (one-tailed)	0,424
alpha	0,05

An approximation has been used to compute the p-value.

Settings (for all K-W-tests):
Significance level (%): 5
p-value: Asymptotic p-value
Continuity correction: Yes

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
NED-LIS	1	9,000	9,000	A
NIS	33	2495,000	75,606	A
LIS	74	6243,000	84,365	A
NED	51	4491,000	88,059	A
NED-NIS	7	623,000	89,000	A

Pairwise comparisons (Recovery of development level):

Differences:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	0	-3,694	-4,635	75,365	8,759
NED	3,694	0	-0,941	79,059	12,453
NED-NIS	4,635	0,941	0	80,000	13,394
NED-LIS	-75,365	-79,059	-80,000	0	-66,606
NIS	-8,759	-12,453	-13,394	66,606	0

p-values:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	1	0,673	0,807	0,119	0,384
NED	0,673	1	0,961	0,103	0,246
NED-NIS	0,807	0,961	1	0,119	0,503
NED-LIS	0,119	0,103	0,119	1	0,172
NIS	0,384	0,246	0,503	0,172	1

Bonferroni corrected significance level: 0,005

Analysis of RGVA-based resilience performance by shock type for observations falling between crisis periods

Kruskal-Wallis - Growth trajectory retention (4-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (4 years)):

K (Observed value)	4,420
K (Critical value)	9,488
DF	4
p-value (one-tailed)	0,352
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
NED-LIS	1	34,000	34,000	A
NED	51	3819,000	74,882	A
NIS	33	2690,000	81,515	A
NED-NIS	7	615,000	87,857	A
LIS	74	6703,000	90,581	A

Pairwise comparisons (Growth trajectory retention (4 years)):

Differences:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	0	15,699	2,724	56,581	9,066
NED	-15,699	0	-12,975	40,882	-6,633
NED-NIS	-2,724	12,975	0	53,857	6,342
NED-LIS	-56,581	-40,882	-53,857	0	-47,515
NIS	-9,066	6,633	-6,342	47,515	0

p-values:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	1	0,073	0,886	0,242	0,368
NED	0,073	1	0,503	0,400	0,537
NED-NIS	0,886	0,503	1	0,295	0,751
NED-LIS	0,242	0,400	0,295	1	0,330
NIS	0,368	0,537	0,751	0,330	1

Bonferroni corrected significance level: 0,005

Kruskal-Wallis - Growth trajectory retention (8-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (8 years)):

K (Observed value)	7,867
K (Critical value)	7,815
DF	3
p-value (one-tailed)	0,049
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
NED-LIS	0			
NED	36	1794,000	49,833	
NED-NIS	6	405,000	67,500	
LIS	63	4431,000	70,333	
NIS	23	1626,000	70,696	

Groupings could not be properly performed because the significance of differences is not transitive in this particular case.

Pairwise comparisons (Growth trajectory retention (8 years)):

Differences:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	0	**20,500**	2,833		-0,362
NED	**-20,500**	0	-17,667		-20,862
NED-NIS	-2,833	17,667	0		-3,196
NED-LIS					
NIS	0,362	20,862	3,196		0

p-values:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	1	**0,008**	0,858		0,968
NED	**0,008**	1	0,280		0,035
NED-NIS	0,858	0,280	1		0,851
NED-LIS					
NIS	0,968	0,035	0,851		1

Bonferroni corrected significance level: 0,0083

Analysis of RGVA-based resilience performance by shock type for the crisis period 1990-1993

Correlation matrix:

	LIS	NED	NED-NIS	NED-LIS	NIS	Growth trajectory retention (4 years)	Recovery of development level	Growth trajectory retention (8 years)
LIS	**1**	-0,302	0,281	0,404	-0,471	0,046	-0,040	0,003
NED	-0,302	**1**	0,187	0,476	-0,619	0,020	0,208	0,057
NED-NIS	0,281	0,187	**1**	0,599	-0,683	0,018	0,044	0,056
NED-LIS	0,404	0,476	0,599	**1**	-0,884	0,003	0,088	0,019
NIS	-0,471	-0,619	-0,683	-0,884	**1**	-0,040	-0,139	-0,057
Growth trajectory retention (4 years)	0,046	0,020	0,018	0,003	-0,040	**1**	0,457	0,713
Recovery of development level	-0,040	0,208	0,044	0,088	-0,139	0,457	**1**	0,378
Growth trajectory retention (8 years)	0,003	0,057	0,056	0,019	-0,057	0,713	0,378	**1**

Analysis of RGVA-based resilience performance by shock type for the crisis period 1990-1993

ANOVA - Recovery of development level

Goodness of fit statistics (Recovery of development level):

Observations	769
Sum of weigl	769
DF	764
R^2	0,046
Adjusted R^2	0,041
MSE	0,011
RMSE	0,107
MAPE	5235,315
DW	1,043
Cp	5,000
AIC	-3430,110
SBC	-3406,884
PC	0,967

Settings (for all ANOVA):
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Use least squares means: Yes

Analysis of variance (Recovery of development level):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	4	0,419	0,105	9,121	**<0,0001**
Error	764	8,772	0,011		
Corrected Total	768	9,191			

Computed against model Y=Mean(Y)

Model parameters (Recovery of development level):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,132	0,012	-11,007	**<0,0001**	-0,156	-0,109
LIS	0,018	0,015	1,224	0,221	-0,011	0,048
NED	0,062	0,012	4,975	**<0,0001**	0,038	0,086
NED-NIS	0,010	0,021	0,476	0,634	-0,032	0,052
NED-LIS	-0,045	0,039	-1,146	0,252	-0,121	0,032
NIS	-0,046	0,023	-1,991	**0,047**	-0,091	-0,001

ANOVA - Growth trajectory retention (4-year recovery period)

Goodness of fit statistics (Growth trajectory retention (4 years)):

Observations	769
Sum of weigl	769
DF	764
R^2	0,007
Adjusted R^2	0,002
MSE	0,001
RMSE	0,024
MAPE	293,996
DW	1,131
Cp	5,000
AIC	-5720,979
SBC	-5697,754
PC	1,006

Analysis of variance (Growth trajectory retention (4 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	4	0,003	0,001	1,411	0,229
Error	764	0,446	0,001		
Corrected Total	768	0,449			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (4 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,014	0,003	-5,182	**<0,0001**	-0,019	-0,009
LIS	0,007	0,003	2,205	**0,028**	0,001	0,014
NED	0,005	0,003	1,882	0,060	0,000	0,011
NED-NIS	0,004	0,005	0,750	0,453	-0,006	0,013
NED-LIS	-0,015	0,009	-1,740	0,082	-0,033	0,002
NIS	-0,001	0,005	-0,199	0,842	-0,011	0,009

Analysis of RGVA-based resilience performance by shock type for the crisis period 1990-1993

ANOVA - Growth trajectory retention (8-year recovery period)

Goodness of fit statistics (Growth trajectory retention (8 years)):

Observations	767
Sum of weights	767
DF	762
R^2	0,009
Adjusted R^2	0,004
MSE	0,000
RMSE	0,018
MAPE	398,488
DW	1,118
Cp	5,000
AIC	-6134,564
SBC	-6111,352
PC	1,004

Analysis of variance (Growth trajectory retention (8 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	4	0,002	0,001	1,692	0,150
Error	762	0,254	0,000		
Corrected Total	766	0,257			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (8 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,016	0,002	-7,710	**<0,0001**	-0,020	-0,012
LIS	0,003	0,003	1,060	0,289	-0,002	0,008
NED	0,004	0,002	2,023	**0,043**	0,000	0,008
NED-NIS	0,007	0,004	1,802	0,072	-0,001	0,014
NED-LIS	-0,011	0,007	-1,627	0,104	-0,024	0,002
NIS	-0,003	0,004	-0,703	0,482	-0,010	0,005

Kruskal-Wallis - Recovery of development level

Kruskal-Wallis test / Two-tailed test (Recovery of development level):

K (Observed value)	40,532
K (Critical value)	9,488
DF	4
p-value (one-tailed)	< 0,0001
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
NED-LIS	5	822,000	164,400	A
NIS	18	3301,000	183,389	A
NED-NIS	22	6606,000	300,273	A
LIS	87	26428,000	303,770	A
NED	637	258908,000	406,449	A

Settings (for all K-W-tests):
Significance level (%): 5
p-value: Asymptotic p-value
Continuity correction: Yes

Groupings could not be properly performed because the significance of differences is not transitive in this particular case.

Pairwise comparisons (Recovery of development level):

Differences:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	0	**-102,679**	3,497	139,370	120,381
NED	**102,679**	0	106,176	242,049	**223,060**
NED-NIS	-3,497	-106,176	0	135,873	116,884
NED-LIS	-139,370	-242,049	-135,873	0	-18,989
NIS	-120,381	**-223,060**	-116,884	18,989	0

p-values:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	1	**<0,0001**	0,947	0,172	0,036
NED	**<0,0001**	1	0,028	0,015	**<0,0001**
NED-NIS	0,947	0,028	1	0,217	0,098
NED-LIS	0,172	0,015	0,217	1	0,866
NIS	0,036	**<0,0001**	0,098	0,866	1

Bonferroni corrected significance level: 0,005

Analysis of RGVA-based resilience performance by shock type for the crisis period 1990-1993

Kruskal-Wallis - Growth trajectory retention (4-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (4 years)):

K (Observed value)	3,091
K (Critical value)	9,488
DF	4
p-value (one-tailed)	0,543
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
NED-LIS	5	1218,000	243,600	A
NED-NIS	22	7496,000	340,727	A
NIS	18	6711,000	372,833	A
NED	637	246546,000	387,042	A
LIS	87	34094,000	391,885	A

Pairwise comparisons (Growth trajectory retention (4 years)):

Differences:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	0	4,843	51,158	148,285	19,052
NED	-4,843	0	46,315	143,442	14,209
NED-NIS	-51,158	-46,315	0	97,127	-32,106
NED-LIS	-148,285	-143,442	-97,127	0	-129,233
NIS	-19,052	-14,209	32,106	129,233	0

p-values:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	1	0,849	0,335	0,147	0,740
NED	0,849	1	0,336	0,150	0,789
NED-NIS	0,335	0,336	1	0,377	0,649
NED-LIS	0,147	0,150	0,377	1	0,250
NIS	0,740	0,789	0,649	0,250	1

Bonferroni corrected significance level: 0,005

Kruskal-Wallis - Growth trajectory retention (8-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (8 years)):

K (Observed value)	2,938
K (Critical value)	9,488
DF	4
p-value (one-tailed)	0,568
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
NED-LIS	5	1283,000	256,600	A
NIS	18	6193,000	344,056	A
LIS	86	31702,000	368,628	A
NED	636	246555,000	387,665	A
NED-NIS	22	8795,000	399,773	A

Pairwise comparisons (Growth trajectory retention (8 years)):

Differences:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	0	-19,037	-31,145	112,028	24,572
NED	19,037	0	-12,108	131,065	43,610
NED-NIS	31,145	12,108	0	143,173	55,717
NED-LIS	-112,028	-131,065	-143,173	0	-87,456
NIS	-24,572	-43,610	-55,717	87,456	0

p-values:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	1	0,455	0,556	0,272	0,669
NED	0,455	1	0,801	0,188	0,410
NED-NIS	0,556	0,801	1	0,192	0,429
NED-LIS	0,272	0,188	0,192	1	0,435
NIS	0,669	0,410	0,429	0,435	1

Bonferroni corrected significance level: 0,005

Analysis of RGVA-based resilience performance by shock type for the crisis period 2000-2003

Correlation matrix:

	LIS	NED	NED-NIS	NED-LIS	NIS	Growth trajectory retention (4 years)	Recovery of development level	Growth trajectory retention (8 years)
LIS	**1**	0,409	0,651	0,745	-0,773	0,023	0,125	0,002
NED	0,409	**1**	0,639	0,816	-0,864	0,042	0,156	0,088
NED-NIS	0,651	0,639	**1**	0,846	-0,874	0,025	0,153	-0,001
NED-LIS	0,745	0,816	0,846	**1**	-0,971	0,039	0,167	0,046
NIS	-0,773	-0,864	-0,874	-0,971	**1**	-0,038	-0,173	-0,047
Growth trajectory retention (4 years)	0,023	0,042	0,025	0,039	-0,038	**1**	0,547	0,654
Recovery of development level	0,125	0,156	0,153	0,167	-0,173	0,547	**1**	0,414
Growth trajectory retention (8 years)	0,002	0,088	-0,001	0,046	-0,047	0,654	0,414	**1**

Analysis of RGVA-based resilience performance by shock type for the crisis period 2000-2003

ANOVA - Recovery of development level

Goodness of fit statistics (Recovery of development level):

Observations	448
Sum of weigh	448
DF	443
R²	0,030
Adjusted R²	0,022
MSE	0,010
RMSE	0,099
MAPE	265,291
DW	1,925
Cp	5,000
AIC	-2067,778
SBC	-2047,254
PC	0,992

Settings (for all ANOVA):
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Use least squares means: Yes

Analysis of variance (Recovery of development level):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	4	0,135	0,034	3,460	**0,008**
Error	443	4,336	0,010		
Corrected Total	447	4,471			

Computed against model Y=Mean(Y)

Model parameters (Recovery of development level):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,096	0,013	-7,329	**<0,0001**	-0,121	-0,070
LIS	0,008	0,017	0,475	0,635	-0,026	0,042
NED	0,013	0,014	0,933	0,351	-0,014	0,040
NED-NIS	0,014	0,023	0,608	0,544	-0,031	0,058
NED-LIS	0,006	0,046	0,124	0,901	-0,085	0,096
NIS	-0,041	0,017	-2,435	**0,015**	-0,073	-0,008

ANOVA - Growth trajectory retention (4-year recovery period)

Goodness of fit statistics (Growth trajectory retention (4 years)):

Observations	448
Sum of weigh	448
DF	443
R²	0,002
Adjusted R²	-0,007
MSE	0,001
RMSE	0,030
MAPE	327,035
DW	1,747
Cp	5,000
AIC	-3145,039
SBC	-3124,515
PC	1,021

Analysis of variance (Growth trajectory retention (4 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	4	0,001	0,000	0,221	0,927
Error	443	0,392	0,001		
Corrected Total	447	0,392			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (4 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,020	0,004	-4,997	**<0,0001**	-0,027	-0,012
LIS	0,000	0,005	0,015	0,988	-0,010	0,010
NED	0,001	0,004	0,309	0,757	-0,007	0,009
NED-NIS	-0,002	0,007	-0,254	0,799	-0,015	0,012
NED-LIS	0,003	0,014	0,204	0,838	-0,024	0,030
NIS	-0,002	0,005	-0,489	0,625	-0,012	0,007

Analysis of RGVA-based resilience performance by shock type for the crisis period 2000-2003

ANOVA - Growth trajectory retention (8-year recovery period)

Goodness of fit statistics (Growth trajectory retention (8 years)):

Observations	434
Sum of weights	434
DF	429
R²	0,013
Adjusted R²	0,004
MSE	0,000
RMSE	0,019
MAPE	1470,508
DW	1,259
Cp	5,000
AIC	-3423,774
SBC	-3403,409
PC	1,010

Analysis of variance (Growth trajectory retention (8 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	4	0,002	0,001	1,445	0,218
Error	429	0,159	0,000		
Corrected Total	433	0,161			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (8 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,022	0,003	-8,541	**<0,0001**	-0,027	-0,017
LIS	0,000	0,003	-0,121	0,904	-0,007	0,006
NED	0,004	0,003	1,329	0,185	-0,002	0,009
NED-NIS	-0,006	0,005	-1,257	0,209	-0,015	0,003
NED-LIS	0,003	0,009	0,293	0,770	-0,015	0,020
NIS	0,000	0,003	-0,032	0,974	-0,007	0,006

Kruskal-Wallis - Recovery of development level

Kruskal-Wallis test / Two-tailed test (Recovery of development level):

K (Observed value)	7,227
K (Critical value)	9,488
DF	4
p-value (one-tailed)	0,124
alpha	0,05

An approximation has been used to compute the p-value.

Settings (for all K-W-tests):
Significance level (%): 5
p-value: Asymptotic p-value
Continuity correction: Yes

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
NIS	55	10142,000	184,400	A
LIS	46	9695,000	210,761	A
NED-NIS	17	3848,000	226,353	A
NED-LIS	3	681,000	227,000	A
NED	327	76210,000	233,058	A

Pairwise comparisons (Recovery of development level):

Differences:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	0	-22,297	-15,592	-16,239	26,361
NED	22,297	0	6,705	6,058	48,658
NED-NIS	15,592	-6,705	0	-0,647	41,953
NED-LIS	16,239	-6,058	0,647	0	42,600
NIS	-26,361	-48,658	-41,953	-42,600	0

p-values:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	1	0,274	0,671	0,833	0,308
NED	0,274	1	0,835	0,936	0,010
NED-NIS	0,671	0,835	1	0,994	0,243
NED-LIS	0,833	0,936	0,994	1	0,579
NIS	0,308	0,010	0,243	0,579	1

Bonferroni corrected significance level: 0,005

Analysis of RGVA-based resilience performance by shock type for the crisis period 2000-2003

Kruskal-Wallis - Growth trajectory retention (4-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (4 years)):

K (Observed value)	0,535
K (Critical value)	9,488
DF	4
p-value (one-tailed)	0,970
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
NED-NIS	17	3474,000	204,353	A
NIS	55	12123,000	220,418	A
NED	327	73799,000	225,685	A
LIS	46	10485,000	227,935	A
NED-LIS	3	695,000	231,667	A

Pairwise comparisons (Growth trajectory retention (4 years)):

Differences:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	0	2,250	23,582	3,732	7,517
NED	-2,250	0	21,332	1,482	5,267
NED-NIS	-23,582	-21,332	0	-27,314	-16,065
NED-LIS	3,732	5,982	27,314	0	11,248
NIS	-7,517	-5,267	16,065	-11,248	0

p-values:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	1	0,912	0,521	0,961	0,771
NED	0,912	1	0,508	0,937	0,780
NED-NIS	0,521	0,508	1	0,736	0,655
NED-LIS	0,961	0,937	0,736	1	0,883
NIS	0,771	0,780	0,655	0,883	1

Bonferroni corrected significance level: 0,005

Kruskal-Wallis - Growth trajectory retention (8-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (8 years)):

K (Observed value)	5,840
K (Critical value)	9,488
DF	4
p-value (one-tailed)	0,211
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
NED-NIS	16	2767,000	172,938	A
NIS	50	9635,000	192,700	A
LIS	42	8519,000	202,833	A
NED	323	72783,000	225,334	A
NED-LIS	3	691,000	230,333	A

Pairwise comparisons (Growth trajectory retention (8 years)):

Differences:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	0	-22,501	29,896	-27,500	10,133
NED	22,501	0	52,397	-4,999	32,634
NED-NIS	-29,896	-52,397	0	-57,396	-19,763
NED-LIS	27,500	4,999	57,396	0	37,633
NIS	-10,133	-32,634	19,763	-37,633	0

p-values:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	1	0,274	0,417	0,714	0,700
NED	0,274	1	0,103	0,945	0,087
NED-NIS	0,417	0,103	1	0,467	0,583
NED-LIS	0,714	0,945	0,467	1	0,614
NIS	0,700	0,087	0,583	0,614	1

Bonferroni corrected significance level: 0,005

Analysis of RGVA-based resilience performance by shock type for the crisis period 2008-09

Correlation matrix:

	LIS	NED	NED-NIS	NED-LIS	NIS	Growth trajectory retention (4 years)	Recovery of development level	Growth trajectory retention (8 years)
LIS	**1**	0,569	0,536	0,791	-0,860	-0,005	-0,005	0,009
NED	0,569	**1**	0,107	0,674	-0,801	-0,018	0,066	-0,001
NED-NIS	0,536	0,107	**1**	0,578	-0,632	-0,026	-0,047	-0,066
NED-LIS	0,791	0,674	0,578	**1**	-0,921	-0,046	-0,003	-0,055
NIS	-0,860	-0,801	-0,632	-0,921	**1**	0,029	-0,015	0,034
Growth trajectory retention (4 years)	-0,005	-0,018	-0,026	-0,046	0,029	**1**	0,547	0,769
Recovery of development level	-0,005	0,066	-0,047	-0,003	-0,015	0,547	**1**	0,653
Growth trajectory retention (8 years)	0,009	-0,001	-0,066	-0,055	0,034	0,769	0,653	**1**

Analysis of RGVA-based resilience performance by shock type for the crisis period 2008-09

ANOVA - Recovery of development level

Goodness of fit statistics (Recovery of development level):

Observations	741
Sum of weigl	741
DF	736
R²	0,009
Adjusted R²	0,003
MSE	0,005
RMSE	0,072
MAPE	184,531
DW	1,515
Cp	5,000
AIC	-3891,100
SBC	-3868,060
PC	1,005

Settings (for all ANOVA):
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Use least squares means: Yes

Analysis of variance (Recovery of development level):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	4	0,034	0,008	1,614	0,169
Error	736	3,832	0,005		
Corrected Total	740	3,866			

Computed against model Y=Mean(Y)

Model parameters (Recovery of development level):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,092	0,011	-8,281	**<0,0001**	-0,114	-0,070
LIS	-0,006	0,025	-0,226	0,821	-0,056	0,044
NED	0,023	0,011	2,044	**0,041**	0,001	0,045
NED-NIS	-0,005	0,015	-0,307	0,759	-0,035	0,025
NED-LIS	-0,027	0,034	-0,799	0,424	-0,094	0,040
NIS	0,015	0,018	0,829	0,407	-0,020	0,049

ANOVA - Growth trajectory retention (4-year recovery period)

Goodness of fit statistics (Growth trajectory retention (4 years)):

Observations	741
Sum of weigl	741
DF	736
R²	0,005
Adjusted R²	-0,001
MSE	0,000
RMSE	0,017
MAPE	184,145
DW	1,672
Cp	5,000
AIC	-6017,611
SBC	-5994,571
PC	1,009

Analysis of variance (Growth trajectory retention (4 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	4	0,001	0,000	0,904	0,461
Error	736	0,217	0,000		
Corrected Total	740	0,218			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (4 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,006	0,003	-2,351	**0,019**	-0,011	-0,001
LIS	0,008	0,006	1,332	0,183	-0,004	0,020
NED	0,001	0,003	0,287	0,774	-0,005	0,006
NED-NIS	0,000	0,004	-0,047	0,963	-0,007	0,007
NED-LIS	-0,013	0,008	-1,562	0,119	-0,029	0,003
NIS	0,004	0,004	0,966	0,334	-0,004	0,012

Analysis of RGVA-based resilience performance by shock type for the crisis period 2008-09

ANOVA - Growth trajectory retention (8-year recovery period)

Goodness of fit statistics (Growth trajectory retention (8 years)):

Observations	367
Sum of weights	367
DF	362
R²	0,013
Adjusted R²	0,003
MSE	0,000
RMSE	0,013
MAPE	115,611
DW	1,414
Cp	5,000
AIC	-3175,533
SBC	-3156,006
PC	1,014

Analysis of variance (Growth trajectory retention (8 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	4	0,001	0,000	1,232	0,297
Error	362	0,062	0,000		
Corrected Total	366	0,063			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (8 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,001	0,003	-0,396	0,692	-0,008	0,005
LIS	0,014	0,008	1,704	0,089	-0,002	0,029
NED	0,000	0,003	0,137	0,891	-0,006	0,007
NED-NIS	-0,003	0,004	-0,740	0,460	-0,012	0,005
NED-LIS	-0,015	0,011	-1,355	0,176	-0,036	0,007
NIS	0,004	0,005	0,708	0,479	-0,006	0,014

Kruskal-Wallis - Recovery of development level

Kruskal-Wallis test / Two-tailed test (Recovery of development level):

K (Observed value)	8,516
K (Critical value)	9,488
DF	4
p-value (one-tailed)	0,074
alpha	0,05

An approximation has been used to compute the p-value.

Settings (for all K-W-tests):
Significance level (%): 5
p-value: Asymptotic p-value
Continuity correction: Yes

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
NED-LIS	3	581,000	193,667	A
LIS	6	1537,000	256,167	A
NED-NIS	28	8064,000	288,000	A
NIS	17	6077,000	357,471	A
NED	687	258652,000	376,495	A

Pairwise comparisons (Recovery of development level):

Differences:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	0	-120,328	-31,833	62,500	-101,304
NED	120,328	0	88,495	182,828	19,024
NED-NIS	31,833	-88,495	0	94,333	-69,471
NED-LIS	-62,500	-182,828	-94,333	0	-163,804
NIS	101,304	-19,024	69,471	163,804	0

p-values:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	1	0,170	0,741	0,680	0,319
NED	0,170	1	0,032	0,140	0,717
NED-NIS	0,741	0,032	1	0,468	0,291
NED-LIS	0,680	0,140	0,468	1	0,222
NIS	0,319	0,717	0,291	0,222	1

Bonferroni corrected significance level: 0,005

Analysis of RGVA-based resilience performance by shock type for the crisis period 2008-09

Kruskal-Wallis - Growth trajectory retention (4-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (4 years)):

K (Observed value)	5,095
K (Critical value)	9,488
DF	4
p-value (one-tailed)	0,278
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
NED-LIS	3	812,000	270,667	A
NED-NIS	28	9124,000	325,857	A
NED	687	254752,000	370,818	A
NIS	17	7244,000	426,118	A
LIS	6	2979,000	496,500	A

Pairwise comparisons (Growth trajectory retention (4 years)):

Differences:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	0	125,682	170,643	225,833	70,382
NED	-125,682	0	44,961	100,151	-55,300
NED-NIS	-170,643	-44,961	0	55,190	-100,261
NED-LIS	-225,833	-100,151	-55,190	0	-155,451
NIS	-70,382	55,300	100,261	155,451	0

p-values:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	1	0,152	0,076	0,136	0,489
NED	0,152	1	0,276	0,419	0,293
NED-NIS	0,076	0,276	1	0,671	0,128
NED-LIS	0,136	0,419	0,671	1	0,246
NIS	0,489	0,293	0,128	0,246	1

Bonferroni corrected significance level: 0,005

Kruskal-Wallis - Growth trajectory retention (8-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (8 years)):

K (Observed value)	6,733
K (Critical value)	9,488
DF	4
p-value (one-tailed)	0,151
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
NED-LIS	1	49,000	49,000	A
NED-NIS	16	2389,000	149,313	A
NED	341	62964,000	184,645	A
NIS	7	1508,000	215,429	A
LIS	2	618,000	309,000	A

Pairwise comparisons (Growth trajectory retention (8 years)):

Differences:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	0	124,355	159,688	260,000	93,571
NED	-124,355	0	35,333	135,645	-30,783
NED-NIS	-159,688	-35,333	0	100,313	-66,116
NED-LIS	-260,000	-135,645	-100,313	0	-166,429
NIS	-93,571	30,783	66,116	166,429	0

p-values:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	1	0,098	0,045	0,045	0,271
NED	0,098	1	0,193	0,202	0,447
NED-NIS	0,045	0,193	1	0,359	0,169
NED-LIS	0,045	0,202	0,359	1	0,142
NIS	0,271	0,447	0,169	0,142	1

Bonferroni corrected significance level: 0,005

Analysis of Employment-based resilience performance by shock type for observations falling between crisis periods

Correlation matrix:

	LIS	NED	NED-NIS	NIS	Growth trajectory retention (4 years)	Recovery of development level	Growth trajectory retention (8 years)
LIS	**1**	0,204	0,741	-0,809	-0,010	-0,016	0,125
NED	0,204	**1**	0,682	-0,731	-0,115	0,023	-0,195
NED-NIS	0,741	0,682	**1**	-0,955	-0,087	0,002	-0,070
NIS	-0,809	-0,731	-0,955	**1**	0,079	-0,002	0,042
Growth trajec	-0,010	-0,115	-0,087	0,079	**1**	0,605	0,783
Recovery of	-0,016	0,023	0,002	-0,002	0,605	**1**	0,479
Growth trajec	0,125	-0,195	-0,070	0,042	0,783	0,479	**1**

Analysis of Employment-based resilience performance by shock type for observations falling between crisis periods

ANOVA - Recovery of development level

Goodness of fit statistics (Recovery of development level):

Observations	162
Sum of weigh	162
DF	158
R^2	0,001
Adjusted R^2	-0,018
MSE	0,019
RMSE	0,137
MAPE	351,981
DW	1,560
Cp	4,000
AIC	-639,160
SBC	-626,810
PC	1,050

Settings (for all ANOVA):
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Use least squares means: Yes

Analysis of variance (Recovery of development level):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	3	0,003	0,001	0,050	0,985
Error	158	2,983	0,019		
Corrected Total	161	2,985			

Computed against model Y=Mean(Y)

Model parameters (Recovery of development level):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,057	0,026	-2,189	**0,030**	-0,109	-0,006
LIS	-0,003	0,028	-0,125	0,901	-0,059	0,052
NED	0,006	0,030	0,213	0,832	-0,053	0,066
NED-NIS	-0,001	0,073	-0,020	0,984	-0,147	0,144
NIS	-0,001	0,033	-0,045	0,964	-0,067	0,064

ANOVA - Growth trajectory retention (4-year recovery period)

Goodness of fit statistics (Growth trajectory retention (4 years)):

Observations	162
Sum of weigh	162
DF	158
R^2	0,015
Adjusted R^2	-0,004
MSE	0,001
RMSE	0,025
MAPE	157,705
DW	1,340
Cp	4,000
AIC	-1195,299
SBC	-1182,948
PC	1,035

Analysis of variance (Growth trajectory retention (4 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	3	0,001	0,000	0,810	0,490
Error	158	0,096	0,001		
Corrected To	161	0,098			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (4 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,002	0,005	-0,467	0,641	-0,011	0,007
LIS	0,003	0,005	0,539	0,591	-0,007	0,013
NED	-0,002	0,005	-0,432	0,666	-0,013	0,008
NED-NIS	-0,007	0,013	-0,531	0,596	-0,033	0,019
NIS	0,007	0,006	1,121	0,264	-0,005	0,018

Analysis of Employment-based resilience performance by shock type for observations falling between crisis periods

ANOVA - Growth trajectory retention (8-year recovery period)

Goodness of fit statistics (Growth trajectory retention (8 years)):

Observations	135
Sum of weights	135
DF	131
R^2	0,075
Adjusted R^2	0,054
MSE	0,000
RMSE	0,020
MAPE	115,861
DW	1,070
Cp	4,000
AIC	-1055,426
SBC	-1043,805
PC	0,982

Analysis of variance (Growth trajectory retention (8 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	3	0,004	0,001	3,529	**0,017**
Error	131	0,051	0,000		
Corrected Total	134	0,055			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (8 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,008	0,004	-2,078	**0,040**	-0,015	0,000
LIS	0,009	0,004	2,068	**0,041**	0,000	0,017
NED	-0,003	0,004	-0,722	0,472	-0,012	0,006
NED-NIS	-0,012	0,011	-1,131	0,260	-0,033	0,009
NIS	0,007	0,005	1,346	0,181	-0,003	0,016

Kruskal-Wallis - Recovery of development level

Kruskal-Wallis test / Two-tailed test (Recovery of development level):

K (Observed value)	0,248
K (Critical value)	7,815
DF	3
p-value (one-tailed)	0,970
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
NED-NIS	2	149,000	74,500	A
NIS	23	1844,000	80,174	A
LIS	96	7749,000	80,719	A
NED	41	3461,000	84,415	A

Pairwise comparisons (Recovery of development level):

Differences:

	LIS	NED	NED-NIS	NIS
LIS	0	-3,696	6,219	0,545
NED	3,696	0	9,915	4,241
NED-NIS	-6,219	-9,915	0	-5,674
NIS	-0,545	-4,241	5,674	0

p-values:

	LIS	NED	NED-NIS	NIS
LIS	1	0,673	0,853	0,960
NED	0,673	1	0,770	0,729
NED-NIS	0,853	0,770	1	0,870
NIS	0,960	0,729	0,870	1

Bonferroni corrected significance level: 0,0083

Settings (for all K-W-tests):
Significance level (%): 5
p-value: Asymptotic p-value
Continuity correction: Yes

Analysis of Employment-based resilience performance by shock type for observations falling between crisis periods

Kruskal-Wallis - Growth trajectory retention (4-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (4 years)):

K (Observed value)	5,925
K (Critical value)	7,815
DF	3
p-value (one-tailed)	0,115
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
NED-NIS	2	114,000	57,000	A
NED	41	2772,000	67,610	A
LIS	96	8208,000	85,500	A
NIS	23	2109,000	91,696	A

Pairwise comparisons (Growth trajectory retention (4 years)):

Differences:

	LIS	NED	NED-NIS	NIS
LIS	0	17,890	28,500	-6,196
NED	-17,890	0	10,610	-24,086
NED-NIS	-28,500	-10,610	0	-34,696
NIS	6,196	24,086	34,696	0

p-values:

	LIS	NED	NED-NIS	NIS
LIS	1	0,041	0,395	0,569
NED	0,041	1	0,755	0,049
NED-NIS	0,395	0,755	1	0,316
NIS	0,569	0,049	0,316	1

Bonferroni corrected significance level: 0,0083

Kruskal-Wallis - Growth trajectory retention (8-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (8 years)):

K (Observed value)	17,492
K (Critical value)	7,815
DF	3
p-value (one-tailed)	0,001
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
NED-NIS	2	51,000	25,500	A
NED	39	1880,000	48,205	A
LIS	74	5677,000	76,716	A
NIS	20	1572,000	78,600	A

Pairwise comparisons (Growth trajectory retention (8 years)):

Differences:

	LIS	NED	NED-NIS	NIS
LIS	0	**28,511**	51,216	-1,884
NED	**-28,511**	0	22,705	**-30,395**
NED-NIS	-51,216	-22,705	0	-53,100
NIS	1,884	**30,395**	53,100	0

p-values:

	LIS	NED	NED-NIS	NIS
LIS	1	**0,000**	0,068	0,848
NED	**0,000**	1	0,423	**0,005**
NED-NIS	0,068	0,423	1	0,067
NIS	0,848	**0,005**	0,067	1

Bonferroni corrected significance level: 0,0083

Analysis of Employment-based resilience performance by shock type for the crisis period 1990-1993

Correlation matrix:

	LIS	NED	NED-NIS	NED-LIS	NIS	Growth trajectory retention (4 years)	Recovery of development level	Growth trajectory retention (8 years)
LIS	**1**	0,110	0,348	0,590	-0,652	0,025	-0,002	-0,015
NED	0,110	**1**	0,166	0,611	-0,710	-0,174	-0,168	-0,228
NED-NIS	0,348	0,166	**1**	0,610	-0,671	-0,076	-0,031	-0,097
NED-LIS	0,590	0,611	0,610	**1**	-0,926	-0,132	-0,120	-0,165
NIS	-0,652	-0,710	-0,671	-0,926	**1**	0,130	0,118	0,184
Growth trajectory retention (4 years)	0,025	-0,174	-0,076	-0,132	0,130	**1**	0,498	0,748
Recovery of development level	-0,002	-0,168	-0,031	-0,120	0,118	0,498	**1**	0,545
Growth trajectory retention (8 years)	-0,015	-0,228	-0,097	-0,165	0,184	0,748	0,545	**1**

Analysis of Employment-based resilience performance by shock type for the crisis period 1990-1993

ANOVA - Recovery of development level

Goodness of fit statistics (Recovery of development level):

Observations	702
Sum of weigl	702
DF	697
R²	0,031
Adjusted R²	0,025
MSE	0,008
RMSE	0,088
MAPE	503,993
DW	1,083
Cp	5,000
AIC	-3412,045
SBC	-3389,275
PC	0,983

Settings (for all ANOVA):
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Use least squares means: Yes

Analysis of variance (Recovery of development level):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	4	0,170	0,043	5,526	**0,000**
Error	697	5,361	0,008		
Corrected					
Total	701	5,531			

Computed against model Y=Mean(Y)

Model parameters (Recovery of development level):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,114	0,007	-15,775	**<0,0001**	-0,128	-0,100
LIS	0,012	0,010	1,189	0,235	-0,008	0,031
NED	-0,017	0,008	-2,126	**0,034**	-0,032	-0,001
NED-NIS	0,006	0,010	0,580	0,562	-0,014	0,026
NED-LIS	-0,032	0,025	-1,280	0,201	-0,081	0,017
NIS	0,031	0,012	2,577	**0,010**	0,007	0,055

ANOVA - Growth trajectory retention (4-year recovery period)

Goodness of fit statistics (Growth trajectory retention (4 years)):

Observations	702
Sum of weigl	702
DF	697
R²	0,039
Adjusted R²	0,034
MSE	0,001
RMSE	0,025
MAPE	242,162
DW	1,301
Cp	5,000
AIC	-5200,419
SBC	-5177,649
PC	0,974

Analysis of variance (Growth trajectory retention (4 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	4	0,017	0,004	7,155	**<0,0001**
Error	697	0,420	0,001		
Corrected					
Total	701	0,437			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (4 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,003	0,002	-1,247	0,213	-0,006	0,001
LIS	0,006	0,003	2,215	**0,027**	0,001	0,012
NED	-0,005	0,002	-2,090	**0,037**	-0,009	0,000
NED-NIS	-0,002	0,003	-0,580	0,562	-0,007	0,004
NED-LIS	-0,010	0,007	-1,392	0,164	-0,024	0,004
NIS	0,010	0,003	2,941	**0,003**	0,003	0,016

Analysis of Employment-based resilience performance by shock type for the crisis period 1990-1993

ANOVA - Growth trajectory retention (8-year recovery period)

Goodness of fit statistics (Growth trajectory retention (8 years)):

Observation s	701
Sum of weights	701
DF	696
R²	0,057
Adjusted R²	0,051
MSE	0,000
RMSE	0,017
MAPE	931,910
DW	1,051
Cp	5,000
AIC	-5721,870
SBC	-5699,107
PC	0,957

Analysis of variance (Growth trajectory retention (8 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	4	0,012	0,003	10,444	**<0,0001**
Error	696	0,197	0,000		
Corrected					
Total	700	0,209			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (8 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,003	0,001	-2,384	**0,017**	-0,006	-0,001
LIS	0,002	0,002	0,930	0,353	-0,002	0,006
NED	-0,006	0,002	-3,740	**0,000**	-0,009	-0,003
NED-NIS	-0,002	0,002	-1,195	0,232	-0,006	0,002
NED-LIS	-0,002	0,005	-0,406	0,685	-0,011	0,007
NIS	0,008	0,002	3,568	**0,000**	0,004	0,013

Kruskal-Wallis - Recovery of development level

Kruskal-Wallis test / Two-tailed test (Recovery of development level):

K (Observed value)	26,411
K (Critical value)	9,488
DF	4
p-value (one-tailed)	< 0,0001
alpha	0,05

An approximation has been used to compute the p-value.

Settings (for all K-W-tests):
Significance level (%): 5
p-value: Asymptotic p-value
Continuity correction: Yes

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups	
NED	464	151175,000	325,808	A	
NED-LIS	8	2661,000	332,625	A	B
NED-NIS	82	32010,000	390,366	A	B
LIS	98	38339,000	391,214		B
NIS	50	22568,000	451,360		B

Pairwise comparisons (Recovery of development level):
Differences:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	0	**65,406**	0,848	58,589	-60,146
NED	**-65,406**	0	-64,558	-6,817	**-125,552**
NED-NIS	-0,848	64,558	0	57,741	-60,994
NED-LIS	-58,589	6,817	-57,741	0	-118,735
NIS	60,146	**125,552**	60,994	118,735	0

p-values:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	1	**0,004**	0,978	0,432	0,088
NED	**0,004**	1	0,008	0,925	**<0,0001**
NED-NIS	0,978	0,008	1	0,442	0,094
NED-LIS	0,432	0,925	0,442	1	0,124
NIS	0,088	**<0,0001**	0,094	0,124	1

Bonferroni corrected significance level: 0,005

Analysis of Employment-based resilience performance by shock type for the crisis period 1990-1993

Kruskal-Wallis - Growth trajectory retention (4-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (4 years)):

K (Observed value)	30,958
K (Critical value)	9,488
DF	4
p-value (one-tailed)	< 0,0001
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups	
NED	464	150327,000	323,981	A	
NED-NIS	82	30529,000	372,305	A	B
NED-LIS	8	3127,000	390,875	A	B
LIS	98	39806,000	406,184		B
NIS	50	22964,000	459,280		B

Pairwise comparisons (Growth trajectory retention (4 years)):

Differences:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	0	**82,203**	33,879	15,309	-53,096
NED	**-82,203**	0	-48,324	-66,894	**-135,299**
NED-NIS	-33,879	48,324	0	-18,570	-86,975
NED-LIS	-15,309	66,894	18,570	0	-68,405
NIS	53,096	**135,299**	86,975	68,405	0

p-values:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	1	**0,000**	0,264	0,837	0,132
NED	**0,000**	1	0,047	0,355	**<0,0001**
NED-NIS	0,264	0,047	1	0,805	0,017
NED-LIS	0,837	0,355	0,805	1	0,376
NIS	0,132	**<0,0001**	0,017	0,376	1

Bonferroni corrected significance level: 0,005

Kruskal-Wallis - Growth trajectory retention (8-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (8 years)):

K (Observed value)	37,192
K (Critical value)	9,488
DF	4
p-value (one-tailed)	< 0,0001
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups		
NED	464	149691,000	322,610	A		
NED-NIS	81	29866,000	368,716	A	B	
NED-LIS	8	3133,000	391,625	A	B	C
LIS	98	39181,000	399,806		B	C
NIS	50	24180,000	483,600			C

Pairwise comparisons (Growth trajectory retention (8 years)):

Differences:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	0	**77,196**	31,090	8,181	-83,794
NED	**-77,196**	0	-46,106	-69,015	**-160,990**
NED-NIS	-31,090	46,106	0	-22,909	**-114,884**
NED-LIS	-8,181	69,015	22,909	0	-91,975
NIS	83,794	**160,990**	**114,884**	91,975	0

p-values:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	1	**0,001**	0,307	0,913	0,017
NED	**0,001**	1	0,059	0,339	**<0,0001**
NED-NIS	0,307	0,059	1	0,760	**0,002**
NED-LIS	0,913	0,339	0,760	1	0,233
NIS	0,017	**<0,0001**	**0,002**	0,233	1

Bonferroni corrected significance level: 0,005

Analysis of Employment-based resilience performance by shock type for the crisis period 2000-2003

Correlation matrix:

	LIS	NED	NED-NIS	NED-LIS	NIS	Growth trajectory retention (4 years)	Recovery of development level	Growth trajectory retention (8 years)
LIS	**1**	0,567	0,874	0,842	-0,892	0,013	0,080	0,053
NED	0,567	**1**	0,853	0,825	-0,868	-0,294	-0,078	-0,235
NED-NIS	0,874	0,853	**1**	0,957	-0,989	-0,176	-0,012	-0,109
NED-LIS	0,842	0,825	0,957	**1**	-0,968	-0,237	-0,031	-0,155
NIS	-0,892	-0,868	-0,989	-0,968	**1**	0,175	0,006	0,112
Growth trajectory retention (4 years)	0,013	-0,294	-0,176	-0,237	0,175	**1**	0,627	0,729
Recovery of development level	0,080	-0,078	-0,012	-0,031	0,006	0,627	**1**	0,449
Growth trajectory retention (8 years)	0,053	-0,235	-0,109	-0,155	0,112	0,729	0,449	**1**

Analysis of Employment-based resilience performance by shock type for the crisis period 2000-2003

ANOVA - Recovery of development level

Goodness of fit statistics (Recovery of development level):

Observations	177
Sum of weigh	177
DF	172
R²	0,040
Adjusted R²	0,018
MSE	0,012
RMSE	0,108
MAPE	426,709
DW	1,583
Cp	5,000
AIC	-784,483
SBC	-768,603
PC	1,015

Settings (for all ANOVA):
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Use least squares means: Yes

Analysis of variance (Recovery of development level):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	4	0,084	0,021	1,807	0,130
Error	172	1,989	0,012		
Corrected Total	176	2,072			

Computed against model Y=Mean(Y)

Model parameters (Recovery of development level):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,162	0,025	-6,401	**<0,0001**	-0,212	-0,112
LIS	0,051	0,027	1,880	0,062	-0,003	0,106
NED	0,004	0,028	0,129	0,898	-0,052	0,060
NED-NIS	-0,032	0,087	-0,371	0,711	-0,204	0,140
NED-LIS	-0,054	0,054	-0,987	0,325	-0,161	0,054
NIS	0,031	0,027	1,129	0,260	-0,023	0,085

ANOVA - Growth trajectory retention (4-year recovery period)

Goodness of fit statistics (Growth trajectory retention (4 years)):

Observations	177
Sum of weigh	177
DF	172
R²	0,212
Adjusted R²	0,194
MSE	0,001
RMSE	0,023
MAPE	307,991
DW	1,494
Cp	5,000
AIC	-1330,945
SBC	-1315,064
PC	0,834

Analysis of variance (Growth trajectory retention (4 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	4	0,024	0,006	11,559	**<0,0001**
Error	172	0,091	0,001		
Corrected Total	176	0,115			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (4 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,031	0,005	-5,637	**<0,0001**	-0,041	-0,020
LIS	0,020	0,006	3,504	**0,001**	0,009	0,032
NED	-0,002	0,006	-0,256	0,798	-0,014	0,010
NED-NIS	0,004	0,019	0,204	0,839	-0,033	0,040
NED-LIS	-0,042	0,012	-3,632	**0,000**	-0,065	-0,019
NIS	0,019	0,006	3,332	**0,001**	0,008	0,031

Analysis of Employment-based resilience performance by shock type for the crisis period 2000-2003

ANOVA - Growth trajectory retention (8-year recovery period)

Goodness of fit statistics (Growth trajectory retention (8 years)):

Observations	167
Sum of weights	167
DF	162
R²	0,142
Adjusted R²	0,121
MSE	0,000
RMSE	0,021
MAPE	276,500
DW	1,129
Cp	5,000
AIC	-1284,189
SBC	-1268,599
PC	0,911

Analysis of variance (Growth trajectory retention (8 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	4	0,012	0,003	6,693	**<0,0001**
Error	162	0,072	0,000		
Corrected Total	166	0,084			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (8 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,026	0,005	-5,308	**<0,0001**	-0,036	-0,017
LIS	0,013	0,005	2,395	**0,018**	0,002	0,024
NED	-0,005	0,006	-0,925	0,356	-0,016	0,006
NED-NIS	0,009	0,017	0,510	0,611	-0,025	0,042
NED-LIS	-0,026	0,011	-2,462	**0,015**	-0,047	-0,005
NIS	0,010	0,005	1,811	0,072	-0,001	0,020

Kruskal-Wallis - Recovery of development level

Kruskal-Wallis test / Two-tailed test (Recovery of development level):

K (Observed value)	8,266
K (Critical value)	9,488
DF	4
p-value (one-tailed)	0,082
alpha	0,05

An approximation has been used to compute the p-value.

Settings (for all K-W-tests):
Significance level (%): 5
p-value: Asymptotic p-value
Continuity correction: Yes

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
NED-NIS	1	45,000	45,000	A
NED-LIS	3	146,000	48,667	A
NED	42	3141,000	74,786	A
NIS	67	6099,000	91,030	A
LIS	64	6322,000	98,781	A

Pairwise comparisons (Recovery of development level):

Differences:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	0	23,996	53,781	50,115	7,751
NED	-23,996	0	29,786	26,119	-16,244
NED-NIS	-53,781	-29,786	0	-3,667	-46,030
NED-LIS	-50,115	-26,119	3,667	0	-42,363
NIS	-7,751	16,244	46,030	42,363	0

p-values:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	1	0,018	0,298	0,098	0,387
NED	0,018	1	0,566	0,394	0,107
NED-NIS	0,298	0,566	1	0,951	0,373
NED-LIS	0,098	0,394	0,951	1	0,161
NIS	0,387	0,107	0,373	0,161	1

Bonferroni corrected significance level: 0,005

Analysis of Employment-based resilience performance by shock type for the crisis period 2000-2003

Kruskal-Wallis - Growth trajectory retention (4-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (4 years)):

K (Observed value)	39,375
K (Critical value)	9,488
DF	4
p-value (one-tailed)	< 0,0001
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
NED-LIS	3	64,000	21,333	A
NED	42	2126,000	50,619	A
NED-NIS	1	51,000	51,000	A
LIS	64	6539,000	102,172	A
NIS	67	6973,000	104,075	A

Groupings could not be properly performed because the significance of differences is not transitive in this particular case.

Pairwise comparisons (Growth trajectory retention (4 years)):

Differences:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	0	**51,553**	51,172	80,839	-1,903
NED	**-51,553**	0	-0,381	29,286	**-53,456**
NED-NIS	-51,172	0,381	0	29,667	-53,075
NED-LIS	-80,839	-29,286	-29,667	0	-82,741
NIS	1,903	**53,456**	53,075	82,741	0

p-values:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	1	**<0,0001**	0,322	0,008	0,832
NED	**<0,0001**	1	0,994	0,339	**<0,0001**
NED-NIS	0,322	0,994	1	0,616	0,304
NED-LIS	0,008	0,339	0,616	1	0,006
NIS	0,832	**<0,0001**	0,304	0,006	1

Bonferroni corrected significance level: 0,005

Kruskal-Wallis - Growth trajectory retention (8-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (8 years)):

K (Observed value)	34,650
K (Critical value)	9,488
DF	4
p-value (one-tailed)	< 0,0001
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups	
NED-LIS	3	48,000	16,000	A	
NED	41	2086,000	50,878	A	
NED-NIS	1	75,000	75,000	A	B
NIS	64	5963,000	93,172	A	B
LIS	58	5856,000	100,966		B

Pairwise comparisons (Growth trajectory retention (8 years)):

Differences:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	0	**50,087**	25,966	**84,966**	7,794
NED	**-50,087**	0	-24,122	34,878	**-42,294**
NED-NIS	-25,966	24,122	0	59,000	-18,172
NED-LIS	**-84,966**	-34,878	-59,000	0	-77,172
NIS	-7,794	**42,294**	18,172	77,172	0

p-values:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	1	**<0,0001**	0,594	**0,003**	0,374
NED	**<0,0001**	1	0,622	0,228	**<0,0001**
NED-NIS	0,594	0,622	1	0,291	0,709
NED-LIS	**0,003**	0,228	0,291	1	0,007
NIS	0,374	**<0,0001**	0,709	0,007	1

Bonferroni corrected significance level: 0,005

Analysis of Employment-based resilience performance by shock type for the crisis period 2008-09

Correlation matrix:

	LIS	NED	NED-NIS	NED-LIS	NIS	Growth trajectory retention (4 years)	Recovery of development level	Growth trajectory retention (8 years)
LIS	**1**	-0,434	0,063	0,118	-0,346	-0,033	0,019	5,615E+307
NED	-0,434	**1**	-0,256	-0,089	-0,414	0,005	0,058	4,156E+307
NED-NIS	0,063	-0,256	**1**	0,163	-0,408	0,101	-0,165	6,89E+307
NED-LIS	0,118	-0,089	0,163	**1**	-0,498	-0,076	-0,064	8,647E+307
NIS	-0,346	-0,414	-0,408	-0,498	**1**	-0,004	0,051	
Growth trajectory retention (4 years)	-0,033	0,005	0,101	-0,076	-0,004	**1**	0,440	0,881
Recovery of development level	0,019	0,058	-0,165	-0,064	0,051	0,440	**1**	0,728
Growth trajectory retention (8 years)	5,615E+307	4,1557E+307	6,8897E+307	8,6468E+307		0,881	0,728	**1**

Analysis of Employment-based resilience performance by shock type for the crisis period 2008-09

ANOVA - Recovery of development level

Goodness of fit statistics (Recovery of development level):

Observations	282
Sum of weigl	282
DF	277
R²	0,031
Adjusted R²	0,017
MSE	0,007
RMSE	0,081
MAPE	312,160
DW	1,045
Cp	5,000
AIC	-1410,014
SBC	-1391,805
PC	1,004

Settings (for all ANOVA):
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Use least squares means: Yes

Analysis of variance (Recovery of development level):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	4	0,059	0,015	2,212	0,068
Error	277	1,834	0,007		
Corrected Total	281	1,892			

Computed against model Y=Mean(Y)

Model parameters (Recovery of development level):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,093	0,012	-7,845	**<0,0001**	-0,116	-0,069
LIS	0,012	0,016	0,753	0,452	-0,020	0,045
NED	0,007	0,013	0,538	0,591	-0,018	0,031
NED-NIS	-0,047	0,019	-2,456	**0,015**	-0,084	-0,009
NED-LIS	-0,016	0,023	-0,695	0,488	-0,062	0,030
NIS	0,044	0,038	1,138	0,256	-0,032	0,119

ANOVA - Growth trajectory retention (4-year recovery period)

Goodness of fit statistics (Growth trajectory retention (4 years)):

Observations	282
Sum of weigl	282
DF	277
R²	0,020
Adjusted R²	0,006
MSE	0,000
RMSE	0,017
MAPE	157,415
DW	1,362
Cp	5,000
AIC	-2303,063
SBC	-2284,853
PC	1,015

Analysis of variance (Growth trajectory retention (4 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	4	0,002	0,000	1,430	0,224
Error	277	0,077	0,000		
Corrected Total	281	0,079			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (4 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,003	0,002	-1,201	0,231	-0,008	0,002
LIS	-0,001	0,003	-0,335	0,738	-0,008	0,006
NED	0,001	0,003	0,271	0,786	-0,004	0,006
NED-NIS	0,008	0,004	1,964	0,051	0,000	0,015
NED-LIS	-0,007	0,005	-1,514	0,131	-0,017	0,002
NIS	0,000	0,008	-0,002	0,999	-0,015	0,015

Analysis of Employment-based resilience performance by shock type for the crisis period 2008-09

ANOVA - Growth trajectory retention (8-year recovery period)

Goodness of fit statistics (Growth trajectory retention (8 years)):

Observations	58
Sum of weights	58
DF	53
R^2	0,075
Adjusted R^2	0,006
MSE	0,000
RMSE	0,014
MAPE	119,897
DW	2,285
Cp	5,000
AIC	-490,129
SBC	-479,827
PC	1,099

Analysis of variance (Growth trajectory retention (8 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	4	0,001	0,000	1,079	0,376
Error	53	0,010	0,000		
Corrected Total	57	0,011			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (8 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,005	0,003	1,810	0,076	0,000	0,010
LIS	0,005	0,008	0,555	0,581	-0,012	0,022
NED	0,000	0,004	0,072	0,943	-0,007	0,008
NED-NIS	0,011	0,008	1,349	0,183	-0,006	0,028
NED-LIS	-0,017	0,008	-1,962	0,055	-0,033	0,000
NIS	0,000	0,000				

Kruskal-Wallis - Recovery of development level

Kruskal-Wallis test / Two-tailed test (Recovery of development level):

K (Observed value)	5,783
K (Critical value)	9,488
DF	4
p-value (one-tailed)	0,216
alpha	0,05

An approximation has been used to compute the p-value.

Settings (for all K-W-tests):
Significance level (%): 5
p-value: Asymptotic p-value
Continuity correction: Yes

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
NED-LIS	10	1074,000	107,400	A
NED-NIS	18	2088,000	116,000	A
NED	221	31419,000	142,167	A
LIS	30	4762,000	158,733	A
NIS	3	560,000	186,667	A

Pairwise comparisons (Recovery of development level):

Differences:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	0	16,566	42,733	51,333	-27,933
NED	-16,566	0	26,167	34,767	-44,499
NED-NIS	-42,733	-26,167	0	8,600	-70,667
NED-LIS	-51,333	-34,767	-8,600	0	-79,267
NIS	27,933	44,499	70,667	79,267	0

p-values:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	1	0,296	0,079	0,085	0,572
NED	0,296	1	0,191	0,187	0,348
NED-NIS	0,079	0,191	1	0,789	0,165
NED-LIS	0,085	0,187	0,789	1	0,140
NIS	0,572	0,348	0,165	0,140	1

Bonferroni corrected significance level: 0,005

Analysis of Employment-based resilience performance by shock type for the crisis period 2008-09

Kruskal-Wallis - Growth trajectory retention (4-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (4 years)):

K (Observed value)	6,145
K (Critical value)	9,488
DF	4
p-value (one-tailed)	0,189
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
NED-LIS	10	1007,000	100,700	A
NIS	3	387,000	129,000	A
NED	221	31059,000	140,538	A
LIS	30	4252,000	141,733	A
NED-NIS	18	3198,000	177,667	A

Pairwise comparisons (Growth trajectory retention (4 years)):

Differences:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	0	1,195	-35,933	41,033	12,733
NED	-1,195	0	-37,128	39,838	11,538
NED-NIS	35,933	37,128	0	76,967	48,667
NED-LIS	-41,033	-39,838	-76,967	0	-28,300
NIS	-12,733	-11,538	-48,667	28,300	0

p-values:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	1	0,940	0,139	0,168	0,797
NED	0,940	1	0,063	0,131	0,808
NED-NIS	0,139	0,063	1	0,017	0,339
NED-LIS	0,168	0,131	0,017	1	0,598
NIS	0,797	0,808	0,339	0,598	1

Bonferroni corrected significance level: 0,005

Kruskal-Wallis - Growth trajectory retention (8-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (8 years)):

K (Observed value)	6,317
K (Critical value)	7,815
DF	3
p-value (one-tailed)	0,097
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
NIS	0			
NED-LIS	2	15,000	7,500	
NED	52	1527,000	29,365	
LIS	2	71,000	35,500	
NED-NIS	2	98,000	49,000	

Pairwise comparisons (Growth trajectory retention (8 years)):

Differences:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	0	6,135	-13,500	28,000	
NED	-6,135	0	-19,635	21,865	
NED-NIS	13,500	19,635	0	41,500	
NED-LIS	-28,000	-21,865	-41,500	0	
NIS					

p-values:

	LIS	NED	NED-NIS	NED-LIS	NIS
LIS	1	0,614	0,424	0,097	
NED	0,614	1	0,107	0,072	
NED-NIS	0,424	0,107	1		
NED-LIS	0,097	0,072		1	
NIS					

Bonferroni corrected significance level: 0,005

II.h. Descriptive statistics on resilience performance by urban-rural typology

RGVA: Descriptive statistics on regional resilience performance by urban-rural typology

Descriptive statistics (Quantitative data):

Statistic	Recovery of development level | Urban	Recovery of development level | Intermediate	Recovery of development level | Rural	Growth trajectory retention (4 years) | Urban	Growth trajectory retention (4 years) | Intermediate	Growth trajectory retention (4 years) | Rural	Growth trajectory retention (8 years) | Urban	Growth trajectory retention (8 years) | Intermediate	Growth trajectory retention (8 years) | Rural
Nbr. of observations	654	860	610	654	860	610	654	860	610
Nbr. of missing values	0	0	0	0	0	0	149	150	129
Minimum	-0,732	-0,489	-0,590	-0,146	-0,110	-0,125	-0,132	-0,127	-0,091
Maximum	0,509	0,278	0,337	0,173	0,189	0,071	0,103	0,091	0,079
1st Quartile	-0,143	-0,121	-0,130	-0,021	-0,021	-0,023	-0,022	-0,020	-0,023
Median	-0,083	-0,066	-0,068	-0,007	-0,008	-0,009	-0,011	-0,008	-0,010
3rd Quartile	-0,038	-0,011	-0,023	0,006	0,005	0,003	0,001	0,001	0,001
Mean	-0,088	-0,072	-0,085	-0,009	-0,009	-0,011	-0,012	-0,011	-0,012
Variance (n-1)	0,008	0,011	0,013	0,001	0,001	0,001	0,000	0,000	0,000
Standard deviation (n-1)	0,091	0,103	0,113	0,026	0,025	0,023	0,021	0,020	0,019
Lower bound on mean (95%)	-0,095	-0,079	-0,094	-0,011	-0,010	-0,013	-0,013	-0,012	-0,013
Upper bound on mean (95%)	-0,081	-0,065	-0,076	-0,007	-0,007	-0,009	-0,010	-0,009	-0,010

Employment: Descriptive statistics on regional resilience performance by urban-rural typology

Descriptive statistics (Quantitative data):

Statistic	Recovery of development level | Urban	Recovery of development level | Intermediate	Recovery of development level | Rural	Growth trajectory retention (4 years) | Urban	Growth trajectory retention (4 years) | Intermediate	Growth trajectory retention (4 years) | Rural	Growth trajectory retention (8 years) | Urban	Growth trajectory retention (8 years) | Intermediate	Growth trajectory retention (8 years) | Rural
Nbr. of observations	461	503	359	461	503	359	461	503	359
Nbr. of missing values	0	0	0	0	0	0	106	87	68
Minimum	-0,393	-0,453	-0,645	-0,088	-0,090	-0,182	-0,064	-0,113	-0,086
Maximum	0,145	0,252	0,899	0,139	0,083	0,073	0,042	1,000	0,060
1st Quartile	-0,165	-0,167	-0,160	-0,017	-0,018	-0,015	-0,018	-0,019	-0,020
Median	-0,108	-0,106	-0,087	-0,003	-0,005	-0,003	-0,007	-0,009	-0,006
3rd Quartile	-0,052	-0,044	-0,037	0,007	0,006	0,009	0,004	0,003	0,007
Mean	-0,110	-0,111	-0,100	-0,005	-0,005	-0,005	-0,008	-0,006	-0,007
Variance (n-1)	0,007	0,010	0,014	0,001	0,000	0,001	0,000	0,003	0,000
Standard deviation (n-1)	0,085	0,098	0,118	0,023	0,021	0,029	0,018	0,053	0,022
Lower bound on mean (95%)	-0,118	-0,120	-0,112	-0,007	-0,007	-0,008	-0,009	-0,011	-0,009
Upper bound on mean (95%)	-0,102	-0,103	-0,088	-0,003	-0,004	-0,002	-0,006	-0,001	-0,004

II.i. Analysis of resilience performance along the urban-rural typology

Analysis of RGVA-based resilience performance by "Urban-Intermediate-Rural"-typology

Normality tests:

Shapiro-Wilk test (Recovery of development level | Urban):

W	0,943
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4 years) | Urban):

W	0,955
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8 years) | Urban):

W	0,958
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Recovery of development level | Intermediate):

W	0,966
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4 years) | Intermediate):

W	0,940
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8 years) | Intermediate):

W	0,939
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Recovery of development level | Rural):

W	0,911
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4 years) | Rural):

W	0,971
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8 years) | Rural):

W	0,972
p-value (Two-tailed)	<0,0001
alpha	0,050

Kolmogorov-Smirnov test (Urban | Recovery of development level):

D	0,053
p-value (Two-tailed)	0,049
alpha	0,050

Kolmogorov-Smirnov test (Urban | Growth trajectory retention (4 years)):

D	0,069
p-value (Two-tailed)	0,004
alpha	0,050

Kolmogorov-Smirnov test (Urban | Growth trajectory retention (8 years)):

D	0,069
p-value (Two-tailed)	0,015
alpha	0,050

Kolmogorov-Smirnov test (Intermediate | Recovery of development level):

D	0,073
p-value (Two-tailed)	0,000
alpha	0,050

Kolmogorov-Smirnov test (Intermediate | Growth trajectory retention (4 years)):

D	0,067
p-value (Two-tailed)	0,001
alpha	0,050

Kolmogorov-Smirnov test (Intermediate | Growth trajectory retention (8 years)):

D	0,074
p-value (Two-tailed)	0,001
alpha	0,050

Kolmogorov-Smirnov test (Rural | Recovery of development level):

D	0,111
p-value (Two-tailed)	<0,0001
alpha	0,050

Kolmogorov-Smirnov test (Rural | Growth trajectory retention (4 years)):

D	0,065
p-value (Two-tailed)	0,012
alpha	0,050

Kolmogorov-Smirnov test (Rural | Growth trajectory retention (8 years)):

D	0,059
p-value (Two-tailed)	0,066
alpha	0,050

Analysis of RGVA-based resilience performance by "Urban-Intermediate-Rural"-typology

Correlation matrix:

	Urban	Intermediate	Rural	Growth trajectory retention (4 years)	Recovery of development level	Growth trajectory retention (8 years)
Urban	**1**	0,448	-0,840	0,040	-0,014	0,001
Intermediate	0,448	**1**	-0,861	0,040	0,056	0,022
Rural	-0,840	-0,861	**1**	-0,047	-0,026	-0,014
Growth trajectory retention (4 years)	0,040	0,040	-0,047	**1**	0,479	0,729
Recovery of development level	-0,014	0,056	-0,026	0,479	**1**	0,443
Growth trajectory retention (8 years)	0,001	0,022	-0,014	0,729	0,443	**1**

ANOVA - Recovery of development level

Goodness of fit statistics (Recovery of development level):

Observations	2124
Sum of weigl	2124
DF	2121
R²	0,005
Adjusted R²	0,004
MSE	0,011
RMSE	0,103
MAPE	2528,787
DW	1,298
Cp	3,000
AIC	-9673,108
SBC	-9656,125
PC	0,998

Settings (for all ANOVA):
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Use least squares means: Yes

Analysis of variance (Recovery of development level):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	2	0,114	0,057	5,428	**0,004**
Error	2121	22,288	0,011		
Corrected Total	2123	22,402			

Computed against model Y=Mean(Y)

Model parameters (Recovery of development level):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,082	0,002	-36,378	**<0,0001**	-0,086	-0,077
Urban	-0,007	0,003	-2,025	**0,043**	-0,013	0,000
Intermediate	0,010	0,003	3,231	**0,001**	0,004	0,016
Rural	-0,003	0,003	-0,983	0,326	-0,010	0,003

Analysis of RGVA-based resilience performance by "Urban-Intermediate-Rural"-typology

ANOVA - Growth trajectory retention (4-year recovery period)

Goodness of fit statistics (Growth trajectory retention (4 years)):

Observations	2124
Sum of weigl	2124
DF	2121
R²	0,002
Adjusted R²	0,001
MSE	0,001
RMSE	0,025
MAPE	345,998
DW	1,401
Cp	3,000
AIC	-15653,818
SBC	-15636,835
PC	1,001

Analysis of variance (Growth trajectory retention (4 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	2	0,003	0,001	2,320	0,099
Error	2121	1,334	0,001		
Corrected Total	2123	1,337			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (4 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,010	0,001	-17,391	**<0,0001**	-0,011	-0,008
Urban	0,001	0,001	1,121	0,262	-0,001	0,002
Intermediate	0,001	0,001	1,141	0,254	-0,001	0,002
Rural	-0,002	0,001	-2,150	**0,032**	-0,003	0,000

ANOVA - Growth trajectory retention (8-year recovery period)

Goodness of fit statistics (Growth trajectory retention (8 years)):

Observations	1696
Sum of weigl	1696
DF	1693
R²	0,001
Adjusted R²	-0,001
MSE	0,000
RMSE	0,020
MAPE	511,001
DW	1,197
Cp	3,000
AIC	-13273,227
SBC	-13256,919
PC	1,003

Analysis of variance (Growth trajectory retention (8 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	2	0,000	0,000	0,499	0,607
Error	1693	0,675	0,000		
Corrected Total	1695	0,675			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (8 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,011	0,000	-22,962	**<0,0001**	-0,012	-0,010
Urban	0,000	0,001	-0,393	0,694	-0,002	0,001
Intermediate	0,001	0,001	0,997	0,319	-0,001	0,002
Rural	0,000	0,001	-0,519	0,603	-0,002	0,001

Analysis of RGVA-based resilience performance by "Urban-Intermediate-Rural"-typology

Kruskal-Wallis - Recovery of development level

Kruskal-Wallis test / Two-tailed test (Recovery of development level):

K (Observed value)	17,969	**Settings (for all K-W-tests):**
K (Critical value)	5,991	Significance level (%): 5
DF	2	p-value: Asymptotic p-value
p-value (one-tailed)	0,000	Continuity correction: Yes
alpha	0,05	

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups	
Urban	654	642858,000	982,963	A	
Rural	610	653021,000	1070,526		B
Intermediate	860	960871,000	1117,292		B

Pairwise comparisons (Recovery of development level):

Differences:

	Urban	Intermediate	Rural
Urban	0	**-134,329**	**-87,563**
Intermediate	**134,329**	0	46,766
Rural	**87,563**	-46,766	0

p-values:

	Urban	Intermediate	Rural
Urban	1	**<0,0001**	**0,011**
Intermediate	**<0,0001**	1	0,150
Rural	**0,011**	0,150	1

Bonferroni corrected significance level: 0,0167

Kruskal-Wallis - Growth trajectory retention (4-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (4 years)):

K (Observed value)	3,152
K (Critical value)	5,991
DF	2
p-value (one-tailed)	0,207
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
Rural	610	625688,000	1025,718	A
Intermediate	860	923277,000	1073,578	A
Urban	654	707785,000	1082,240	A

Pairwise comparisons (Growth trajectory retention (4 years)):

Differences:

	Urban	Intermediate	Rural
Urban	0	8,662	56,522
Intermediate	-8,662	0	47,860
Rural	-56,522	-47,860	0

p-values:

	Urban	Intermediate	Rural
Urban	1	0,785	0,102
Intermediate	0,785	1	0,140
Rural	0,102	0,140	1

Bonferroni corrected significance level: 0,0167

Kruskal-Wallis - Growth trajectory retention (8-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (8 years)):

K (Observed value)	2,191
K (Critical value)	5,991
DF	2
p-value (one-tailed)	0,334
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
Urban	505	420114,000	831,909	A
Rural	481	401820,000	835,385	A
Intermediate	710	617122,000	869,186	A

Pairwise comparisons (Growth trajectory retention (8 years)):

Differences:

	Urban	Intermediate	Rural
Urban	0	-37,277	-3,476
Intermediate	37,277	0	33,801
Rural	3,476	-33,801	0

p-values:

	Urban	Intermediate	Rural
Urban	1	0,191	0,911
Intermediate	0,191	1	0,243
Rural	0,911	0,243	1

Bonferroni corrected significance level: 0,0167

Analysis of Employment-based resilience performance by "Urban-Intermediate-Rural"-typology

Normality tests:

Shapiro-Wilk test (Recovery of development level | Urban):

W	0,994
p-value (Two-tailed)	0,056
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4 years) | Urban):

W	0,940
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8 years) | Urban):

W	0,996
p-value (Two-tailed)	0,464
alpha	0,050

Shapiro-Wilk test (Recovery of development level | Intermediate):

W	0,979
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4 years) | Intermediate):

W	0,964
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8 years) | Intermediate):

W	0,961
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Recovery of development level | Rural):

W	0,879
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4 years) | Rural):

W	0,879
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8 years) | Rural):

W	0,978
p-value (Two-tailed)	0,000
alpha	0,050

Kolmogorov-Smirnov test (Urban | Recovery of development level):

D	0,038
p-value (Two-tailed)	0,504
alpha	0,050

Kolmogorov-Smirnov test (Urban | Growth trajectory retention (4 years)):

D	0,074
p-value (Two-tailed)	0,012
alpha	0,050

Kolmogorov-Smirnov test (Urban | Growth trajectory retention (8 years)):

D	0,043
p-value (Two-tailed)	0,511
alpha	0,050

Kolmogorov-Smirnov test (Intermediate | Recovery of development level):

D	0,051
p-value (Two-tailed)	0,136
alpha	0,050

Kolmogorov-Smirnov test (Intermediate | Growth trajectory retention (4 years)):

D	0,057
p-value (Two-tailed)	0,076
alpha	0,050

Kolmogorov-Smirnov test (Intermediate | Growth trajectory retention (8 years)):

D	0,056
p-value (Two-tailed)	0,139
alpha	0,050

Kolmogorov-Smirnov test (Rural | Recovery of development level):

D	0,100
p-value (Two-tailed)	0,001
alpha	0,050

Kolmogorov-Smirnov test (Rural | Growth trajectory retention (4 years)):

D	0,121
p-value (Two-tailed)	<0,0001
alpha	0,050

Kolmogorov-Smirnov test (Rural | Growth trajectory retention (8 years)):

D	0,055
p-value (Two-tailed)	0,334
alpha	0,050

Analysis of Employment-based resilience performance by "Urban-Intermediate-Rural"-typology

Correlation matrix:

	Urban	Intermediate	Rural	Growth trajectory retention (4 years)	Recovery of development level	Growth trajectory retention (8 years)
Urban	**1**	0,420	-0,839	0,008	-0,037	-0,019
Intermediate	0,420	**1**	-0,846	-0,007	-0,044	-0,036
Rural	-0,839	-0,846	**1**	-0,001	0,048	0,033
Growth trajectory retention (4 years)	0,008	-0,007	-0,001	**1**	0,528	0,760
Recovery of development level	-0,037	-0,044	0,048	0,528	**1**	0,524
Growth trajectory retention (8 years)	-0,019	-0,036	0,033	0,760	0,524	**1**

ANOVA - Recovery of development level

Goodness of fit statistics (Recovery of development level):

Observations	1323
Sum of weigł	1323
DF	1320
R^2	0,002
Adjusted R^2	0,001
MSE	0,010
RMSE	0,100
MAPE	487,410
DW	1,199
Cp	3,000
AIC	-6091,976
SBC	-6076,413
PC	1,002

Settings (for all ANOVA):
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Use least squares means: Yes

Analysis of variance (Recovery of development level):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	2	0,031	0,015	1,546	0,214
Error	1320	13,177	0,010		
Corrected Total	1322	13,208			

Computed against model Y=Mean(Y)

Model parameters (Recovery of development level):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,107	0,003	-38,620	**<0,0001**	-0,113	-0,102
Urban	-0,003	0,004	-0,765	0,444	-0,011	0,005
Intermediate	-0,004	0,004	-1,116	0,265	-0,012	0,003
Rural	0,007	0,004	1,742	0,082	-0,001	0,015

Analysis of Employment-based resilience performance by "Urban-Intermediate-Rural"-typology

ANOVA - Growth trajectory retention (4-year recovery period)

Goodness of fit statistics (Growth trajectory retention (4 years)):

Observations	1323
Sum of weigł	1323
DF	1320
R^2	0,000
Adjusted R^2	-0,001
MSE	0,001
RMSE	0,024
MAPE	213,043
DW	1,229
Cp	3,000
AIC	-9867,827
SBC	-9852,264
PC	1,004

Analysis of variance (Growth trajectory retention (4 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	2	0,000	0,000	0,132	0,877
Error	1320	0,759	0,001		
Corrected Total	1322	0,759			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (4 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,005	0,001	-7,574	**<0,0001**	-0,006	-0,004
Urban	0,000	0,001	0,451	0,652	-0,001	0,002
Intermediate	0,000	0,001	-0,413	0,680	-0,002	0,001
Rural	0,000	0,001	-0,044	0,965	-0,002	0,002

ANOVA - Growth trajectory retention (8-year recovery period)

Goodness of fit statistics (Growth trajectory retention (8 years)):

Observations	1061
Sum of weigł	1061
DF	1058
R^2	0,001
Adjusted R^2	-0,001
MSE	0,000
RMSE	0,019
MAPE	643,774
DW	0,922
Cp	3,000
AIC	-8368,378
SBC	-8353,477
PC	1,004

Analysis of variance (Growth trajectory retention (8 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	2	0,001	0,000	0,704	0,495
Error	1058	0,396	0,000		
Corrected Total	1060	0,397			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (8 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,007	0,001	-12,461	**<0,0001**	-0,009	-0,006
Urban	0,000	0,001	-0,141	0,888	-0,002	0,002
Intermediate	-0,001	0,001	-1,006	0,315	-0,002	0,001
Rural	0,001	0,001	1,054	0,292	-0,001	0,003

Analysis of Employment-based resilience performance by "Urban-Intermediate-Rural"-typology

Kruskal-Wallis - Recovery of development level

Kruskal-Wallis test / Two-tailed test (Recovery of development level):

K (Observed value)	3,939	**Settings (for all K-W-tests):**
K (Critical value)	5,991	Significance level (%): 5
DF	2	p-value: Asymptotic p-value
p-value (one-tailed)	0,140	Continuity correction: Yes
alpha	0,05	

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
Urban	461	298605,000	647,733	A
Intermediate	503	327322,000	650,740	A
Rural	359	249899,000	696,097	A

Pairwise comparisons (Recovery of development level):

Differences:

	Urban	Intermediate	Rural
Urban	0	-3,006	-48,364
Intermediate	3,006	0	-45,358
Rural	48,364	45,358	0

p-values:

	Urban	Intermediate	Rural
Urban	1	0,903	0,072
Intermediate	0,903	1	0,086
Rural	0,072	0,086	1

Bonferroni corrected significance level: 0,0167

Kruskal-Wallis - Growth trajectory retention (4-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (4 years)):

K (Observed value)	3,613
K (Critical value)	5,991
DF	2
p-value (one-tailed)	0,164
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
Intermediate	503	320963,000	638,097	A
Urban	461	308355,000	668,883	A
Rural	359	246508,000	686,652	A

Pairwise comparisons (Growth trajectory retention (4 years)):

Differences:

	Urban	Intermediate	Rural
Urban	0	30,785	-17,769
Intermediate	-30,785	0	-48,554
Rural	17,769	48,554	0

p-values:

	Urban	Intermediate	Rural
Urban	1	0,211	0,509
Intermediate	0,211	1	0,066
Rural	0,509	0,066	1

Bonferroni corrected significance level: 0,0167

Kruskal-Wallis - Growth trajectory retention (8-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (8 years)):

K (Observed value)	2,797
K (Critical value)	5,991
DF	2
p-value (one-tailed)	0,247
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
Intermediate	415	213979,000	515,612	A
Urban	355	187990,000	529,549	A
Rural	291	161422,000	554,715	A

Pairwise comparisons (Growth trajectory retention (8 years)):

Differences:

	Urban	Intermediate	Rural
Urban	1	0,529	0,299
Intermediate	0,529	1	0,095
Rural	0,299	0,095	1

p-values:

	Urban	Intermediate	Rural
Urban	1	0,191	0,911
Intermediate	0,191	1	0,243
Rural	0,911	0,243	1

Bonferroni corrected significance level: 0,0167

II.j. Descriptive summary on resilience performance along the urban-rural typology and crisis periods

RGVA

Class	N BTW	Mean BTW	N 90-93	90-93 Mean	N 00-03	00-03 Mean	N 08-09	08-09 Mean
Recovery of development level								
All	166	-0,105	769	-0,080	448	-0,090	741	-0,071
Urban	27	-0,090	266	-0,090	100	-0,086	261	-0,088
Intermediate	70	-0,087	296	-0,067	192	-0,090	302	-0,062
Rural	69	-0,130	207	-0,086	156	-0,092	178	-0,060
Retention of growth trajecotry - 4 year recovery phase								
All	166	-0,004	769	-0,009	448	-0,019	741	-0,005
Urban	27	0,000	266	-0,008	100	-0,022	261	-0,005
Intermediate	70	-0,002	296	-0,009	192	-0,018	302	-0,004
Rural	69	-0,009	207	-0,010	156	-0,018	178	-0,008
Retention of growth trajecotry - 8 year recovery phase								
All	128	-0,009	767	-0,012	434	-0,019	367	-0,001
Urban	22	-0,007	265	-0,012	98	-0,023	120	-0,003
Intermediate	59	-0,010	296	-0,012	187	-0,018	168	0,001
Rural	47	-0,008	206	-0,012	149	-0,018	79	-0,002

EMPLOYMENT

Class	N BTW	Mean BTW	N 90-93	90-93 Mean	N 00-03	00-03 Mean	N 08-09	08-09 Mean
Recovery of development level								
All	162	-0,058	702	-0,121	177	-0,132	282	-0,089
Urban	32	-0,059	257	-0,132	43	-0,148	129	-0,066
Intermediate	61	-0,081	274	-0,121	70	-0,118	98	-0,100
Rural	69	-0,037	171	-0,104	64	-0,137	55	-0,124
Retention of growth trajecotry - 4 year recovery phase								
All	162	0,000	702	-0,004	177	-0,017	282	-0,002
Urban	32	-0,003	257	-0,005	43	-0,023	129	0,002
Intermediate	61	-0,002	274	-0,004	70	-0,015	98	-0,005
Rural	69	0,002	171	-0,004	64	-0,014	55	-0,007
Retention of growth trajecotry - 8 year recovery phase								
All	135	-0,003	701	-0,007	167	-0,020	58	0,005
Urban	27	0,000	257	-0,008	42	-0,022	29	0,008
Intermediate	51	-0,006	273	-0,007	68	-0,019	23	0,004
Rural	57	-0,003	171	-0,004	57	-0,019	6	-0,005

II.k. Analysis of resilience performance along the urban-rural typology and crisis periods

Analysis of RGVA-based resilience performance by "Urban-Intermediate-Rural"-typology for observations falling between crisis periods

Correlation matrix:

	Urban	Intermediate	Rural	Growth trajectory retention (4 years)	Recovery of development level	Growth trajectory retention (8 years)
Urban	**1**	0,636	-0,878	0,092	0,105	-0,008
Intermediate	0,636	**1**	-0,927	0,082	0,116	-0,035
Rural	-0,878	-0,927	**1**	-0,096	-0,123	0,026
Growth trajectory retention (4 years)	0,092	0,082	-0,096	**1**	0,409	0,836
Recovery of development level	0,105	0,116	-0,123	0,409	**1**	0,448
Growth trajectory retention (8 years)	-0,008	-0,035	0,026	0,836	0,448	**1**

ANOVA - Recovery of development level

Goodness of fit statistics (Recovery of development level):

Observations	166
Sum of weigl	166
DF	163
R²	0,015
Adjusted R²	0,003
MSE	0,028
RMSE	0,168
MAPE	674,650
DW	1,275
Cp	3,000
AIC	-589,579
SBC	-580,243
PC	1,021

Settings (for all ANOVA):
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Use least squares means: Yes

Analysis of variance (Recovery of development level):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	2	0,071	0,035	1,259	0,287
Error	163	4,591	0,028		
Corrected Total	165	4,662			

Computed against model Y=Mean(Y)

Model parameters (Recovery of development level):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,102	0,014	-7,123	**<0,0001**	-0,131	-0,074
Urban	0,012	0,024	0,525	0,601	-0,034	0,059
Intermediate	0,015	0,018	0,822	0,412	-0,021	0,052
Rural	-0,028	0,018	-1,487	0,139	-0,064	0,009

Analysis of RGVA-based resilience performance by "Urban-Intermediate-Rural"-typology for observations falling between crisis periods

ANOVA - Growth trajectory retention (4-year recovery period)

Goodness of fit statistics (Growth trajectory retention (4 years)):

Observations	166
Sum of weigl	166
DF	163
R²	0,009
Adjusted R²	-0,003
MSE	0,001
RMSE	0,037
MAPE	862,874
DW	1,446
Cp	3,000
AIC	-1095,732
SBC	-1086,396
PC	1,027

Analysis of variance (Growth trajectory retention (4 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	2	0,002	0,001	0,776	0,462
Error	163	0,218	0,001		
Corrected Total	165	0,220			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (4 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,004	0,003	-1,166	0,245	-0,010	0,003
Urban	0,003	0,005	0,665	0,507	-0,007	0,014
Intermediate	0,002	0,004	0,391	0,696	-0,006	0,009
Rural	-0,005	0,004	-1,236	0,218	-0,013	0,003

ANOVA - Growth trajectory retention (8-year recovery period)

Goodness of fit statistics (Growth trajectory retention (8 years)):

Observations	128
Sum of weigl	128
DF	125
R²	0,002
Adjusted R²	-0,014
MSE	0,001
RMSE	0,032
MAPE	134,663
DW	2,012
Cp	3,000
AIC	-881,887
SBC	-873,331
PC	1,046

Analysis of variance (Growth trajectory retention (8 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	2	0,000	0,000	0,096	0,909
Error	125	0,124	0,001		
Corrected Total	127	0,125			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (8 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,008	0,003	-2,751	**0,007**	-0,014	-0,002
Urban	0,001	0,005	0,189	0,850	-0,009	0,011
Intermediate	-0,002	0,004	-0,430	0,668	-0,009	0,006
Rural	0,001	0,004	0,179	0,858	-0,007	0,009

Analysis of RGVA-based resilience performance by "Urban-Intermediate-Rural"-typology for observations falling between crisis periods

Kruskal-Wallis - Recovery of development level

Kruskal-Wallis test / Two-tailed test (Recovery of development level):

K (Observed value)	3,488
K (Critical value)	5,991
DF	2
p-value (one-tailed)	0,175
alpha	0,05

Settings (for all K-W-tests):
Significance level (%): 5
p-value: Asymptotic p-value
Continuity correction: Yes

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
Rural	69	5198,000	75,333	A
Intermediate	70	6192,000	88,457	A
Urban	27	2471,000	91,519	A

Pairwise comparisons (Recovery of development level):

Differences:

	Urban	Intermediate	Rural
Urban	0	3,061	16,185
Intermediate	-3,061	0	13,124
Rural	-16,185	-13,124	0

p-values:

	Urban	Intermediate	Rural
Urban	1	0,779	0,138
Intermediate	0,779	1	0,107
Rural	0,138	0,107	1

Bonferroni corrected significance level: 0,0167

Kruskal-Wallis - Growth trajectory retention (4-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (4 years)):

K (Observed value)	1,216
K (Critical value)	5,991
DF	2
p-value (one-tailed)	0,545
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
Rural	69	5439,000	78,826	A
Intermediate	70	6011,000	85,871	A
Urban	27	2411,000	89,296	A

Pairwise comparisons (Growth trajectory retention (4 years)):

Differences:

	Urban	Intermediate	Rural
Urban	0	3,425	10,470
Intermediate	-3,425	0	7,045
Rural	-10,470	-7,045	0

p-values:

	Urban	Intermediate	Rural
Urban	1	0,753	0,337
Intermediate	0,753	1	0,388
Rural	0,337	0,388	1

Bonferroni corrected significance level: 0,0167

Kruskal-Wallis - Growth trajectory retention (8-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (8 years)):

K (Observed value)	0,257
K (Critical value)	5,991
DF	2
p-value (one-tailed)	0,879
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
Rural	47	2959,000	62,957	A
Intermediate	59	3805,000	64,492	A
Urban	22	1492,000	67,818	A

Pairwise comparisons (Growth trajectory retention (8 years)):

Differences:

	Urban	Intermediate	Rural
Urban	0	3,327	4,861
Intermediate	-3,327	0	1,534
Rural	-4,861	-1,534	0

p-values:

	Urban	Intermediate	Rural
Urban	1	0,720	0,612
Intermediate	0,720	1	0,832
Rural	0,612	0,832	1

Bonferroni corrected significance level: 0,0167

Analysis of RGVA-based resilience performance by "Urban-Intermediate-Rural"-typology for the crisis period 1990-1993

Correlation matrix:

	Urban	Intermediate	Rural	Growth trajectory retention (4 years)	Recovery of development level	Growth trajectory retention (8 years)
Urban	**1**	0,417	-0,837	0,039	-0,019	0,000
Intermediate	0,417	**1**	-0,846	0,012	0,079	-0,018
Rural	-0,837	-0,846	**1**	-0,030	-0,036	0,011
Growth trajectory retention (4 years)	0,039	0,012	-0,030	**1**	0,457	0,713
Recovery of development level	-0,019	0,079	-0,036	0,457	**1**	0,378
Growth trajectory retention (8 years)	0,000	-0,018	0,011	0,713	0,378	**1**

ANOVA - Recovery of development level

Goodness of fit statistics (Recovery of development level):

Observations	769
Sum of weigl	769
DF	766
R²	0,009
Adjusted R²	0,007
MSE	0,012
RMSE	0,109
MAPE	6631,810
DW	0,985
Cp	3,000
AIC	-3405,516
SBC	-3391,581
PC	0,998

Settings (for all ANOVA):
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Use least squares means: Yes

Analysis of variance (Recovery of development level):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	2	0,087	0,043	3,643	**0,027**
Error	766	9,105	0,012		
Corrected Total	768	9,191			

Computed against model Y=Mean(Y)

Model parameters (Recovery of development level):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,081	0,004	-20,339	**<0,0001**	-0,089	-0,073
Urban	-0,009	0,006	-1,585	0,113	-0,020	0,002
Intermediate	0,014	0,005	2,646	**0,008**	0,004	0,025
Rural	-0,006	0,006	-0,933	0,351	-0,017	0,006

Analysis of RGVA-based resilience performance by "Urban-Intermediate-Rural"-typology for the crisis period 1990-1993

ANOVA - Growth trajectory retention (4-year recovery period)

Goodness of fit statistics (Growth trajectory retention (4 years)):

Observations	769
Sum of weigl	769
DF	766
R²	0,002
Adjusted R²	-0,001
MSE	0,001
RMSE	0,024
MAPE	307,464
DW	1,121
Cp	3,000
AIC	-5720,486
SBC	-5706,551
PC	1,006

Analysis of variance (Growth trajectory retention (4 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	2	0,001	0,000	0,581	0,560
Error	766	0,449	0,001		
Corrected Total	768	0,449			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (4 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,009	0,001	-10,103	**<0,0001**	-0,011	-0,007
Urban	0,001	0,001	1,022	0,307	-0,001	0,004
Intermediate	0,000	0,001	-0,116	0,907	-0,002	0,002
Rural	-0,001	0,001	-0,852	0,395	-0,004	0,001

ANOVA - Growth trajectory retention (8-year recovery period)

Goodness of fit statistics (Growth trajectory retention (8 years)):

Observations	768
Sum of weigl	768
DF	765
R²	0,000
Adjusted R²	-0,002
MSE	0,000
RMSE	0,020
MAPE	552,439
DW	1,095
Cp	3,000
AIC	-5983,445
SBC	-5969,514
PC	1,007

Analysis of variance (Growth trajectory retention (8 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	2	0,000	0,000	0,191	0,826
Error	765	0,315	0,000		
Corrected Total	767	0,315			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (8 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,010	0,001	-13,772	**<0,0001**	-0,012	-0,009
Urban	0,001	0,001	0,591	0,555	-0,001	0,003
Intermediate	0,000	0,001	-0,412	0,681	-0,002	0,002
Rural	0,000	0,001	-0,177	0,859	-0,002	0,002

Analysis of RGVA-based resilience performance by "Urban-Intermediate-Rural"-typology for the crisis period 1990-1993

Kruskal-Wallis - Recovery of development level

Kruskal-Wallis test / Two-tailed test (Recovery of development level):

K (Observed value)	9,953
K (Critical value)	5,991
DF	2
p-value (one-tailed)	0,007
alpha	0,05

Settings (for all K-W-tests):
Significance level (%): 5
p-value: Asymptotic p-value
Continuity correction: Yes

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups	
Urban	266	93805,000	352,650	A	
Rural	207	80411,000	388,459	A	B
Intermediate	296	121849,000	411,652		B

Pairwise comparisons (Recovery of development level):

Differences:

	Urban	Intermediate	Rural
Urban	0	**-59,002**	-35,809
Intermediate	**59,002**	0	23,193
Rural	35,809	-23,193	0

p-values:

	Urban	Intermediate	Rural
Urban	1	**0,002**	0,082
Intermediate	**0,002**	1	0,249
Rural	0,082	0,249	1

Bonferroni corrected significance level: 0,0167

Kruskal-Wallis - Growth trajectory retention (4-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (4 years)):

K (Observed value)	1,221
K (Critical value)	5,991
DF	2
p-value (one-tailed)	0,543
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
Intermediate	296	111538,000	376,818	A
Rural	207	78949,000	381,396	A
Urban	266	105578,000	396,910	A

Pairwise comparisons (Growth trajectory retention (4 years)):

Differences:

	Urban	Intermediate	Rural
Urban	0	20,092	15,514
Intermediate	-20,092	0	-4,579
Rural	-15,514	4,579	0

p-values:

	Urban	Intermediate	Rural
Urban	1	0,284	0,451
Intermediate	0,284	1	0,820
Rural	0,451	0,820	1

Bonferroni corrected significance level: 0,0167

Kruskal-Wallis - Growth trajectory retention (8-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (8 years)):

K (Observed value)	1,351
K (Critical value)	5,991
DF	2
p-value (one-tailed)	0,509
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
Intermediate	296	111552,000	376,865	A
Urban	265	100748,000	380,181	A
Rural	206	82228,000	399,165	A

Pairwise comparisons (Growth trajectory retention (8 years)):

Differences:

	Urban	Intermediate	Rural
Urban	0	3,316	-18,984
Intermediate	-3,316	0	-22,300
Rural	18,984	22,300	0

p-values:

	Urban	Intermediate	Rural
Urban	1	0,860	0,356
Intermediate	0,860	1	0,267
Rural	0,356	0,267	1

Bonferroni corrected significance level: 0,0167

Analysis of RGVA-based resilience performance by "Urban-Intermediate-Rural"-typology for the crisis period 2000-2003

Correlation matrix:

	Urban	Intermediate	Rural	Growth trajectory retention (4 years)	Recovery of development level	Growth trajectory retention (8 years)
Urban	**1**	0,548	-0,858	-0,041	0,020	-0,087
Intermediate	0,548	**1**	-0,900	0,012	0,006	0,008
Rural	-0,858	-0,900	**1**	0,014	-0,014	0,041
Growth trajectory retention (4 years)	-0,041	0,012	0,014	**1**	0,547	0,654
Recovery of development level	0,020	0,006	-0,014	0,547	**1**	0,414
Growth trajectory retention (8 years)	-0,087	0,008	0,041	0,654	0,414	**1**

ANOVA - Recovery of development level

Goodness of fit statistics (Recovery of development level):

Observations	448
Sum of weigl	448
DF	445
R²	0,000
Adjusted R²	-0,004
MSE	0,010
RMSE	0,100
MAPE	257,541
DW	1,887
Cp	3,000
AIC	-2058,201
SBC	-2045,887
PC	1,013

Settings (for all ANOVA):
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Use least squares means: Yes

Analysis of variance (Recovery of development level):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	2	0,002	0,001	0,103	0,902
Error	445	4,469	0,010		
Corrected Total	447	4,471			

Computed against model Y=Mean(Y)

Model parameters (Recovery of development level):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,089	0,005	-18,201	**<0,0001**	-0,099	-0,080
Urban	0,003	0,008	0,436	0,663	-0,012	0,018
Intermediate	-0,001	0,006	-0,136	0,892	-0,014	0,012
Rural	-0,002	0,007	-0,360	0,719	-0,016	0,011

Analysis of RGVA-based resilience performance by "Urban-Intermediate-Rural"-typology for the crisis period 2000-2003

ANOVA - Growth trajectory retention (4-year recovery period)

Goodness of fit statistics (Growth trajectory retention (4 years)):

Observations	448
Sum of weigl	448
DF	445
R²	0,003
Adjusted R²	-0,001
MSE	0,001
RMSE	0,030
MAPE	321,724
DW	1,738
Cp	3,000
AIC	-3149,661
SBC	-3137,346
PC	1,010

Analysis of variance (Growth trajectory retention (4 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	2	0,001	0,001	0,753	0,472
Error	445	0,391	0,001		
Corrected Total	447	0,392			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (4 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,019	0,001	-13,409	**<0,0001**	-0,022	-0,017
Urban	-0,003	0,002	-1,200	0,231	-0,007	0,002
Intermediate	0,002	0,002	0,873	0,383	-0,002	0,005
Rural	0,001	0,002	0,515	0,607	-0,003	0,005

ANOVA - Growth trajectory retention (8-year recovery period)

Goodness of fit statistics (Growth trajectory retention (8 years)):

Observations	434
Sum of weigl	434
DF	431
R²	0,012
Adjusted R²	0,007
MSE	0,000
RMSE	0,019
MAPE	1767,404
DW	1,232
Cp	3,000
AIC	-3427,096
SBC	-3414,876
PC	1,002

Analysis of variance (Growth trajectory retention (8 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	2	0,002	0,001	2,563	0,078
Error	431	0,159	0,000		
Corrected Total	433	0,161			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (8 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,020	0,001	-20,923	**<0,0001**	-0,022	-0,018
Urban	-0,003	0,001	-2,258	**0,024**	-0,006	0,000
Intermediate	0,002	0,001	1,358	0,175	-0,001	0,004
Rural	0,002	0,001	1,231	0,219	-0,001	0,004

Analysis of RGVA-based resilience performance by "Urban-Intermediate-Rural"-typology for the crisis period 2000-2003

Kruskal-Wallis - Recovery of development level

Kruskal-Wallis test / Two-tailed test (Recovery of development level):

K (Observed value)	0,137
K (Critical value)	5,991
DF	2
p-value (one-tailed)	0,934
alpha	0,05

Settings (for all K-W-tests):
Significance level (%): 5
p-value: Asymptotic p-value
Continuity correction: Yes

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
Urban	100	22094,000	220,940	A
Rural	156	34941,000	223,981	A
Intermediate	192	43541,000	226,776	A

Pairwise comparisons (Recovery of development level):

Differences:

	Urban	Intermediate	Rural
Urban	0	-5,836	-3,041
Intermediate	5,836	0	2,795
Rural	3,041	-2,795	0

p-values:

	Urban	Intermediate	Rural
Urban	1	0,715	0,855
Intermediate	0,715	1	0,841
Rural	0,855	0,841	1

Bonferroni corrected significance level: 0,0167

Kruskal-Wallis - Growth trajectory retention (4-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (4 years)):

K (Observed value)	2,525
K (Critical value)	5,991
DF	2
p-value (one-tailed)	0,283
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
Urban	100	20640,000	206,400	A
Rural	156	35721,000	228,981	A
Intermediate	192	44215,000	230,286	A

Pairwise comparisons (Growth trajectory retention (4 years)):

Differences:

	Urban	Intermediate	Rural
Urban	0	-23,886	-22,581
Intermediate	23,886	0	1,306
Rural	22,581	-1,306	0

p-values:

	Urban	Intermediate	Rural
Urban	1	0,135	0,173
Intermediate	0,135	1	0,925
Rural	0,173	0,925	1

Bonferroni corrected significance level: 0,0167

Kruskal-Wallis - Growth trajectory retention (8-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (8 years)):

K (Observed value)	5,494
K (Critical value)	5,991
DF	2
p-value (one-tailed)	0,064
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
Urban	98	18835,000	192,194	A
Rural	149	32840,000	220,403	A
Intermediate	187	42720,000	228,449	A

Pairwise comparisons (Growth trajectory retention (8 years)):

Differences:

	Urban	Intermediate	Rural
Urban	0	-36,255	-28,209
Intermediate	36,255	0	8,047
Rural	28,209	-8,047	0

p-values:

	Urban	Intermediate	Rural
Urban	1	0,020	0,084
Intermediate	0,020	1	0,559
Rural	0,084	0,559	1

Bonferroni corrected significance level: 0,0167

Analysis of RGVA-based resilience performance by "Urban-Intermediate-Rural"-typology for the crisis period 2008-2009

Correlation matrix:

	Urban	Intermediate	Rural	Growth trajectory retention (4 years)	Recovery of development level	Growth trajectory retention (8 years)
Urban	**1**	0,370	-0,821	0,039	-0,155	-0,039
Intermediate	0,370	**1**	-0,834	0,075	0,016	0,087
Rural	-0,821	-0,834	**1**	-0,069	0,082	-0,032
Growth trajectory retention (4 years)	0,039	0,075	-0,069	**1**	0,547	0,769
Recovery of development level	-0,155	0,016	0,082	0,547	**1**	0,653
Growth trajectory retention (8 years)	-0,039	0,087	-0,032	0,769	0,653	**1**

ANOVA - Recovery of development level

Goodness of fit statistics (Recovery of development level):

Observations	741
Sum of weigl	741
DF	738
R²	0,030
Adjusted R²	0,027
MSE	0,005
RMSE	0,071
MAPE	180,080
DW	1,542
Cp	3,000
AIC	-3911,267
SBC	-3897,443
PC	0,978

Settings (for all ANOVA):
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Use least squares means: Yes

Analysis of variance (Recovery of development level):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	2	0,116	0,058	11,448	**<0,0001**
Error	738	3,749	0,005		
Corrected Total	740	3,866			

Computed against model Y=Mean(Y)

Model parameters (Recovery of development level):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,070	0,003	-26,112	**<0,0001**	-0,075	-0,065
Urban	-0,018	0,004	-4,765	**<0,0001**	-0,025	-0,010
Intermediate	0,008	0,004	2,164	**0,031**	0,001	0,015
Rural	0,010	0,004	2,418	**0,016**	0,002	0,018

Analysis of RGVA-based resilience performance by "Urban-Intermediate-Rural"-typology for the crisis period 2008-2009

ANOVA - Growth trajectory retention (4-year recovery period)

Goodness of fit statistics (Growth trajectory retention (4 years)):

Observations	741
Sum of weigl	741
DF	738
R²	0,006
Adjusted R²	0,003
MSE	0,000
RMSE	0,017
MAPE	189,320
DW	1,675
Cp	3,000
AIC	-6022,314
SBC	-6008,490
PC	1,002

Analysis of variance (Growth trajectory retention (4 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	2	0,001	0,001	2,164	0,116
Error	738	0,217	0,000		
Corrected Total	740	0,218			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (4 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,006	0,001	-8,841	**<0,0001**	-0,007	-0,004
Urban	0,000	0,001	0,312	0,755	-0,001	0,002
Intermediate	0,002	0,001	1,796	0,073	0,000	0,003
Rural	-0,002	0,001	-1,855	0,064	-0,004	0,000

ANOVA - Growth trajectory retention (8-year recovery period)

Goodness of fit statistics (Growth trajectory retention (8 years)):

Observations	367
Sum of weigl	367
DF	364
R²	0,013
Adjusted R²	0,008
MSE	0,000
RMSE	0,013
MAPE	129,323
DW	1,448
Cp	3,000
AIC	-3179,416
SBC	-3167,700
PC	1,003

Analysis of variance (Growth trajectory retention (8 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	2	0,001	0,000	2,418	0,091
Error	364	0,062	0,000		
Corrected Total	366	0,063			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (8 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,001	0,001	-1,748	0,081	-0,003	0,000
Urban	-0,001	0,001	-1,418	0,157	-0,003	0,001
Intermediate	0,002	0,001	2,055	**0,041**	0,000	0,004
Rural	0,000	0,001	-0,439	0,661	-0,003	0,002

Analysis of RGVA-based resilience performance by "Urban-Intermediate-Rural"-typology for the crisis period 2008-2009

Kruskal-Wallis - Recovery of development level

Kruskal-Wallis test / Two-tailed test (Recovery of development level):

K (Observed value)	25,998
K (Critical value)	5,991
DF	2
p-value (one-tailed)	< 0,0001
alpha	0,05

Settings (for all K-W-tests):
Significance level (%): 5
p-value: Asymptotic p-value
Continuity correction: Yes

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
Urban	261	82792,000	317,211	A
Intermediate	302	119188,000	394,662	B
Rural	178	72931,000	409,725	B

Pairwise comparisons (Recovery of development level):

Differences:

	Urban	Intermediate	Rural
Urban	0	**-77,452**	**-92,514**
Intermediate	**77,452**	0	-15,062
Rural	**92,514**	15,062	0

p-values:

	Urban	Intermediate	Rural
Urban	1	**<0,0001**	**<0,0001**
Intermediate	**<0,0001**	1	0,456
Rural	**<0,0001**	0,456	1

Bonferroni corrected significance level: 0,0167

Kruskal-Wallis - Growth trajectory retention (4-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (4 years)):

K (Observed value)	2,468
K (Critical value)	5,991
DF	2
p-value (one-tailed)	0,291
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
Rural	178	62473,000	350,972	A
Urban	261	96849,000	371,069	A
Intermediate	302	115589,000	382,745	A

Pairwise comparisons (Growth trajectory retention (4 years)):

Differences:

	Urban	Intermediate	Rural
Urban	0	-11,676	20,097
Intermediate	11,676	0	31,773
Rural	-20,097	-31,773	0

p-values:

	Urban	Intermediate	Rural
Urban	1	0,519	0,334
Intermediate	0,519	1	0,116
Rural	0,334	0,116	1

Bonferroni corrected significance level: 0,0167

Kruskal-Wallis - Growth trajectory retention (8-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (8 years)):

K (Observed value)	4,166
K (Critical value)	5,991
DF	2
p-value (one-tailed)	0,125
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
Urban	120	20493,000	170,775	A
Rural	79	14125,000	178,797	A
Intermediate	168	32910,000	195,893	A

Pairwise comparisons (Growth trajectory retention (8 years)):

Differences:

	Urban	Intermediate	Rural
Urban	0	-25,118	-8,022
Intermediate	25,118	0	17,095
Rural	8,022	-17,095	0

p-values:

	Urban	Intermediate	Rural
Urban	1	0,048	0,602
Intermediate	0,048	1	0,238
Rural	0,602	0,238	1

Bonferroni corrected significance level: 0,0167

II.1. Descriptive statistics on resilience performance by country

RGVA: Descriptive statistics on regional resilience performance by country

Descriptive statistics (Quantitative data):

Statistic	Recovery of development level | AT	Recovery of development level | BE	Recovery of development level | DE	Recovery of development level | DK	Recovery of development level | EL	Recovery of development level | ES	Recovery of development level | FI	Recovery of development level | FR	Recovery of development level | IE	Recovery of development level | IT	Recovery of development level | LU	Recovery of development level | NL	Recovery of development level | PT	Recovery of development level | SE	Recovery of development level | UK
Nbr. of observations	73	80	900	20	17	71	40	223	6	172	3	69	58	44	348
Nbr. of missing values	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum	-0,313	-0,419	-0,732	-0,198	-0,590	-0,490	-0,590	-0,229	-0,521	-0,405	-0,157	-0,521	-0,480	-0,321	-0,464
Maximum	0,105	0,063	0,509	0,041	-0,162	0,094	0,190	0,087	-0,101	0,106	-0,105	0,203	0,158	0,198	0,213
1st Quartile	-0,125	-0,108	-0,101	-0,147	-0,437	-0,145	-0,348	-0,083	-0,369	-0,136	-0,152	-0,165	-0,181	-0,185	-0,160
Median	-0,093	-0,066	-0,049	-0,089	-0,384	-0,067	-0,203	-0,048	-0,205	-0,089	-0,146	-0,122	-0,123	-0,120	-0,110
3rd Quartile	-0,067	-0,028	0,006	-0,070	-0,287	-0,026	-0,045	-0,023	-0,142	-0,050	-0,125	-0,050	-0,088	-0,085	-0,055
Mean	-0,094	-0,075	-0,051	-0,097	-0,358	-0,091	-0,189	-0,051	-0,263	-0,103	-0,136	-0,115	-0,139	-0,114	-0,111
Variance (n-1)	0,004	0,006	0,010	0,004	0,017	0,013	0,032	0,003	0,028	0,007	0,001	0,011	0,010	0,011	0,007
Standard deviation (n-1)	0,059	0,075	0,101	0,060	0,131	0,114	0,180	0,058	0,168	0,083	0,028	0,105	0,102	0,104	0,084
Lower bound on mean (95%)	-0,108	-0,092	-0,057	-0,126	-0,425	-0,118	-0,246	-0,059	-0,439	-0,116	-0,205	-0,141	-0,165	-0,146	-0,120
Upper bound on mean (95%)	-0,080	-0,058	-0,044	-0,069	-0,291	-0,064	-0,131	-0,044	-0,086	-0,091	-0,067	-0,090	-0,112	-0,083	-0,102

Statistic	Growth trajectory retention (4 years) | AT	Growth trajectory retention (4 years) | BE	Growth trajectory retention (4 years) | DE	Growth trajectory retention (4 years) | DK	Growth trajectory retention (4 years) | EL	Growth trajectory retention (4 years) | ES	Growth trajectory retention (4 years) | FI	Growth trajectory retention (4 years) | FR	Growth trajectory retention (4 years) | IE	Growth trajectory retention (4 years) | IT	Growth trajectory retention (4 years) | LU	Growth trajectory retention (4 years) | NL	Growth trajectory retention (4 years) | PT	Growth trajectory retention (4 years) | SE	Growth trajectory retention (4 years) | UK
Nbr. of observations	73	80	900	20	17	71	40	223	6	172	3	69	58	44	348
Nbr. of missing values	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum	-0,055	-0,048	-0,146	-0,056	-0,062	-0,125	-0,092	-0,061	-0,048	-0,107	-0,064	-0,090	-0,085	-0,054	-0,097
Maximum	0,024	0,023	0,138	0,027	0,038	0,066	0,071	0,023	0,069	0,022	0,002	0,056	0,189	0,057	0,083
1st Quartile	-0,023	-0,018	-0,020	-0,043	-0,033	-0,020	-0,052	-0,018	-0,033	-0,021	-0,048	-0,039	-0,047	-0,029	-0,021
Median	-0,008	-0,012	-0,006	-0,010	-0,020	0,001	-0,021	-0,007	0,004	-0,009	-0,033	-0,018	-0,023	-0,017	-0,007
3rd Quartile	0,004	0,000	0,007	0,002	0,009	0,013	0,012	0,002	0,055	0,002	-0,016	0,007	-0,004	-0,005	0,006
Mean	-0,009	-0,009	-0,008	-0,018	-0,016	-0,003	-0,017	-0,009	0,009	-0,012	-0,032	-0,017	-0,021	-0,015	-0,008
Variance (n-1)	0,000	0,000	0,001	0,001	0,001	0,001	0,002	0,000	0,003	0,000	0,001	0,001	0,002	0,000	0,001
Standard deviation (n-1)	0,017	0,014	0,024	0,027	0,029	0,029	0,042	0,016	0,051	0,020	0,033	0,031	0,048	0,021	0,026
Lower bound on mean (95%)	-0,013	-0,012	-0,009	-0,030	-0,031	-0,010	-0,031	-0,012	-0,045	-0,015	-0,113	-0,024	-0,034	-0,022	-0,011
Upper bound on mean (95%)	-0,005	-0,006	-0,006	-0,005	-0,001	0,004	-0,004	-0,007	0,063	-0,009	0,050	-0,009	-0,009	-0,009	-0,006

Statistic	Growth trajectory retention (8 years) | AT	Growth trajectory retention (8 years) | BE	Growth trajectory retention (8 years) | DE	Growth trajectory retention (8 years) | DK	Growth trajectory retention (8 years) | EL	Growth trajectory retention (8 years) | ES	Growth trajectory retention (8 years) | FI	Growth trajectory retention (8 years) | FR	Growth trajectory retention (8 years) | IE	Growth trajectory retention (8 years) | IT	Growth trajectory retention (8 years) | LU	Growth trajectory retention (8 years) | NL	Growth trajectory retention (8 years) | PT	Growth trajectory retention (8 years) | SE	Growth trajectory retention (8 years) | UK
Nbr. of observations	73	80	900	20	17	71	40	223	6	172	3	69	58	44	348
Nbr. of missing values	24	26	99	6	17	4	2	67	4	42	1	24	10	3	99
Minimum	-0,031	-0,068	-0,132	-0,035		-0,072	-0,077	-0,063	-0,098	-0,074	-0,044	-0,127	-0,093	-0,036	-0,072
Maximum	0,009	0,013	0,047	0,022		0,049	0,079	0,030	-0,061	0,014	-0,025	0,046	0,103	0,027	0,042
1st Quartile	-0,016	-0,017	-0,018	-0,030		-0,020	-0,039	-0,023	-0,089	-0,021	-0,039	-0,043	-0,054	-0,017	-0,019
Median	-0,011	-0,005	-0,008	-0,027		-0,005	-0,028	-0,010	-0,080	-0,012	-0,034	-0,034	-0,037	-0,008	-0,008
3rd Quartile	-0,002	0,002	0,003	-0,008		0,004	-0,006	0,001	-0,070	-0,004	-0,029	-0,026	-0,026	0,000	0,005
Mean	-0,010	-0,008	-0,008	-0,018		-0,011	-0,019	-0,011	-0,080	-0,014	-0,034	-0,032	-0,034	-0,009	-0,009
Variance (n-1)	0,000	0,000	0,000	0,000		0,001	0,001	0,000	0,001	0,000	0,000	0,001	0,001	0,000	0,000
Standard deviation (n-1)	0,010	0,015	0,017	0,019		0,023	0,036	0,015	0,026	0,015	0,013	0,026	0,037	0,014	0,021
Lower bound on mean (95%)	-0,012	-0,012	-0,010	-0,029		-0,016	-0,031	-0,014	-0,312	-0,017	-0,154	-0,040	-0,045	-0,013	-0,012
Upper bound on mean (95%)	-0,007	-0,004	-0,007	-0,007		-0,005	-0,007	-0,009	0,153	-0,012	0,086	-0,024	-0,023	-0,004	-0,007

Employment: Descriptive statistics on regional resilience performance by country

Descriptive statistics (Quantitative data):

Statistic	Recovery of development level | AT	Recovery of development level | BE	Recovery of development level | DE	Recovery of development level | DK	Recovery of development level | EL	Recovery of development level | ES	Recovery of development level | FI	Recovery of development level | FR	Recovery of development level | IE	Recovery of development level | IT	Recovery of development level | LU	Recovery of development level | NL	Recovery of development level | PT	Recovery of development level | SE	Recovery of development level | UK
Nbr. of observations	12	7	389	13	93	80	37	26	16	199	2	40	59	38	312
Nbr. of missing values	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum	-0,180	-0,121	-0,357	-0,161	-0,375	-0,645	-0,223	-0,114	-0,363	-0,453	-0,097	-0,393	-0,423	-0,250	-0,393
Maximum	0,056	-0,018	0,128	-0,035	0,133	0,260	0,021	0,018	0,234	0,129	-0,064	0,004	0,065	0,020	0,899
1st Quartile	-0,101	-0,095	-0,161	-0,122	-0,088	-0,183	-0,139	-0,060	-0,259	-0,152	-0,089	-0,196	-0,196	-0,176	-0,169
Median	-0,066	-0,073	-0,110	-0,110	-0,022	-0,065	-0,103	-0,049	-0,177	-0,086	-0,080	-0,124	-0,106	-0,114	-0,124
3rd Quartile	-0,011	-0,058	-0,062	-0,079	-0,003	0,004	-0,086	-0,021	-0,073	-0,052	-0,072	-0,059	-0,052	-0,019	-0,057
Mean	-0,061	-0,074	-0,115	-0,101	-0,062	-0,087	-0,111	-0,043	-0,147	-0,108	-0,080	-0,136	-0,134	-0,104	-0,116
Variance (n-1)	0,005	0,001	0,006	0,001	0,011	0,026	0,003	0,001	0,026	0,009	0,001	0,009	0,014	0,008	0,011
Standard deviation (n-1)	0,068	0,035	0,075	0,035	0,105	0,160	0,052	0,030	0,161	0,096	0,023	0,096	0,118	0,087	0,107
Lower bound on mean (95%)	-0,104	-0,106	-0,123	-0,122	-0,083	-0,122	-0,128	-0,055	-0,232	-0,121	-0,290	-0,167	-0,165	-0,133	-0,128
Upper bound on mean (95%)	-0,018	-0,042	-0,108	-0,080	-0,040	-0,051	-0,093	-0,031	-0,061	-0,094	0,129	-0,106	-0,103	-0,076	-0,104

Statistic	Growth trajectory retention (4 years) | AT	Growth trajectory retention (4 years) | BE	Growth trajectory retention (4 years) | DE	Growth trajectory retention (4 years) | DK	Growth trajectory retention (4 years) | EL	Growth trajectory retention (4 years) | ES	Growth trajectory retention (4 years) | FI	Growth trajectory retention (4 years) | FR	Growth trajectory retention (4 years) | IE	Growth trajectory retention (4 years) | IT	Growth trajectory retention (4 years) | LU	Growth trajectory retention (4 years) | NL	Growth trajectory retention (4 years) | PT	Growth trajectory retention (4 years) | SE	Growth trajectory retention (4 years) | UK
Nbr. of observations	12	7	389	13	93	80	37	26	16	199	2	40	59	38	312
Nbr. of missing values	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum	-0,028	-0,023	-0,061	-0,013	-0,108	-0,105	-0,037	-0,036	-0,120	-0,051	-0,025	-0,061	-0,073	-0,015	-0,182
Maximum	0,031	0,011	0,036	0,010	0,056	0,083	0,034	0,015	0,057	0,051	-0,002	0,020	0,062	0,024	0,139
1st Quartile	-0,015	-0,014	-0,018	0,001	-0,004	-0,008	-0,020	-0,010	-0,068	-0,015	-0,019	-0,035	-0,033	-0,003	-0,021
Median	-0,004	-0,001	-0,008	0,003	0,000	0,011	0,006	-0,001	-0,007	-0,001	-0,013	-0,023	0,004	0,001	-0,004
3rd Quartile	0,004	0,004	0,002	0,006	0,003	0,030	0,018	0,006	0,015	0,009	-0,007	-0,010	0,022	0,007	0,009
Mean	-0,004	-0,004	-0,009	0,002	-0,002	0,011	0,000	-0,006	-0,020	-0,003	-0,013	-0,022	-0,003	0,002	-0,007
Variance (n-1)	0,000	0,000	0,000	0,000	0,000	0,001	0,000	0,000	0,003	0,000	0,000	0,000	0,001	0,000	0,001
Standard deviation (n-1)	0,018	0,013	0,016	0,006	0,019	0,036	0,021	0,017	0,053	0,018	0,016	0,018	0,032	0,009	0,029
Lower bound on mean (95%)	-0,015	-0,016	-0,010	-0,001	-0,006	0,003	-0,007	-0,012	-0,048	-0,005	-0,160	-0,028	-0,011	-0,001	-0,010
Upper bound on mean (95%)	0,008	0,007	-0,007	0,006	0,002	0,019	0,007	0,001	0,008	0,000	0,134	-0,016	0,006	0,005	-0,003

Statistic	Growth trajectory retention (8 years) | AT	Growth trajectory retention (8 years) | BE	Growth trajectory retention (8 years) | DE	Growth trajectory retention (8 years) | DK	Growth trajectory retention (8 years) | EL	Growth trajectory retention (8 years) | ES	Growth trajectory retention (8 years) | FI	Growth trajectory retention (8 years) | FR	Growth trajectory retention (8 years) | IE	Growth trajectory retention (8 years) | IT	Growth trajectory retention (8 years) | LU	Growth trajectory retention (8 years) | NL	Growth trajectory retention (8 years) | PT	Growth trajectory retention (8 years) | SE	Growth trajectory retention (8 years) | UK
Nbr. of observations	12	7	389	13	93	80	37	26	16	199	2	40	59	38	312
Nbr. of missing values	2	0	18	10	18	6	13	1	4	72	0	0	18	6	93
Minimum	-0,022	-0,018	-0,053	-0,006	-0,062	-0,113	-0,014	-0,022	-0,093	-0,040	-0,022	-0,064	-0,043	-0,006	-0,058
Maximum	0,021	0,012	0,021	0,013	0,020	0,058	0,023	0,016	0,060	0,040	1,000	0,026	0,035	0,016	0,042
1st Quartile	-0,008	-0,016	-0,022	-0,005	-0,010	-0,011	0,005	-0,005	-0,076	-0,009	0,234	-0,035	-0,034	0,000	-0,018
Median	-0,007	-0,008	-0,014	-0,004	-0,002	0,009	0,011	0,006	-0,058	0,003	0,489	-0,023	-0,013	0,004	-0,007
3rd Quartile	0,005	0,005	-0,006	0,004	0,002	0,024	0,016	0,012	0,046	0,010	0,745	-0,012	0,013	0,007	0,008
Mean	-0,003	-0,005	-0,013	0,001	-0,008	0,003	0,008	0,001	-0,029	0,001	0,489	-0,023	-0,010	0,003	-0,007
Variance (n-1)	0,000	0,000	0,000	0,000	0,000	0,001	0,000	0,000	0,004	0,000	0,522	0,000	0,001	0,000	0,000
Standard deviation (n-1)	0,013	0,012	0,012	0,011	0,017	0,031	0,011	0,014	0,063	0,015	0,722	0,017	0,025	0,005	0,019
Lower bound on mean (95%)	-0,012	-0,017	-0,014	-0,025	-0,012	-0,005	0,003	-0,005	-0,069	-0,002	-6,001	-0,029	-0,018	0,002	-0,009
Upper bound on mean (95%)	0,006	0,006	-0,012	0,027	-0,004	0,010	0,013	0,007	0,011	0,003	6,979	-0,018	-0,002	0,005	-0,004

II.m. Analysis of resilience performance by country

Analysis of RGVA-based resilience performance by country

Normality tests:

Shapiro-Wilk test (Recovery of development level | AT):	
W	0,958
p-value	
(Two-tailed)	0,016
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4 years) | AT):	
W	0,983
p-value	
(Two-tailed)	0,417
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8 years) | AT):	
W	0,976
p-value	
(Two-tailed)	0,406
alpha	0,050

Kolmogorov-Smirnov test (AT | Recovery of development level):	
D	0,098
p-value	
(Two-tailed)	0,459
alpha	0,050

Kolmogorov-Smirnov test (AT | Growth trajectory retention (4 years)):	
D	0,070
p-value	
(Two-tailed)	0,842
alpha	0,050

Kolmogorov-Smirnov test (AT | Growth trajectory retention (8 years)):	
D	0,080
p-value	
(Two-tailed)	0,891
alpha	0,050

Shapiro-Wilk test (Recovery of development level | BE):	
W	0,880
p-value	
(Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4 years) | BE):	
W	0,974
p-value	
(Two-tailed)	0,107
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8 years) | BE):	
W	0,915
p-value	
(Two-tailed)	0,001
alpha	0,050

Kolmogorov-Smirnov test (BE | Recovery of development level):	
D	0,146
p-value	
(Two-tailed)	0,060
alpha	0,050

Kolmogorov-Smirnov test (BE | Growth trajectory retention (4 years)):	
D	0,095
p-value	
(Two-tailed)	0,443
alpha	0,050

Kolmogorov-Smirnov test (BE | Growth trajectory retention (8 years)):	
D	0,115
p-value	
(Two-tailed)	0,439
alpha	0,050

Shapiro-Wilk test (Recovery of development level | DE):	
W	0,947
p-value	
(Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4 years) | DE):	
W	0,962
p-value	
(Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Growth trajectory	
W	0,953
p-value	
(Two-tailed)	<0,0001
alpha	0,050

Kolmogorov-Smirnov test (DE | Recovery of development level):	
D	0,065
p-value	
(Two-tailed)	0,001
alpha	0,050

Kolmogorov-Smirnov test (DE | Growth trajectory retention (4 years)):	
D	0,065
p-value	
(Two-tailed)	0,001
alpha	0,050

Kolmogorov-Smirnov test (DE | Growth trajectory retention (8 years)):	
D	0,052
p-value	
(Two-tailed)	0,027
alpha	0,050

Shapiro-Wilk test (Recovery of development level | DK):	
W	0,966
p-value	
(Two-tailed)	0,672
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4 years) | DK):	
W	0,908
p-value	
(Two-tailed)	0,058
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8 years) | DK):	
W	0,758
p-value	
(Two-tailed)	0,002
alpha	0,050

Kolmogorov-Smirnov test (DK | Recovery of development level):	
D	0,107
p-value	
(Two-tailed)	0,956
alpha	0,050

Kolmogorov-Smirnov test (DK | Growth trajectory retention (4 years)):	
D	0,201
p-value	
(Two-tailed)	0,347
alpha	0,050

Kolmogorov-Smirnov test (DK | Growth trajectory retention (8 years)):	
D	0,348
p-value	
(Two-tailed)	0,051
alpha	0,050

Shapiro-Wilk test (Recovery of development level | EL):	
W	0,928
p-value	
(Two-tailed)	0,204
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4 years) | EL):	
W	0,963
p-value	
(Two-tailed)	0,688
alpha	0,050

Kolmogorov-Smirnov test (EL | Recovery of development level):	
D	0,166
p-value	
(Two-tailed)	0,677
alpha	0,050

Kolmogorov-Smirnov test (EL | Growth trajectory retention (4 years)):	
D	0,133
p-value	
(Two-tailed)	0,887
alpha	0,050

Shapiro-Wilk test (Recovery of development level | ES):	
W	0,912
p-value	
(Two-tailed)	0,000
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4 years) | ES):	
W	0,937
p-value	
(Two-tailed)	0,002
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8 years) | ES):	
W	0,941
p-value	
(Two-tailed)	0,003
alpha	0,050

Kolmogorov-Smirnov test (ES | Recovery of development level):	
D	0,105
p-value	
(Two-tailed)	0,391
alpha	0,050

Kolmogorov-Smirnov test (ES | Growth trajectory retention (4 years)):	
D	0,101
p-value	
(Two-tailed)	0,441
alpha	0,050

Kolmogorov-Smirnov test (ES | Growth trajectory retention (8 years)):	
D	0,118
p-value	
(Two-tailed)	0,289
alpha	0,050

Shapiro-Wilk test (Recovery of development level | FI):	
W	0,977
p-value	
(Two-tailed)	0,586
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4 years) | FI):	
W	0,966
p-value	
(Two-tailed)	0,276
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8 years) | FI):	
W	0,908
p-value	
(Two-tailed)	0,004
alpha	0,050

Kolmogorov-Smirnov test (FI | Recovery of development level):	
D	0,113
p-value	
(Two-tailed)	0,642
alpha	0,050

Kolmogorov-Smirnov test (FI | Growth trajectory retention (4 years)):	
D	0,095
p-value	
(Two-tailed)	0,829
alpha	0,050

Kolmogorov-Smirnov test (FI | Growth trajectory retention (8 years)):	
D	0,150
p-value	
(Two-tailed)	0,328
alpha	0,050

Shapiro-Wilk test (Recovery of development level | FR):	
W	0,979
p-value	
(Two-tailed)	0,002
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4 years) | FR):	
W	0,973
p-value	
(Two-tailed)	0,000
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8 years) | FR):	
W	0,985
p-value	
(Two-tailed)	0,094
alpha	0,050

Kolmogorov-Smirnov test (FR | Recovery of development level):	
D	0,065
p-value	
(Two-tailed)	0,282
alpha	0,050

Kolmogorov-Smirnov test (FR | Growth trajectory retention (4 years)):	
D	0,064
p-value	
(Two-tailed)	0,300
alpha	0,050

Kolmogorov-Smirnov test (FR | Growth trajectory retention (8 years)):	
D	0,058
p-value	
(Two-tailed)	0,647
alpha	0,050

Shapiro-Wilk test (Recovery of development level | IE):	
W	0,890
p-value	
(Two-tailed)	0,319
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4 years) | IE):	
W	0,885
p-value	
(Two-tailed)	0,293
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8 years) | IE):	
W	1
alpha	0,050

Kolmogorov-Smirnov test (IE | Recovery of development level):	
D	0,269
p-value	
(Two-tailed)	0,690
alpha	0,050

Kolmogorov-Smirnov test (IE | Growth trajectory retention (4 years)):	
D	0,228
p-value	
(Two-tailed)	0,852
alpha	0,050

Kolmogorov-Smirnov test (IE | Growth trajectory retention (8 years)):	
D	0,342
p-value	
(Two-tailed)	0,932
alpha	0,050

Shapiro-Wilk test (Recovery of development level | IT):	
W	0,889
p-value	
(Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4 years) | IT):	
W	0,908
p-value	
(Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8 years) | IT):	
W	0,955
p-value	
(Two-tailed)	0,000
alpha	0,050

Kolmogorov-Smirnov test (IT | Recovery of development level):	
D	0,109
p-value	
(Two-tailed)	0,031
alpha	0,050

Kolmogorov-Smirnov test (IT | Growth trajectory retention (4 years)):	
D	0,132
p-value	
(Two-tailed)	0,005
alpha	0,050

Kolmogorov-Smirnov test (IT | Growth trajectory retention (8 years)):	
D	0,084
p-value	
(Two-tailed)	0,299
alpha	0,050

Shapiro-Wilk test (Recovery of development level | LU):	
W	0,892
p-value	
(Two-tailed)	0,360
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4 years) | LU):	
W	0,998
p-value	
(Two-tailed)	0,923
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8 years) | LU):	
W	1
alpha	0,050

Kolmogorov-Smirnov test (LU | Recovery of development level):	
D	0,336
p-value	
(Two-tailed)	0,772
alpha	0,050

Kolmogorov-Smirnov test (LU | Growth trajectory retention (4 years)):	
D	0,238
p-value	
(Two-tailed)	0,982
alpha	0,050

Kolmogorov-Smirnov test (LU | Growth trajectory retention (8 years)):	
D	0,341
p-value	
(Two-tailed)	0,933
alpha	0,050

Shapiro-Wilk test (Recovery of development level | NL):	
W	0,954
p-value	
(Two-tailed)	0,012
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4 years) | NL):	
W	0,988
p-value	
(Two-tailed)	0,779
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8 years) | NL):	
W	0,882
p-value	
(Two-tailed)	0,000
alpha	0,050

Kolmogorov-Smirnov test (NL | Recovery of development level):	
D	0,098
p-value	
(Two-tailed)	0,488
alpha	0,050

Kolmogorov-Smirnov test (NL | Growth trajectory retention (4 years)):	
D	0,085
p-value	
(Two-tailed)	0,669
alpha	0,050

Kolmogorov-Smirnov test (NL | Growth trajectory retention (8 years)):	
D	0,158
p-value	
(Two-tailed)	0,190
alpha	0,050

Shapiro-Wilk test (Recovery of development level | PT):	
W	0,948
p-value	
(Two-tailed)	0,014
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4 years) | PT):	
W	0,772
p-value	
(Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8 years) | PT):	
W	0,843
p-value	
(Two-tailed)	<0,0001
alpha	0,050

Kolmogorov-Smirnov test (PT | Recovery of development level):	
D	0,107
p-value	
(Two-tailed)	0,486
alpha	0,050

Kolmogorov-Smirnov test (PT | Growth trajectory retention (4 years)):	
D	0,144
p-value	
(Two-tailed)	0,163
alpha	0,050

Kolmogorov-Smirnov test (PT | Growth trajectory retention (8 years)):	
D	0,174
p-value	
(Two-tailed)	0,096
alpha	0,050

Shapiro-Wilk test (Recovery of development level | SE):	
W	0,959
p-value	
(Two-tailed)	0,119
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4 years) | SE):	
W	0,947
p-value	
(Two-tailed)	0,043
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8 years) | SE):	
W	0,977
p-value	
(Two-tailed)	0,581
alpha	0,050

Kolmogorov-Smirnov test (SE | Recovery of development level):	
D	0,152
p-value	
(Two-tailed)	0,239
alpha	0,050

Kolmogorov-Smirnov test (SE | Growth trajectory retention (4 years)):	
D	0,104
p-value	
(Two-tailed)	0,692
alpha	0,050

Kolmogorov-Smirnov test (SE | Growth trajectory retention (8 years)):	
D	0,103
p-value	
(Two-tailed)	0,734
alpha	0,050

Shapiro-Wilk test (Recovery of development level | UK):	
W	0,990
p-value	
(Two-tailed)	0,015
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4 years) | UK):	
W	0,976
p-value	
(Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8 years) | UK):	
W	0,981
p-value	
(Two-tailed)	0,002
alpha	0,050

Kolmogorov-Smirnov test (UK | Recovery of development level):	
D	0,040
p-value	
(Two-tailed)	0,607
alpha	0,050

Kolmogorov-Smirnov test (UK | Growth trajectory retention (4 years)):	
D	0,070
p-value	
(Two-tailed)	0,062
alpha	0,050

Kolmogorov-Smirnov test (UK | Growth trajectory retention (8 years)):	
D	0,069
p-value	
(Two-tailed)	0,176
alpha	0,050

Analysis of RGVA-based resilience performance by country

Correlation matrix:

	AT	BE	DE	DK	EL	ES	FI	FR	IE	IT	LU	NL	PT	SE	UK	Growth trajectory retention (4 years)	Recovery of development level	Growth trajectory retention (8 years)
AT	**1**	0,804	0,643	0,874	0,878	0,813	0,847	0,712	0,895	0,737	0,900	0,815	0,826	0,842	-0,905	-0,017	0,103	-0,025
BE	0,804	**1**	0,633	0,867	0,871	0,806	0,840	0,705	0,888	0,730	0,893	0,808	0,819	0,835	-0,898	-0,016	0,117	-0,019
DE	0,643	0,633	**1**	0,732	0,738	0,646	0,695	0,482	0,760	0,527	0,767	0,649	0,666	0,688	-0,773	0,031	0,238	0,070
DK	0,874	0,867	0,732	**1**	0,941	0,876	0,910	0,777	0,958	0,801	0,963	0,878	0,889	0,905	-0,968	-0,027	0,121	-0,042
EL	0,878	0,871	0,738	0,941	**1**	0,880	0,915	0,782	0,963	0,805	0,968	0,882	0,894	0,910	-0,973	-0,025	0,069	
ES	0,813	0,806	0,646	0,876	0,880	**1**	0,849	0,714	0,897	0,739	0,902	0,817	0,828	0,844	-0,907	0,003	0,106	-0,028
FI	0,847	0,840	0,695	0,910	0,915	0,849	**1**	0,750	0,931	0,774	0,936	0,851	0,863	0,879	-0,941	-0,033	0,071	-0,053
FR	0,712	0,705	0,482	0,777	0,782	0,714	0,750	**1**	0,799	0,633	0,804	0,716	0,728	0,745	-0,809	-0,015	0,152	-0,025
IE	0,895	0,888	0,760	0,958	0,963	0,897	0,931	0,799	**1**	0,822	0,985	0,899	0,910	0,927	-0,990	-0,014	0,115	-0,052
IT	0,737	0,730	0,527	0,801	0,805	0,739	0,774	0,633	0,822	**1**	0,827	0,741	0,753	0,769	-0,832	-0,034	0,062	-0,051
LU	0,900	0,893	0,767	0,963	0,968	0,902	0,936	0,804	0,985	0,827	**1**	0,904	0,915	0,931	-0,995	-0,023	0,127	-0,040
NL	0,815	0,808	0,649	0,878	0,882	0,817	0,851	0,716	0,899	0,741	0,904	**1**	0,830	0,846	-0,909	-0,040	0,088	-0,104
PT	0,826	0,819	0,666	0,889	0,894	0,828	0,863	0,728	0,910	0,753	0,915	0,830	**1**	0,858	-0,920	-0,049	0,079	-0,109
SE	0,842	0,835	0,688	0,905	0,910	0,844	0,879	0,745	0,927	0,769	0,931	0,846	0,858	**1**	-0,936	-0,030	0,102	-0,026
UK	-0,905	-0,898	-0,773	-0,968	-0,973	-0,907	-0,941	-0,809	-0,990	-0,832	-0,995	-0,909	-0,920	-0,936	**1**	0,020	-0,130	0,036
Growth trajectory retention (4 years)	-0,017	-0,016	0,031	-0,027	-0,025	0,003	-0,033	-0,015	-0,014	-0,034	-0,023	-0,040	-0,049	-0,030	0,020	**1**	0,479	0,729
Recovery of development level	0,103	0,117	0,238	0,121	0,069	0,106	0,071	0,152	0,115	0,062	0,127	0,088	0,079	0,102	-0,130	0,479	**1**	0,443
Growth trajectory retention (8 years)	-0,025	-0,019	0,070	-0,042		-0,028	-0,053	-0,025	-0,052	-0,051	-0,040	-0,104	-0,109	-0,026	0,036	0,729	0,443	**1**

Analysis of RGVA-based resilience performance by country

ANOVA - Recovery of development level

Goodness of fit statistics (Recovery of development level):

Observations	2124
Sum of weigl	2124
DF	2109
R^2	0,167
Adjusted R^2	0,161
MSE	0,009
RMSE	0,094
MAPE	2147,097
DW	1,533
Cp	15,000
AIC	-10026,155
SBC	-9941,239
PC	0,845

Settings (for all ANOVA):
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Use least squares means: Yes

Analysis of variance (Recovery of development level):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	14	3,739	0,267	30,183	**<0,0001**
Error	2109	18,663	0,009		
Corrected					
Total	2123	22,402			

Computed against model Y=Mean(Y)

Model parameters (Recovery of development level):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,133	0,005	-24,518	**<0,0001**	-0,143	-0,122
AT	0,038	0,012	3,300	**0,001**	0,016	0,061
BE	0,057	0,011	5,133	**<0,0001**	0,035	0,079
DE	0,082	0,006	13,289	**<0,0001**	0,070	0,094
DK	0,035	0,020	1,727	0,084	-0,005	0,075
EL	-0,225	0,022	-10,287	**<0,0001**	-0,268	-0,182
ES	0,042	0,012	3,564	**0,000**	0,019	0,065
FI	-0,056	0,015	-3,787	**0,000**	-0,085	-0,027
FR	0,081	0,008	10,182	**<0,0001**	0,066	0,097
IE	-0,130	0,036	-3,600	**0,000**	-0,201	-0,059
IT	0,029	0,009	3,382	**0,001**	0,012	0,046
LU	-0,003	0,051	-0,066	0,947	-0,103	0,096
NL	0,017	0,012	1,452	0,147	-0,006	0,040
PT	-0,006	0,013	-0,473	0,637	-0,031	0,019
SE	0,018	0,014	1,276	0,202	-0,010	0,046
UK	0,021	0,007	3,003	**0,003**	0,007	0,036

ANOVA - Growth trajectory retention (4-year recovery period)

Goodness of fit statistics (Growth trajectory retention (4 years)):

Observations	2124
Sum of weigl	2124
DF	2109
R^2	0,022
Adjusted R^2	0,015
MSE	0,001
RMSE	0,025
MAPE	299,318
DW	1,436
Cp	15,000
AIC	-15672,279
SBC	-15587,363
PC	0,992

Analysis of variance (Growth trajectory retention (4 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	14	0,029	0,002	3,378	**<0,0001**
Error	2109	1,308	0,001		
Corrected					
Total	2123	1,337			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (4 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,012	0,001	-8,658	**<0,0001**	-0,015	-0,010
AT	0,003	0,003	1,055	0,291	-0,003	0,009
BE	0,003	0,003	1,084	0,278	-0,003	0,009
DE	0,005	0,002	2,889	**0,004**	0,002	0,008
DK	-0,005	0,005	-1,014	0,311	-0,016	0,005
EL	-0,003	0,006	-0,602	0,548	-0,015	0,008
ES	0,010	0,003	3,082	**0,002**	0,003	0,016
FI	-0,005	0,004	-1,224	0,221	-0,013	0,003
FR	0,003	0,002	1,387	0,165	-0,001	0,007
IE	0,021	0,010	2,244	**0,025**	0,003	0,040
IT	0,000	0,002	0,027	0,978	-0,004	0,005
LU	-0,019	0,013	-1,422	0,155	-0,046	0,007
NL	-0,004	0,003	-1,435	0,152	-0,011	0,002
PT	-0,009	0,003	-2,655	**0,008**	-0,016	-0,002
SE	-0,003	0,004	-0,774	0,439	-0,010	0,004
UK	0,004	0,002	2,154	**0,031**	0,000	0,008

ANOVA - Growth trajectory retention (8-year recovery period)

Goodness of fit statistics (Growth trajectory retention (8 years)):

Observations	1696
Sum of weigl	1696
DF	1682
R^2	0,100
Adjusted R^2	0,093
MSE	0,000
RMSE	0,019
MAPE	422,210
DW	1,325
Cp	14,000
AIC	-13428,441
SBC	-13352,337
PC	0,915

Analysis of variance (Growth trajectory retention (8 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	13	0,067	0,005	14,336	**<0,0001**
Error	1682	0,608	0,000		
Corrected					
Total	1695	0,675			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (8 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,020	0,001	-14,439	**<0,0001**	-0,023	-0,018
AT	0,011	0,003	3,765	**0,000**	0,005	0,017
BE	0,012	0,003	4,315	**<0,0001**	0,007	0,018
DE	0,012	0,002	7,724	**<0,0001**	0,009	0,015
DK	0,003	0,005	0,577	0,564	-0,007	0,013
EL	0,000	0,000				
ES	0,010	0,003	3,828	**0,000**	0,005	0,015
FI	0,001	0,003	0,403	0,687	-0,005	0,008
FR	0,009	0,002	4,676	**<0,0001**	0,005	0,013
IE	-0,059	0,013	-4,694	**<0,0001**	-0,084	-0,034
IT	0,006	0,002	2,998	**0,003**	0,002	0,010
LU	-0,014	0,013	-1,093	0,275	-0,038	0,011
NL	-0,012	0,003	-3,952	**<0,0001**	-0,018	-0,006
PT	-0,014	0,003	-4,695	**<0,0001**	-0,019	-0,008
SE	0,012	0,003	3,814	**0,000**	0,006	0,018
UK	0,011	0,002	6,258	**<0,0001**	0,008	0,014

Analysis of RGVA-based resilience performance by country

Kruskal-Wallis - Recovery of development level

Settings (for all K-W-tests):
Significance level (%): 5
p-value: Asymptotic p-value
Continuity correction: Yes

Kruskal-Wallis test / Two-tailed test (Recovery of development level):

K (Observed value)	300,091
K (Critical value)	23,685
DF	14
p-value (one-tailed)	< 0,0001
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups	
EL	17	1653,000	97,235	A	
IE	6	1781,000	296,833	A	B
LU	3	1543,000	514,333	A	B
PT	58	38504,000	663,862	A	B
FI	40	27296,000	682,400	A	B
SE	44	33981,000	772,295		B
NL	69	55816,000	808,928		B
UK	348	285321,000	819,888		B
DK	20	17330,000	866,500		B
AT	73	65128,000	892,164		B
IT	172	155964,000	906,767		B
ES	71	74469,000	1048,859		B
BE	80	88261,000	1103,263		B
DE	900	1126989,000	1252,210		
FR	223	282714,000	1267,776		

Groupings could not be properly performed because the significance of differences is not transitive in this particular case.

Pairwise comparisons (Recovery of development level):

Differences:

	AT	BE	DE	DK	EL	ES	FI	FR	IE	IT	LU	NL	PT	SE	UK
AT	0	-211,098	**-360,046**	25,664	**794,929**	-156,695	209,764	**-375,611**	595,331	-14,603	377,831	83,237	228,302	119,869	72,276
BE	211,098	0	-148,948	236,763	**1006,027**	54,403	**420,863**	-164,513	806,429	196,495	588,929	294,335	**439,400**	330,967	**283,375**
DE	**360,046**	148,948	0	385,710	**1154,975**	203,351	**569,810**	-15,566	**955,377**	**345,443**	737,877	**443,282**	**588,348**	**479,915**	**432,322**
DK	-25,664	-236,763	-385,710	0	**769,265**	-182,359	184,100	-401,276	569,667	-40,267	352,167	57,572	202,638	94,205	46,612
EL	**-794,929**	**-1006,027**	**-1154,975**	**-769,265**	0	**-951,624**	-585,165	**-1170,540**	-199,598	**-809,532**	-417,098	**-711,692**	-566,627	**-675,060**	**-722,653**
ES	156,695	-54,403	-203,351	182,359	**951,624**	0	366,459	-218,917	752,026	142,092	534,526	239,932	**384,997**	276,564	228,971
FI	-209,764	**-420,863**	**-569,810**	-184,100	585,165	-366,459	0	**-585,376**	385,567	-224,367	168,067	-126,528	18,538	-89,895	-137,488
FR	**375,611**	164,513	15,566	401,276	**1170,540**	218,917	**585,376**	0	**970,942**	**361,008**	753,442	**458,848**	**603,914**	**495,480**	**447,888**
IE	-595,331	-806,429	**-955,377**	-569,667	199,598	-752,026	-385,567	**-970,942**	0	-609,934	-217,500	-512,094	-367,029	-475,462	-523,055
IT	14,603	-196,495	**-345,443**	40,267	**809,532**	-142,092	224,367	**-361,008**	609,934	0	392,434	97,840	242,905	134,472	86,880
LU	-377,831	-588,929	-737,877	-352,167	417,098	-534,526	-168,067	-753,442	217,500	-392,434	0	-294,594	-149,529	-257,962	-305,555
NL	-83,237	-294,335	**-443,282**	-57,572	**711,692**	-239,932	126,528	**-458,848**	512,094	-97,840	294,594	0	145,065	36,632	-10,960
PT	-228,302	**-439,400**	**-588,348**	-202,638	566,627	**-384,997**	-18,538	**-603,914**	367,029	-242,905	149,529	-145,065	0	-108,433	-156,026
SE	-119,869	-330,967	**-479,915**	-94,205	**675,060**	-276,564	89,895	**-495,480**	475,462	-134,472	257,962	-36,632	108,433	0	-47,592
UK	-72,276	**-283,375**	**-432,322**	-46,612	**722,653**	-228,971	137,488	**-447,888**	523,055	-86,880	305,555	10,960	156,026	47,592	0

p-values:

	AT	BE	DE	DK	EL	ES	FI	FR	IE	IT	LU	NL	PT	SE	UK
AT	1	0,033	**<0,0001**	0,868	**<0,0001**	0,125	0,082	**<0,0001**	0,022	0,865	0,296	0,419	0,034	0,306	0,360
BE	0,033	1	0,037	0,123	**<0,0001**	0,586	**0,000**	0,040	0,002	0,018	0,102	0,003	**<0,0001**	0,004	**0,000**
DE	**<0,0001**	0,037	1	0,005	**<0,0001**	0,007	**<0,0001**	0,734	**0,000**	**<0,0001**	0,037	**<0,0001**	**<0,0001**	**<0,0001**	**<0,0001**
DK	0,868	0,123	0,005	1	**0,000**	0,240	0,273	0,005	0,046	0,781	0,354	0,712	0,203	0,569	0,741
EL	**<0,0001**	**<0,0001**	**<0,0001**	**0,000**	1	**<0,0001**	0,001	**<0,0001**	0,493	**<0,0001**	0,277	**<0,0001**	0,001	**0,000**	**<0,0001**
ES	0,125	0,586	0,007	0,240	**<0,0001**	1	0,003	0,009	0,004	0,100	0,139	0,021	**0,000**	0,019	0,004
FI	0,082	**0,000**	**<0,0001**	0,273	0,001	0,003	1	**<0,0001**	0,151	0,037	0,647	0,299	0,883	0,502	0,179
FR	**<0,0001**	0,040	0,734	0,005	**<0,0001**	0,009	**<0,0001**	1	**0,000**	**<0,0001**	0,035	**<0,0001**	**<0,0001**	**<0,0001**	**<0,0001**
IE	0,022	0,002	**0,000**	0,046	0,493	0,004	0,151	**0,000**	1	0,017	0,616	0,050	0,163	0,075	0,038
IT	0,865	0,018	**<0,0001**	0,781	**<0,0001**	0,100	0,037	**<0,0001**	0,017	1	0,272	0,263	0,009	0,194	0,129
LU	0,296	0,102	0,037	0,354	0,277	0,139	0,647	0,035	0,616	0,272	1	0,415	0,680	0,481	0,390
NL	0,419	0,003	**<0,0001**	0,712	**<0,0001**	0,021	0,299	**<0,0001**	0,050	0,263	0,415	1	0,184	0,757	0,892
PT	0,034	**<0,0001**	**<0,0001**	0,203	0,001	**0,000**	0,883	**<0,0001**	0,163	0,009	0,680	0,184	1	0,376	0,073
SE	0,306	0,004	**<0,0001**	0,569	**0,000**	0,019	0,502	**<0,0001**	0,075	0,194	0,481	0,757	0,376	1	0,628
UK	0,360	**0,000**	**<0,0001**	0,741	**<0,0001**	0,004	0,179	**<0,0001**	0,038	0,129	0,390	0,892	0,073	0,628	1

Bonferroni corrected significance level: 0,0005

Analysis of RGVA-based resilience performance by country

Kruskal-Wallis - Growth trajectory retention (4-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (4 years)):

K (Observed value)	53,978
K (Critical value)	23,685
DF	14
p-value (one-tailed)	< 0,0001
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
LU	3	1855,000	618,333	A
PT	58	41015,000	707,155	A
SE	44	36786,000	836,045	A
FI	40	34847,000	871,175	A
EL	17	15238,000	896,353	A
DK	20	17981,000	899,050	A
NL	69	63294,000	917,304	A
IT	172	172380,000	1002,209	A
BE	80	82243,000	1028,038	A
AT	73	76904,000	1053,479	A
FR	223	235078,000	1054,161	A
UK	348	377594,000	1085,040	A
DE	900	1005627,000	1117,363	A
IE	6	7425,000	1237,500	A
ES	71	88483,000	1246,239	A

Groupings could not be properly performed because the significance of differences is not transitive in this particular case.

Pairwise comparisons (Growth trajectory retention (4 years)):

Differences:

	AT	BE	DE	DK	EL	ES	FI	FR	IE	IT	LU	NL	PT	SE	UK
AT	0	25,442	-63,884	154,429	157,127	-192,760	182,304	-0,682	-184,021	51,270	435,146	136,175	346,324	217,434	-31,561
BE	-25,442	0	-89,326	128,988	131,685	-218,202	156,863	-26,124	-209,463	25,828	409,704	110,733	320,882	191,992	-57,003
DE	63,884	89,326	0	218,313	221,010	-128,876	246,188	63,202	-120,137	115,154	499,030	200,059	**410,208**	281,318	32,323
DK	-154,429	-128,988	-218,313	0	2,697	-347,189	27,875	-155,111	-338,450	-103,159	280,717	-18,254	191,895	63,005	-185,990
EL	-157,127	-131,685	-221,010	-2,697	0	-349,886	25,178	-157,808	-341,147	-105,856	278,020	-20,951	189,198	60,307	-188,687
ES	192,760	218,202	128,876	347,189	349,886	0	375,064	192,078	8,739	244,030	627,906	328,935	**539,084**	410,194	161,199
FI	-182,304	-156,863	-246,188	-27,875	-25,178	-375,064	0	-182,986	-366,325	-131,034	252,842	-46,129	164,020	35,130	-213,865
FR	0,682	26,124	-63,202	155,111	157,808	-192,078	182,986	0	-183,339	51,952	435,828	136,857	**347,006**	218,116	-30,879
IE	184,021	209,463	120,137	338,450	341,147	-8,739	366,325	183,339	0	235,291	619,167	320,196	530,345	401,455	152,460
IT	-51,270	-25,828	-115,154	103,159	105,856	-244,030	131,034	-51,952	-235,291	0	383,876	84,905	295,054	166,164	-82,831
LU	-435,146	-409,704	-499,030	-280,717	-278,020	-627,906	-252,842	-435,828	-619,167	-383,876	0	-298,971	-88,822	-217,712	-466,707
NL	-136,175	-110,733	-200,059	18,254	20,951	-328,935	46,129	-136,857	-320,196	-84,905	298,971	0	210,149	81,259	-167,736
PT	-346,324	-320,882	**-410,208**	-191,895	-189,198	**-539,084**	-164,020	**-347,006**	-530,345	-295,054	88,822	-210,149	0	-128,890	**-377,885**
SE	-217,434	-191,992	-281,318	-63,005	-60,307	-410,194	-35,130	-218,116	-401,455	-166,164	217,712	-81,259	128,890	0	-248,995
UK	31,561	57,003	-32,323	185,990	188,687	-161,199	213,865	30,879	-152,460	82,831	466,707	167,736	**377,885**	248,995	0

p-values:

	AT	BE	DE	DK	EL	ES	FI	FR	IE	IT	LU	NL	PT	SE	UK
AT	1	0,798	0,392	0,318	0,341	0,059	0,131	0,993	0,480	0,550	0,228	0,186	0,001	0,063	0,689
BE	0,798	1	0,212	0,400	0,421	0,029	0,187	0,744	0,420	0,756	0,256	0,272	0,002	0,095	0,453
DE	0,392	0,212	1	0,115	0,141	0,088	0,013	0,168	0,632	0,024	0,159	0,009	**<0,0001**	0,003	0,404
DK	0,318	0,400	0,115	1	0,989	0,025	0,868	0,279	0,236	0,476	0,460	0,907	0,228	0,703	0,187
EL	0,341	0,421	0,141	0,989	1	0,035	0,887	0,306	0,241	0,497	0,469	0,900	0,263	0,731	0,215
ES	0,059	0,029	0,088	0,025	0,035	1	0,002	0,022	0,973	0,005	0,082	0,002	**<0,0001**	0,000	0,044
FI	0,131	0,187	0,013	0,868	0,887	0,002	1	0,082	0,172	0,224	0,491	0,705	0,193	0,793	0,037
FR	0,993	0,744	0,168	0,279	0,306	0,022	0,082	1	0,470	0,404	0,221	0,105	**0,000**	0,031	0,557
IE	0,480	0,420	0,632	0,236	0,241	0,973	0,172	0,470	1	0,356	0,153	0,220	0,044	0,133	0,546
IT	0,550	0,756	0,024	0,476	0,497	0,005	0,224	0,404	0,356	1	0,282	0,331	0,002	0,109	0,147
LU	0,228	0,256	0,159	0,460	0,469	0,082	0,491	0,221	0,153	0,282	1	0,408	0,807	0,552	0,189
NL	0,186	0,272	0,009	0,907	0,900	0,002	0,705	0,105	0,220	0,331	0,408	1	0,054	0,492	0,038
PT	0,001	0,002	**<0,0001**	0,228	0,263	**<0,0001**	0,193	**0,000**	0,044	0,002	0,807	0,054	1	0,293	**<0,0001**
SE	0,063	0,095	0,003	0,703	0,731	0,000	0,793	0,031	0,133	0,109	0,552	0,492	0,293	1	0,011
UK	0,689	0,453	0,404	0,187	0,215	0,044	0,037	0,557	0,546	0,147	0,189	0,038	**<0,0001**	0,011	1

Bonferroni corrected significance level: 0,0005

Analysis of RGVA-based resilience performance by country

Kruskal-Wallis - Growth trajectory retention (8-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (8 years)):

K (Observed value)	144,360
K (Critical value)	22,362
DF	13
p-value (one-tailed)	< 0,0001
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
EL	0			
IE	2	36,000	18,000	
LU	2	442,000	221,000	
PT	48	16610,000	346,042	
NL	45	16052,000	356,711	
FI	38	22013,000	579,289	
DK	14	8631,000	616,500	
IT	130	98361,000	756,623	
FR	156	130585,000	837,083	
AT	49	42281,000	862,878	
SE	41	36738,000	896,049	
UK	249	223572,000	897,880	
ES	67	60721,000	906,284	
DE	801	732487,000	914,466	
BE	54	50527,000	935,685	

Groupings could not be properly performed because the significance of differences is not transitive in this particular case.

Pairwise comparisons (Growth trajectory retention (8 years)):

Differences:

	AT	BE	DE	DK	EL	ES	FI	FR	IE	IT	LU	NL	PT	SE	UK
AT	0	-72,808	-51,588	246,378		-43,406	283,588	25,794	844,878	106,254	641,878	**506,166**	**516,836**	-33,171	-35,002
BE	72,808	0	21,220	319,185		29,402	356,396	98,602	917,685	179,062	714,685	**578,974**	**589,644**	39,636	37,806
DE	51,588	-21,220	0	297,966		8,182	**335,176**	77,382	896,466	157,843	693,466	**557,755**	**568,424**	18,417	16,586
DK	-246,378	-319,185	-297,966	0		-289,784	37,211	-220,583	598,500	-140,123	395,500	259,789	270,458	-279,549	-281,380
EL															
ES	43,406	-29,402	-8,182	289,784		0	326,994	69,200	888,284	149,661	685,284	**549,572**	**560,242**	10,235	8,404
FI	-283,588	-356,396	**-335,176**	-37,211		-326,994	0	-257,794	561,289	-177,334	358,289	222,578	233,248	-316,759	**-318,590**
FR	-25,794	-98,602	-77,382	220,583		-69,200	257,794	0	819,083	80,460	616,083	**480,372**	**491,042**	-58,965	-60,796
IE	-844,878	-917,685	-896,466	-598,500		-888,284	-561,289	-819,083	0	-738,623	-203,000	-338,711	-328,042	-878,049	-879,880
IT	-106,254	-179,062	-157,843	140,123		-149,661	177,334	-80,460	738,623	0	535,623	**399,912**	**410,581**	-139,426	-141,256
LU	-641,878	-714,685	-693,466	-395,500		-685,284	-358,289	-616,083	203,000	-535,623	0	-135,711	-125,042	-675,049	-676,880
NL	**-506,166**	**-578,974**	**-557,755**	-259,789		**-549,572**	-222,578	**-480,372**	338,711	**-399,912**	135,711	0	10,669	**-539,338**	**-541,168**
PT	**-516,836**	**-589,644**	**-568,424**	-270,458		**-560,242**	-233,248	**-491,042**	328,042	**-410,581**	125,042	-10,669	0	**-550,007**	**-551,838**
SE	33,171	-39,636	-18,417	279,549		-10,235	316,759	58,965	878,049	139,426	675,049	**539,338**	**550,007**	0	-1,831
UK	35,002	-37,806	-16,586	281,380		-8,404	**318,590**	60,796	879,880	141,256	676,880	**541,168**	**551,838**	1,831	0

p-values:

	AT	BE	DE	DK	EL	ES	FI	FR	IE	IT	LU	NL	PT	SE	UK
AT	1	0,451	0,474	0,097		0,637	0,007	0,748	0,017	0,196	0,069	**<0,0001**	**<0,0001**	0,749	0,647
BE	0,451	1	0,758	0,030		0,743	0,001	0,202	0,009	0,024	0,043	**<0,0001**	**<0,0001**	0,696	0,607
DE	0,474	0,758	1	0,024		0,895	**<0,0001**	0,071	0,010	0,001	0,045	**<0,0001**	**<0,0001**	0,814	0,641
DK	0,097	0,030	0,024	1		0,044	0,808	0,106	0,106	0,309	0,285	0,083	0,069	0,065	0,036
EL															
ES	0,637	0,743	0,895	0,044		1	0,001	0,333	0,011	0,042	0,051	**<0,0001**	**<0,0001**	0,916	0,901
FI	0,007	0,001	**<0,0001**	0,808		0,001	1	0,004	0,114	0,050	0,313	0,039	0,028	0,004	**0,000**
FR	0,748	0,202	0,071	0,106		0,333	0,004	1	0,019	0,167	0,077	**<0,0001**	**<0,0001**	0,493	0,224
IE	0,017	0,009	0,010	0,106		0,011	0,114	0,019	1	0,034	0,679	0,339	0,353	0,013	0,011
IT	0,196	0,024	0,001	0,309		0,042	0,050	0,167	0,034	1	0,125	**<0,0001**	**<0,0001**	0,112	0,008
LU	0,069	0,043	0,045	0,285		0,051	0,313	0,077	0,679	0,125	1	0,701	0,723	0,057	0,052
NL	**<0,0001**	**<0,0001**	**<0,0001**	0,083		**<0,0001**	0,039	**<0,0001**	0,339	**<0,0001**	0,701	1	0,916	**<0,0001**	**<0,0001**
PT	**<0,0001**	**<0,0001**	**<0,0001**	0,069		**<0,0001**	0,028	**<0,0001**	0,353	**<0,0001**	0,723	0,916	1	**<0,0001**	**<0,0001**
SE	0,749	0,696	0,814	0,065		0,916	0,004	0,493	0,013	0,112	0,057	**<0,0001**	**<0,0001**	1	0,982
UK	0,647	0,607	0,641	0,036		0,901	**0,000**	0,224	0,011	0,008	0,052	**<0,0001**	**<0,0001**	0,982	1

Bonferroni corrected significance level: 0,0005

Analysis of Employment-based resilience performance by country

Normality tests:

Shapiro-Wilk test (Recovery of development level | AT):	
W	0,985
p-value (Two-tailed)	0,996
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4 years) | AT):	
W	0,952
p-value (Two-tailed)	0,674
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8 years) | AT):	
W	0,949
p-value (Two-tailed)	0,660
alpha	0,050

Kolmogorov-Smirnov test (AT | Recovery of development level):	
D	0,113
p-value (Two-tailed)	0,993
alpha	0,050

Kolmogorov-Smirnov test (AT | Growth trajectory retention (4 years)):	
D	0,172
p-value (Two-tailed)	0,811
alpha	0,050

Kolmogorov-Smirnov test (AT | Growth trajectory retention (8 years)):	
D	0,254
p-value (Two-tailed)	0,463
alpha	0,050

Shapiro-Wilk test (Recovery of development level | BE):	
W	0,971
p-value (Two-tailed)	0,905
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4 years) | BE):	
W	0,952
p-value (Two-tailed)	0,746
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8 years) | BE):	
W	0,903
p-value (Two-tailed)	0,352
alpha	0,050

Kolmogorov-Smirnov test (BE | Recovery of development level):	
D	0,201
p-value (Two-tailed)	0,893
alpha	0,050

Kolmogorov-Smirnov test (BE | Growth trajectory retention (4 years)):	
D	0,198
p-value (Two-tailed)	0,899
alpha	0,050

Kolmogorov-Smirnov test (BE | Growth trajectory retention (8 years)):	
D	0,185
p-value (Two-tailed)	0,936
alpha	0,050

Shapiro-Wilk test (Recovery of development level | DE):	
W	0,987
p-value (Two-tailed)	0,002
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4 years) | DE):	
W	0,996
p-value (Two-tailed)	0,447
alpha	0,050

Shapiro-Wilk test (Growth trajectory	
W	0,989
p-value (Two-tailed)	0,005
alpha	0,050

Kolmogorov-Smirnov test (DE | Recovery of development level):	
D	0,051
p-value (Two-tailed)	0,254
alpha	0,050

Kolmogorov-Smirnov test (DE | Growth trajectory retention (4 years)):	
D	0,036
p-value (Two-tailed)	0,683
alpha	0,050

Kolmogorov-Smirnov test (DE | Growth trajectory retention (8 years)):	
D	0,044
p-value (Two-tailed)	0,453
alpha	0,050

Shapiro-Wilk test (Recovery of development level | DK):	
W	0,974
p-value (Two-tailed)	0,942
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4 years) | DK):	
W	0,910
p-value (Two-tailed)	0,181
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8 years) | DK):	
W	0,824
p-value (Two-tailed)	0,174
alpha	0,050

Kolmogorov-Smirnov test (DK | Recovery of development level):	
D	0,151
p-value (Two-tailed)	0,886
alpha	0,050

Kolmogorov-Smirnov test (DK | Growth trajectory retention (4 years)):	
D	0,163
p-value (Two-tailed)	0,826
alpha	0,050

Kolmogorov-Smirnov test (DK | Growth trajectory retention (8 years)):	
D	0,398
p-value (Two-tailed)	0,602
alpha	0,050

Shapiro-Wilk test (Recovery of development level | EL):	
W	0,858
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4 years) | EL):	
W	0,734
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8 years) | EL):	
W	0,801
p-value (Two	<0,0001
alpha	0,050

Kolmogorov-Smirnov test (EL | Recovery of development level):	
D	0,239
p-value (Two-tailed)	<0,0001
alpha	0,050

Kolmogorov-Smirnov test (EL | Growth trajectory retention (4 years)):	
D	0,241
p-value (Two-tailed)	<0,0001
alpha	0,050

Kolmogorov-Smirnov test (EL | Growth trajectory retention (8 years)):	
D	0,232
p-value (Two-tailed)	0,000
alpha	0,050

Shapiro-Wilk test (Recovery of development level | ES):	
W	0,977
p-value (Two-tailed)	0,156
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4 years) | ES):	
W	0,964
p-value (Two-tailed)	0,025
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8 years) | ES):	
W	0,927
p-value (Two-tailed)	0,000
alpha	0,050

Kolmogorov-Smirnov test (ES | Recovery of development level):	
D	0,061
p-value (Two-tailed)	0,910
alpha	0,050

Kolmogorov-Smirnov test (ES | Growth trajectory retention (4 years)):	
D	0,076
p-value (Two-tailed)	0,718
alpha	0,050

Kolmogorov-Smirnov test (ES | Growth trajectory retention (8 years)):	
D	0,137
p-value (Two-tailed)	0,113
alpha	0,050

Shapiro-Wilk test (Recovery of development level | FI):	
W	0,960
p-value (Two-tailed)	0,205
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4 years) | FI):	
W	0,924
p-value (Two-tailed)	0,015
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8 years) | FI):	
W	0,859
p-value (Two-tailed)	0,003
alpha	0,050

Kolmogorov-Smirnov test (FI | Recovery of development level):	
D	0,061
p-value (Two-tailed)	0,910
alpha	0,050

Kolmogorov-Smirnov test (FI | Growth trajectory retention (4 years)):	
D	0,076
p-value (Two-tailed)	0,718
alpha	0,050

Kolmogorov-Smirnov test (FI | Growth trajectory retention (8 years)):	
D	0,221
p-value (Two-tailed)	0,163
alpha	0,050

Shapiro-Wilk test (Recovery of development level | FR):	
W	0,979
p-value (Two-tailed)	0,861
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4 years) | FR):	
W	0,849
p-value (Two-tailed)	0,001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8 years) | FR):	
W	0,836
p-value (Two-tailed)	0,001
alpha	0,050

Kolmogorov-Smirnov test (FR | Recovery of development level):	
D	0,106
p-value (Two-tailed)	0,901
alpha	0,050

Kolmogorov-Smirnov test (FR | Growth trajectory retention (4 years)):	
D	0,214
p-value (Two-tailed)	0,160
alpha	0,050

Kolmogorov-Smirnov test (FR | Growth trajectory retention (8 years)):	
D	0,165
p-value (Two-tailed)	0,455
alpha	0,050

Shapiro-Wilk test (Recovery of development level | IE):	
W	0,947
p-value (Two-tailed)	0,437
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4 years) | IE):	
W	0,945
p-value (Two-tailed)	0,408
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8 years) | IE):	
W	0,791
p-value (Two-tailed)	0,007
alpha	0,050

Kolmogorov-Smirnov test (IE | Recovery of development level):	
D	0,136
p-value (Two-tailed)	0,891
alpha	0,050

Kolmogorov-Smirnov test (IE | Growth trajectory retention (4 years)):	
D	0,187
p-value (Two-tailed)	0,565
alpha	0,050

Kolmogorov-Smirnov test (IE | Growth trajectory retention (8 years)):	
D	0,232
p-value (Two-tailed)	0,468
alpha	0,050

Shapiro-Wilk test (Recovery of development level | IT):	
W	0,922
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4 years) | IT):	
W	0,993
p-value (Two-tailed)	0,526
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8 years) | IT):	
W	0,984
p-value (Two-tailed)	0,139
alpha	0,050

Kolmogorov-Smirnov test (IT | Recovery of development level):	
D	0,118
p-value (Two-tailed)	0,007
alpha	0,050

Kolmogorov-Smirnov test (IT | Growth trajectory retention (4 years)):	
D	0,040
p-value (Two-tailed)	0,888
alpha	0,050

Kolmogorov-Smirnov test (IT | Growth trajectory retention (8 years)):	
D	0,074
p-value (Two-tailed)	0,467
alpha	0,050

Shapiro-Wilk test (Recovery of development level | LU):	
W	1
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4 years) | LU):	
W	1
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8 years) | LU):	
W	1
alpha	0,050

Kolmogorov-Smirnov test (LU | Recovery of development level):	
D	0,341
p-value (Two-tailed)	0,933
alpha	0,050

Kolmogorov-Smirnov test (LU | Growth trajectory retention (4 years)):	
D	0,341
p-value (Two-tailed)	0,933
alpha	0,050

Shapiro-Wilk test (Recovery of development level | NL):	
W	0,956
p-value (Two-tailed)	0,126
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4 years) | NL):	
W	0,993
p-value (Two-tailed)	0,998
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8 years) | NL):	
W	0,977
p-value (Two-tailed)	0,568
alpha	0,050

Kolmogorov-Smirnov test (NL | Recovery of development level):	
D	0,073
p-value (Two-tailed)	0,974
alpha	0,050

Kolmogorov-Smirnov test (NL | Growth trajectory retention (4 years)):	
D	0,076
p-value (Two-tailed)	0,961
alpha	0,050

Kolmogorov-Smirnov test (NL | Growth trajectory retention (8 years)):	
D	0,083
p-value (Two-tailed)	0,926
alpha	0,050

Shapiro-Wilk test (Recovery of development level | PT):	
W	0,941
p-value (Two-tailed)	0,007
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4 years) | PT):	
W	0,957
p-value (Two-tailed)	0,038
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8 years) | PT):	
W	0,902
p-value (Two-tailed)	0,002
alpha	0,050

Kolmogorov-Smirnov test (PT | Recovery of development level):	
D	0,134
p-value (Two-tailed)	0,222
alpha	0,050

Kolmogorov-Smirnov test (PT | Growth trajectory retention (4 years)):	
D	0,111
p-value (Two-tailed)	0,426
alpha	0,050

Kolmogorov-Smirnov test (PT | Growth trajectory retention (8 years)):	
D	0,175
p-value (Two-tailed)	0,144
alpha	0,050

Shapiro-Wilk test (Recovery of development level | SE):	
W	0,877
p-value (Two-tailed)	0,001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4 years) | SE):	
W	0,978
p-value (Two-tailed)	0,640
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8 years) | SE):	
W	0,965
p-value (Two-tailed)	0,382
alpha	0,050

Kolmogorov-Smirnov test (SE | Recovery of development level):	
D	0,196
p-value (Two-tailed)	0,093
alpha	0,050

Kolmogorov-Smirnov test (SE | Growth trajectory retention (4 years)):	
D	0,077
p-value (Two-tailed)	0,966
alpha	0,050

Kolmogorov-Smirnov test (SE | Growth trajectory retention (8 years)):	
D	0,105
p-value (Two-tailed)	0,840
alpha	0,050

Shapiro-Wilk test (Recovery of development level | UK):	
W	0,851
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (4 years) | UK):	
W	0,879
p-value (Two-tailed)	<0,0001
alpha	0,050

Shapiro-Wilk test (Growth trajectory retention (8 years) | UK):	
W	0,994
p-value (Two-tailed)	0,492
alpha	0,050

Kolmogorov-Smirnov test (UK | Recovery of development level):	
D	0,069
p-value (Two-tailed)	0,100
alpha	0,050

Kolmogorov-Smirnov test (UK | Growth trajectory retention (4 years)):	
D	0,098
p-value (Two-tailed)	0,004
alpha	0,050

Kolmogorov-Smirnov test (UK | Growth trajectory retention (8 years)):	
D	0,041
p-value (Two-tailed)	0,849
alpha	0,050

Analysis of Employment-based resilience performance by country

Correlation matrix:

	AT	BE	DE	DK	EL	ES	FI	FR	IE	IT	LU	NL	PT	SE	UK	Growth trajectory retention (4 years)	Recovery of development level	Growth trajectory retention (8 years)
AT	**1**	0,962	0,780	0,951	0,854	0,865	0,913	0,930	0,946	0,799	0,972	0,909	0,886	0,912	-0,977	0,034	0,054	-0,018
BE	0,962	**1**	0,792	0,961	0,864	0,875	0,923	0,939	0,955	0,810	0,982	0,919	0,896	0,921	-0,986	0,034	0,049	-0,022
DE	0,780	0,792	**1**	0,778	0,641	0,658	0,728	0,749	0,771	0,539	0,805	0,722	0,689	0,726	-0,810	-0,039	-0,002	-0,145
DK	0,951	0,961	0,778	**1**	0,852	0,863	0,912	0,928	0,944	0,797	0,971	0,907	0,884	0,910	-0,975	0,040	0,046	-0,018
EL	0,854	0,864	0,641	0,852	**1**	0,760	0,812	0,829	0,847	0,682	0,874	0,808	0,783	0,811	-0,878	0,045	0,099	-0,022
ES	0,865	0,875	0,658	0,863	0,760	**1**	0,824	0,841	0,858	0,696	0,885	0,820	0,795	0,822	-0,889	0,108	0,063	0,047
FI	0,913	0,923	0,728	0,912	0,812	0,824	**1**	0,890	0,906	0,754	0,933	0,869	0,845	0,872	-0,937	0,043	0,040	0,021
FR	0,930	0,939	0,749	0,928	0,829	0,841	0,890	**1**	0,922	0,773	0,949	0,885	0,862	0,888	-0,953	0,031	0,071	-0,001
IE	0,946	0,955	0,771	0,944	0,847	0,858	0,906	0,922	**1**	0,791	0,965	0,902	0,879	0,905	-0,969	0,016	0,033	-0,052
IT	0,799	0,810	0,539	0,797	0,682	0,696	0,754	0,773	0,791	**1**	0,821	0,750	0,722	0,753	-0,825	0,048	0,032	0,075
LU	0,972	0,982	0,805	0,971	0,874	0,885	0,933	0,949	0,965	0,821	**1**	0,929	0,906	0,931	-0,996	0,033	0,047	-0,026
NL	0,909	0,919	0,722	0,907	0,808	0,820	0,869	0,885	0,902	0,750	0,929	**1**	0,841	0,868	-0,933	-0,015	0,023	-0,079
PT	0,886	0,896	0,689	0,884	0,783	0,795	0,845	0,862	0,879	0,722	0,906	0,841	**1**	0,844	-0,910	0,039	0,016	-0,030
SE	0,912	0,921	0,726	0,910	0,811	0,822	0,872	0,888	0,905	0,753	0,931	0,868	0,844	**1**	-0,936	0,049	0,044	0,014
UK	-0,977	-0,986	-0,810	-0,975	-0,878	-0,889	-0,937	-0,953	-0,969	-0,825	-0,996	-0,933	-0,910	-0,936	**1**	-0,034	-0,046	0,024
Growth trajectory retention (4 years)	0,034	0,034	-0,039	0,040	0,045	0,108	0,043	0,031	0,016	0,048	0,033	-0,015	0,039	0,049	-0,034	**1**	0,528	0,760
Recovery of development level	0,054	0,049	-0,002	0,046	0,099	0,063	0,040	0,071	0,033	0,032	0,047	0,023	0,016	0,044	-0,046	0,528	**1**	0,524
Growth trajectory retention (8 years)	-0,018	-0,022	-0,145	-0,018	-0,022	0,047	0,021	-0,001	-0,052	0,075	-0,026	-0,079	-0,030	0,014	0,024	0,760	0,524	**1**

Analysis of Employment-based resilience performance by country

ANOVA - Recovery of development level

Goodness of fit statistics (Recovery of development level):

Observations	1323
Sum of weigl	1323
DF	1308
R²	0,039
Adjusted R²	0,029
MSE	0,010
RMSE	0,098
MAPE	401,085
DW	1,238
Cp	15,000
AIC	-6117,959
SBC	-6040,144
PC	0,983

Settings (for all ANOVA):
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Use least squares means: Yes

Analysis of variance (Recovery of development level):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	14	0,519	0,037	3,824	**<0,0001**
Error	1308	12,688	0,010		
Corrected Total	1322	13,208			

Computed against model Y=Mean(Y)

Model parameters (Recovery of development level):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,099	0,007	-14,771	**<0,0001**	-0,112	-0,085
AT	0,038	0,027	1,391	0,165	-0,016	0,092
BE	0,025	0,035	0,701	0,484	-0,045	0,094
DE	-0,016	0,008	-2,022	**0,043**	-0,032	0,000
DK	-0,003	0,026	-0,100	0,921	-0,054	0,049
EL	0,037	0,012	3,176	**0,002**	0,014	0,060
ES	0,012	0,012	0,977	0,329	-0,012	0,036
FI	-0,012	0,016	-0,742	0,458	-0,045	0,020
FR	0,055	0,019	2,886	**0,004**	0,018	0,093
IE	-0,048	0,024	-2,015	**0,044**	-0,095	-0,001
IT	-0,009	0,009	-0,965	0,335	-0,027	0,009
LU	0,018	0,065	0,279	0,781	-0,110	0,146
NL	-0,038	0,016	-2,368	**0,018**	-0,069	-0,006
PT	-0,036	0,014	-2,598	**0,009**	-0,062	-0,009
SE	-0,006	0,016	-0,354	0,723	-0,038	0,026
UK	-0,018	0,008	-2,077	**0,038**	-0,034	-0,001

ANOVA - Growth trajectory retention (4-year recovery period)

Goodness of fit statistics (Growth trajectory retention (4 years)):

Observations	1323
Sum of weigl	1323
DF	1308
R²	0,063
Adjusted R²	0,053
MSE	0,001
RMSE	0,023
MAPE	209,253
DW	1,337
Cp	15,000
AIC	-9929,788
SBC	-9851,973
PC	0,958

Analysis of variance (Growth trajectory retention (4 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	14	0,048	0,003	6,292	**<0,0001**
Error	1308	0,711	0,001		
Corrected Total	1322	0,759			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (4 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,005	0,002	-3,217	**0,001**	-0,008	-0,002
AT	0,001	0,006	0,224	0,823	-0,011	0,014
BE	0,001	0,008	0,077	0,938	-0,016	0,017
DE	-0,003	0,002	-1,790	0,074	-0,007	0,000
DK	0,007	0,006	1,180	0,238	-0,005	0,020
EL	0,003	0,003	1,128	0,259	-0,002	0,009
ES	0,016	0,003	5,654	**<0,0001**	0,011	0,022
FI	0,005	0,004	1,222	0,222	-0,003	0,012
FR	-0,001	0,005	-0,147	0,883	-0,010	0,008
IE	-0,015	0,006	-2,632	**0,009**	-0,026	-0,004
IT	0,002	0,002	1,114	0,266	-0,002	0,007
LU	-0,008	0,015	-0,521	0,603	-0,038	0,022
NL	-0,017	0,004	-4,513	**<0,0001**	-0,024	-0,010
PT	0,002	0,003	0,747	0,455	-0,004	0,009
SE	0,007	0,004	1,804	0,071	-0,001	0,015
UK	-0,001	0,002	-0,723	0,470	-0,005	0,002

ANOVA - Growth trajectory retention (8-year recovery period)

Goodness of fit statistics (Growth trajectory retention (8 years)):

Observations	1061
Sum of weigl	1061
DF	1046
R²	0,140
Adjusted R²	0,128
MSE	0,000
RMSE	0,018
MAPE	577,773
DW	1,152
Cp	15,000
AIC	-8502,856
SBC	-8428,352
PC	0,885

Analysis of variance (Growth trajectory retention (8 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	14	0,055	0,004	12,152	**<0,0001**
Error	1046	0,341	0,000		
Corrected Total	1060	0,397			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (8 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,007	0,002	-4,139	**<0,0001**	-0,010	-0,004
AT	0,004	0,006	0,754	0,451	-0,007	0,015
BE	0,002	0,007	0,239	0,811	-0,011	0,014
DE	-0,006	0,002	-3,378	**0,001**	-0,010	-0,003
DK	0,008	0,010	0,770	0,441	-0,012	0,027
EL	-0,001	0,003	-0,431	0,666	-0,006	0,004
ES	0,009	0,003	3,687	**0,000**	0,004	0,014
FI	0,015	0,004	3,897	**0,000**	0,007	0,022
FR	0,008	0,004	2,096	**0,036**	0,001	0,015
IE	-0,022	0,005	-4,290	**<0,0001**	-0,032	-0,012
IT	0,008	0,002	3,391	**0,001**	0,003	0,012
LU	-0,015	0,017	-0,873	0,383	-0,048	0,018
NL	-0,016	0,003	-5,225	**<0,0001**	-0,022	-0,010
PT	-0,003	0,003	-0,957	0,339	-0,009	0,003
SE	0,010	0,003	3,032	**0,002**	0,004	0,017
UK	0,000	0,002	0,068	0,946	-0,004	0,004

Analysis of Employment-based resilience performance by country

Kruskal-Wallis - Recovery of development level

Kruskal-Wallis test / Two-tailed test (Recovery of development level):

K (Observed value)	80,114
K (Critical value)	23,685
DF	14
p-value (one-tailed)	< 0,0001
alpha	0,05

An approximation has been used to compute the p-value.

Settings (for all K-W-tests):
Significance level (%): 5
p-value: Asymptotic p-value
Continuity correction: Yes

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups	
IE	16	7927,000	495,438	A	
NL	40	22533,000	563,325	A	
PT	59	35633,000	603,949	A	
UK	312	189114,000	606,135	A	
FI	37	22830,000	617,027	A	
DE	389	242959,000	624,573	A	
DK	13	8637,000	664,385	A	
SE	38	25540,000	672,105	A	
IT	199	135893,000	682,879	A	
ES	80	57761,000	722,013	A	B
LU	2	1557,000	778,500	A	B
BE	7	5729,000	818,429	A	B
AT	12	10373,000	864,417	A	B
EL	93	83701,000	900,011		B
FR	26	25639,000	986,115		

Groupings could not be properly performed because the significance of differences is not transitive in this particular case.

Pairwise comparisons (Recovery of development level):

Differences:

	AT	BE	DE	DK	EL	ES	FI	FR	IE	IT	LU	NL	PT	SE	UK
AT	0	45,988	239,843	200,032	-35,594	142,404	247,390	-121,699	368,979	181,537	85,917	301,092	260,468	192,311	258,282
BE	-45,988	0	193,855	154,044	-81,582	96,416	201,402	-167,687	322,991	135,549	39,929	255,104	214,479	146,323	212,294
DE	-239,843	-193,855	0	-39,811	**-275,437**	-97,439	7,546	**-361,542**	129,136	-58,306	-153,927	61,248	20,624	-47,532	18,439
DK	-200,032	-154,044	39,811	0	-235,626	-57,628	47,358	-321,731	168,947	-18,495	-114,115	101,060	60,435	-7,721	58,250
EL	35,594	81,582	**275,437**	235,626	0	177,998	**282,984**	-86,105	**404,573**	**217,131**	121,511	**336,686**	**296,062**	227,905	**293,876**
ES	-142,404	-96,416	97,439	57,628	-177,998	0	104,985	-264,103	226,575	39,133	-56,888	158,688	118,063	49,907	115,878
FI	-247,390	-201,402	-7,546	-47,358	**-282,984**	-104,985	0	**-369,088**	121,590	-65,852	-161,473	53,702	13,078	-55,078	10,892
FR	121,699	167,687	**361,542**	321,731	86,105	264,103	**369,088**	0	**490,678**	**303,236**	207,615	**422,790**	**382,166**	314,010	**379,981**
IE	-368,979	-322,991	-129,136	-168,947	**-404,573**	-226,575	-121,590	**-490,678**	0	-187,442	-283,063	-67,888	-108,512	-176,668	-110,697
IT	-181,537	-135,549	58,306	18,495	**-217,131**	-39,133	65,852	**-303,236**	187,442	0	-95,621	119,554	78,930	10,774	76,745
LU	-85,917	-39,929	153,927	114,115	-121,511	56,488	161,473	-207,615	283,063	95,621	0	215,175	174,551	106,395	172,365
NL	-301,092	-255,104	-61,248	-101,060	**-336,686**	-158,688	-53,702	**-422,790**	67,888	-119,554	-215,175	0	-40,624	-108,780	-42,810
PT	-260,468	-214,479	-20,624	-60,435	**-296,062**	-118,063	-13,078	**-382,166**	108,512	-78,930	-174,551	40,624	0	-68,156	-2,185
SE	-192,311	-146,323	47,532	7,721	-227,905	-49,907	55,078	-314,010	176,668	-10,774	-106,395	108,780	68,156	0	65,971
UK	-258,282	-212,294	-18,439	-58,250	**-293,876**	-115,878	-10,892	**-379,981**	110,697	-76,745	-172,365	42,810	2,185	-65,971	0

p-values:

	AT	BE	DE	DK	EL	ES	FI	FR	IE	IT	LU	NL	PT	SE	UK
AT	1	0,800	0,032	0,191	0,761	0,229	0,051	0,361	0,011	0,110	0,768	0,017	0,031	0,128	0,022
BE	0,800	1	0,183	0,390	0,586	0,522	0,201	0,303	0,062	0,356	0,896	0,103	0,160	0,352	0,146
DE	0,032	0,183	1	0,712	**<0,0001**	0,038	0,909	**<0,0001**	0,185	0,080	0,570	0,334	0,699	0,464	0,525
DK	0,191	0,390	0,712	1	0,037	0,614	0,701	0,013	0,236	0,866	0,694	0,407	0,606	0,950	0,590
EL	0,761	0,586	**<0,0001**	0,037	1	0,002	**0,000**	0,310	**<0,0001**	**<0,0001**	0,656	**<0,0001**	**<0,0001**	0,002	**<0,0001**
ES	0,229	0,522	0,038	0,614	0,002	1	0,167	0,002	0,030	0,439	0,836	0,032	0,072	0,507	0,016
FI	0,051	0,201	0,909	0,701	**0,000**	0,167	1	**0,000**	0,288	0,336	0,560	0,538	0,870	0,533	0,870
FR	0,361	0,303	**<0,0001**	0,013	0,310	0,002	**0,000**	1	**<0,0001**	**0,000**	0,459	**<0,0001**	**<0,0001**	0,001	**<0,0001**
IE	0,011	0,062	0,185	0,236	**<0,0001**	0,030	0,288	**<0,0001**	1	0,059	0,323	0,548	0,314	0,121	0,258
IT	0,110	0,356	0,080	0,866	**<0,0001**	0,439	0,336	**0,000**	0,059	1	0,725	0,071	0,163	0,873	0,027
LU	0,768	0,896	0,570	0,694	0,656	0,836	0,560	0,459	0,323	0,725	1	0,437	0,525	0,701	0,525
NL	0,017	0,103	0,334	0,407	**<0,0001**	0,032	0,538	**<0,0001**	0,548	0,071	0,437	1	0,604	0,209	0,505
PT	0,031	0,160	0,699	0,606	**<0,0001**	0,072	0,870	**<0,0001**	0,314	0,163	0,525	0,604	1	0,391	0,968
SE	0,128	0,352	0,464	0,950	0,002	0,507	0,533	0,001	0,121	0,873	0,701	0,209	0,391	1	0,315
UK	0,022	0,146	0,525	0,590	**<0,0001**	0,016	0,870	**<0,0001**	0,258	0,027	0,525	0,505	0,968	0,315	1

Bonferroni corrected significance level: 0,0005

Analysis of Employment-based resilience performance by country

Kruskal-Wallis - Growth trajectory retention (4-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (4 years)):

K (Observed value)	93,996
K (Critical value)	23,685
DF	14
p-value (one-tailed)	< 0,0001
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
NL	40	13556,000	338,900	A
LU	2	942,000	471,000	A
DE	389	226161,000	581,391	
IE	16	9432,000	589,500	
UK	312	202801,000	650,003	
AT	12	7906,000	658,833	
BE	7	4697,000	671,000	
FR	26	17551,000	675,038	
IT	199	140036,000	703,698	
PT	59	42888,000	726,915	
FI	37	27559,000	744,838	
EL	93	69552,000	747,871	
SE	38	31127,000	819,132	
DK	13	11011,000	847,000	
ES	80	70607,000	882,588	

Groupings could not be properly performed because the significance of differences is not transitive in this particular case.

Pairwise comparisons (Growth trajectory retention (4 years)):

Differences:

	AT	BE	DE	DK	EL	ES	FI	FR	IE	IT	LU	NL	PT	SE	UK
AT	0	-12,167	77,443	-188,167	-89,038	-223,754	-86,005	-16,205	69,333	-44,865	187,833	319,933	-68,082	-160,298	8,830
BE	12,167	0	89,609	-176,000	-76,871	-211,588	-73,838	-4,038	81,500	-32,698	200,000	332,100	-55,915	-148,132	20,997
DE	-77,443	-89,609	0	-265,609	**-166,480**	**-301,197**	-163,447	-93,648	-8,109	**-122,308**	110,391	**242,491**	-145,525	**-237,741**	-68,612
DK	188,167	176,000	265,609	0	99,129	-35,588	102,162	171,962	257,500	143,302	376,000	**508,100**	120,085	27,868	196,997
EL	89,038	76,871	**166,480**	-99,129	0	-134,717	3,033	72,833	158,371	44,172	276,871	**408,971**	20,956	-71,261	97,868
ES	223,754	211,588	**301,197**	35,588	134,717	0	137,750	207,549	293,088	**178,889**	411,588	**543,688**	155,672	63,456	**232,584**
FI	86,005	73,838	163,447	-102,162	-3,033	-137,750	0	69,799	155,338	41,139	273,838	**405,938**	17,923	-74,294	94,835
FR	16,205	4,038	93,648	-171,962	-72,833	-207,549	-69,799	0	85,538	-28,660	204,038	336,138	-51,877	-144,093	25,035
IE	-69,333	-81,500	8,109	-257,500	-158,371	-293,088	-155,338	-85,538	0	-114,198	118,500	250,600	-137,415	-229,632	-60,503
IT	44,865	32,698	**122,308**	-143,302	-44,172	**-178,889**	-41,139	28,660	114,198	0	232,698	**364,798**	-23,217	-115,433	53,695
LU	-187,833	-200,000	-110,391	-376,000	-276,871	-411,588	-273,838	-204,038	-118,500	-232,698	0	132,100	-255,915	-348,132	-179,003
NL	-319,933	-332,100	**-242,491**	**-508,100**	**-408,971**	**-543,688**	**-405,938**	-336,138	-250,600	**-364,798**	-132,100	0	**-388,015**	**-480,232**	**-311,103**
PT	68,082	55,915	145,525	-120,085	-20,956	-155,672	-17,923	51,877	137,415	23,217	255,915	**388,015**	0	-92,216	76,912
SE	160,298	148,132	**237,741**	-27,868	71,261	-63,456	74,294	144,093	229,632	115,433	348,132	**480,232**	92,216	0	169,128
UK	-8,830	-20,997	68,612	-196,997	-97,868	**-232,584**	-94,835	-25,035	60,503	-53,695	179,003	**311,103**	-76,912	-169,128	0

p-values:

	AT	BE	DE	DK	EL	ES	FI	FR	IE	IT	LU	NL	PT	SE	UK
AT	1	0,947	0,489	0,219	0,447	0,059	0,498	0,903	0,635	0,693	0,520	0,011	0,574	0,205	0,937
BE	0,947	1	0,539	0,326	0,608	0,160	0,639	0,980	0,638	0,824	0,514	0,034	0,714	0,346	0,886
DE	0,489	0,539	1	0,014	**0,000**	**<0,0001**	0,013	0,226	0,934	**0,000**	0,684	**0,000**	0,006	**0,000**	0,018
DK	0,219	0,326	0,014	1	0,381	0,755	0,407	0,185	0,071	0,190	0,195	**<0,0001**	0,305	0,820	0,069
EL	0,447	0,608	**0,000**	0,381	1	0,021	0,967	0,390	0,126	0,357	0,311	**<0,0001**	0,742	0,333	0,030
ES	0,059	0,160	**<0,0001**	0,755	0,021	1	0,070	0,016	0,005	**0,000**	0,132	**<0,0001**	0,018	0,399	**<0,0001**
FI	0,498	0,639	0,013	0,407	0,967	0,070	1	0,475	0,174	0,548	0,324	**<0,0001**	0,823	0,400	0,153
FR	0,903	0,980	0,226	0,185	0,390	0,016	0,475	1	0,481	0,719	0,467	0,000	0,564	0,138	0,748
IE	0,635	0,638	0,934	0,071	0,126	0,005	0,174	0,481	1	0,250	0,679	0,027	0,202	0,044	0,537
IT	0,693	0,824	**0,000**	0,190	0,357	**0,000**	0,548	0,719	0,250	1	0,391	**<0,0001**	0,682	0,088	0,121
LU	0,520	0,514	0,684	0,195	0,311	0,132	0,324	0,467	0,679	0,391	1	0,633	0,352	0,209	0,509
NL	0,011	0,034	**0,000**	**<0,0001**	**<0,0001**	**<0,0001**	**<0,0001**	0,000	0,027	**<0,0001**	0,633	1	**<0,0001**	**<0,0001**	**<0,0001**
PT	0,574	0,714	0,006	0,305	0,742	0,018	0,823	0,564	0,202	0,682	0,352	**<0,0001**	1	0,246	0,156
SE	0,205	0,346	**0,000**	0,820	0,333	0,399	0,400	0,138	0,044	0,088	0,209	**<0,0001**	0,246	1	0,010
UK	0,937	0,886	0,018	0,069	0,030	**<0,0001**	0,153	0,748	0,537	0,121	0,509	**<0,0001**	0,156	0,010	1

Bonferroni corrected significance level: 0,0005

Analysis of Employment-based resilience performance by country

Kruskal-Wallis - Growth trajectory retention (8-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (8 years)):

K (Observed value)	195,727
K (Critical value)	23,685
DF	14
p-value (one-tailed)	< 0,0001
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
LU	1	222,000	222,000	A
NL	40	10854,000	271,350	A
IE	12	4338,000	361,500	A
DE	371	153436,000	413,574	A
PT	41	20204,000	492,780	A
UK	219	118730,000	542,146	A
EL	75	42378,000	565,040	A
BE	7	3971,000	567,286	A
AT	10	6177,000	617,700	A
IT	127	87066,000	685,559	A
FR	25	17434,000	697,360	A
DK	3	2098,000	699,333	A
ES	74	52297,000	706,716	A
SE	32	24479,000	764,969	A
FI	24	19707,000	821,125	A

Groupings could not be properly performed because the significance of differences is not transitive in this particular case.

Pairwise comparisons (Growth trajectory retention (8 years)):

Differences:

	AT	BE	DE	DK	EL	ES	FI	FR	IE	IT	LU	NL	PT	SE	UK
AT	0	50,414	204,126	-81,633	52,660	-89,016	-203,425	-79,660	256,200	-67,859	395,700	346,350	124,920	-147,269	75,554
BE	-50,414	0	153,712	-132,048	2,246	-139,431	-253,839	-130,074	205,786	-118,273	345,286	295,936	74,505	-197,683	25,140
DE	-204,126	-153,712	0	-285,759	**-151,466**	**-293,142**	**-407,551**	**-283,786**	52,074	**-271,985**	191,574	142,224	-79,206	**-351,395**	**-128,572**
DK	81,633	132,048	285,759	0	134,293	-7,383	-121,792	1,973	337,833	13,774	477,333	427,983	206,553	-65,635	157,187
EL	-52,660	-2,246	**151,466**	-134,293	0	-141,676	**-256,085**	-132,320	203,540	-120,519	343,040	**293,690**	72,260	-199,929	22,894
ES	89,016	139,431	**293,142**	7,383	141,676	0	-114,409	9,356	**345,216**	21,157	484,716	**435,366**	**213,936**	-58,253	**164,570**
FI	203,425	253,839	**407,551**	121,792	**256,085**	114,409	0	123,765	**459,625**	135,566	599,125	**549,775**	**328,345**	56,156	**278,979**
FR	79,660	130,074	**283,786**	-1,973	132,320	-9,356	-123,765	0	335,860	11,801	475,360	**426,010**	204,580	-67,609	155,214
IE	-256,200	-205,786	-52,074	-337,833	-203,540	**-345,216**	**-459,625**	-335,860	0	**-324,059**	139,500	90,150	-131,280	**-403,469**	-180,646
IT	67,859	118,273	**271,985**	-13,774	120,519	-21,157	-135,566	-11,801	**324,059**	0	463,559	**414,209**	**192,779**	-79,410	**143,413**
LU	-395,700	-345,286	-191,574	-477,333	-343,040	-484,716	-599,125	-475,360	-139,500	-463,559	0	-49,350	-270,780	-542,969	-320,146
NL	-346,350	-295,936	-142,224	-427,983	**-293,690**	**-435,366**	**-549,775**	**-426,010**	-90,150	**-414,209**	49,350	0	-221,430	**-493,619**	**-270,796**
ES	-124,920	-74,505	79,206	-206,553	-72,260	**-213,936**	**-328,345**	-204,580	131,280	**-192,779**	270,780	221,430	0	**-272,188**	-49,366
PT	147,269	197,683	**351,395**	65,635	199,929	58,253	-56,156	67,609	**403,469**	79,410	542,969	**493,619**	**272,188**	0	**222,823**
SE	-75,554	-25,140	**128,572**	-157,187	-22,894	**-164,570**	**-278,979**	-155,214	180,646	**-143,413**	320,146	**270,796**	49,366	**-222,823**	0

p-values:

	AT	BE	DE	DK	EL	ES	FI	FR	IE	IT	LU	NL	PT	SE	UK
AT	1	0,738	0,038	0,686	0,610	0,389	0,078	0,487	0,051	0,500	0,218	0,001	0,248	0,185	0,446
BE	0,738	1	0,189	0,532	0,985	0,250	0,054	0,321	0,158	0,320	0,292	0,018	0,552	0,122	0,831
DE	0,038	0,189	1	0,108	**<0,0001**	**<0,0001**	**<0,0001**	**<0,0001**	0,562	**<0,0001**	0,532	0,005	0,116	**<0,0001**	**<0,0001**
DK	0,686	0,532	0,108	1	0,457	0,967	0,516	0,992	0,088	0,939	0,177	0,020	0,260	0,723	0,378
EL	0,610	0,985	**<0,0001**	0,457	1	0,005	**0,000**	0,062	0,033	0,007	0,266	**<0,0001**	0,225	0,002	0,577
ES	0,389	0,250	**<0,0001**	0,967	0,005	1	0,112	0,895	**0,000**	0,637	0,116	**<0,0001**	**0,000**	0,369	**<0,0001**
FI	0,078	0,054	**<0,0001**	0,516	**0,000**	0,112	1	0,158	**<0,0001**	0,047	0,055	**<0,0001**	**<0,0001**	0,497	**<0,0001**
FR	0,487	0,321	**<0,0001**	0,992	0,062	0,895	0,158	1	0,002	0,860	0,128	**<0,0001**	0,009	0,408	0,016
IE	0,051	0,158	0,562	0,088	0,033	**0,000**	**<0,0001**	0,002	1	**0,000**	0,662	0,371	0,192	**0,000**	0,047
IT	0,500	0,320	**<0,0001**	0,939	0,007	0,637	0,047	0,860	**0,000**	1	0,132	**<0,0001**	**0,000**	0,190	**<0,0001**
LU	0,218	0,292	0,532	0,177	0,266	0,116	0,055	0,128	0,662	0,132	1	0,874	0,383	0,081	0,297
NL	0,001	0,018	0,005	0,020	**<0,0001**	**<0,0001**	**<0,0001**	**<0,0001**	0,371	**<0,0001**	0,874	1	0,001	**<0,0001**	**<0,0001**
PT	0,248	0,552	0,116	0,260	0,225	**0,000**	**<0,0001**	0,009	0,192	**0,000**	0,383	0,001	1	**0,000**	0,344
SE	0,185	0,122	**<0,0001**	0,723	0,002	0,369	0,497	0,408	**0,000**	0,190	0,081	**<0,0001**	**0,000**	1	**0,000**
UK	0,446	0,831	**<0,0001**	0,378	0,577	**<0,0001**	**<0,0001**	0,016	0,047	**<0,0001**	0,297	**<0,0001**	0,344	**0,000**	1

Bonferroni corrected significance level: 0,0005

II.n. Descriptive summary on resilience performance by country and crisis periods

RGVA

NAT	N BTW	Mean BTW	N 90-93	90-93 Mean	N 00-03	00-03 Mean	N 08-09	08-09 Mean
Recovery of development level								
All	166	-0,105	769	-0,080	448	-0,090	741	-0,071
AT	2	-0,103	35	-0,096	6	-0,068	30	-0,097
BE	2	-0,022	37	-0,072	3	-0,245	38	-0,068
DE	71	-0,038	257	-0,042	264	-0,076	308	-0,040
DK	-	-	-	-	10	-0,144	10	-0,050
EL	15	-0,368	-	-	1	-0,171	1	-0,400
ES	16	-0,171	44	-0,061	9	-0,104	2	-0,052
FI	5	0,040	16	-0,335	15	-0,123	4	-0,137
FR	2	-0,146	86	-0,016	47	-0,079	88	-0,069
IE	-	-	-	-	3	-0,215	3	-0,310
IT	13	-0,179	94	-0,102	9	-0,103	56	-0,089
LU	1	-0,105	-	-	1	-0,146	1	-0,157
NL	11	-0,062	3	-0,175	34	-0,152	21	-0,075
PT	4	-0,140	23	-0,180	21	-0,121	10	-0,080
SE	-	-	21	-0,158060397	13	-0,032	10	-0,129
UK	24	-0,104	153	-0,116	12	-0,099	159	-0,108
Retention of growth trajecotry - 4 year recovery phase								
All	166	-0,105	769	-0,009	448	-0,019	741	-0,005
AT	2	-0,004	35	-0,001	6	-0,010	30	-0,018
BE	2	0,007	37	-0,006	3	-0,026	38	-0,012
DE	71	-0,010	257	-0,008	264	-0,012	308	-0,003
DK	-	-	-	-	10	-0,042	10	0,006
EL	15	-0,017	-	-	1	0,014	1	-0,033
ES	16	0,006	44	0,002	9	-0,045	2	0,014
FI	5	0,032	16	-0,020	15	-0,029	4	-0,024
FR	2	-0,015	86	0,001	47	-0,025	88	-0,011
IE	-	-	-	-	3	0,002	3	0,016
IT	13	-0,019	94	-0,013	9	-0,052	56	-0,004
LU	1	-0,033	-	-	1	-0,064	1	0,002
NL	11	-0,001	3	-0,017	34	-0,038	21	0,010
PT	4	0,096	23	-0,043	21	-0,033	10	0,008
SE	-	-	21	-0,020	13	-0,008	10	-0,015
UK	24	-0,004	153	-0,010	12	-0,014	159	-0,006
Retention of growth trajecotry - 8 year recovery phase								
All	128	-0,009	767	-0,012	434	-0,019	367	-0,001
AT	-	-	35	-0,008	5	-0,016	9	-0,014
BE	2	0,001	37	-0,009	2	-0,015	13	-0,006
DE	68	-0,014	255	-0,014	257	-0,010	221	0,001
DK	-	-	-	-	10	-0,029	4	0,010
EL	-	-	-	-	-	-	-	-
ES	15	-0,010	44	-0,004	8	-0,051	-	-
FI	5	0,032	16	-0,021	14	-0,036	3	-0,017
FR	1	0,025	86	-0,004	47	-0,027	22	-0,007
IE	-	-	-	-	2	-0,080	0	0,000
IT	8	-0,020	94	-0,014	9	-0,038	19	-0,001
LU	1	-0,025	-	-	1	-0,044	-	-
NL	7	-0,022	3	-0,016	34	-0,037	1	0,017
PT	2	0,097	23	-0,049	21	-0,036	2	0,023
SE	-	-	21	-0,002	13	-0,022	7	-0,004
UK	19	-0,005	153	-0,011	11	-0,030	66	-0,004

EMPLOYMENT

NAT	N BTW	Mean BTW	N 90-93	90-93 Mean	N 00-03	00-03 Mean	N 08-09	08-09 Mean
Recovery of development level								
All	162	-0,058	702	-0,121	177	-0,132	282	-0,089
AT	5	-0,058	4	-0,062	1	-0,092	2	-0,049
BE	1	-0,086	5	-0,062	1	-0,121	-	-
DE	51	-0,072	260	-0,130	62	-0,112	16	-0,015
DK	-	-	2	-0,096	-	-	11	-0,102
EL	14	-0,064	45	-0,014	22	-0,068	12	-0,226
ES	13	0,050	53	-0,087	9	-0,193	5	-0,247
FI	1	0,001	19	-0,135	1	0,021	16	-0,097
FR	8	-0,034	15	-0,042	2	-0,086	1	-0,050
IE	3	0,109	1	-0,133	8	-0,171	4	-0,293
IT	34	-0,121	94	-0,097	8	-0,076	63	-0,120
LU	-	-	-	-	1	-0,097	1	-0,064
NL	2	0,003	5	-0,103	33	-0,150	-	-
PT	10	-0,049	19	-0,095	20	-0,236	10	-0,090
SE	-	-	21	-0,176	-	-	17	-0,016
UK	20	-0,026	159	-0,167	9	-0,118	124	-0,066
Retention of growth trajecotry - 4 year recovery phase								
All	162	0,000	702	-0,004	177	-0,017	282	-0,002
AT	5	0,001	4	-0,004	1	-0,028	2	-0,002
BE	1	0,002	5	-0,002	1	-0,023	-	-
DE	51	-0,007	260	-0,011	62	-0,004	16	0,004
DK	-	-	2	-0,001	-	-	11	0,003
EL	14	-0,002	45	-0,001	22	-0,007	12	0,003
ES	13	0,020	53	0,018	9	-0,035	5	-0,003
FI	1	-0,012	19	0,017	1	0,010	16	-0,021
FR	8	0,004	15	-0,010	2	-0,017	1	-0,005
IE	3	0,043	1	0,041	8	-0,062	4	0,001
IT	34	-0,005	94	0,005	8	-0,007	63	-0,012
LU	-	-	-	-	1	-0,025	1	-0,002
NL	2	0,010	5	-0,003	33	-0,027	-	-
PT	10	0,011	19	0,012	20	-0,033	10	0,017
SE	-	-	21	0,001	-	-	17	0,003
UK	20	-0,001	159	-0,013	9	-0,002	124	0,001
Retention of growth trajecotry - 8 year recovery phase								
All	135	-0,003	701	-0,007	167	-0,020	58	0,005
AT	5	0,001	4	-0,004	1	-0,014	-	-
BE	1	0,002	5	-0,004	1	-0,018	-	-
DE	47	-0,012	260	-0,015	62	-0,005	2	0,009
DK	-	-	2	-0,005	-	-	1	0,013
EL	9	-0,024	45	0,000	21	-0,019	-	-
ES	13	0,007	53	0,010	8	-0,054	-	-
FI	1	-0,011	19	0,013	1	0,003	3	-0,012
FR	8	0,009	15	-0,002	2	-0,009	-	-
IE	3	0,054	1	0,053	8	-0,070	-	-
IT	23	-0,006	93	0,003	5	-0,010	6	-0,008
LU	-	-	-	-	1	-0,022	-	-
NL	2	0,009	5	-0,003	33	-0,028	-	-
PT	7	0,011	19	0,001	15	-0,034	-	-
SE	-	-	21	0,001	-	-	11	0,008
UK	16	0,003	159	-0,011	9	-0,006	35	0,007

II.o. Analysis of resilience performance by country and crisis periods

Analysis of RGVA-based resilience performance by country for observations falling between crisis periods

Correlation matrix:

	AT	BE	DE	EL	ES	FI	FR	IT	LU	NL	PT	UK	Growth trajectory retention (4 years)	Recovery of development level	Growth trajectory retention (8 years)
AT	**1**	0,913	0,696	0,765	0,759	0,863	0,913	0,779	0,934	0,795	0,878	-0,956	0,000	-0,003	
BE	0,913	**1**	0,696	0,765	0,759	0,863	0,913	0,779	0,934	0,795	0,878	-0,956	0,010	0,013	-0,041
DE	0,696	0,696	**1**	0,474	0,462	0,628	0,696	0,498	0,723	0,526	0,649	-0,752	-0,093	0,242	-0,146
EL	0,765	0,765	0,474	**1**	0,603	0,715	0,765	0,626	0,785	0,644	0,730	-0,807	-0,063	-0,296	
ES	0,759	0,759	0,462	0,603	**1**	0,708	0,759	0,619	0,779	0,637	0,724	-0,801	0,056	-0,080	-0,049
FI	0,863	0,863	0,628	0,715	0,708	**1**	0,863	0,729	0,883	0,746	0,829	-0,906	0,076	0,062	0,064
FR	0,913	0,913	0,696	0,765	0,759	0,863	**1**	0,779	0,934	0,795	0,878	-0,956	-0,009	-0,011	-0,025
IT	0,779	0,779	0,498	0,626	0,619	0,729	0,779	**1**	0,799	0,659	0,744	-0,821	-0,069	-0,076	-0,096
LU	0,934	0,934	0,723	0,785	0,779	0,883	0,934	0,799	**1**	0,815	0,899	-0,977	-0,013	-0,003	-0,064
NL	0,795	0,795	0,526	0,644	0,637	0,746	0,795	0,659	0,815	**1**	0,761	-0,837	0,015	0,036	-0,100
PT	0,878	0,878	0,649	0,730	0,724	0,829	0,878	0,744	0,899	0,761	**1**	-0,921	0,169	-0,016	0,116
UK	-0,956	-0,956	-0,752	-0,807	-0,801	-0,906	-0,956	-0,821	-0,977	-0,837	-0,921	**1**	0,000	0,003	0,056
Growth traje	0,000	0,010	-0,093	-0,063	0,056	0,076	-0,009	-0,069	-0,013	0,015	0,169	0,000	**1**	0,409	0,836
Recovery of	-0,003	0,013	0,242	-0,296	-0,080	0,062	-0,011	-0,076	-0,003	0,036	-0,016	0,003	0,409	**1**	0,448
Growth trajectory retention		-0,041	-0,146		-0,049	0,064	-0,025	-0,096	-0,064	-0,100	0,116	0,056	0,836	0,448	**1**

Analysis of RGVA-based resilience performance by country for observations falling between crisis periods

Kruskal-Wallis - Recovery of development level

Kruskal-Wallis test / Two-tailed test (Recovery of development level):

K (Observed	55,148
K (Critical va	19,675
DF	11
p-value (one-	< 0,0001
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
EL	15	288,000	19,200	A
IT	13	712,000	54,769	A
ES	16	962,000	60,125	A
FR	2	121,000	60,500	A
PT	4	287,000	71,750	A
LU	1	76,000	76,000	A
AT	2	153,000	76,500	A
UK	24	1924,000	80,167	
NL	11	1104,000	100,364	
DE	71	7376,000	103,887	
BE	2	217,000	108,500	
FI	5	641,000	128,200	

Groupings could not be properly performed because the significance of differences is not transitive in this particular case.

Pairwise comparisons (Recovery of development level):

Differences:

	AT	BE	DE	EL	ES	FI	FR	IT	LU	NL	PT	UK
AT	0	-32,000	-27,387	57,300	16,375	-51,700	16,000	21,731	0,500	-23,864	4,750	-3,667
BE	32,000	0	4,613	89,300	48,375	-19,700	48,000	53,731	32,500	8,136	36,750	28,333
DE	27,387	-4,613	0	**84,687**	43,762	-24,313	43,387	**49,118**	27,887	3,524	32,137	23,721
EL	-57,300	-89,300	**-84,687**	0	-40,925	**-109,000**	-41,300	-35,569	-56,800	**-81,164**	-52,550	**-60,967**
ES	-16,375	-48,375	-43,762	40,925	0	-68,075	-0,375	5,356	-15,875	-40,239	-11,625	-20,042
FI	51,700	19,700	24,313	**109,000**	68,075	0	67,700	73,431	52,200	27,836	56,450	48,033
FR	-16,000	-48,000	-43,387	41,300	0,375	-67,700	0	5,731	-15,500	-39,864	-11,250	-19,667
IT	-21,731	-53,731	**-49,118**	35,569	-5,356	-73,431	-5,731	0	-21,231	-45,594	-16,981	-25,397
LU	-0,500	-32,500	-27,887	56,800	15,875	-52,200	15,500	21,231	0	-24,364	4,250	-4,167
NL	23,864	-8,136	-3,524	**81,164**	40,239	-27,836	39,864	45,594	24,364	0	28,614	20,197
PT	-4,750	-36,750	-32,137	52,550	11,625	-56,450	11,250	16,981	-4,250	-28,614	0	-8,417
UK	3,667	-28,333	-23,721	**60,967**	20,042	-48,033	19,667	25,397	4,167	-20,197	8,417	0

p-values:

	AT	BE	DE	EL	ES	FI	FR	IT	LU	NL	PT	UK
AT	1	0,506	0,427	0,113	0,650	0,199	0,739	0,552	0,993	0,518	0,909	0,917
BE	0,506	1	0,894	0,014	0,180	0,624	0,318	0,141	0,581	0,826	0,377	0,423
DE	0,427	0,894	1	**<0,0001**	0,001	0,274	0,208	**0,001**	0,565	0,821	0,193	0,037
EL	0,113	0,014	**<0,0001**	1	0,018	**<0,0001**	0,254	0,051	0,253	**<0,0001**	0,052	**0,000**
ES	0,650	0,180	0,001	0,018	1	0,006	0,992	0,765	0,749	0,033	0,665	0,196
FI	0,199	0,624	0,274	**<0,0001**	0,006	1	0,092	0,004	0,321	0,283	0,080	0,042
FR	0,739	0,318	0,208	0,254	0,992	0,092	1	0,875	0,792	0,281	0,787	0,578
IT	0,552	0,141	**0,001**	0,051	0,765	0,004	0,875	1	0,670	0,021	0,537	0,125
LU	0,993	0,581	0,565	0,253	0,749	0,321	0,792	0,670	1	0,627	0,937	0,932
NL	0,518	0,826	0,821	**<0,0001**	0,033	0,283	0,281	0,021	0,627	1	0,308	0,248
PT	0,909	0,377	0,193	0,052	0,665	0,080	0,787	0,537	0,937	0,308	1	0,746
UK	0,917	0,423	0,037	**0,000**	0,196	0,042	0,578	0,125	0,932	0,248	0,746	1

Bonferroni corrected significance level: 0,0008

Analysis of RGVA-based resilience performance by country for observations falling between crisis periods

ANOVA - Recovery of development level

Goodness of fit statistics (Recovery of development level):

Observations	166
Sum of weigl	166
DF	154
R^2	0,352
Adjusted R^2	0,305
MSE	0,020
RMSE	0,140
MAPE	291,365
DW	1,701
Cp	12,000
AIC	-640,940
SBC	-603,597
PC	0,750

Analysis of variance (Recovery of development level):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	11	1,639	0,149	7,590	**<0,0001**
Error	154	3,023	0,020		
Corrected To	165	4,662			

Computed against model Y=Mean(Y)

Model parameters (Recovery of development level):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,116	0,021	-5,489	**<0,0001**	-0,158	-0,075
AT	0,013	0,093	0,141	0,888	-0,170	0,197
BE	0,095	0,093	1,021	0,309	-0,089	0,278
DE	0,078	0,026	2,998	**0,003**	0,027	0,130
EL	-0,251	0,039	-6,400	**<0,0001**	-0,329	-0,174
ES	-0,054	0,038	-1,419	0,158	-0,130	0,021
FI	0,156	0,061	2,559	**0,011**	0,036	0,277
FR	-0,030	0,093	-0,319	0,751	-0,213	0,154
IT	-0,062	0,041	-1,504	0,135	-0,144	0,019
LU	0,012	0,130	0,092	0,927	-0,244	0,268
NL	0,055	0,044	1,243	0,216	-0,032	0,142
PT	-0,024	0,067	-0,356	0,722	-0,157	0,109
UK	0,012	0,034	0,371	0,711	-0,054	0,079

ANOVA - Growth trajectory retention (4-year recovery period)

Goodness of fit statistics (Growth trajectory retention (4 years)):

Observations	166
Sum of weigl	166
DF	154
R^2	0,263
Adjusted R^2	0,211
MSE	0,001
RMSE	0,032
MAPE	1025,761
DW	1,657
Cp	12,000
AIC	-1126,852
SBC	-1089,508
PC	0,852

Analysis of variance (Growth trajectory retention (4 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	11	0,058	0,005	5,000	**<0,0001**
Error	154	0,162	0,001		
Corrected To	165	0,220			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (4 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,003	0,005	0,658	0,511	-0,006	0,013
AT	-0,007	0,021	-0,333	0,740	-0,050	0,035
BE	0,004	0,021	0,194	0,846	-0,038	0,047
DE	-0,013	0,006	-2,201	**0,029**	-0,025	-0,001
EL	-0,020	0,009	-2,193	**0,030**	-0,038	-0,002
ES	0,003	0,009	0,304	0,761	-0,015	0,020
FI	0,029	0,014	2,072	**0,040**	0,001	0,057
FR	-0,018	0,021	-0,834	0,405	-0,060	0,025
IT	-0,023	0,010	-2,370	**0,019**	-0,042	-0,004
LU	-0,036	0,030	-1,210	0,228	-0,096	0,023
NL	-0,004	0,010	-0,394	0,694	-0,024	0,016
PT	0,093	0,016	5,954	**<0,0001**	0,062	0,124
UK	-0,008	0,008	-0,989	0,324	-0,023	0,008

ANOVA - Growth trajectory retention (8-year recovery period)

Goodness of fit statistics (Growth trajectory retention (8 years)):

Observations	128
Sum of weigl	128
DF	118
R^2	0,293
Adjusted R^2	0,239
MSE	0,001
RMSE	0,027
MAPE	160,068
DW	2,248
Cp	10,000
AIC	-912,103
SBC	-883,583
PC	0,827

Analysis of variance (Growth trajectory retention (8 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	9	0,037	0,004	5,438	**<0,0001**
Error	118	0,088	0,001		
Corrected To	127	0,125			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (8 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,004	0,005	0,944	0,347	-0,005	0,013
AT	0,000	0,000				
BE	-0,003	0,018	-0,179	0,858	-0,039	0,033
DE	-0,018	0,005	-3,268	**0,001**	-0,029	-0,007
EL	0,000	0,000				
ES	-0,014	0,008	-1,797	0,075	-0,030	0,001
FI	0,028	0,012	2,323	**0,022**	0,004	0,052
FR	0,021	0,025	0,832	0,407	-0,029	0,071
IT	-0,024	0,010	-2,446	**0,016**	-0,044	-0,005
LU	-0,029	0,025	-1,147	0,254	-0,079	0,021
NL	-0,026	0,010	-2,520	**0,013**	-0,047	-0,006
PT	0,092	0,018	5,077	**<0,0001**	0,056	0,129
UK	-0,009	0,006	-1,387	0,168	-0,021	0,004

Analysis of RGVA-based resilience performance by country for observations falling between crisis periods

Kruskal-Wallis - Growth trajectory retention (4-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (4 years)):

K (Observed	23,640
K (Critical va	19,675
DF	11
p-value (one-	0,014
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
LU	1	28,000	28,000	A
IT	13	717,000	55,154	A
EL	15	968,000	64,533	A
FR	2	149,000	74,500	A
DE	71	5687,000	80,099	A
AT	2	166,000	83,000	A
UK	24	2030,000	84,583	A
ES	16	1550,000	96,875	A
NL	11	1093,000	99,364	A
BE	2	227,000	113,500	A
FI	5	679,000	135,800	A
PT	4	567,000	141,750	A

Pairwise comparisons (Growth trajectory retention (4 years)):

Differences:

	AT	BE	DE	EL	ES	FI	FR	IT	LU	NL	PT	UK
AT	0	-30,500	2,901	18,467	-13,875	-52,800	8,500	27,846	55,000	-16,364	-58,750	-1,583
BE	30,500	0	33,401	48,967	16,625	-22,300	39,000	58,346	85,500	14,136	-28,250	28,917
DE	-2,901	-33,401	0	15,565	-16,776	-55,701	5,599	24,945	52,099	-19,265	-61,651	-4,485
EL	-18,467	-48,967	-15,565	0	-32,342	-71,267	-9,967	9,379	36,533	-34,830	-77,217	-20,050
ES	13,875	-16,625	16,776	32,342	0	-38,925	22,375	41,721	68,875	-2,489	-44,875	12,292
FI	52,800	22,300	55,701	71,267	38,925	0	61,300	80,646	107,800	36,436	-5,950	51,217
FR	-8,500	-39,000	-5,599	9,967	-22,375	-61,300	0	19,346	46,500	-24,864	-67,250	-10,083
IT	-27,846	-58,346	-24,945	-9,379	-41,721	-80,646	-19,346	0	27,154	-44,210	-86,596	-29,429
LU	-55,000	-85,500	-52,099	-36,533	-68,875	-107,800	-46,500	-27,154	0	-71,364	-113,750	-56,583
NL	16,364	-14,136	19,265	34,830	2,489	-36,436	24,864	44,210	71,364	0	-42,386	14,780
PT	58,750	28,250	61,651	77,217	44,875	5,950	67,250	86,596	113,750	42,386	0	57,167
UK	1,583	-28,917	4,485	20,050	-12,292	-51,217	10,083	29,429	56,583	-14,780	-57,167	0

p-values:

	AT	BE	DE	EL	ES	FI	FR	IT	LU	NL	PT	UK
AT	1	0,526	0,933	0,610	0,700	0,189	0,860	0,446	0,350	0,658	0,158	0,964
BE	0,526	1	0,332	0,176	0,645	0,579	0,417	0,110	0,146	0,702	0,497	0,414
DE	0,933	0,332	1	0,254	0,207	0,012	0,871	0,085	0,282	0,216	0,013	0,693
EL	0,610	0,176	0,254	1	0,061	0,004	0,783	0,607	0,462	0,068	0,004	0,205
ES	0,700	0,645	0,207	0,061	1	0,114	0,535	0,020	0,164	0,895	0,095	0,428
FI	0,189	0,579	0,012	0,004	0,114	1	0,127	0,001	0,041	0,160	0,854	0,030
FR	0,860	0,417	0,871	0,783	0,535	0,127	1	0,596	0,430	0,501	0,106	0,776
IT	0,446	0,110	0,085	0,607	0,020	0,001	0,596	1	0,586	0,025	0,002	0,075
LU	0,350	0,146	0,282	0,462	0,164	0,041	0,430	0,586	1	0,155	0,034	0,249
NL	0,658	0,702	0,216	0,068	0,895	0,160	0,501	0,025	0,155	1	0,131	0,398
PT	0,158	0,497	0,013	0,004	0,095	0,854	0,106	0,002	0,034	0,131	1	0,028
UK	0,964	0,414	0,693	0,205	0,428	0,030	0,776	0,075	0,249	0,398	0,028	1

Bonferroni corrected significance level: 0,0008

Analysis of RGVA-based resilience performance by country for observations falling between crisis periods

Kruskal-Wallis - Growth trajectory retention (8-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (8 years)):

K (Observed	22,204
K (Critical va	16,919
DF	9
p-value (one-	0,008
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
AT	0			
EL	0			
LU	1	27,000	27,000	A
IT	8	321,000	40,125	A
DE	68	4017,000	59,074	A
NL	7	415,000	59,286	A
ES	15	1005,000	67,000	A
UK	19	1396,000	73,474	A
BE	2	167,000	83,500	A
FI	5	534,000	106,800	A
FR	1	119,000	119,000	A
PT	2	255,000	127,500	A

Pairwise comparisons (Growth trajectory retention (8 years)):

Differences:

	AT	BE	DE	EL	ES	FI	FR	IT	LU	NL	PT	UK
AT												
BE	0	24,426			16,500	-23,300	-35,500	43,375	56,500	24,214	-44,000	10,026
DE	-24,426	0			-7,926	-47,726	-59,926	18,949	32,074	-0,212	-68,426	-14,400
EL												
ES	-16,500	7,926			0	-39,800	-52,000	26,875	40,000	7,714	-60,500	-6,474
FI	23,300	47,726			39,800	0	-12,200	66,675	79,800	47,514	-20,700	33,326
FR	35,500	59,926			52,000	12,200	0	78,875	92,000	59,714	-8,500	45,526
IT	-43,375	-18,949			-26,875	-66,675	-78,875	0	13,125	-19,161	-87,375	-33,349
LU	-56,500	-32,074			-40,000	-79,800	-92,000	-13,125	0	-32,286	-100,500	-46,474
NL	-24,214	0,212			-7,714	-47,514	-59,714	19,161	32,286	0	-68,214	-14,188
PT	44,000	68,426			60,500	20,700	8,500	87,375	100,500	68,214	0	54,026
UK	-10,026	14,400			6,474	-33,326	-45,526	33,349	46,474	14,188	-54,026	0

p-values:

	AT	BE	DE	EL	ES	FI	FR	IT	LU	NL	PT	UK
AT												
BE	1	0,359			0,555	0,453	0,435	0,139	0,214	0,416	0,236	0,716
DE	0,359	1			0,454	0,005	0,109	0,172	0,391	0,989	0,010	0,135
EL												
ES	0,555	0,454			1	0,038	0,175	0,098	0,296	0,650	0,030	0,613
FI	0,453	0,005			0,038	1	0,764	0,002	0,050	0,029	0,505	0,074
FR	0,435	0,109			0,175	0,764	1	0,045	0,079	0,132	0,852	0,232
IT	0,139	0,172			0,098	0,002	0,045	1	0,739	0,318	0,003	0,033
LU	0,214	0,391			0,296	0,050	0,079	0,739	1	0,416	0,027	0,222
NL	0,416	0,989			0,650	0,029	0,132	0,318	0,416	1	0,022	0,387
PT	0,236	0,010			0,030	0,505	0,852	0,003	0,027	0,022	1	0,050
UK	0,716	0,135			0,613	0,074	0,232	0,033	0,222	0,387	0,050	1

Bonferroni corrected significance level: 0,0011

Analysis of RGVA-based resilience performance by Country for the crisis period 1990-1993

Correlation matrix:

	AT	BE	DE	ES	FI	FR	IT	NL	PT	SE	UK	Growth trajectory retention (4 years)	Recovery of development level	Growth trajectory retention (8 years)
AT	**1**	0,790	0,651	0,776	0,842	0,717	0,709	0,886	0,823	0,828	-0,898	0,058	0,125	0,002
BE	0,790	**1**	0,645	0,772	0,838	0,713	0,705	0,882	0,818	0,824	-0,894	0,041	0,146	-0,006
DE	0,651	0,645	**1**	0,626	0,717	0,533	0,520	0,774	0,691	0,698	-0,788	0,032	0,255	-0,058
ES	0,776	0,772	0,626	**1**	0,824	0,697	0,689	0,868	0,805	0,810	-0,880	0,079	0,156	0,034
FI	0,842	0,838	0,717	0,824	**1**	0,768	0,761	0,933	0,870	0,875	-0,945	0,009	0,040	-0,046
FR	0,717	0,713	0,533	0,697	0,768	**1**	0,622	0,814	0,748	0,753	-0,826	0,104	0,238	0,072
IT	0,709	0,705	0,520	0,689	0,761	0,622	**1**	0,807	0,740	0,746	-0,819	-0,009	0,073	-0,045
NL	0,886	0,882	0,774	0,868	0,933	0,814	0,807	**1**	0,914	0,919	-0,988	0,030	0,153	-0,026
PT	0,823	0,818	0,691	0,805	0,870	0,748	0,740	0,914	**1**	0,856	-0,925	-0,065	0,086	-0,156
SE	0,828	0,824	0,698	0,810	0,875	0,753	0,746	0,919	0,856	**1**	-0,931	0,003	0,104	0,012
UK	-0,898	-0,894	-0,788	-0,880	-0,945	-0,826	-0,819	-0,988	-0,925	-0,931	**1**	-0,034	-0,164	0,025
Growth trajec	0,058	0,041	0,032	0,079	0,009	0,104	-0,009	0,030	-0,065	0,003	-0,034	**1**	0,457	0,713
Recovery of	0,125	0,146	0,255	0,156	0,040	0,238	0,073	0,153	0,086	0,104	-0,164	0,457	**1**	0,378
Growth trajec	0,002	-0,006	-0,058	0,034	-0,046	0,072	-0,045	-0,026	-0,156	0,012	0,025	0,713	0,378	**1**

Analysis of RGVA-based resilience performance by Country for the crisis period 1990-1993

Kruskal-Wallis - Recovery of development level

Kruskal-Wallis test / Two-tailed test (Recovery of development level):

K (Observed	188,739
K (Critical va	18,307
DF	10
p-value (one-	< 0,0001
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups	
FI	16	1219,000	76,188	A	
NL	3	508,000	169,333	A	B
PT	23	4030,000	175,217	A	B
SE	21	3777,000	179,857	A	B
UK	153	44271,000	289,353		B
AT	35	11020,000	314,857		B
IT	94	31452,000	334,596		B
BE	37	14791,000	399,757		B
ES	44	18512,000	420,727		B
DE	257	119535,000	465,117		B
FR	86	46950,000	545,930		B

Groupings could not be properly performed because the significance of differences is not transitive in this particular case.

Pairwise comparisons (Recovery of development level):

Differences:

	AT	BE	DE	ES	FI	FR	IT	NL	PT	SE	UK
AT	0	-84,900	**-150,260**	-105,870	**238,670**	**-231,073**	-19,739	145,524	139,640	135,000	25,504
BE	84,900	0	-65,360	-20,971	**323,569**	**-146,173**	65,161	230,423	**224,539**	**219,900**	110,404
DE	**150,260**	65,360	0	44,389	**388,929**	-80,814	**130,521**	295,783	**289,899**	**285,260**	**175,764**
ES	105,870	20,971	-44,389	0	**344,540**	-125,203	86,132	251,394	**245,510**	**240,870**	**131,374**
FI	**-238,670**	**-323,569**	**-388,929**	**-344,540**	0	**-469,743**	**-258,408**	-93,146	-99,030	-103,670	**-213,165**
FR	**231,073**	**146,173**	80,814	125,203	**469,743**	0	**211,334**	376,597	**370,713**	**366,073**	**256,577**
IT	19,739	-65,161	**-130,521**	-86,132	**258,408**	**-211,334**	0	165,262	159,378	154,739	45,243
NL	-145,524	-230,423	-295,783	-251,394	93,146	-376,597	-165,262	0	-5,884	-10,524	-120,020
PT	-139,640	**-224,539**	**-289,899**	**-245,510**	99,030	**-370,713**	-159,378	5,884	0	-4,640	-114,136
SE	-135,000	**-219,900**	**-285,260**	**-240,870**	103,670	**-366,073**	-154,739	10,524	4,640	0	-109,496
UK	-25,504	-110,404	**-175,764**	**-131,374**	**213,165**	**-256,577**	-45,243	120,020	114,136	109,496	0

p-values:

	AT	BE	DE	ES	FI	FR	IT	NL	PT	SE	UK
AT	1	0,105	**0,000**	0,035	**0,000**	**<0,0001**	0,654	0,276	0,019	0,028	0,540
BE	0,105	1	0,094	0,672	**<0,0001**	**0,001**	0,131	0,084	**0,000**	**0,000**	0,007
DE	**0,000**	0,094	1	0,221	**<0,0001**	0,003	**<0,0001**	0,022	**<0,0001**	**<0,0001**	**<0,0001**
ES	0,035	0,672	0,221	1	**<0,0001**	0,002	0,034	0,058	**<0,0001**	**<0,0001**	**0,001**
FI	**0,000**	**<0,0001**	**<0,0001**	**<0,0001**	1	**<0,0001**	**<0,0001**	0,505	0,171	0,160	**0,000**
FR	**<0,0001**	**0,001**	0,003	0,002	**<0,0001**	1	**<0,0001**	0,004	**<0,0001**	**<0,0001**	**<0,0001**
IT	0,654	0,131	**<0,0001**	0,034	**<0,0001**	**<0,0001**	1	0,205	0,002	0,004	0,120
NL	0,276	0,084	0,022	0,058	0,505	0,004	0,205	1	0,966	0,939	0,354
PT	0,019	**0,000**	**<0,0001**	**<0,0001**	0,171	**<0,0001**	0,002	0,966	1	0,945	0,022
SE	0,028	**0,000**	**<0,0001**	**<0,0001**	0,160	**<0,0001**	0,004	0,939	0,945	1	0,034
UK	0,540	0,007	**<0,0001**	**0,001**	**0,000**	**<0,0001**	0,120	0,354	0,022	0,034	1

Bonferroni corrected significance level: 0,0009

Analysis of RGVA-based resilience performance by Country for the crisis period 1990-1993

ANOVA - Recovery of development level

Goodness of fit statistics (Recovery of development level):

Observations	769
Sum of weigl	769
DF	758
R^2	0,264
Adjusted R^2	0,254
MSE	0,009
RMSE	0,094
MAPE	5290,949
DW	1,334
Cp	11,000
AIC	-3617,648
SBC	-3566,552
PC	0,758

Analysis of variance (Recovery of development level):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	10	2,424	0,242	27,148	**<0,0001**
Error	758	6,767	0,009		
Corrected Tc	768	9,191			

Computed against model Y=Mean(Y)

Model parameters (Recovery of development level):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,123	0,007	-18,502	**<0,0001**	-0,136	-0,110
AT	0,027	0,016	1,684	0,093	-0,004	0,058
BE	0,051	0,016	3,287	**0,001**	0,021	0,082
DE	0,081	0,009	9,549	**<0,0001**	0,065	0,098
ES	0,062	0,014	4,290	**<0,0001**	0,034	0,091
FI	-0,212	0,022	-9,466	**<0,0001**	-0,256	-0,168
FR	0,107	0,011	9,398	**<0,0001**	0,084	0,129
IT	0,021	0,011	1,892	0,059	-0,001	0,043
NL	-0,052	0,050	-1,047	0,296	-0,150	0,046
PT	-0,057	0,019	-2,990	**0,003**	-0,094	-0,020
SE	-0,035	0,020	-1,776	0,076	-0,074	0,004
UK	0,007	0,010	0,723	0,470	-0,012	0,026

ANOVA - Growth trajectory retention (4-year recovery period)

Goodness of fit statistics (Growth trajectory retention (4 years)):

Observations	769
Sum of weigl	769
DF	758
R^2	0,108
Adjusted R^2	0,097
MSE	0,001
RMSE	0,023
MAPE	209,196
DW	1,251
Cp	11,000
AIC	-5791,525
SBC	-5740,429
PC	0,918

Analysis of variance (Growth trajectory retention (4 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	10	0,049	0,005	9,212	**<0,0001**
Error	758	0,401	0,001		
Corrected Tc	768	0,449			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (4 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,012	0,002	-7,678	**<0,0001**	-0,016	-0,009
AT	0,011	0,004	2,845	**0,005**	0,003	0,019
BE	0,007	0,004	1,747	0,081	-0,001	0,014
DE	0,004	0,002	2,046	**0,041**	0,000	0,008
ES	0,014	0,004	4,010	**<0,0001**	0,007	0,021
FI	-0,008	0,005	-1,413	0,158	-0,018	0,003
FR	0,013	0,003	4,715	**<0,0001**	0,008	0,018
IT	0,000	0,003	-0,040	0,968	-0,005	0,005
NL	-0,005	0,012	-0,415	0,678	-0,029	0,019
PT	-0,031	0,005	-6,671	**<0,0001**	-0,040	-0,022
SE	-0,007	0,005	-1,507	0,132	-0,017	0,002
UK	0,002	0,002	0,829	0,407	-0,003	0,007

ANOVA - Growth trajectory retention (8-year recovery period)

Goodness of fit statistics (Growth trajectory retention (8 years)):

Observations	767
Sum of weigl	767
DF	756
R^2	0,178
Adjusted R^2	0,167
MSE	0,000
RMSE	0,017
MAPE	284,627
DW	1,280
Cp	11,000
AIC	-6265,938
SBC	-6214,870
PC	0,846

Analysis of variance (Growth trajectory retention (8 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	10	0,046	0,005	16,348	**<0,0001**
Error	756	0,211	0,000		
Corrected Tc	766	0,257			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (8 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,014	0,001	-11,617	**<0,0001**	-0,016	-0,011
AT	0,006	0,003	2,176	**0,030**	0,001	0,012
BE	0,004	0,003	1,611	0,107	-0,001	0,010
DE	0,000	0,002	0,014	0,989	-0,003	0,003
ES	0,010	0,003	3,948	**<0,0001**	0,005	0,015
FI	-0,007	0,004	-1,831	0,067	-0,015	0,001
FR	0,010	0,002	4,907	**<0,0001**	0,006	0,014
IT	-0,001	0,002	-0,266	0,790	-0,004	0,003
NL	-0,002	0,009	-0,270	0,787	-0,020	0,015
PT	-0,035	0,003	-10,409	**<0,0001**	-0,042	-0,028
SE	0,012	0,004	3,408	**0,001**	0,005	0,019
UK	0,003	0,002	1,577	0,115	-0,001	0,006

Analysis of RGVA-based resilience performance by Country for the crisis period 1990-1993

Kruskal-Wallis - Growth trajectory retention (4-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (4 years)):

K (Observed	92,211
K (Critical va	18,307
DF	10
p-value (one-	< 0,0001
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups		
PT	23	2552,000	110,957	A		
SE	21	5004,000	238,286	A	B	
NL	3	729,000	243,000	A	B	C
FI	16	4076,000	254,750	A	B	C
IT	94	32560,000	346,383		B	C
UK	153	56784,000	371,137		B	C
DE	257	98397,000	382,868		B	C
BE	37	15058,000	406,973		B	C
AT	35	16442,000	469,771			C
ES	44	21672,000	492,545			C
FR	86	42791,000	497,570			C

Groupings could not be properly performed because the significance of differences is not transitive in this particular case.

Pairwise comparisons (Growth trajectory retention (4 years)):

Differences:

	AT	BE	DE	ES	FI	FR	IT	NL	PT	SE	UK
AT	0	62,798	86,904	-22,774	215,021	-27,798	123,388	226,771	**358,815**	**231,486**	98,634
BE	-62,798	0	24,105	-85,572	152,223	-90,597	60,590	163,973	**296,016**	168,687	35,836
DE	-86,904	-24,105	0	-109,678	128,118	**-114,702**	36,485	139,868	**271,911**	144,582	11,730
ES	22,774	85,572	109,678	0	**237,795**	-5,024	**146,162**	249,545	**381,589**	**254,260**	121,408
FI	-215,021	-152,223	-128,118	**-237,795**	0	**-242,820**	-91,633	11,750	143,793	16,464	-116,387
FR	27,798	90,597	**114,702**	5,024	**242,820**	0	**151,187**	254,570	**386,613**	**259,284**	**126,433**
IT	-123,388	-60,590	-36,485	**-146,162**	91,633	**-151,187**	0	103,383	**235,426**	108,097	-24,754
NL	-226,771	-163,973	-139,868	-249,545	-11,750	-254,570	-103,383	0	132,043	4,714	-128,137
PT	**-358,815**	**-296,016**	**-271,911**	**-381,589**	-143,793	**-386,613**	**-235,426**	-132,043	0	-127,329	**-260,181**
SE	**-231,486**	-168,687	-144,582	**-254,260**	-16,464	**-259,284**	-108,097	-4,714	127,329	0	-132,852
UK	-98,634	-35,836	-11,730	-121,408	116,387	**-126,433**	24,754	128,137	**260,181**	132,852	0

p-values:

	AT	BE	DE	ES	FI	FR	IT	NL	PT	SE	UK
AT	1	0,231	0,030	0,651	0,001	0,533	0,005	0,090	**<0,0001**	**0,000**	0,018
BE	0,231	1	0,537	0,084	0,022	0,038	0,160	0,219	**<0,0001**	0,005	0,379
DE	0,030	0,537	1	0,002	0,025	**<0,0001**	0,173	0,278	**<0,0001**	0,004	0,605
ES	0,651	0,084	0,002	1	**0,000**	0,903	**0,000**	0,060	**<0,0001**	**<0,0001**	0,001
FI	0,001	0,022	0,025	**0,000**	1	**<0,0001**	0,127	0,933	0,047	0,823	0,046
FR	0,533	0,038	**<0,0001**	0,903	**<0,0001**	1	**<0,0001**	0,051	**<0,0001**	**<0,0001**	**<0,0001**
IT	0,005	0,160	0,173	**0,000**	0,127	**<0,0001**	1	0,427	**<0,0001**	0,044	0,395
NL	0,090	0,219	0,278	0,060	0,933	0,051	0,427	1	0,333	0,973	0,322
PT	**<0,0001**	**<0,0001**	**<0,0001**	**<0,0001**	0,047	**<0,0001**	**<0,0001**	0,333	1	0,058	**<0,0001**
SE	**0,000**	0,005	0,004	**<0,0001**	0,823	**<0,0001**	0,044	0,973	0,058	1	0,010
UK	0,018	0,379	0,605	0,001	0,046	**<0,0001**	0,395	0,322	**<0,0001**	0,010	1

Bonferroni corrected significance level: 0,0009

Analysis of RGVA-based resilience performance by Country for the crisis period 1990-1993

Kruskal-Wallis - Growth trajectory retention (8-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (8 years)):

K (Observed	103,185
K (Critical va	18,307
DF	10
p-value (one-	< 0,0001
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
PT	23	1776,000	77,217	A
FI	16	3442,000	215,125	A
IT	94	32080,000	341,277	
DE	255	89781,000	352,082	
NL	3	1104,000	368,000	
UK	153	60808,000	397,438	
BE	37	15891,000	429,486	
AT	35	15156,000	433,029	
ES	44	21010,000	477,500	
FR	86	42727,000	496,826	
SE	21	10753,000	512,048	

Groupings could not be properly performed because the significance of differences is not transitive in this particular case.

Pairwise comparisons (Growth trajectory retention (8 years)):

Differences:

	AT	BE	DE	ES	FI	FR	IT	NL	PT	SE	UK
AT	0	3,542	80,946	-44,471	217,904	-63,797	91,752	65,029	**355,811**	-79,019	35,591
BE	-3,542	0	77,404	-48,014	214,361	-67,339	88,210	61,486	**352,269**	-82,561	32,049
DE	-80,946	-77,404	0	**-125,418**	136,957	**-144,743**	10,806	-15,918	**274,865**	-159,965	-45,356
ES	44,471	48,014	**125,418**	0	**262,375**	-19,326	**136,223**	109,500	**400,283**	-34,548	80,062
FI	-217,904	-214,361	-136,957	**-262,375**	0	**-281,701**	-126,152	-152,875	137,908	**-296,923**	-182,313
FR	63,797	67,339	**144,743**	19,326	**281,701**	0	**155,549**	128,826	**419,608**	-15,222	**99,388**
IT	-91,752	-88,210	-10,806	**-136,223**	126,152	**-155,549**	0	-26,723	**264,059**	-170,771	-56,161
NL	-65,029	-61,486	15,918	-109,500	152,875	-128,826	26,723	0	290,783	-144,048	-29,438
PT	**-355,811**	**-352,269**	**-274,865**	**-400,283**	-137,908	**-419,608**	**-264,059**	-290,783	0	**-434,830**	**-320,221**
SE	79,019	82,561	159,965	34,548	**296,923**	15,222	170,771	144,048	**434,830**	0	114,610
UK	-35,591	-32,049	45,356	-80,062	182,313	**-99,388**	56,161	29,438	**320,221**	-114,610	0

p-values:

	AT	BE	DE	ES	FI	FR	IT	NL	PT	SE	UK
AT	1	0,946	0,043	0,376	0,001	0,151	0,036	0,626	**<0,0001**	0,196	0,391
BE	0,946	1	0,047	0,331	0,001	0,122	0,040	0,644	**<0,0001**	0,173	0,430
DE	0,043	0,047	1	**0,001**	0,016	**<0,0001**	0,686	0,902	**<0,0001**	0,001	0,045
ES	0,376	0,331	**0,001**	1	**<0,0001**	0,638	**0,001**	0,408	**<0,0001**	0,557	0,035
FI	0,001	0,001	0,016	**<0,0001**	1	**<0,0001**	0,035	0,273	0,056	**<0,0001**	0,002
FR	0,151	0,122	**<0,0001**	0,638	**<0,0001**	1	**<0,0001**	0,322	**<0,0001**	0,778	**0,001**
IT	0,036	0,040	0,686	**0,001**	0,035	**<0,0001**	1	0,837	**<0,0001**	0,001	0,053
NL	0,626	0,644	0,902	0,408	0,273	0,322	0,837	1	0,033	0,292	0,820
PT	**<0,0001**	**<0,0001**	**<0,0001**	**<0,0001**	0,056	**<0,0001**	**<0,0001**	0,033	1	**<0,0001**	**<0,0001**
SE	0,196	0,173	0,001	0,557	**<0,0001**	0,778	0,001	0,292	**<0,0001**	1	0,026
UK	0,391	0,430	0,045	0,035	0,002	**0,001**	0,053	0,820	**<0,0001**	0,026	1

Bonferroni corrected significance level: 0,0009

Analysis of RGVA-based resilience performance by Country for the crisis period 2000-2003

Correlation matrix:

	AT	BE	DE	DK	EL	ES	FI	FR	IE	IT	LU	NL	PT	SE	UK	Growth trajectory retention (4 years)	Recovery of development level	Growth trajectory retention (8 years)
AT	**1**	0,729	0,313	0,603	0,785	0,617	0,548	0,393	0,729	0,617	0,785	0,433	0,500	0,568	-0,818	-0,002	0,027	0,084
BE	0,729	**1**	0,383	0,663	0,858	0,677	0,603	0,440	0,798	0,677	0,858	0,482	0,552	0,625	-0,894	-0,034	-0,044	0,088
DE	0,313	0,383	**1**	0,242	0,440	0,258	0,171	-0,088	0,383	0,258	0,440	-0,005	0,105	0,197	-0,474	0,249	0,157	0,537
DK	0,603	0,663	0,242	**1**	0,714	0,558	0,493	0,346	0,663	0,558	0,714	0,385	0,448	0,512	-0,745	-0,098	-0,044	0,018
EL	0,785	0,858	0,440	0,714	**1**	0,730	0,651	0,480	0,858	0,730	0,921	0,524	0,598	0,674	-0,960	-0,012	0,004	
ES	0,617	0,677	0,258	0,558	0,730	**1**	0,505	0,356	0,677	0,571	0,730	0,396	0,460	0,524	-0,761	-0,101	-0,002	-0,075
FI	0,548	0,603	0,171	0,493	0,651	0,505	**1**	0,302	0,603	0,505	0,651	0,340	0,401	0,462	-0,681	-0,064	-0,035	-0,054
FR	0,393	0,440	-0,088	0,346	0,480	0,356	0,302	**1**	0,440	0,356	0,480	0,205	0,263	0,318	-0,505	-0,073	0,039	-0,077
IE	0,729	0,798	0,383	0,663	0,858	0,677	0,603	0,440	**1**	0,677	0,858	0,482	0,552	0,625	-0,894	0,002	-0,033	-0,014
IT	0,617	0,677	0,258	0,558	0,730	0,571	0,505	0,356	0,677	**1**	0,730	0,396	0,460	0,524	-0,761	-0,123	-0,001	-0,020
LU	0,785	0,858	0,440	0,714	0,921	0,730	0,651	0,480	0,858	0,730	**1**	0,524	0,598	0,674	-0,960	-0,046	0,007	0,071
NL	0,433	0,482	-0,005	0,385	0,524	0,396	0,340	0,205	0,482	0,396	0,524	**1**	0,301	0,357	-0,550	-0,171	-0,142	-0,179
PT	0,500	0,552	0,105	0,448	0,598	0,460	0,401	0,263	0,552	0,460	0,598	0,301	**1**	0,418	-0,625	-0,101	-0,045	-0,099
SE	0,568	0,625	0,197	0,512	0,674	0,524	0,462	0,318	0,625	0,524	0,674	0,357	0,418	**1**	-0,704	0,026	0,081	0,043
UK	-0,818	-0,894	-0,474	-0,745	-0,960	-0,761	-0,681	-0,505	-0,894	-0,761	-0,960	-0,550	-0,625	-0,704	**1**	0,027	-0,015	-0,092
Growth trajec	-0,002	-0,034	0,249	-0,098	-0,012	-0,101	-0,064	-0,073	0,002	-0,123	-0,046	-0,171	-0,101	0,026	0,027	**1**	0,547	0,654
Recovery of	0,027	-0,044	0,157	-0,044	0,004	-0,002	-0,035	0,039	-0,033	-0,001	0,007	-0,142	-0,045	0,081	-0,015	0,547	**1**	0,414
Growth trajec	0,084	0,088	0,537	0,018		-0,075	-0,054	-0,077	-0,014	-0,020	0,071	-0,179	-0,099	0,043	-0,092	0,654	0,414	**1**

Analysis of RGVA-based resilience performance by Country for the crisis period 2000-2003

ANOVA - Recovery of development level

Goodness of fit statistics (Recovery of development level):

Observations	448
Sum of weigh	448
DF	433
R²	0,098
Adjusted R²	0,068
MSE	0,009
RMSE	0,097
MAPE	227,665
DW	2,048
Cp	15,000
AIC	-2079,995
SBC	-2018,423
PC	0,965

Analysis of variance (Recovery of development level):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	14	0,436	0,031	3,345	**<0,0001**
Error	433	4,035	0,009		
Corrected To	447	4,471			

Computed against model Y=Mean(Y)

Model parameters (Recovery of development level):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,125	0,012	-10,418	**<0,0001**	-0,149	-0,102
AT	0,058	0,039	1,490	0,137	-0,018	0,133
BE	-0,119	0,053	-2,242	**0,025**	-0,224	-0,015
DE	0,049	0,013	3,739	**0,000**	0,023	0,075
DK	-0,019	0,031	-0,626	0,532	-0,080	0,041
EL	-0,045	0,091	-0,502	0,616	-0,224	0,133
ES	0,021	0,032	0,661	0,509	-0,042	0,085
FI	0,002	0,026	0,080	0,936	-0,049	0,053
FR	0,046	0,018	2,599	**0,010**	0,011	0,081
IE	-0,090	0,053	-1,693	0,091	-0,195	0,015
IT	0,023	0,032	0,699	0,485	-0,041	0,086
LU	-0,021	0,091	-0,234	0,815	-0,199	0,157
NL	-0,027	0,020	-1,383	0,167	-0,065	0,011
PT	0,004	0,023	0,185	0,854	-0,041	0,049
SE	0,093	0,028	3,362	**0,001**	0,039	0,147
UK	0,026	0,029	0,915	0,361	-0,030	0,082

ANOVA - Growth trajectory retention (4-year recovery period)

Goodness of fit statistics (Growth trajectory retention (4 years)):

Observations	448
Sum of weigh	448
DF	433
R²	0,156
Adjusted R²	0,129
MSE	0,001
RMSE	0,028
MAPE	251,247
DW	1,957
Cp	15,000
AIC	-3200,107
SBC	-3138,535
PC	0,903

Analysis of variance (Growth trajectory retention (4 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	14	0,061	0,004	5,715	**<0,0001**
Error	433	0,331	0,001		
Corrected To	447	0,392			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (4 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,025	0,003	-7,404	**<0,0001**	-0,032	-0,019
AT	0,015	0,011	1,382	0,168	-0,006	0,037
BE	-0,001	0,015	-0,059	0,953	-0,031	0,029
DE	0,014	0,004	3,575	**0,000**	0,006	0,021
DK	-0,016	0,009	-1,854	0,064	-0,034	0,001
EL	0,039	0,026	1,515	0,131	-0,012	0,090
ES	-0,019	0,009	-2,060	**0,040**	-0,037	-0,001
FI	-0,003	0,007	-0,467	0,640	-0,018	0,011
FR	0,000	0,005	0,085	0,932	-0,010	0,010
IE	0,028	0,015	1,832	0,068	-0,002	0,058
IT	-0,026	0,009	-2,843	**0,005**	-0,044	-0,008
LU	-0,038	0,026	-1,467	0,143	-0,089	0,013
NL	-0,013	0,006	-2,305	**0,022**	-0,024	-0,002
PT	-0,008	0,007	-1,214	0,225	-0,021	0,005
SE	0,017	0,008	2,170	**0,031**	0,002	0,033
UK	0,011	0,008	1,389	0,166	-0,005	0,027

ANOVA - Growth trajectory retention (8-year recovery period)

Goodness of fit statistics (Growth trajectory retention (8 years)):

Observations	434
Sum of weigh	434
DF	420
R²	0,405
Adjusted R²	0,387
MSE	0,000
RMSE	0,015
MAPE	854,753
DW	1,889
Cp	14,000
AIC	-3625,250
SBC	-3568,227
PC	0,635

Analysis of variance (Growth trajectory retention (8 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	13	0,065	0,005	21,985	**<0,0001**
Error	420	0,096	0,000		
Corrected To	433	0,161			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (8 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,033	0,002	-18,715	**<0,0001**	-0,037	-0,030
AT	0,017	0,007	2,616	**0,009**	0,004	0,030
BE	0,018	0,010	1,805	0,072	-0,002	0,038
DE	0,023	0,002	11,582	**<0,0001**	0,019	0,027
DK	0,005	0,005	0,998	0,319	-0,005	0,014
EL	0,000	0,000				
ES	-0,017	0,005	-3,237	**0,001**	-0,027	-0,007
FI	-0,003	0,004	-0,610	0,542	-0,011	0,006
FR	0,006	0,003	2,353	**0,019**	0,001	0,012
IE	-0,046	0,010	-4,562	**<0,0001**	-0,066	-0,026
IT	-0,004	0,005	-0,815	0,416	-0,014	0,006
LU	-0,010	0,014	-0,720	0,472	-0,038	0,018
NL	-0,004	0,003	-1,272	0,204	-0,010	0,002
PT	-0,003	0,004	-0,786	0,432	-0,010	0,004
SE	0,011	0,004	2,564	**0,011**	0,003	0,019
UK	0,003	0,004	0,705	0,481	-0,005	0,011

Analysis of RGVA-based resilience performance by Country for the crisis period 2000-2003

Kruskal-Wallis - Recovery of development level

Kruskal-Wallis test / Two-tailed test (Recovery of development level):

K (Observed	52,429
K (Critical va	23,685
DF	14
p-value (one-	< 0,0001
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
EL	1	78,000	78,000	A
IE	3	309,000	103,000	A
LU	1	113,000	113,000	A
BE	3	349,000	116,333	A
DK	10	1170,000	117,000	A
NL	34	4293,000	126,265	A
PT	21	3343,000	159,190	A
FI	15	2926,000	195,067	A
IT	9	1779,000	197,667	A
UK	12	2887,000	240,583	A
FR	47	11331,000	241,085	A
DE	264	64151,000	242,996	A
ES	9	2231,000	247,889	A
AT	6	1622,000	270,333	A
SE	13	3994,000	307,231	A

Groupings could not be properly performed because the significance of differences is not transitive in this particular case.

Pairwise comparisons (Recovery of development level):

Differences:

	AT	BE	DE	DK	EL	ES	FI	FR	IE	IT	LU	NL	PT	SE	UK
AT	0	154,000	27,337	153,333	192,333	22,444	75,267	29,248	167,333	72,667	157,333	144,069	111,143	-36,897	29,750
BE	-154,000	0	-126,663	-0,667	38,333	-131,556	-78,733	-124,752	13,333	-81,333	3,333	-9,931	-42,857	-190,897	-124,250
DE	-27,337	126,663	0	125,996	164,996	-4,893	47,930	1,911	139,996	45,330	129,996	**116,732**	83,806	-64,235	2,413
DK	-153,333	0,667	-125,996	0	39,000	-130,889	-78,067	-124,085	14,000	-80,667	4,000	-9,265	-42,190	-190,231	-123,583
EL	-192,333	-38,333	-164,996	-39,000	0	-169,889	-117,067	-163,085	-25,000	-119,667	-35,000	-48,265	-81,190	-229,231	-162,583
ES	-22,444	131,556	4,893	130,889	169,889	0	52,822	6,804	144,889	50,222	134,889	121,624	88,698	-59,342	7,306
FI	-75,267	78,733	-47,930	78,067	117,067	-52,822	0	-46,018	92,067	-2,600	82,067	68,802	35,876	-112,164	-45,517
FR	-29,248	124,752	-1,911	124,085	163,085	-6,804	46,018	0	138,085	43,418	128,085	**114,820**	81,895	-66,146	0,502
IE	-167,333	-13,333	-139,996	-14,000	25,000	-144,889	-92,067	-138,085	0	-94,667	-10,000	-23,265	-56,190	-204,231	-137,583
IT	-72,667	81,333	-45,330	80,667	119,667	-50,222	2,600	-43,418	94,667	0	84,667	71,402	38,476	-109,564	-42,917
LU	-157,333	-3,333	-129,996	-4,000	35,000	-134,889	-82,067	-128,085	10,000	-84,667	0	-13,265	-46,190	-194,231	-127,583
NL	-144,069	9,931	**-116,732**	9,265	48,265	-121,624	-68,802	**-114,820**	23,265	-71,402	13,265	0	-32,926	**-180,966**	-114,319
PT	-111,143	42,857	-83,806	42,190	81,190	-88,698	-35,876	-81,895	56,190	-38,476	46,190	32,926	0	-148,040	-81,393
SE	36,897	190,897	64,235	190,231	229,231	59,342	112,164	66,146	204,231	109,564	194,231	**180,966**	148,040	0	66,647
UK	-29,750	124,250	-2,413	123,583	162,583	-7,306	45,517	-0,502	137,583	42,917	127,583	114,319	81,393	-66,647	0

p-values:

	AT	BE	DE	DK	EL	ES	FI	FR	IE	IT	LU	NL	PT	SE	UK
AT	1	0,093	0,609	0,022	0,169	0,742	0,229	0,602	0,068	0,287	0,261	0,012	0,064	0,564	0,646
BE	0,093	1	0,092	0,994	0,798	0,127	0,336	0,106	0,900	0,346	0,982	0,899	0,592	0,021	0,137
DE	0,609	0,092	1	0,003	0,203	0,911	0,163	0,926	0,063	0,302	0,316	**<0,0001**	0,004	0,081	0,950
DK	0,022	0,994	0,003	1	0,774	0,028	0,140	0,006	0,870	0,175	0,976	0,842	0,396	0,000	0,026
EL	0,169	0,798	0,203	0,774	1	0,213	0,381	0,213	0,867	0,381	0,848	0,713	0,540	0,088	0,228
ES	0,742	0,127	0,911	0,028	0,213	1	0,333	0,885	0,093	0,411	0,323	0,012	0,086	0,291	0,898
FI	0,229	0,336	0,163	0,140	0,381	0,333	1	0,231	0,261	0,962	0,539	0,086	0,412	0,022	0,364
FR	0,602	0,106	0,926	0,006	0,213	0,885	0,231	1	0,073	0,357	0,328	**<0,0001**	0,016	0,103	0,990
IE	0,068	0,900	0,063	0,870	0,867	0,093	0,261	0,073	1	0,273	0,947	0,765	0,482	0,014	0,100
IT	0,287	0,346	0,302	0,175	0,381	0,411	0,962	0,357	0,273	1	0,535	0,141	0,456	0,051	0,452
LU	0,261	0,982	0,316	0,976	0,848	0,323	0,539	0,328	0,947	0,535	1	0,920	0,727	0,148	0,344
NL	0,012	0,899	**<0,0001**	0,842	0,713	0,012	0,086	**<0,0001**	0,765	0,141	0,920	1	0,360	**<0,0001**	0,009
PT	0,064	0,592	0,004	0,396	0,540	0,086	0,412	0,016	0,482	0,456	0,727	0,360	1	0,001	0,082
SE	0,564	0,021	0,081	0,000	0,088	0,291	0,022	0,103	0,014	0,051	0,148	**<0,0001**	0,001	1	0,198
UK	0,646	0,137	0,950	0,026	0,228	0,898	0,364	0,990	0,100	0,452	0,344	0,009	0,082	0,198	1

Bonferroni corrected significance level: 0,0005

Analysis of RGVA-based resilience performance by Country for the crisis period 2000-2003

Kruskal-Wallis - Growth trajectory retention (4-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (4 years)):

K (Observed	76,564
K (Critical va	23,685
DF	14
p-value (one-	< 0,0001
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
LU	1	26,000	26,000	A
IT	9	825,000	91,667	A
DK	10	1008,000	100,800	A
ES	9	1149,000	127,667	A
NL	34	4411,000	129,735	A
PT	21	3229,000	153,762	A
BE	3	563,000	187,667	A
FI	15	2838,000	189,200	A
FR	47	9181,000	195,340	A
UK	12	3039,000	253,250	A
DE	264	67890,000	257,159	A
IE	3	788,000	262,667	A
AT	6	1604,000	267,333	A
SE	13	3631,000	279,308	A
EL	1	394,000	394,000	A

Groupings could not be properly performed because the significance of differences is not transitive in this particular case.

Pairwise comparisons (Growth trajectory retention (4 years)):

Differences:

	AT	BE	DE	DK	EL	ES	FI	FR	IE	IT	LU	NL	PT	SE	UK
AT	0	79,667	10,174	166,533	-126,667	139,667	78,133	71,993	4,667	175,667	241,333	137,598	113,571	-11,974	14,083
BE	-79,667	0	-69,492	86,867	-206,333	60,000	-1,533	-7,674	-75,000	96,000	161,667	57,931	33,905	-91,641	-65,583
DE	-10,174	69,492	0	**156,359**	-136,841	129,492	67,959	61,819	-5,508	**165,492**	231,159	**127,424**	**103,397**	-22,149	3,909
DK	-166,533	-86,867	**-156,359**	0	-293,200	-26,867	-88,400	-94,540	-161,867	9,133	74,800	-28,935	-52,962	-178,508	-152,450
EL	126,667	206,333	136,841	293,200	0	266,333	204,800	198,660	131,333	302,333	368,000	264,265	240,238	114,692	140,750
ES	-139,667	-60,000	-129,492	26,867	-266,333	0	-61,533	-67,674	-135,000	36,000	101,667	-2,069	-26,095	-151,641	-125,583
FI	-78,133	1,533	-67,959	88,400	-204,800	61,533	0	-6,140	-73,467	97,533	163,200	59,465	35,438	-90,108	-64,050
FR	-71,993	7,674	-61,819	94,540	-198,660	67,674	6,140	0	-67,326	103,674	169,340	65,605	41,579	-83,967	-57,910
IE	-4,667	75,000	5,508	161,867	-131,333	135,000	73,467	67,326	0	171,000	236,667	132,931	108,905	-16,641	9,417
IT	-175,667	-96,000	**-165,492**	-9,133	-302,333	-36,000	-97,533	-103,674	-171,000	0	65,667	-38,069	-62,095	-187,641	-161,583
LU	-241,333	-161,667	-231,159	-74,800	-368,000	-101,667	-163,200	-169,340	-236,667	-65,667	0	-103,735	-127,762	-253,308	-227,250
NL	-137,598	-57,931	**-127,424**	28,935	-264,265	2,069	-59,465	-65,605	-132,931	38,069	103,735	0	-24,027	**-149,572**	-123,515
PT	-113,571	-33,905	**-103,397**	52,962	-240,238	26,095	-35,438	-41,579	-108,905	62,095	127,762	24,027	0	-125,546	-99,488
SE	11,974	91,641	22,149	178,508	-114,692	151,641	90,108	83,967	16,641	187,641	253,308	**149,572**	125,546	0	26,058
UK	-14,083	65,583	-3,909	152,450	-140,750	125,583	64,050	57,910	-9,417	161,583	227,250	123,515	99,488	-26,058	0

p-values:

	AT	BE	DE	DK	EL	ES	FI	FR	IE	IT	LU	NL	PT	SE	UK
AT	1	0,384	0,849	0,013	0,365	0,041	0,212	0,200	0,959	0,010	0,084	0,016	0,058	0,851	0,828
BE	0,384	1	0,355	0,308	0,168	0,487	0,985	0,921	0,478	0,266	0,280	0,458	0,671	0,269	0,433
DE	0,849	0,355	1	**0,000**	0,291	0,003	0,048	0,003	0,942	**0,000**	0,075	**<0,0001**	**0,000**	0,547	0,919
DK	0,013	0,308	**0,000**	1	0,031	0,652	0,094	0,036	0,058	0,878	0,582	0,534	0,287	0,001	0,006
EL	0,365	0,168	0,291	0,031	1	0,051	0,126	0,129	0,380	0,027	0,044	0,044	0,070	0,393	0,296
ES	0,041	0,487	0,003	0,652	0,051	1	0,260	0,151	0,118	0,555	0,456	0,966	0,613	0,007	0,028
FI	0,212	0,985	0,048	0,094	0,126	0,260	1	0,873	0,370	0,074	0,222	0,138	0,418	0,066	0,201
FR	0,200	0,921	0,003	0,036	0,129	0,151	0,873	1	0,383	0,028	0,196	0,024	0,221	0,038	0,167
IE	0,959	0,478	0,942	0,058	0,380	0,118	0,370	0,383	1	0,048	0,113	0,088	0,173	0,841	0,910
IT	0,010	0,266	**0,000**	0,878	0,027	0,555	0,074	0,028	0,048	1	0,630	0,433	0,229	0,001	0,005
LU	0,084	0,280	0,075	0,582	0,044	0,456	0,222	0,196	0,113	0,630	1	0,430	0,335	0,059	0,092
NL	0,016	0,458	**<0,0001**	0,534	0,044	0,966	0,138	0,024	0,088	0,433	0,430	1	0,504	**0,000**	0,004
PT	0,058	0,671	**0,000**	0,287	0,070	0,613	0,418	0,221	0,173	0,229	0,335	0,504	1	0,006	0,034
SE	0,851	0,269	0,547	0,001	0,393	0,007	0,066	0,038	0,841	0,001	0,059	**0,000**	0,006	1	0,615
UK	0,828	0,433	0,919	0,006	0,296	0,028	0,201	0,167	0,910	0,005	0,092	0,004	0,034	0,615	1

Bonferroni corrected significance level: 0,0005

Analysis of RGVA-based resilience performance by Country for the crisis period 2000-2003

Kruskal-Wallis - Growth trajectory retention (8-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (8 years)):

K (Observed	179,939
K (Critical va	22,362
DF	13
p-value (one-	< 0,0001
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
EL	0			
IE	2	17,000	8,500	
LU	1	38,000	38,000	
ES	8	396,000	49,500	
NL	34	2786,000	81,941	
IT	9	832,000	92,444	
PT	21	2306,000	109,810	
DK	10	1255,000	125,500	
FI	14	1955,000	139,643	
FR	47	6971,000	148,319	
UK	11	1722,000	156,545	
SE	13	2371,000	182,385	
AT	5	1146,000	229,200	
BE	2	488,000	244,000	
DE	257	72112,000	280,591	

Groupings could not be properly performed because the significance of differences is not transitive in this particular case.

Pairwise comparisons (Growth trajectory retention (8 years)):

Differences:

	AT	BE	DE	DK	EL	ES	FI	FR	IE	IT	LU	NL	PT	SE	UK
AT	0	-14,800	-51,391	103,700		179,700	89,557	80,881	220,700	136,756	191,200	147,259	119,390	46,815	72,655
BE	14,800	0	-36,591	118,500		194,500	104,357	95,681	235,500	151,556	206,000	162,059	134,190	61,615	87,455
DE	51,391	36,591	0	**155,091**		**231,091**	**140,949**	**132,272**	272,091	**188,147**	242,591	**198,650**	**170,782**	98,207	124,046
DK	-103,700	-118,500	**-155,091**	0		76,000	-14,143	-22,819	117,000	33,056	87,500	43,559	15,690	-56,885	-31,045
EL															
ES	-179,700	-194,500	**-231,091**	-76,000		0	-90,143	-98,819	41,000	-42,944	11,500	-32,441	-60,310	-132,885	-107,045
FI	-89,557	-104,357	**-140,949**	14,143		90,143	0	-8,676	131,143	47,198	101,643	57,702	29,833	-42,742	-16,903
FR	-80,881	-95,681	**-132,272**	22,819		98,819	8,676	0	139,819	55,875	110,319	66,378	38,510	-34,065	-8,226
IE	-220,700	-235,500	-272,091	-117,000		-41,000	-131,143	-139,819	0	-83,944	-29,500	-73,441	-101,310	-173,885	-148,045
IT	-136,756	-151,556	**-188,147**	-33,056		42,944	-47,198	-55,875	83,944	0	54,444	10,503	-17,365	-89,940	-64,101
LU	-191,200	-206,000	-242,591	-87,500		-11,500	-101,643	-110,319	29,500	-54,444	0	-43,941	-71,810	-144,385	-118,545
NL	-147,259	-162,059	**-198,650**	-43,559		32,441	-57,702	-66,378	73,441	-10,503	43,941	0	-27,868	-100,443	-74,604
PT	-119,390	-134,190	**-170,782**	-15,690		60,310	-29,833	-38,510	101,310	17,365	71,810	27,868	0	-72,575	-46,736
SE	-46,815	-61,615	-98,207	56,885		132,885	42,742	34,065	173,885	89,940	144,385	100,443	72,575	0	25,839
UK	-72,655	-87,455	-124,046	31,045		107,045	16,903	8,226	148,045	64,101	118,545	74,604	46,736	-25,839	0

p-values:

	AT	BE	DE	DK	EL	ES	FI	FR	IE	IT	LU	NL	PT	SE	UK
AT	1	0,888	0,364	0,131		0,012	0,171	0,170	0,035	0,051	0,164	0,014	0,056	0,478	0,283
BE	0,888	1	0,681	0,223		0,050	0,271	0,291	0,060	0,122	0,180	0,076	0,148	0,518	0,364
DE	0,364	0,681	1	**0,000**		**<0,0001**	**<0,0001**	**<0,0001**	0,002	**<0,0001**	0,054	**<0,0001**	**<0,0001**	0,006	0,001
DK	0,131	0,223	**0,000**	1		0,201	0,785	0,601	0,228	0,566	0,506	0,334	0,745	0,281	0,571
EL															
ES	0,012	0,050	**<0,0001**	0,201		1	0,105	0,039	0,679	0,481	0,931	0,510	0,247	0,018	0,066
FI	0,171	0,271	**<0,0001**	0,785		0,105	1	0,820	0,167	0,378	0,434	0,147	0,491	0,376	0,738
FR	0,170	0,291	**<0,0001**	0,601		0,039	0,820	1	0,123	0,221	0,384	0,019	0,242	0,386	0,845
IE	0,035	0,060	0,002	0,228		0,679	0,167	0,123	1	0,392	0,848	0,421	0,275	0,068	0,125
IT	0,051	0,122	**<0,0001**	0,566		0,481	0,378	0,221	0,392	1	0,680	0,823	0,728	0,098	0,256
LU	0,164	0,180	0,054	0,506		0,931	0,434	0,384	0,848	0,680	1	0,730	0,576	0,267	0,366
NL	0,014	0,076	**<0,0001**	0,334		0,510	0,147	0,019	0,421	0,823	0,730	1	0,423	0,014	0,086
PT	0,056	0,148	**<0,0001**	0,745		0,247	0,491	0,242	0,275	0,728	0,576	0,423	1	0,101	0,317
SE	0,478	0,518	0,006	0,281		0,018	0,376	0,386	0,068	0,098	0,267	0,014	0,101	1	0,615
UK	0,283	0,364	0,001	0,571		0,066	0,738	0,845	0,125	0,256	0,366	0,086	0,317	0,615	1

Bonferroni corrected significance level: 0,0005

Analysis of RGVA-based resilience performance by Country for the crisis period 2008-2009

Correlation matrix:

	AT	BE	DE	DK	EL	ES	FI	FR	IE	IT	LU	NL	PT	SE	UK	Growth trajectory retention (4 years)	Recovery of development level	Growth trajectory retention (8 years)
AT	**1**	0,803	0,686	0,874	0,907	0,903	0,895	0,733	0,899	0,772	0,907	0,842	0,874	0,874	-0,911	-0,039	0,204	0,030
BE	0,803	**1**	0,659	0,858	0,890	0,886	0,879	0,714	0,883	0,754	0,890	0,825	0,858	0,858	-0,894	-0,016	0,232	0,055
DE	0,686	0,659	**1**	0,767	0,812	0,807	0,796	0,535	0,801	0,607	0,812	0,719	0,767	0,767	-0,817	0,088	0,373	0,187
DK	0,874	0,858	0,767	**1**	0,960	0,956	0,949	0,792	0,952	0,828	0,960	0,896	0,928	0,928	-0,964	0,048	0,266	0,126
EL	0,907	0,890	0,812	0,960	**1**	0,988	0,981	0,826	0,984	0,861	0,992	0,928	0,960	0,960	-0,996	0,023	0,255	
ES	0,903	0,886	0,807	0,956	0,988	**1**	0,977	0,822	0,981	0,857	0,988	0,924	0,956	0,956	-0,992	0,036	0,270	
FI	0,895	0,879	0,796	0,949	0,981	0,977	**1**	0,814	0,973	0,849	0,981	0,917	0,949	0,949	-0,985	0,014	0,253	0,087
FR	0,733	0,714	0,535	0,792	0,826	0,822	0,814	**1**	0,818	0,679	0,826	0,757	0,792	0,792	-0,830	-0,046	0,201	0,010
IE	0,899	0,883	0,801	0,952	0,984	0,981	0,973	0,818	**1**	0,853	0,984	0,921	0,952	0,952	-0,988	0,040	0,235	
IT	0,772	0,754	0,607	0,828	0,861	0,857	0,849	0,679	0,853	**1**	0,861	0,795	0,828	0,828	-0,865	0,034	0,178	0,089
LU	0,907	0,890	0,812	0,960	0,992	0,988	0,981	0,826	0,984	0,861	**1**	0,928	0,960	0,960	-0,996	0,030	0,266	
NL	0,842	0,825	0,719	0,896	0,928	0,924	0,917	0,757	0,921	0,795	0,928	**1**	0,896	0,896	-0,932	0,080	0,240	0,124
PT	0,874	0,858	0,767	0,928	0,960	0,956	0,949	0,792	0,952	0,828	0,960	0,896	**1**	0,928	-0,964	0,051	0,253	0,139
SE	0,874	0,858	0,767	0,928	0,960	0,956	0,949	0,792	0,952	0,828	0,960	0,896	0,928	**1**	-0,964	0,009	0,232	0,095
UK	-0,911	-0,894	-0,817	-0,964	-0,996	-0,992	-0,985	-0,830	-0,988	-0,865	-0,996	-0,932	-0,964	-0,964	**1**	-0,029	-0,271	-0,109
Growth trajec	-0,039	-0,016	0,088	0,048	0,023	0,036	0,014	-0,046	0,040	0,034	0,030	0,080	0,051	0,009	-0,029	**1**	0,547	0,769
Recovery of	0,204	0,232	0,373	0,266	0,255	0,270	0,253	0,201	0,235	0,178	0,266	0,240	0,253	0,232	-0,271	0,547	**1**	0,653
Growth trajec	0,030	0,055	0,187	0,126			0,087	0,010		0,089		0,124	0,139	0,095	-0,109	0,769	0,653	**1**

Analysis of RGVA-based resilience performance by Country for the crisis period 2008-2009

ANOVA - Recovery of development level

Goodness of fit statistics (Recovery of development level):

Observations	741
Sum of weigl	741
DF	726
R²	0,231
Adjusted R²	0,216
MSE	0,004
RMSE	0,064
MAPE	163,845
DW	1,793
Cp	15,000
AIC	-4059,414
SBC	-3990,294
PC	0,801

Analysis of variance (Recovery of development level):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	14	0,894	0,064	15,591	**<0,0001**
Error	726	2,972	0,004		
Corrected To	740	3,866			

Computed against model Y=Mean(Y)

Model parameters (Recovery of development level):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,124	0,008	-15,484	**<0,0001**	-0,140	-0,108
AT	0,027	0,014	2,015	**0,044**	0,001	0,054
BE	0,056	0,013	4,485	**<0,0001**	0,032	0,081
DE	0,084	0,009	9,627	**<0,0001**	0,067	0,101
DK	0,074	0,020	3,599	**0,000**	0,033	0,114
EL	-0,276	0,060	-4,585	**<0,0001**	-0,394	-0,158
ES	0,072	0,043	1,683	0,093	-0,012	0,156
FI	-0,013	0,031	-0,434	0,665	-0,074	0,047
FR	0,055	0,010	5,408	**<0,0001**	0,035	0,075
IE	-0,186	0,035	-5,267	**<0,0001**	-0,255	-0,117
IT	0,035	0,011	3,141	**0,002**	0,013	0,058
LU	-0,033	0,060	-0,544	0,587	-0,151	0,085
NL	0,049	0,015	3,203	**0,001**	0,019	0,079
PT	0,044	0,020	2,159	**0,031**	0,004	0,084
SE	-0,005	0,020	-0,255	0,799	-0,045	0,035
UK	0,016	0,009	1,702	0,089	-0,002	0,034

ANOVA - Growth trajectory retention (4-year recovery period)

Goodness of fit statistics (Growth trajectory retention (4 years)):

Observations	741
Sum of weigl	741
DF	726
R²	0,111
Adjusted R²	0,094
MSE	0,000
RMSE	0,016
MAPE	195,742
DW	1,844
Cp	15,000
AIC	-6080,978
SBC	-6011,858
PC	0,926

Analysis of variance (Growth trajectory retention (4 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	14	0,024	0,002	6,460	**<0,0001**
Error	726	0,194	0,000		
Corrected To	740	0,218			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (4 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,005	0,002	-2,322	**0,021**	-0,009	-0,001
AT	-0,014	0,003	-3,931	**<0,0001**	-0,020	-0,007
BE	-0,007	0,003	-2,250	**0,025**	-0,014	-0,001
DE	0,002	0,002	0,742	0,458	-0,003	0,006
DK	0,011	0,005	2,092	**0,037**	0,001	0,021
EL	-0,029	0,015	-1,867	0,062	-0,059	0,001
ES	0,019	0,011	1,737	0,083	-0,002	0,041
FI	-0,019	0,008	-2,383	**0,017**	-0,034	-0,003
FR	-0,006	0,003	-2,338	**0,020**	-0,011	-0,001
IE	0,020	0,009	2,267	**0,024**	0,003	0,038
IT	0,001	0,003	0,256	0,798	-0,005	0,006
LU	0,007	0,015	0,443	0,658	-0,023	0,037
NL	0,014	0,004	3,667	**0,000**	0,007	0,022
PT	0,013	0,005	2,397	**0,017**	0,002	0,023
SE	-0,011	0,005	-2,012	**0,045**	-0,021	0,000
UK	-0,002	0,002	-0,674	0,501	-0,006	0,003

ANOVA - Growth trajectory retention (8-year recovery period)

Goodness of fit statistics (Growth trajectory retention (8 years)):

Observations	367
Sum of weigl	367
DF	356
R²	0,113
Adjusted R²	0,088
MSE	0,000
RMSE	0,013
MAPE	134,373
DW	1,480
Cp	11,000
AIC	-3202,666
SBC	-3159,707
PC	0,942

Analysis of variance (Growth trajectory retention (8 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	10	0,007	0,001	4,545	**<0,0001**
Error	356	0,056	0,000		
Corrected To	366	0,063			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (8 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,001	0,001	-0,805	0,421	-0,004	0,002
AT	-0,012	0,004	-3,008	**0,003**	-0,021	-0,004
BE	-0,005	0,004	-1,511	0,132	-0,012	0,002
DE	0,002	0,002	1,441	0,150	-0,001	0,006
DK	0,011	0,006	1,862	0,063	-0,001	0,023
EL	0,000	0,000				
ES	0,000	0,000				
FI	-0,016	0,007	-2,335	**0,020**	-0,030	-0,003
FR	-0,006	0,003	-2,103	**0,036**	-0,012	0,000
IE	0,000	0,000				
IT	0,001	0,003	0,182	0,856	-0,005	0,007
LU	0,000	0,000				
NL	0,018	0,012	1,538	0,125	-0,005	0,041
PT	0,024	0,008	2,917	**0,004**	0,008	0,041
SE	-0,002	0,005	-0,529	0,597	-0,012	0,007
UK	-0,003	0,002	-1,696	0,091	-0,006	0,000

Analysis of RGVA-based resilience performance by Country for the crisis period 2008-2009

Kruskal-Wallis - Recovery of development level

Kruskal-Wallis test / Two-tailed test (Recovery of development level):

K (Observed	142,569
K (Critical va	23,685
DF	14
p-value (one-	< 0,0001
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
EL	1	2,000	2,000	A
IE	3	100,000	33,333	A
LU	1	79,000	79,000	A
SE	10	1726,000	172,600	A
FI	4	809,000	202,250	A
UK	159	40112,000	252,277	A
AT	30	8090,000	269,667	A
IT	56	17554,000	313,464	A
PT	10	3367,000	336,700	A
NL	21	7507,000	357,476	A
BE	38	14124,000	371,684	A
FR	88	33382,000	379,341	A
ES	2	819,000	409,500	A
DK	10	4329,000	432,900	A
DE	308	142911,000	463,997	A

Groupings could not be properly performed because the significance of differences is not transitive in this particular case.

Pairwise comparisons (Recovery of development level):

Differences:

	AT	BE	DE	DK	EL	ES	FI	FR	IE	IT	LU	NL	PT	SE	UK
AT	0	-102,018	**-194,330**	-163,233	267,667	-139,833	67,417	-109,674	236,333	-43,798	190,667	-87,810	-67,033	97,067	17,390
BE	102,018	0	-92,313	-61,216	369,684	-37,816	169,434	-7,657	338,351	58,220	292,684	14,208	34,984	199,084	119,407
DE	**194,330**	92,313	0	31,097	461,997	54,497	261,747	84,656	430,663	**150,532**	384,997	106,521	127,297	**291,397**	**211,720**
DK	163,233	61,216	-31,097	0	430,900	23,400	230,650	53,559	399,567	119,436	353,900	75,424	96,200	260,300	180,623
EL	-267,667	-369,684	-461,997	-430,900	0	-407,500	-200,250	-377,341	-31,333	-311,464	-77,000	-355,476	-334,700	-170,600	-250,277
ES	139,833	37,816	-54,497	-23,400	407,500	0	207,250	30,159	376,167	96,036	330,500	52,024	72,800	236,900	157,223
FI	-67,417	-169,434	-261,747	-230,650	200,250	-207,250	0	-177,091	168,917	-111,214	123,250	-155,226	-134,450	29,650	-50,027
FR	109,674	7,657	-84,656	-53,559	377,341	-30,159	177,091	0	346,008	65,877	300,341	21,865	42,641	206,741	**127,064**
IE	-236,333	-338,351	-430,663	-399,567	31,333	-376,167	-168,917	-346,008	0	-280,131	-45,667	-324,143	-303,367	-139,267	-218,943
IT	43,798	-58,220	**-150,532**	-119,436	311,464	-96,036	111,214	-65,877	280,131	0	234,464	-44,012	-23,236	140,864	61,188
LU	-190,667	-292,684	-384,997	-353,900	77,000	-330,500	-123,250	-300,341	45,667	-234,464	0	-278,476	-257,700	-93,600	-173,277
NL	87,810	-14,208	-106,521	-75,424	355,476	-52,024	155,226	-21,865	324,143	44,012	278,476	0	20,776	184,876	105,199
PT	67,033	-34,984	-127,297	-96,200	334,700	-72,800	134,450	-42,641	303,367	23,236	257,700	-20,776	0	164,100	84,423
SE	-97,067	-199,084	**-291,397**	-260,300	170,600	-236,900	-29,650	-206,741	139,267	-140,864	93,600	-184,876	-164,100	0	-79,677
UK	-17,390	-119,407	**-211,720**	-180,623	250,277	-157,223	50,027	**-127,064**	218,943	-61,188	173,277	-105,199	-84,423	79,677	0

p-values:

	AT	BE	DE	DK	EL	ES	FI	FR	IE	IT	LU	NL	PT	SE	UK
AT	1	0,051	**<0,0001**	0,037	0,219	0,371	0,554	0,015	0,068	0,366	0,381	0,149	0,391	0,214	0,683
BE	0,051	1	0,012	0,421	0,088	0,808	0,132	0,854	0,008	0,196	0,177	0,807	0,646	0,009	0,002
DE	**<0,0001**	0,012	1	0,651	0,031	0,720	0,015	0,001	0,001	**<0,0001**	0,073	0,027	0,064	**<0,0001**	**<0,0001**
DK	0,037	0,421	0,651	1	0,055	0,888	0,069	0,453	0,005	0,104	0,115	0,359	0,315	0,007	0,010
EL	0,219	0,088	0,031	0,055	1	0,120	0,403	0,080	0,899	0,149	0,799	0,105	0,136	0,447	0,244
ES	0,371	0,808	0,720	0,888	0,120	1	0,264	0,844	0,054	0,533	0,207	0,743	0,661	0,153	0,302
FI	0,554	0,132	0,015	0,069	0,403	0,264	1	0,106	0,301	0,315	0,607	0,184	0,288	0,815	0,644
FR	0,015	0,854	0,001	0,453	0,080	0,844	0,106	1	0,006	0,072	0,163	0,674	0,551	0,004	**<0,0001**
IE	0,068	0,008	0,001	0,005	0,899	0,054	0,301	0,006	1	0,027	0,853	0,014	0,031	0,323	0,079
IT	0,366	0,196	**<0,0001**	0,104	0,149	0,533	0,315	0,072	0,027	1	0,278	0,422	0,752	0,055	0,066
LU	0,381	0,177	0,073	0,115	0,799	0,207	0,607	0,163	0,853	0,278	1	0,204	0,251	0,677	0,420
NL	0,149	0,807	0,027	0,359	0,105	0,743	0,184	0,674	0,014	0,422	0,204	1	0,801	0,025	0,034
PT	0,391	0,646	0,064	0,315	0,136	0,661	0,288	0,551	0,031	0,752	0,251	0,801	1	0,086	0,226
SE	0,214	0,009	**<0,0001**	0,007	0,447	0,153	0,815	0,004	0,323	0,055	0,677	0,025	0,086	1	0,254
UK	0,683	0,002	**<0,0001**	0,010	0,244	0,302	0,644	**<0,0001**	0,079	0,066	0,420	0,034	0,226	0,254	1

Bonferroni corrected significance level: 0,0005

Analysis of RGVA-based resilience performance by Country for the crisis period 2008-2009

Kruskal-Wallis - Growth trajectory retention (4-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (4 years)):

K (Observed	104,724
K (Critical va	23,685
DF	14
p-value (one-	< 0,0001
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
EL	1	37,000	37,000	A
FI	4	749,000	187,250	A
AT	30	5673,000	189,100	A
SE	10	1951,000	195,100	A
BE	38	10008,000	263,368	A
FR	88	25593,000	290,830	A
UK	159	56367,000	354,509	A
IT	56	22034,000	393,464	A
DE	308	126229,000	409,834	A
IE	3	1453,000	484,333	A
LU	1	520,000	520,000	A
PT	10	5432,000	543,200	A
DK	10	5461,000	546,100	A
NL	21	12088,000	575,619	A
ES	2	1316,000	658,000	A

Groupings could not be properly performed because the significance of differences is not transitive in this particular case.

Pairwise comparisons (Growth trajectory retention (4 years)):

Differences:

	AT	BE	DE	DK	EL	ES	FI	FR	IE	IT	LU	NL	PT	SE	UK
AT	0	-74,268	**-220,734**	**-357,000**	152,100	-468,900	1,850	-101,730	-295,233	**-204,364**	-330,900	**-386,519**	**-354,100**	-6,000	**-165,409**
BE	74,268	0	**-146,466**	**-282,732**	226,368	-394,632	76,118	-27,461	-220,965	-130,096	-256,632	**-312,251**	**-279,832**	68,268	-91,141
DE	**220,734**	**146,466**	0	-136,266	372,834	-248,166	222,584	**119,005**	-74,499	16,370	-110,166	-165,785	-133,366	214,734	55,325
DK	**357,000**	**282,732**	136,266	0	509,100	-111,900	358,850	**255,270**	61,767	152,636	26,100	-29,519	2,900	**351,000**	191,591
EL	-152,100	-226,368	-372,834	-509,100	0	-621,000	-150,250	-253,830	-447,333	-356,464	-483,000	-538,619	-506,200	-158,100	-317,509
ES	468,900	394,632	248,166	111,900	621,000	0	470,750	367,170	173,667	264,536	138,000	82,381	114,800	462,900	303,491
FI	-1,850	-76,118	-222,584	-358,850	150,250	-470,750	0	-103,580	-297,083	-206,214	-332,750	-388,369	-355,950	-7,850	-167,259
FR	101,730	27,461	**-119,005**	**-255,270**	253,830	-367,170	103,580	0	-193,504	-102,635	-229,170	**-284,790**	**-252,370**	95,730	-63,680
IE	295,233	220,965	74,499	-61,767	447,333	-173,667	297,083	193,504	0	90,869	-35,667	-91,286	-58,867	289,233	129,824
IT	**204,364**	130,096	-16,370	-152,636	356,464	-264,536	206,214	102,635	-90,869	0	-126,536	-182,155	-149,736	198,364	38,955
LU	330,900	256,632	110,166	-26,100	483,000	-138,000	332,750	229,170	35,667	126,536	0	-55,619	-23,200	324,900	165,491
NL	**386,519**	**312,251**	165,785	29,519	538,619	-82,381	388,369	**284,790**	91,286	182,155	55,619	0	32,419	**380,519**	**221,110**
PT	**354,100**	**279,832**	133,366	-2,900	506,200	-114,800	355,950	**252,370**	58,867	149,736	23,200	-32,419	0	**348,100**	188,691
SE	6,000	-68,268	-214,734	**-351,000**	158,100	-462,900	7,850	-95,730	-289,233	-198,364	-324,900	**-380,519**	**-348,100**	0	-159,409
UK	**165,409**	91,141	-55,325	-191,591	317,509	-303,491	167,259	63,680	-129,824	-38,955	-165,491	**-221,110**	-188,691	159,409	0

p-values:

	AT	BE	DE	DK	EL	ES	FI	FR	IE	IT	LU	NL	PT	SE	UK
AT	1	0,155	**<0,0001**	**<0,0001**	0,485	0,003	0,987	0,025	0,023	**<0,0001**	0,128	**<0,0001**	**<0,0001**	0,939	**0,000**
BE	0,155	1	**<0,0001**	**0,000**	0,297	0,011	0,499	0,509	0,085	0,004	0,237	**<0,0001**	**0,000**	0,370	0,018
DE	**<0,0001**	**<0,0001**	1	0,048	0,082	0,102	0,039	**<0,0001**	0,549	0,599	0,607	0,001	0,052	0,002	0,008
DK	**<0,0001**	**0,000**	0,048	1	0,023	0,500	0,005	**0,000**	0,661	0,038	0,907	0,720	0,976	**0,000**	0,006
EL	0,485	0,297	0,082	0,023	1	0,018	0,530	0,238	0,070	0,099	0,111	0,014	0,024	0,481	0,139
ES	0,003	0,011	0,102	0,500	0,018	1	0,011	0,016	0,374	0,086	0,599	0,603	0,489	0,005	0,046
FI	0,987	0,499	0,039	0,005	0,530	0,011	1	0,344	0,069	0,063	0,164	0,001	0,005	0,951	0,123
FR	0,025	0,509	**<0,0001**	**0,000**	0,238	0,016	0,344	1	0,124	0,005	0,287	**<0,0001**	**0,000**	0,180	0,025
IE	0,023	0,085	0,549	0,661	0,070	0,374	0,069	0,124	1	0,474	0,885	0,490	0,676	0,040	0,298
IT	**<0,0001**	0,004	0,599	0,038	0,099	0,086	0,063	0,005	0,474	1	0,558	0,001	0,042	0,007	0,242
LU	0,128	0,237	0,607	0,907	0,111	0,599	0,164	0,287	0,885	0,558	1	0,800	0,918	0,148	0,441
NL	**<0,0001**	**<0,0001**	0,001	0,720	0,014	0,603	0,001	**<0,0001**	0,490	0,001	0,800	1	0,693	**<0,0001**	**<0,0001**
PT	**<0,0001**	**0,000**	0,052	0,976	0,024	0,489	0,005	**0,000**	0,676	0,042	0,918	0,693	1	**0,000**	0,007
SE	0,939	0,370	0,002	**0,000**	0,481	0,005	0,951	0,180	0,040	0,007	0,148	**<0,0001**	**0,000**	1	0,022
UK	**0,000**	0,018	0,008	0,006	0,139	0,046	0,123	0,025	0,298	0,242	0,441	**<0,0001**	0,007	0,022	1

Bonferroni corrected significance level: 0,0005

Analysis of RGVA-based resilience performance by Country for the crisis period 2008-2009

Kruskal-Wallis - Growth trajectory retention (4-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (8 years)):

K (Observed	46,162
K (Critical va	18,307
DF	10
p-value (one-	< 0,0001
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
EL	0			
ES	0			
IE	0			
LU	0			
AT	9	613,000	68,111	
FI	3	238,000	79,333	
FR	22	2754,000	125,182	
BE	13	1794,000	138,000	
SE	7	1081,000	154,429	
UK	66	10282,000	155,788	
IT	19	3557,000	187,211	
DE	221	45049,000	203,842	
DK	4	1120,000	280,000	
NL	1	339,000	339,000	
PT	2	701,000	350,500	

Groupings could not be properly performed because the significance of differences is not transitive in this particular case.

Pairwise comparisons (Growth trajectory retention (8 years)):

Differences:

	AT	BE	DE	DK	EL	ES	FI	FR	IE	IT	LU	NL	PT	SE	UK
AT	0	-69,889	**-135,731**	**-211,889**			-11,222	-57,071		-119,099		-270,889	**-282,389**	-86,317	-87,677
BE	69,889	0	-65,842	-142,000			58,667	12,818		-49,211		-201,000	-212,500	-16,429	-17,788
DE	**135,731**	65,842	0	-76,158			124,508	78,660		16,631		-135,158	-146,658	49,413	48,054
DK	**211,889**	142,000	76,158	0			200,667	154,818		92,789		-59,000	-70,500	125,571	124,212
EL															
ES															
FI	11,222	-58,667	-124,508	-200,667			0	-45,848		-107,877		-259,667	-271,167	-75,095	-76,455
FR	57,071	-12,818	-78,660	-154,818			45,848	0		-62,029		-213,818	-225,318	-29,247	-30,606
IE															
IT	119,099	49,211	-16,631	-92,789			107,877	62,029		0		-151,789	-163,289	32,782	31,423
LU															
NL	270,889	201,000	135,158	59,000			259,667	213,818		151,789		0	-11,500	184,571	183,212
PT	**282,389**	212,500	146,658	70,500			271,167	225,318		163,289		11,500	0	196,071	194,712
SE	86,317	16,429	-49,413	-125,571			75,095	29,247		-32,782		-184,571	-196,071	0	-1,359
UK	87,677	17,788	-48,054	-124,212			76,455	30,606		-31,423		-183,212	-194,712	1,359	0

p-values:

	AT	BE	DE	DK	EL	ES	FI	FR	IE	IT	LU	NL	PT	SE	UK
AT	1	0,129	**0,000**	**0,001**			0,874	0,174		0,006		0,015	**0,001**	0,106	0,020
BE	0,129	1	0,030	0,019			0,388	0,730		0,197		0,068	0,008	0,741	0,581
DE	**0,000**	0,030	1	0,155			0,043	0,001		0,512		0,204	0,052	0,225	0,001
DK	**0,001**	0,019	0,155	1			0,013	0,007		0,112		0,619	0,443	0,059	0,023
EL															
ES															
FI	0,874	0,388	0,043	0,013			1	0,483		0,102		0,034	0,005	0,305	0,222
FR	0,174	0,730	0,001	0,007			0,483	1		0,062		0,049	0,004	0,525	0,241
IE															
IT	0,006	0,197	0,512	0,112			0,102	0,062		1		0,163	0,038	0,485	0,255
LU															
NL	0,015	0,068	0,204	0,619			0,034	0,049		0,163		1	0,929	0,104	0,087
PT	**0,001**	0,008	0,052	0,443			0,005	0,004		0,038		0,929	1	0,021	0,011
SE	0,106	0,741	0,225	0,059			0,305	0,525		0,485		0,104	0,021	1	0,974
UK	0,020	0,581	0,001	0,023			0,222	0,241		0,255		0,087	0,011	0,974	1

Bonferroni corrected significance level: 0,0009

Analysis of RGVA-based resilience performance by country for observations falling between crisis periods

Correlation matrix:

	AT	BE	DE	EL	ES	FI	FR	IE	IT	NL	PT	UK	Growth trajectory retention (4 years)	Recovery of development level	Growth trajectory retention (8 years)
AT	**1**	0,866	0,584	0,689	0,697	0,866	0,747	0,823	0,603	0,844	0,724	-0,892	0,010	-0,075	-0,083
BE	0,866	**1**	0,676	0,766	0,774	0,947	0,824	0,902	0,688	0,923	0,802	-0,973	0,008	-0,088	-0,108
DE	0,584	0,676	**1**	0,451	0,463	0,676	0,531	0,626	0,296	0,650	0,501	-0,705	-0,138	-0,098	-0,295
EL	0,689	0,766	0,451	**1**	0,594	0,766	0,646	0,724	0,486	0,744	0,623	-0,791	-0,009	-0,072	-0,252
ES	0,697	0,774	0,463	0,594	**1**	0,774	0,654	0,731	0,496	0,752	0,631	-0,799	0,154	0,078	0,018
FI	0,866	0,947	0,676	0,766	0,774	**1**	0,824	0,902	0,688	0,923	0,802	-0,973	-0,003	-0,077	-0,120
FR	0,747	0,824	0,531	0,646	0,654	0,824	**1**	0,781	0,556	0,802	0,682	-0,849	0,027	-0,049	-0,014
IE	0,823	0,902	0,626	0,724	0,731	0,902	0,781	**1**	0,642	0,879	0,759	-0,928	0,095	-0,017	0,052
IT	0,603	0,688	0,296	0,486	0,496	0,688	0,556	0,642	**1**	0,663	0,530	-0,714	-0,073	-0,221	-0,104
NL	0,844	0,923	0,650	0,744	0,752	0,923	0,802	0,879	0,663	**1**	0,779	-0,949	0,020	-0,066	-0,087
PT	0,724	0,802	0,501	0,623	0,631	0,802	0,682	0,759	0,530	0,779	**1**	-0,827	0,074	-0,058	0,004
UK	-0,892	-0,973	-0,705	-0,791	-0,799	-0,973	-0,849	-0,928	-0,714	-0,949	-0,827	**1**	-0,007	0,087	0,117
Growth trajec	0,010	0,008	-0,138	-0,009	0,154	-0,003	0,027	0,095	-0,073	0,020	0,074	-0,007	**1**	0,605	0,783
Recovery of	-0,075	-0,088	-0,098	-0,072	0,078	-0,077	-0,049	-0,017	-0,221	-0,066	-0,058	0,087	0,605	**1**	0,479
Growth trajec	-0,083	-0,108	-0,295	-0,252	0,018	-0,120	-0,014	0,052	-0,104	-0,087	0,004	0,117	0,783	0,479	**1**

Analysis of RGVA-based resilience performance by country for observations falling between crisis periods

ANOVA - Recovery of development level

Goodness of fit statistics (Recovery of development level):

Observations	162
Sum of weigl	162
DF	150
R²	0,140
Adjusted R²	0,077
MSE	0,017
RMSE	0,131
MAPE	308,946
DW	1,706
Cp	12,000
AIC	-647,437
SBC	-610,385
PC	0,998

Analysis of variance (Recovery of development level):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	11	0,418	0,038	2,220	**0,016**
Error	150	2,567	0,017		
Corrected To	161	2,985			

Computed against model Y=Mean(Y)

Model parameters (Recovery of development level):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,029	0,020	-1,416	0,159	-0,069	0,011
AT	-0,029	0,057	-0,509	0,612	-0,142	0,084
BE	-0,057	0,121	-0,470	0,639	-0,296	0,182
DE	-0,043	0,026	-1,645	0,102	-0,096	0,009
EL	-0,036	0,038	-0,937	0,350	-0,110	0,039
ES	0,079	0,039	2,027	**0,044**	0,002	0,156
FI	0,030	0,121	0,248	0,805	-0,209	0,269
FR	-0,005	0,047	-0,099	0,921	-0,097	0,088
IE	0,138	0,072	1,914	0,057	-0,004	0,280
IT	-0,092	0,029	-3,180	**0,002**	-0,149	-0,035
NL	0,032	0,087	0,368	0,713	-0,140	0,204
PT	-0,020	0,043	-0,458	0,648	-0,104	0,065
UK	0,003	0,034	0,080	0,937	-0,064	0,069

ANOVA - Growth trajectory retention (4-year recovery period)

Goodness of fit statistics (Growth trajectory retention (4 years)):

Observations	162
Sum of weigl	162
DF	150
R²	0,166
Adjusted R²	0,105
MSE	0,001
RMSE	0,023
MAPE	168,801
DW	1,582
Cp	12,000
AIC	-1206,284
SBC	-1169,233
PC	0,967

Analysis of variance (Growth trajectory retention (4 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	11	0,016	0,001	2,719	**0,003**
Error	150	0,082	0,001		
Corrected To	161	0,098			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (4 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,005	0,004	1,434	0,154	-0,002	0,012
AT	-0,004	0,010	-0,418	0,677	-0,024	0,016
BE	-0,003	0,022	-0,151	0,881	-0,046	0,039
DE	-0,013	0,005	-2,663	**0,009**	-0,022	-0,003
EL	-0,007	0,007	-1,077	0,283	-0,021	0,006
ES	0,015	0,007	2,157	**0,033**	0,001	0,029
FI	-0,018	0,022	-0,818	0,415	-0,060	0,025
FR	-0,001	0,008	-0,142	0,887	-0,018	0,015
IE	0,037	0,013	2,916	**0,004**	0,012	0,063
IT	-0,011	0,005	-2,066	**0,041**	-0,021	0,000
NL	0,004	0,015	0,281	0,779	-0,026	0,035
PT	0,006	0,008	0,794	0,428	-0,009	0,021
UK	-0,006	0,006	-0,997	0,320	-0,018	0,006

ANOVA - Growth trajectory retention (8-year recovery period)

Goodness of fit statistics (Growth trajectory retention (8 years)):

Observations	135
Sum of weigl	135
DF	123
R²	0,410
Adjusted R²	0,358
MSE	0,000
RMSE	0,016
MAPE	264,478
DW	1,492
Cp	12,000
AIC	-1100,237
SBC	-1065,373
PC	0,705

Analysis of variance (Growth trajectory retention (8 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	11	0,023	0,002	7,781	**<0,0001**
Error	123	0,033	0,000		
Corrected To	134	0,055			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (8 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,004	0,003	1,407	0,162	-0,001	0,009
AT	-0,003	0,007	-0,420	0,675	-0,017	0,011
BE	-0,001	0,015	-0,093	0,926	-0,031	0,028
DE	-0,016	0,003	-4,691	**<0,0001**	-0,022	-0,009
EL	-0,028	0,006	-4,935	**<0,0001**	-0,039	-0,017
ES	0,004	0,005	0,757	0,451	-0,006	0,013
FI	-0,014	0,015	-0,947	0,345	-0,044	0,016
FR	0,005	0,006	0,894	0,373	-0,006	0,017
IE	0,050	0,009	5,611	**<0,0001**	0,033	0,068
IT	-0,009	0,004	-2,284	**0,024**	-0,017	-0,001
NL	0,005	0,011	0,471	0,639	-0,016	0,027
PT	0,007	0,006	1,209	0,229	-0,005	0,020
UK	0,000	0,005	-0,109	0,913	-0,009	0,008

Analysis of RGVA-based resilience performance by country for observations falling between crisis periods

Kruskal-Wallis - Recovery of development level

Kruskal-Wallis test / Two-tailed test (Recovery of development level):

K (Observed	26,696
K (Critical va	19,675
DF	11
p-value (one-	0,005
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
BE	1	59,000	59,000	A
IT	34	2199,000	64,676	A
DE	51	3691,000	72,373	A
AT	5	402,000	80,400	A
EL	14	1144,000	81,714	A
UK	20	1636,000	81,800	A
PT	10	900,000	90,000	A
FR	8	734,000	91,750	A
FI	1	116,000	116,000	A
NL	2	236,000	118,000	A
ES	13	1653,000	127,154	A
IE	3	433,000	144,333	A

Groupings could not be properly performed because the significance of differences is not transitive in this particular case.

Pairwise comparisons (Recovery of development level):

Differences:

	AT	BE	DE	EL	ES	FI	FR	IE	IT	NL	PT	UK
AT	0	21,400	8,027	-1,314	-46,754	-35,600	-11,350	-63,933	15,724	-37,600	-9,600	-1,400
BE	-21,400	0	-13,373	-22,714	-68,154	-57,000	-32,750	-85,333	-5,676	-59,000	-31,000	-22,800
DE	-8,027	13,373	0	-9,342	**-54,781**	-43,627	-19,377	-71,961	7,696	-45,627	-17,627	-9,427
EL	1,314	22,714	9,342	0	-45,440	-34,286	-10,036	-62,619	17,038	-36,286	-8,286	-0,086
ES	46,754	68,154	**54,781**	45,440	0	11,154	35,404	-17,179	**62,477**	9,154	37,154	45,354
FI	35,600	57,000	43,627	34,286	-11,154	0	24,250	-28,333	51,324	-2,000	26,000	34,200
FR	11,350	32,750	19,377	10,036	-35,404	-24,250	0	-52,583	27,074	-26,250	1,750	9,950
IE	63,933	85,333	71,961	62,619	17,179	28,333	52,583	0	79,657	26,333	54,333	62,533
IT	-15,724	5,676	-7,696	-17,038	**-62,477**	-51,324	-27,074	-79,657	0	-53,324	-25,324	-17,124
NL	37,600	59,000	45,627	36,286	-9,154	2,000	26,250	-26,333	53,324	0	28,000	36,200
PT	9,600	31,000	17,627	8,286	-37,154	-26,000	-1,750	-54,333	25,324	-28,000	0	8,200
UK	1,400	22,800	9,427	0,086	-45,354	-34,200	-9,950	-62,533	17,124	-36,200	-8,200	0

p-values:

	AT	BE	DE	EL	ES	FI	FR	IE	IT	NL	PT	UK
AT	1	0,677	0,715	0,957	0,058	0,488	0,671	0,062	0,484	0,338	0,709	0,952
BE	0,677	1	0,778	0,640	0,162	0,390	0,510	0,115	0,905	0,304	0,529	0,635
DE	0,715	0,778	1	0,509	**0,000**	0,357	0,277	0,010	0,459	0,177	0,277	0,446
EL	0,957	0,640	0,509	1	0,012	0,480	0,629	0,036	0,253	0,306	0,670	0,996
ES	0,058	0,162	**0,000**	0,012	1	0,819	0,093	0,567	**<0,0001**	0,797	0,060	0,007
FI	0,488	0,390	0,357	0,480	0,819	1	0,626	0,601	0,281	0,972	0,597	0,477
FR	0,671	0,510	0,277	0,629	0,093	0,626	1	0,098	0,142	0,479	0,937	0,612
IE	0,062	0,115	0,010	0,036	0,567	0,601	0,098	1	0,005	0,539	0,078	0,031
IT	0,484	0,905	0,459	0,253	**<0,0001**	0,281	0,142	0,005	1	0,118	0,133	0,195
NL	0,338	0,304	0,177	0,306	0,797	0,972	0,479	0,539	0,118	1	0,441	0,298
PT	0,709	0,529	0,277	0,670	0,060	0,597	0,937	0,078	0,133	0,441	1	0,652
UK	0,952	0,635	0,446	0,996	0,007	0,477	0,612	0,031	0,195	0,298	0,652	1

Bonferroni corrected significance level: 0,0008

Analysis of RGVA-based resilience performance by country for observations falling between crisis periods

Kruskal-Wallis - Growth trajectory retention (4-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (4 years)):

K (Observed	28,670
K (Critical va	19,675
DF	11
p-value (one-	0,003
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
FI	1	47,000	47,000	A
DE	51	3290,000	64,510	A
IT	34	2423,000	71,265	A
AT	5	413,000	82,600	A
UK	20	1664,000	83,200	A
BE	1	88,000	88,000	A
EL	14	1249,000	89,214	A
FR	8	776,000	97,000	A
PT	10	998,000	99,800	A
NL	2	218,000	109,000	A
ES	13	1580,000	121,538	A
IE	3	457,000	152,333	A

Groupings could not be properly performed because the significance of differences is not transitive in this particular case.

Pairwise comparisons (Growth trajectory retention (4 years)):

Differences:

	AT	BE	DE	EL	ES	FI	FR	IE	IT	NL	PT	UK
AT	0	-5,400	18,090	-6,614	-38,938	35,600	-14,400	-69,733	11,335	-26,400	-17,200	-0,600
BE	5,400	0	23,490	-1,214	-33,538	41,000	-9,000	-64,333	16,735	-21,000	-11,800	4,800
DE	-18,090	-23,490	0	-24,704	**-57,029**	17,510	-32,490	-87,824	-6,755	-44,490	-35,290	-18,690
EL	6,614	1,214	24,704	0	-32,324	42,214	-7,786	-63,119	17,950	-19,786	-10,586	6,014
ES	38,938	33,538	**57,029**	32,324	0	74,538	24,538	-30,795	50,274	12,538	21,738	38,338
FI	-35,600	-41,000	-17,510	-42,214	-74,538	0	-50,000	-105,333	-24,265	-62,000	-52,800	-36,200
FR	14,400	9,000	32,490	7,786	-24,538	50,000	0	-55,333	25,735	-12,000	-2,800	13,800
IE	69,733	64,333	87,824	63,119	30,795	105,333	55,333	0	81,069	43,333	52,533	69,133
IT	-11,335	-16,735	6,755	-17,950	-50,274	24,265	-25,735	-81,069	0	-37,735	-28,535	-11,935
NL	26,400	21,000	44,490	19,786	-12,538	62,000	12,000	-43,333	37,735	0	9,200	25,800
PT	17,200	11,800	35,290	10,586	-21,738	52,800	2,800	-52,533	28,535	-9,200	0	16,600
UK	0,600	-4,800	18,690	-6,014	-38,338	36,200	-13,800	-69,133	11,935	-25,800	-16,600	0

p-values:

	AT	BE	DE	EL	ES	FI	FR	IE	IT	NL	PT	UK
AT	1	0,916	0,411	0,787	0,115	0,488	0,590	0,042	0,614	0,501	0,503	0,980
BE	0,916	1	0,620	0,980	0,491	0,537	0,856	0,235	0,725	0,715	0,810	0,920
DE	0,411	0,620	1	0,081	**<0,0001**	0,712	0,069	0,002	0,515	0,188	0,030	0,131
EL	0,787	0,980	0,081	1	0,074	0,385	0,708	0,034	0,228	0,577	0,586	0,713
ES	0,115	0,491	**<0,0001**	0,074	1	0,126	0,244	0,305	0,001	0,725	0,271	0,022
FI	0,488	0,537	0,712	0,385	0,126	1	0,315	0,052	0,610	0,281	0,283	0,451
FR	0,590	0,856	0,069	0,708	0,244	0,315	1	0,081	0,163	0,746	0,900	0,482
IE	0,042	0,235	0,002	0,034	0,305	0,052	0,081	1	0,004	0,312	0,089	0,017
IT	0,614	0,725	0,515	0,228	0,001	0,610	0,163	0,004	1	0,269	0,091	0,367
NL	0,501	0,715	0,188	0,577	0,725	0,281	0,746	0,312	0,269	1	0,800	0,458
PT	0,503	0,810	0,030	0,586	0,271	0,283	0,900	0,089	0,091	0,800	1	0,361
UK	0,980	0,920	0,131	0,713	0,022	0,451	0,482	0,017	0,367	0,458	0,361	1

Bonferroni corrected significance level: 0,0008

Analysis of RGVA-based resilience performance by country for observations falling between crisis periods

Kruskal-Wallis - Growth trajectory retention (8-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (8 years)):

K (Observed	45,717
K (Critical va	19,675
DF	11
p-value (one-	< 0,0001
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups	
EL	9	348,000	38,667	A	
DE	47	2222,000	47,277	A	
FI	1	50,000	50,000	A	B
IT	23	1469,000	63,870	A	B
AT	5	394,000	78,800	A	B
UK	16	1336,000	83,500	A	B
BE	1	86,000	86,000	A	B
NL	2	183,000	91,500	A	B
ES	13	1206,000	92,769	A	B
PT	7	679,000	97,000	A	B
FR	8	805,000	100,625	A	B
IE	3	402,000	134,000		B

Pairwise comparisons (Growth trajectory retention (8 years)):

Differences:

	AT	BE	DE	EL	ES	FI	FR	IE	IT	NL	PT	UK
AT	0	-7,200	31,523	40,133	-13,969	28,800	-21,825	-55,200	14,930	-12,700	-18,200	-4,700
BE	7,200	0	38,723	47,333	-6,769	36,000	-14,625	-48,000	22,130	-5,500	-11,000	2,500
DE	-31,523	-38,723	0	8,610	**-45,493**	-2,723	**-53,348**	**-86,723**	-16,593	-44,223	-49,723	-36,223
EL	-40,133	-47,333	-8,610	0	-54,103	-11,333	-61,958	**-95,333**	-25,203	-52,833	-58,333	-44,833
ES	13,969	6,769	**45,493**	54,103	0	42,769	-7,856	-41,231	28,900	1,269	-4,231	9,269
FI	-28,800	-36,000	2,723	11,333	-42,769	0	-50,625	-84,000	-13,870	-41,500	-47,000	-33,500
FR	21,825	14,625	**53,348**	61,958	7,856	50,625	0	-33,375	36,755	9,125	3,625	17,125
IE	55,200	48,000	**86,723**	**95,333**	41,231	84,000	33,375	0	70,130	42,500	37,000	50,500
IT	-14,930	-22,130	16,593	25,203	-28,900	13,870	-36,755	-70,130	0	-27,630	-33,130	-19,630
NL	12,700	5,500	44,223	52,833	-1,269	41,500	-9,125	-42,500	27,630	0	-5,500	8,000
PT	18,200	11,000	49,723	58,333	4,231	47,000	-3,625	-37,000	33,130	5,500	0	13,500
UK	4,700	-2,500	36,223	44,833	-9,269	33,500	-17,125	-50,500	19,630	-8,000	-13,500	0

p-values:

	AT	BE	DE	EL	ES	FI	FR	IE	IT	NL	PT	UK
AT	1	0,867	0,087	0,066	0,497	0,501	0,328	0,053	0,439	0,698	0,427	0,815
BE	0,867	1	0,327	0,251	0,868	0,515	0,724	0,288	0,580	0,909	0,793	0,951
DE	0,087	0,327	1	0,545	**0,000**	0,945	**0,000**	**0,000**	0,096	0,117	0,002	0,001
EL	0,066	0,251	0,545	1	0,001	0,783	0,001	**0,000**	0,101	0,084	0,003	0,006
ES	0,497	0,868	**0,000**	0,001	1	0,292	0,655	0,100	0,033	0,966	0,818	0,526
FI	0,501	0,515	0,945	0,783	0,292	1	0,222	0,063	0,729	0,386	0,261	0,406
FR	0,328	0,724	**0,000**	0,001	0,655	0,222	1	0,208	0,022	0,768	0,858	0,312
IE	0,053	0,288	**0,000**	**0,000**	0,100	0,063	0,208	1	0,003	0,234	0,170	0,040
IT	0,439	0,580	0,096	0,101	0,033	0,729	0,022	0,003	1	0,338	0,050	0,123
NL	0,698	0,909	0,117	0,084	0,966	0,386	0,768	0,234	0,338	1	0,861	0,785
PT	0,427	0,793	0,002	0,003	0,818	0,261	0,858	0,170	0,050	0,861	1	0,446
UK	0,815	0,951	0,001	0,006	0,526	0,406	0,312	0,040	0,123	0,785	0,446	1

Bonferroni corrected significance level: 0,0008

Analysis of Employment-based resilience performance by country for observations falling between crisis periods

Correlation matrix:

	AT	BE	DE	EL	ES	FI	FR	IE	IT	NL	PT	UK	Growth trajectory retention (4 years)	Recovery of development level	Growth trajectory retention (8 years)
AT	**1**	0,866	0,584	0,689	0,697	0,866	0,747	0,823	0,603	0,844	0,724	-0,892	0,010	-0,075	-0,083
BE	0,866	**1**	0,676	0,766	0,774	0,947	0,824	0,902	0,688	0,923	0,802	-0,973	0,008	-0,088	-0,108
DE	0,584	0,676	**1**	0,451	0,463	0,676	0,531	0,626	0,296	0,650	0,501	-0,705	-0,138	-0,098	-0,295
EL	0,689	0,766	0,451	**1**	0,594	0,766	0,646	0,724	0,486	0,744	0,623	-0,791	-0,009	-0,072	-0,252
ES	0,697	0,774	0,463	0,594	**1**	0,774	0,654	0,731	0,496	0,752	0,631	-0,799	0,154	0,078	0,018
FI	0,866	0,947	0,676	0,766	0,774	**1**	0,824	0,902	0,688	0,923	0,802	-0,973	-0,003	-0,077	-0,120
FR	0,747	0,824	0,531	0,646	0,654	0,824	**1**	0,781	0,556	0,802	0,682	-0,849	0,027	-0,049	-0,014
IE	0,823	0,902	0,626	0,724	0,731	0,902	0,781	**1**	0,642	0,879	0,759	-0,928	0,095	-0,017	0,052
IT	0,603	0,688	0,296	0,486	0,496	0,688	0,556	0,642	**1**	0,663	0,530	-0,714	-0,073	-0,221	-0,104
NL	0,844	0,923	0,650	0,744	0,752	0,923	0,802	0,879	0,663	**1**	0,779	-0,949	0,020	-0,066	-0,087
PT	0,724	0,802	0,501	0,623	0,631	0,802	0,682	0,759	0,530	0,779	**1**	-0,827	0,074	-0,058	0,004
UK	-0,892	-0,973	-0,705	-0,791	-0,799	-0,973	-0,849	-0,928	-0,714	-0,949	-0,827	**1**	-0,007	0,087	0,117
Growth traje	0,010	0,008	-0,138	-0,009	0,154	-0,003	0,027	0,095	-0,073	0,020	0,074	-0,007	**1**	0,605	0,783
Recovery of	-0,075	-0,088	-0,098	-0,072	0,078	-0,077	-0,049	-0,017	-0,221	-0,066	-0,058	0,087	0,605	**1**	0,479
Growth traje	-0,083	-0,108	-0,295	-0,252	0,018	-0,120	-0,014	0,052	-0,104	-0,087	0,004	0,117	0,783	0,479	**1**

Analysis of Employment-based resilience performance by country for observations falling between crisis periods

ANOVA - Recovery of development level

Goodness of fit statistics (Recovery of development level):

Observations	162
Sum of weigl	162
DF	150
R²	0,140
Adjusted R²	0,077
MSE	0,017
RMSE	0,131
MAPE	308,946
DW	1,706
Cp	12,000
AIC	-647,437
SBC	-610,385
PC	0,998

Analysis of variance (Recovery of development level):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	11	0,418	0,038	2,220	**0,016**
Error	150	2,567	0,017		
Corrected To	161	2,985			

Computed against model Y=Mean(Y)

Model parameters (Recovery of development level):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,029	0,020	-1,416	0,159	-0,069	0,011
AT	-0,029	0,057	-0,509	0,612	-0,142	0,084
BE	-0,057	0,121	-0,470	0,639	-0,296	0,182
DE	-0,043	0,026	-1,645	0,102	-0,096	0,009
EL	-0,036	0,038	-0,937	0,350	-0,110	0,039
ES	0,079	0,039	2,027	**0,044**	0,002	0,156
FI	0,030	0,121	0,248	0,805	-0,209	0,269
FR	-0,005	0,047	-0,099	0,921	-0,097	0,088
IE	0,138	0,072	1,914	0,057	-0,004	0,280
IT	-0,092	0,029	-3,180	**0,002**	-0,149	-0,035
NL	0,032	0,087	0,368	0,713	-0,140	0,204
PT	-0,020	0,043	-0,458	0,648	-0,104	0,065
UK	0,003	0,034	0,080	0,937	-0,064	0,069

ANOVA - Growth trajectory retention (4-year recovery period)

Goodness of fit statistics (Growth trajectory retention (4 years)):

Observations	162
Sum of weigl	162
DF	150
R²	0,166
Adjusted R²	0,105
MSE	0,001
RMSE	0,023
MAPE	168,801
DW	1,582
Cp	12,000
AIC	-1206,284
SBC	-1169,233
PC	0,967

Analysis of variance (Growth trajectory retention (4 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	11	0,016	0,001	2,719	**0,003**
Error	150	0,082	0,001		
Corrected To	161	0,098			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (4 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,005	0,004	1,434	0,154	-0,002	0,012
AT	-0,004	0,010	-0,418	0,677	-0,024	0,016
BE	-0,003	0,022	-0,151	0,881	-0,046	0,039
DE	-0,013	0,005	-2,663	**0,009**	-0,022	-0,003
EL	-0,007	0,007	-1,077	0,283	-0,021	0,006
ES	0,015	0,007	2,157	**0,033**	0,001	0,029
FI	-0,018	0,022	-0,818	0,415	-0,060	0,025
FR	-0,001	0,008	-0,142	0,887	-0,018	0,015
IE	0,037	0,013	2,916	**0,004**	0,012	0,063
IT	-0,011	0,005	-2,066	**0,041**	-0,021	0,000
NL	0,004	0,015	0,281	0,779	-0,026	0,035
PT	0,006	0,008	0,794	0,428	-0,009	0,021
UK	-0,006	0,006	-0,997	0,320	-0,018	0,006

ANOVA - Growth trajectory retention (8-year recovery period)

Goodness of fit statistics (Growth trajectory retention (8 years)):

Observations	135
Sum of weigl	135
DF	123
R²	0,410
Adjusted R²	0,358
MSE	0,000
RMSE	0,016
MAPE	264,478
DW	1,492
Cp	12,000
AIC	-1100,237
SBC	-1065,373
PC	0,705

Analysis of variance (Growth trajectory retention (8 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	11	0,023	0,002	7,781	**<0,0001**
Error	123	0,033	0,000		
Corrected To	134	0,055			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (8 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,004	0,003	1,407	0,162	-0,001	0,009
AT	-0,003	0,007	-0,420	0,675	-0,017	0,011
BE	-0,001	0,015	-0,093	0,926	-0,031	0,028
DE	-0,016	0,003	-4,691	**<0,0001**	-0,022	-0,009
EL	-0,028	0,006	-4,935	**<0,0001**	-0,039	-0,017
ES	0,004	0,005	0,757	0,451	-0,006	0,013
FI	-0,014	0,015	-0,947	0,345	-0,044	0,016
FR	0,005	0,006	0,894	0,373	-0,006	0,017
IE	0,050	0,009	5,611	**<0,0001**	0,033	0,068
IT	-0,009	0,004	-2,284	**0,024**	-0,017	-0,001
NL	0,005	0,011	0,471	0,639	-0,016	0,027
PT	0,007	0,006	1,209	0,229	-0,005	0,020
UK	0,000	0,005	-0,109	0,913	-0,009	0,008

Analysis of Employment-based resilience performance by country for observations falling between crisis periods

Kruskal-Wallis - Recovery of development level

Kruskal-Wallis test / Two-tailed test (Recovery of development level):

K (Observed	26,696
K (Critical va	19,675
DF	11
p-value (one-	0,005
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
BE	1	59,000	59,000	A
IT	34	2199,000	64,676	A
DE	51	3691,000	72,373	A
AT	5	402,000	80,400	A
EL	14	1144,000	81,714	A
UK	20	1636,000	81,800	A
PT	10	900,000	90,000	A
FR	8	734,000	91,750	A
FI	1	116,000	116,000	A
NL	2	236,000	118,000	A
ES	13	1653,000	127,154	A
IE	3	433,000	144,333	A

Groupings could not be properly performed because the significance of differences is not transitive in this particular case.

Pairwise comparisons (Recovery of development level):

Differences:

	AT	BE	DE	EL	ES	FI	FR	IE	IT	NL	PT	UK
AT	0	21,400	8,027	-1,314	-46,754	-35,600	-11,350	-63,933	15,724	-37,600	-9,600	-1,400
BE	-21,400	0	-13,373	-22,714	-68,154	-57,000	-32,750	-85,333	-5,676	-59,000	-31,000	-22,800
DE	-8,027	13,373	0	-9,342	**-54,781**	-43,627	-19,377	-71,961	7,696	-45,627	-17,627	-9,427
EL	1,314	22,714	9,342	0	-45,440	-34,286	-10,036	-62,619	17,038	-36,286	-8,286	-0,086
ES	46,754	68,154	**54,781**	45,440	0	11,154	35,404	-17,179	**62,477**	9,154	37,154	45,354
FI	35,600	57,000	43,627	34,286	-11,154	0	24,250	-28,333	51,324	-2,000	26,000	34,200
FR	11,350	32,750	19,377	10,036	-35,404	-24,250	0	-52,583	27,074	-26,250	1,750	9,950
IE	63,933	85,333	71,961	62,619	17,179	28,333	52,583	0	79,657	26,333	54,333	62,533
IT	-15,724	5,676	-7,696	-17,038	**-62,477**	-51,324	-27,074	-79,657	0	-53,324	-25,324	-17,124
NL	37,600	59,000	45,627	36,286	-9,154	2,000	26,250	-26,333	53,324	0	28,000	36,200
PT	9,600	31,000	17,627	8,286	-37,154	-26,000	-1,750	-54,333	25,324	-28,000	0	8,200
UK	1,400	22,800	9,427	0,086	-45,354	-34,200	-9,950	-62,533	17,124	-36,200	-8,200	0

p-values:

	AT	BE	DE	EL	ES	FI	FR	IE	IT	NL	PT	UK
AT	1	0,677	0,715	0,957	0,058	0,488	0,671	0,062	0,484	0,338	0,709	0,952
BE	0,677	1	0,778	0,640	0,162	0,390	0,510	0,115	0,905	0,304	0,529	0,635
DE	0,715	0,778	1	0,509	**0,000**	0,357	0,277	0,010	0,459	0,177	0,277	0,446
EL	0,957	0,640	0,509	1	0,012	0,480	0,629	0,036	0,253	0,306	0,670	0,996
ES	0,058	0,162	**0,000**	0,012	1	0,819	0,093	0,567	**<0,0001**	0,797	0,060	0,007
FI	0,488	0,390	0,357	0,480	0,819	1	0,626	0,601	0,281	0,972	0,597	0,477
FR	0,671	0,510	0,277	0,629	0,093	0,626	1	0,098	0,142	0,479	0,937	0,612
IE	0,062	0,115	0,010	0,036	0,567	0,601	0,098	1	0,005	0,539	0,078	0,031
IT	0,484	0,905	0,459	0,253	**<0,0001**	0,281	0,142	0,005	1	0,118	0,133	0,195
NL	0,338	0,304	0,177	0,306	0,797	0,972	0,479	0,539	0,118	1	0,441	0,298
PT	0,709	0,529	0,277	0,670	0,060	0,597	0,937	0,078	0,133	0,441	1	0,652
UK	0,952	0,635	0,446	0,996	0,007	0,477	0,612	0,031	0,195	0,298	0,652	1

Bonferroni corrected significance level: 0,0008

Analysis of Employment-based resilience performance by country for observations falling between crisis periods

Kruskal-Wallis - Growth trajectory retention (4-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (4 years)):

K (Observed	28,670
K (Critical va	19,675
DF	11
p-value (one-	0,003
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
FI	1	47,000	47,000	A
DE	51	3290,000	64,510	A
IT	34	2423,000	71,265	A
AT	5	413,000	82,600	A
UK	20	1664,000	83,200	A
BE	1	88,000	88,000	A
EL	14	1249,000	89,214	A
FR	8	776,000	97,000	A
PT	10	998,000	99,800	A
NL	2	218,000	109,000	A
ES	13	1580,000	121,538	A
IE	3	457,000	152,333	A

Groupings could not be properly performed because the significance of differences is not transitive in this particular case.

Pairwise comparisons (Growth trajectory retention (4 years)):

Differences:

	AT	BE	DE	EL	ES	FI	FR	IE	IT	NL	PT	UK
AT	0	-5,400	18,090	-6,614	-38,938	35,600	-14,400	-69,733	11,335	-26,400	-17,200	-0,600
BE	5,400	0	23,490	-1,214	-33,538	41,000	-9,000	-64,333	16,735	-21,000	-11,800	4,800
DE	-18,090	-23,490	0	-24,704	**-57,029**	17,510	-32,490	-87,824	-6,755	-44,490	-35,290	-18,690
EL	6,614	1,214	24,704	0	-32,324	42,214	-7,786	-63,119	17,950	-19,786	-10,586	6,014
ES	38,938	33,538	**57,029**	32,324	0	74,538	24,538	-30,795	50,274	12,538	21,738	38,338
FI	-35,600	-41,000	-17,510	-42,214	-74,538	0	-50,000	-105,333	-24,265	-62,000	-52,800	-36,200
FR	14,400	9,000	32,490	7,786	-24,538	50,000	0	-55,333	25,735	-12,000	-2,800	13,800
IE	69,733	64,333	87,824	63,119	30,795	105,333	55,333	0	81,069	43,333	52,533	69,133
IT	-11,335	-16,735	6,755	-17,950	-50,274	24,265	-25,735	-81,069	0	-37,735	-28,535	-11,935
NL	26,400	21,000	44,490	19,786	-12,538	62,000	12,000	-43,333	37,735	0	9,200	25,800
PT	17,200	11,800	35,290	10,586	-21,738	52,800	2,800	-52,533	28,535	-9,200	0	16,600
UK	0,600	-4,800	18,690	-6,014	-38,338	36,200	-13,800	-69,133	11,935	-25,800	-16,600	0

p-values:

	AT	BE	DE	EL	ES	FI	FR	IE	IT	NL	PT	UK
AT	1	0,916	0,411	0,787	0,115	0,488	0,590	0,042	0,614	0,501	0,503	0,980
BE	0,916	1	0,620	0,980	0,491	0,537	0,856	0,235	0,725	0,715	0,810	0,920
DE	0,411	0,620	1	0,081	**<0,0001**	0,712	0,069	0,002	0,515	0,188	0,030	0,131
EL	0,787	0,980	0,081	1	0,074	0,385	0,708	0,034	0,228	0,577	0,586	0,713
ES	0,115	0,491	**<0,0001**	0,074	1	0,126	0,244	0,305	0,001	0,725	0,271	0,022
FI	0,488	0,537	0,712	0,385	0,126	1	0,315	0,052	0,610	0,281	0,283	0,451
FR	0,590	0,856	0,069	0,708	0,244	0,315	1	0,081	0,163	0,746	0,900	0,482
IE	0,042	0,235	0,002	0,034	0,305	0,052	0,081	1	0,004	0,312	0,089	0,017
IT	0,614	0,725	0,515	0,228	0,001	0,610	0,163	0,004	1	0,269	0,091	0,367
NL	0,501	0,715	0,188	0,577	0,725	0,281	0,746	0,312	0,269	1	0,800	0,458
PT	0,503	0,810	0,030	0,586	0,271	0,283	0,900	0,089	0,091	0,800	1	0,361
UK	0,980	0,920	0,131	0,713	0,022	0,451	0,482	0,017	0,367	0,458	0,361	1

Bonferroni corrected significance level: 0,0008

Analysis of Employment-based resilience performance by country for observations falling between crisis periods

Kruskal-Wallis - Growth trajectory retention (8-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (8 years)):

K (Observed	45,717
K (Critical va	19,675
DF	11
p-value (one-	< 0,0001
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups	
EL	9	348,000	38,667	A	
DE	47	2222,000	47,277	A	
FI	1	50,000	50,000	A	B
IT	23	1469,000	63,870	A	B
AT	5	394,000	78,800	A	B
UK	16	1336,000	83,500	A	B
BE	1	86,000	86,000	A	B
NL	2	183,000	91,500	A	B
ES	13	1206,000	92,769	A	B
PT	7	679,000	97,000	A	B
FR	8	805,000	100,625	A	B
IE	3	402,000	134,000		B

Pairwise comparisons (Growth trajectory retention (8 years)):

Differences:

	AT	BE	DE	EL	ES	FI	FR	IE	IT	NL	PT	UK
AT	0	-7,200	31,523	40,133	-13,969	28,800	-21,825	-55,200	14,930	-12,700	-18,200	-4,700
BE	7,200	0	38,723	47,333	-6,769	36,000	-14,625	-48,000	22,130	-5,500	-11,000	2,500
DE	-31,523	-38,723	0	8,610	**-45,493**	-2,723	**-53,348**	**-86,723**	-16,593	-44,223	-49,723	-36,223
EL	-40,133	-47,333	-8,610	0	-54,103	-11,333	-61,958	**-95,333**	-25,203	-52,833	-58,333	-44,833
ES	13,969	6,769	**45,493**	54,103	0	42,769	-7,856	-41,231	28,900	1,269	-4,231	9,269
FI	-28,800	-36,000	2,723	11,333	-42,769	0	-50,625	-84,000	-13,870	-41,500	-47,000	-33,500
FR	21,825	14,625	**53,348**	61,958	7,856	50,625	0	-33,375	36,755	9,125	3,625	17,125
IE	55,200	48,000	**86,723**	**95,333**	41,231	84,000	33,375	0	70,130	42,500	37,000	50,500
IT	-14,930	-22,130	16,593	25,203	-28,900	13,870	-36,755	-70,130	0	-27,630	-33,130	-19,630
NL	12,700	5,500	44,223	52,833	-1,269	41,500	-9,125	-42,500	27,630	0	-5,500	8,000
PT	18,200	11,000	49,723	58,333	4,231	47,000	-3,625	-37,000	33,130	5,500	0	13,500
UK	4,700	-2,500	36,223	44,833	-9,269	33,500	-17,125	-50,500	19,630	-8,000	-13,500	0

p-values:

	AT	BE	DE	EL	ES	FI	FR	IE	IT	NL	PT	UK
AT	1	0,867	0,087	0,066	0,497	0,501	0,328	0,053	0,439	0,698	0,427	0,815
BE	0,867	1	0,327	0,251	0,868	0,515	0,724	0,288	0,580	0,909	0,793	0,951
DE	0,087	0,327	1	0,545	**0,000**	0,945	**0,000**	**0,000**	0,096	0,117	0,002	0,001
EL	0,066	0,251	0,545	1	0,001	0,783	0,001	**0,000**	0,101	0,084	0,003	0,006
ES	0,497	0,868	**0,000**	0,001	1	0,292	0,655	0,100	0,033	0,966	0,818	0,526
FI	0,501	0,515	0,945	0,783	0,292	1	0,222	0,063	0,729	0,386	0,261	0,406
FR	0,328	0,724	**0,000**	0,001	0,655	0,222	1	0,208	0,022	0,768	0,858	0,312
IE	0,053	0,288	**0,000**	**0,000**	0,100	0,063	0,208	1	0,003	0,234	0,170	0,040
IT	0,439	0,580	0,096	0,101	0,033	0,729	0,022	0,003	1	0,338	0,050	0,123
NL	0,698	0,909	0,117	0,084	0,966	0,386	0,768	0,234	0,338	1	0,861	0,785
PT	0,427	0,793	0,002	0,003	0,818	0,261	0,858	0,170	0,050	0,861	1	0,446
UK	0,815	0,951	0,001	0,006	0,526	0,406	0,312	0,040	0,123	0,785	0,446	1

Bonferroni corrected significance level: 0,0008

Analysis of Employment-based resilience performance by Country for the crisis period 1990-1993

Correlation matrix:

	AT	BE	DE	DK	EL	ES	FI	FR	IE	IT	NL	PT	SE	UK	Growth trajectory retention (4 years)	Recovery of development level	Growth trajectory retention (8 years)
AT	**1**	0,965	0,794	0,977	0,866	0,854	0,921	0,933	0,980	0,811	0,965	0,921	0,916	-0,984	0,189	0,283	0,130
BE	0,965	**1**	0,789	0,973	0,862	0,850	0,918	0,929	0,977	0,807	0,962	0,918	0,912	-0,981	0,189	0,283	0,130
DE	0,794	0,789	**1**	0,805	0,640	0,619	0,727	0,743	0,810	0,533	0,789	0,727	0,719	-0,815	-0,015	0,103	-0,177
DK	0,977	0,973	0,805	**1**	0,874	0,861	0,929	0,940	0,988	0,819	0,973	0,929	0,924	-0,992	0,192	0,279	0,130
EL	0,866	0,862	0,640	0,874	**1**	0,744	0,817	0,828	0,878	0,694	0,862	0,817	0,811	-0,882	0,174	0,378	0,156
ES	0,854	0,850	0,619	0,861	0,744	**1**	0,804	0,816	0,865	0,678	0,850	0,804	0,798	-0,869	0,283	0,277	0,241
FI	0,921	0,918	0,727	0,929	0,817	0,804	**1**	0,885	0,933	0,759	0,918	0,873	0,868	-0,937	0,226	0,244	0,183
FR	0,933	0,929	0,743	0,940	0,828	0,816	0,885	**1**	0,944	0,771	0,929	0,885	0,879	-0,948	0,168	0,300	0,134
IE	0,980	0,977	0,810	0,988	0,878	0,865	0,933	0,944	**1**	0,824	0,977	0,933	0,928	-0,996	0,198	0,278	0,142
IT	0,811	0,807	0,533	0,819	0,694	0,678	0,759	0,771	0,824	**1**	0,807	0,759	0,753	-0,828	0,220	0,259	0,222
NL	0,965	0,962	0,789	0,973	0,862	0,850	0,918	0,929	0,977	0,807	**1**	0,918	0,912	-0,981	0,189	0,276	0,131
PT	0,921	0,918	0,727	0,929	0,817	0,804	0,873	0,885	0,933	0,759	0,918	**1**	0,868	-0,937	0,213	0,271	0,146
SE	0,916	0,912	0,719	0,924	0,811	0,798	0,868	0,879	0,928	0,753	0,912	0,868	**1**	-0,932	0,187	0,211	0,146
UK	-0,984	-0,981	-0,815	-0,992	-0,882	-0,869	-0,937	-0,948	-0,996	-0,828	-0,981	-0,937	-0,932	**1**	-0,193	-0,280	-0,131
Growth trajec	0,189	0,189	-0,015	0,192	0,174	0,283	0,226	0,168	0,198	0,220	0,189	0,213	0,187	-0,193	**1**	0,498	0,748
Recovery of	0,283	0,283	0,103	0,279	0,378	0,277	0,244	0,300	0,278	0,259	0,276	0,271	0,211	-0,280	0,498	**1**	0,545
Growth trajec	0,130	0,130	-0,177	0,130	0,156	0,241	0,183	0,134	0,142	0,222	0,131	0,146	0,146	-0,131	0,748	0,545	**1**

Analysis of Employment-based resilience performance by Country for the crisis period 1990-1993

ANOVA - Recovery of development level

Goodness of fit statistics (Recovery of development level):

Observations	702
Sum of weigh	702
DF	688
R²	0,216
Adjusted R²	0,202
MSE	0,006
RMSE	0,079
MAPE	211,845
DW	1,305
Cp	14,000
AIC	-3543,246
SBC	-3479,491
PC	0,816

Analysis of variance (Recovery of development level):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	13	1,197	0,092	14,609	**<0,0001**
Error	688	4,335	0,006		
Corrected To	701	5,531			

Computed against model Y=Mean(Y)

Model parameters (Recovery of development level):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,100	0,009	-11,311	**<0,0001**	-0,117	-0,083
AT	0,038	0,038	1,008	0,314	-0,036	0,112
BE	0,038	0,034	1,113	0,266	-0,029	0,105
DE	-0,030	0,010	-3,037	**0,002**	-0,050	-0,011
DK	0,004	0,053	0,067	0,947	-0,100	0,107
EL	0,086	0,014	6,117	**<0,0001**	0,058	0,114
ES	0,013	0,013	0,973	0,331	-0,013	0,039
FI	-0,035	0,019	-1,858	0,064	-0,073	0,002
FR	0,058	0,021	2,756	**0,006**	0,017	0,099
IE	-0,033	0,074	-0,449	0,654	-0,179	0,112
IT	0,003	0,012	0,274	0,784	-0,020	0,026
NL	-0,003	0,034	-0,095	0,925	-0,070	0,064
PT	0,005	0,019	0,289	0,773	-0,032	0,043
SE	-0,076	0,018	-4,163	**<0,0001**	-0,112	-0,040
UK	-0,067	0,011	-6,307	**<0,0001**	-0,088	-0,046

ANOVA - Growth trajectory retention (4-year recovery period)

Goodness of fit statistics (Growth trajectory retention (4 years)):

Observations	702
Sum of weigh	702
DF	688
R²	0,172
Adjusted R²	0,157
MSE	0,001
RMSE	0,023
MAPE	222,785
DW	1,464
Cp	14,000
AIC	-5287,017
SBC	-5223,262
PC	0,861

Analysis of variance (Growth trajectory retention (4 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	13	0,075	0,006	11,025	**<0,0001**
Error	688	0,362	0,001		
Corrected To	701	0,437			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (4 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,004	0,003	1,409	0,159	-0,001	0,009
AT	-0,008	0,011	-0,700	0,484	-0,029	0,014
BE	-0,006	0,010	-0,575	0,566	-0,025	0,014
DE	-0,014	0,003	-4,922	**<0,0001**	-0,020	-0,008
DK	-0,005	0,015	-0,301	0,763	-0,034	0,025
EL	-0,005	0,004	-1,117	0,264	-0,013	0,003
ES	0,015	0,004	3,791	**0,000**	0,007	0,022
FI	0,014	0,005	2,504	**0,012**	0,003	0,025
FR	-0,013	0,006	-2,173	**0,030**	-0,025	-0,001
IE	0,038	0,021	1,767	0,078	-0,004	0,080
IT	0,001	0,003	0,399	0,690	-0,005	0,008
NL	-0,007	0,010	-0,668	0,504	-0,026	0,013
PT	0,008	0,005	1,496	0,135	-0,003	0,019
SE	-0,003	0,005	-0,516	0,606	-0,013	0,008
UK	-0,017	0,003	-5,499	**<0,0001**	-0,023	-0,011

ANOVA - Growth trajectory retention (8-year recovery period)

Goodness of fit statistics (Growth trajectory retention (8 years)):

Observations	701
Sum of weigh	701
DF	687
R²	0,296
Adjusted R²	0,283
MSE	0,000
RMSE	0,015
MAPE	955,859
DW	1,350
Cp	14,000
AIC	-5909,441
SBC	-5845,706
PC	0,732

Analysis of variance (Growth trajectory retention (8 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	13	0,062	0,005	22,262	**<0,0001**
Error	687	0,147	0,000		
Corrected To	700	0,209			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (8 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,003	0,002	1,641	0,101	-0,001	0,006
AT	-0,007	0,007	-0,940	0,348	-0,020	0,007
BE	-0,007	0,006	-1,080	0,281	-0,019	0,006
DE	-0,018	0,002	-9,812	**<0,0001**	-0,022	-0,014
DK	-0,008	0,010	-0,817	0,414	-0,027	0,011
EL	-0,002	0,003	-0,927	0,354	-0,007	0,003
ES	0,007	0,002	2,958	**0,003**	0,002	0,012
FI	0,010	0,004	2,810	**0,005**	0,003	0,017
FR	-0,004	0,004	-1,148	0,251	-0,012	0,003
IE	0,050	0,014	3,672	**0,000**	0,023	0,077
IT	0,001	0,002	0,366	0,715	-0,003	0,005
NL	-0,006	0,006	-0,914	0,361	-0,018	0,007
PT	-0,001	0,004	-0,362	0,718	-0,008	0,006
SE	-0,002	0,003	-0,474	0,635	-0,008	0,005
UK	-0,013	0,002	-6,851	**<0,0001**	-0,017	-0,010

Analysis of Employment-based resilience performance by Country for the crisis period 1990-1993

Kruskal-Wallis - Recovery of development level

Kruskal-Wallis test / Two-tailed test (Recovery of development level):

K (Observed	209,369
K (Critical va	22,362
DF	13
p-value (one-	< 0,0001
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
SE	21	3843,000	183,000	A
UK	159	37565,000	236,258	A
IE	1	297,000	297,000	A
FI	19	5652,000	297,474	A
DE	260	84380,000	324,538	A
NL	5	1949,000	389,800	A
ES	53	20772,000	391,925	
DK	2	825,000	412,500	
PT	19	8272,000	435,368	
IT	94	41239,000	438,713	
AT	4	1986,000	496,500	
BE	5	2574,000	514,800	
FR	15	8566,000	571,067	
EL	45	28833,000	640,733	

Groupings could not be properly performed because the significance of differences is not transitive in this particular case.

Pairwise comparisons (Recovery of development level):

Differences:

	AT	BE	DE	DK	EL	ES	FI	FR	IE	IT	NL	PT	SE	UK
AT	0	-18,300	171,962	84,000	-144,233	104,575	199,026	-74,567	199,500	57,787	106,700	61,132	313,500	260,242
BE	18,300	0	190,262	102,300	-125,933	122,875	217,326	-56,267	217,800	76,087	125,000	79,432	331,800	278,542
DE	-171,962	-190,262	0	-87,962	**-316,195**	-67,386	27,065	**-246,528**	27,538	**-114,174**	-65,262	-110,830	141,538	**88,281**
DK	-84,000	-102,300	87,962	0	-228,233	20,575	115,026	-158,567	115,500	-26,213	22,700	-22,868	229,500	176,242
EL	144,233	125,933	**316,195**	228,233	0	**248,809**	**343,260**	69,667	343,733	**202,021**	250,933	**205,365**	**457,733**	**404,475**
ES	-104,575	-122,875	67,386	-20,575	**-248,809**	0	94,451	-179,142	94,925	-46,788	2,125	-43,444	**208,925**	**155,667**
FI	-199,026	-217,326	-27,065	-115,026	**-343,260**	-94,451	0	**-273,593**	0,474	-141,239	-92,326	-137,895	114,474	61,216
FR	74,567	56,267	**246,528**	158,567	-69,667	179,142	**273,593**	0	274,067	132,354	181,267	135,698	**388,067**	**334,809**
IE	-199,500	-217,800	-27,538	-115,500	-343,733	-94,925	-0,474	-274,067	0	-141,713	-92,800	-138,368	114,000	60,742
IT	-57,787	-76,087	**114,174**	26,213	**-202,021**	46,788	141,239	-132,354	141,713	0	48,913	3,344	**255,713**	**202,455**
NL	-106,700	-125,000	65,262	-22,700	-250,933	-2,125	92,326	-181,267	92,800	-48,913	0	-45,568	206,800	153,542
PT	-61,132	-79,432	110,830	22,868	**-205,365**	43,444	137,895	-135,698	138,368	-3,344	45,568	0	**252,368**	**199,111**
SE	-313,500	-331,800	-141,538	-229,500	**-457,733**	**-208,925**	-114,474	**-388,067**	-114,000	**-255,713**	-206,800	**-252,368**	0	-53,258
UK	-260,242	-278,542	**-88,281**	-176,242	**-404,475**	**-155,667**	-61,216	**-334,809**	-60,742	**-202,455**	-153,542	**-199,111**	53,258	0

p-values:

	AT	BE	DE	DK	EL	ES	FI	FR	IE	IT	NL	PT	SE	UK
AT	1	0,893	0,092	0,632	0,173	0,320	0,074	0,513	0,379	0,577	0,433	0,584	0,005	0,011
BE	0,893	1	0,038	0,547	0,188	0,195	0,033	0,591	0,327	0,414	0,330	0,436	0,001	0,002
DE	0,092	0,038	1	0,541	**<0,0001**	0,027	0,574	**<0,0001**	0,892	**<0,0001**	0,476	0,021	0,002	**<0,0001**
DK	0,632	0,547	0,541	1	0,119	0,888	0,445	0,299	0,642	0,856	0,894	0,879	0,126	0,222
EL	0,173	0,188	**<0,0001**	0,119	1	**<0,0001**	**<0,0001**	0,249	0,094	**<0,0001**	0,009	**0,000**	**<0,0001**	**<0,0001**
ES	0,320	0,195	0,027	0,888	**<0,0001**	1	0,082	0,003	0,643	0,179	0,982	0,423	**<0,0001**	**<0,0001**
FI	0,074	0,033	0,574	0,445	**<0,0001**	0,082	1	**<0,0001**	0,998	0,006	0,365	0,036	0,075	0,214
FR	0,513	0,591	**<0,0001**	0,299	0,249	0,003	**<0,0001**	1	0,191	0,019	0,083	0,053	**<0,0001**	**<0,0001**
IE	0,379	0,327	0,892	0,642	0,094	0,643	0,998	0,191	1	0,487	0,676	0,506	0,583	0,765
IT	0,577	0,414	**<0,0001**	0,856	**<0,0001**	0,179	0,006	0,019	0,487	1	0,599	0,948	**<0,0001**	**<0,0001**
NL	0,433	0,330	0,476	0,894	0,009	0,982	0,365	0,083	0,676	0,599	1	0,655	0,040	0,096
PT	0,584	0,436	0,021	0,879	**0,000**	0,423	0,036	0,053	0,506	0,948	0,655	1	**<0,0001**	**<0,0001**
SE	0,005	0,001	0,002	0,126	**<0,0001**	**<0,0001**	0,075	**<0,0001**	0,583	**<0,0001**	0,040	**<0,0001**	1	0,258
UK	0,011	0,002	**<0,0001**	0,222	**<0,0001**	**<0,0001**	0,214	**<0,0001**	0,765	**<0,0001**	0,096	**<0,0001**	0,258	1

Bonferroni corrected significance level: 0,0005

Analysis of Employment-based resilience performance by Country for the crisis period 1990-1993

Kruskal-Wallis - Growth trajectory retention (4-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (4 years)):

K (Observed	147,308
K (Critical va	22,362
DF	13
p-value (one-	< 0,0001
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
UK	159	44745,000	281,415	A
DE	260	73829,000	283,958	A
FR	15	4795,000	319,667	A
AT	4	1398,000	349,500	A
NL	5	1851,000	370,200	A
BE	5	1898,000	379,600	A
DK	2	790,000	395,000	A
EL	45	17793,000	395,400	A
SE	21	8584,000	408,762	A
IT	94	42953,000	456,947	
ES	53	26391,000	497,943	
PT	19	9737,000	512,474	
FI	19	11308,000	595,158	
IE	1	681,000	681,000	

Groupings could not be properly performed because the significance of differences is not transitive in this particular case.

Pairwise comparisons (Growth trajectory retention (4 years)):

Differences:

	AT	BE	DE	DK	EL	ES	FI	FR	IE	IT	NL	PT	SE	UK
AT	0	-30,100	65,542	-45,500	-45,900	-148,443	-245,658	29,833	-331,500	-107,447	-20,700	-162,974	-59,262	68,085
BE	30,100	0	95,642	-15,400	-15,800	-118,343	-215,558	59,933	-301,400	-77,347	9,400	-132,874	-29,162	98,185
DE	-65,542	-95,642	0	-111,042	-111,442	**-213,986**	**-311,200**	-35,709	-397,042	**-172,989**	-86,242	**-228,516**	-124,804	2,543
DK	45,500	15,400	111,042	0	-0,400	-102,943	-200,158	75,333	-286,000	-61,947	24,800	-117,474	-13,762	113,585
EL	45,900	15,800	111,442	0,400	0	-102,543	**-199,758**	75,733	-285,600	-61,547	25,200	-117,074	-13,362	113,985
ES	148,443	118,343	**213,986**	102,943	102,543	0	-97,214	178,277	-183,057	40,997	127,743	-14,530	89,181	**216,528**
FI	245,658	215,558	**311,200**	200,158	**199,758**	97,214	0	**275,491**	-85,842	138,211	224,958	82,684	186,396	**313,743**
FR	-29,833	-59,933	35,709	-75,333	-75,733	-178,277	**-275,491**	0	-361,333	-137,280	-50,533	-192,807	-89,095	38,252
IE	331,500	301,400	397,042	286,000	285,600	183,057	85,842	361,333	0	224,053	310,800	168,526	272,238	399,585
IT	107,447	77,347	**172,989**	61,947	61,547	-40,997	-138,211	137,280	-224,053	0	86,747	-55,527	48,185	**175,532**
NL	20,700	-9,400	86,242	-24,800	-25,200	-127,743	-224,958	50,533	-310,800	-86,747	0	-142,274	-38,562	88,785
PT	162,974	132,874	**228,516**	117,474	117,074	14,530	-82,684	192,807	-168,526	55,527	142,274	0	103,712	**231,059**
SE	59,262	29,162	124,804	13,762	13,362	-89,181	-186,396	89,095	-272,238	-48,185	38,562	-103,712	0	127,347
UK	-68,085	-98,185	-2,543	-113,585	-113,985	**-216,528**	**-313,743**	-38,252	-399,585	**-175,532**	-88,785	**-231,059**	-127,347	0

p-values:

	AT	BE	DE	DK	EL	ES	FI	FR	IE	IT	NL	PT	SE	UK
AT	1	0,825	0,521	0,796	0,664	0,158	0,028	0,794	0,144	0,299	0,879	0,144	0,592	0,507
BE	0,825	1	0,296	0,928	0,869	0,212	0,034	0,567	0,175	0,406	0,942	0,192	0,773	0,286
DE	0,521	0,296	1	0,440	0,001	**<0,0001**	**<0,0001**	0,507	0,051	**<0,0001**	0,346	**<0,0001**	0,007	0,901
DK	0,796	0,928	0,440	1	0,998	0,481	0,184	0,622	0,250	0,669	0,884	0,436	0,927	0,431
EL	0,664	0,869	0,001	0,998	1	0,013	**0,000**	0,210	0,164	0,094	0,792	0,035	0,803	0,001
ES	0,158	0,212	**<0,0001**	0,481	0,013	1	0,073	0,003	0,371	0,239	0,178	0,789	0,088	**<0,0001**
FI	0,028	0,034	**<0,0001**	0,184	**0,000**	0,073	1	**<0,0001**	0,680	0,007	0,027	0,209	0,004	**<0,0001**
FR	0,794	0,567	0,507	0,622	0,210	0,003	**<0,0001**	1	0,084	0,015	0,629	0,006	0,194	0,485
IE	0,144	0,175	0,051	0,250	0,164	0,371	0,680	0,084	1	0,272	0,162	0,418	0,190	0,050
IT	0,299	0,406	**<0,0001**	0,669	0,094	0,239	0,007	0,015	0,272	1	0,351	0,276	0,325	**<0,0001**
NL	0,879	0,942	0,346	0,884	0,792	0,178	0,027	0,629	0,162	0,351	1	0,163	0,702	0,335
PT	0,144	0,192	**<0,0001**	0,436	0,035	0,789	0,209	0,006	0,418	0,276	0,163	1	0,106	**<0,0001**
SE	0,592	0,773	0,007	0,927	0,803	0,088	0,004	0,194	0,190	0,325	0,702	0,106	1	0,007
UK	0,507	0,286	0,901	0,431	0,001	**<0,0001**	**<0,0001**	0,485	0,050	**<0,0001**	0,335	**<0,0001**	0,007	1

Bonferroni corrected significance level: 0,0005

Analysis of Employment-based resilience performance by Country for the crisis period 1990-1993

Kruskal-Wallis - Growth trajectory retention (8-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (8 years)):

K (Observed	230,475
K (Critical va	22,362
DF	13
p-value (one-	< 0,0001
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
DE	260	61023,000	234,704	A
UK	159	48539,000	305,277	
DK	2	748,000	374,000	
BE	5	1928,000	385,600	
AT	4	1582,000	395,500	
NL	5	2039,000	407,800	
FR	15	6263,000	417,533	
PT	19	8515,000	448,158	
EL	45	20714,000	460,311	
SE	21	9937,000	473,190	
IT	93	45283,000	486,914	
ES	53	27361,000	516,245	
FI	19	11419,000	601,000	
IE	1	700,000	700,000	

Groupings could not be properly performed because the significance of differences is not transitive in this particular case.

Pairwise comparisons (Growth trajectory retention (8 years)):

Differences:

	AT	BE	DE	DK	EL	ES	FI	FR	IE	IT	NL	PT	SE	UK
AT	0	9,900	160,796	21,500	-64,811	-120,745	-205,500	-22,033	-304,500	-91,414	-12,300	-52,658	-77,690	90,223
BE	-9,900	0	150,896	11,600	-74,711	-130,645	-215,400	-31,933	-314,400	-101,314	-22,200	-62,558	-87,590	80,323
DE	-160,796	-150,896	0	-139,296	**-225,607**	**-281,541**	**-366,296**	-182,829	-465,296	**-252,210**	-173,096	**-213,454**	**-238,487**	**-70,573**
DK	-21,500	-11,600	139,296	0	-86,311	-142,245	-227,000	-43,533	-326,000	-112,914	-33,800	-74,158	-99,190	68,723
EL	64,811	74,711	**225,607**	86,311	0	-55,934	-140,689	42,778	-239,689	-26,603	52,511	12,153	-12,879	**155,034**
ES	120,745	130,645	**281,541**	142,245	55,934	0	-84,755	98,712	-183,755	29,331	108,445	68,087	43,055	**210,969**
FI	205,500	215,400	**366,296**	227,000	140,689	84,755	0	183,467	-99,000	114,086	193,200	152,842	127,810	**295,723**
FR	22,033	31,933	182,829	43,533	-42,778	-98,712	-183,467	0	-282,467	-69,381	9,733	-30,625	-55,657	112,257
IE	304,500	314,400	465,296	326,000	239,689	183,755	99,000	282,467	0	213,086	292,200	251,842	226,810	394,723
IT	91,414	101,314	**252,210**	112,914	26,603	-29,331	-114,086	69,381	-213,086	0	79,114	38,756	13,724	**181,637**
NL	12,300	22,200	173,096	33,800	-52,511	-108,445	-193,200	-9,733	-292,200	-79,114	0	-40,358	-65,390	102,523
PT	52,658	62,558	**213,454**	74,158	-12,153	-68,087	-152,842	30,625	-251,842	-38,756	40,358	0	-25,033	142,881
SE	77,690	87,590	**238,487**	99,190	12,879	-43,055	-127,810	55,657	-226,810	-13,724	65,390	25,033	0	**167,914**
UK	-90,223	-80,323	**70,573**	-68,723	**-155,034**	**-210,969**	**-295,723**	-112,257	-394,723	**-181,637**	-102,523	-142,881	**-167,914**	0

p-values:

	AT	BE	DE	DK	EL	ES	FI	FR	IE	IT	NL	PT	SE	UK
AT	1	0,942	0,115	0,902	0,540	0,250	0,065	0,847	0,179	0,377	0,928	0,636	0,482	0,379
BE	0,942	1	0,099	0,945	0,434	0,168	0,034	0,760	0,156	0,276	0,862	0,539	0,385	0,382
DE	0,115	0,099	1	0,333	**<0,0001**	**<0,0001**	**<0,0001**	0,001	0,022	**<0,0001**	0,058	**<0,0001**	**<0,0001**	**0,001**
DK	0,902	0,945	0,333	1	0,555	0,329	0,132	0,775	0,189	0,435	0,842	0,622	0,508	0,633
EL	0,540	0,434	**<0,0001**	0,555	1	0,173	0,011	0,479	0,242	0,469	0,582	0,826	0,810	**<0,0001**
ES	0,250	0,168	**<0,0001**	0,329	0,173	1	0,118	0,096	0,369	0,400	0,252	0,209	0,410	**<0,0001**
FI	0,065	0,034	**<0,0001**	0,132	0,011	0,118	1	0,009	0,634	0,025	0,058	0,020	0,046	**<0,0001**
FR	0,847	0,760	0,001	0,775	0,479	0,096	0,009	1	0,177	0,218	0,926	0,662	0,416	0,040
IE	0,179	0,156	0,022	0,189	0,242	0,369	0,634	0,177	1	0,295	0,188	0,225	0,274	0,052
IT	0,377	0,276	**<0,0001**	0,435	0,469	0,400	0,025	0,218	0,295	1	0,395	0,447	0,779	**<0,0001**
NL	0,928	0,862	0,058	0,842	0,582	0,252	0,058	0,926	0,188	0,395	1	0,692	0,516	0,265
PT	0,636	0,539	**<0,0001**	0,622	0,826	0,209	0,020	0,662	0,225	0,447	0,692	1	0,696	0,004
SE	0,482	0,385	**<0,0001**	0,508	0,810	0,410	0,046	0,416	0,274	0,779	0,516	0,696	1	**0,000**
UK	0,379	0,382	**0,001**	0,633	**<0,0001**	**<0,0001**	**<0,0001**	0,040	0,052	**<0,0001**	0,265	0,004	**0,000**	1

Bonferroni corrected significance level: 0,0005

Analysis of Employment-based resilience performance by Country for the crisis period 2000-2003

Correlation matrix:

	AT	BE	DE	EL	ES	FI	FR	IE	IT	LU	NL	PT	UK	Growth trajectory retention (4 years)	Recovery of development level	Growth trajectory retention (8 years)
AT	**1**	0,896	0,494	0,563	0,683	0,896	0,854	0,700	0,700	0,896	0,522	0,575	-0,947	-0,136	-0,019	-0,127
BE	0,896	**1**	0,494	0,563	0,683	0,896	0,854	0,700	0,700	0,896	0,522	0,575	-0,947	-0,131	-0,025	-0,132
DE	0,494	0,494	**1**	0,126	0,286	0,494	0,456	0,304	0,304	0,494	0,039	0,144	-0,539	0,252	0,102	0,374
EL	0,563	0,563	0,126	**1**	0,387	0,563	0,530	0,402	0,402	0,563	0,212	0,281	-0,603	0,045	0,163	-0,058
ES	0,683	0,683	0,286	0,387	**1**	0,683	0,648	0,515	0,515	0,683	0,341	0,399	-0,726	-0,205	-0,110	-0,333
FI	0,896	0,896	0,494	0,563	0,683	**1**	0,854	0,700	0,700	0,896	0,522	0,575	-0,947	-0,100	0,006	-0,109
FR	0,854	0,854	0,456	0,530	0,648	0,854	**1**	0,664	0,664	0,854	0,488	0,541	-0,903	-0,119	-0,007	-0,105
IE	0,700	0,700	0,304	0,402	0,515	0,700	0,664	**1**	0,529	0,700	0,356	0,413	-0,743	-0,351	-0,073	-0,438
IT	0,700	0,700	0,304	0,402	0,515	0,700	0,664	0,529	**1**	0,700	0,356	0,413	-0,743	-0,040	0,055	-0,051
LU	0,896	0,896	0,494	0,563	0,683	0,896	0,854	0,700	0,700	**1**	0,522	0,575	-0,947	-0,132	-0,020	-0,136
NL	0,522	0,522	0,039	0,212	0,341	0,522	0,488	0,356	0,356	0,522	**1**	0,227	-0,562	-0,221	-0,079	-0,219
PT	0,575	0,575	0,144	0,281	0,399	0,575	0,541	0,413	0,413	0,575	0,227	**1**	-0,615	-0,256	-0,289	-0,232
UK	-0,947	-0,947	-0,539	-0,603	-0,726	-0,947	-0,903	-0,743	-0,743	-0,947	-0,562	-0,615	**1**	0,133	0,030	0,142
Growth trajec	-0,136	-0,131	0,252	0,045	-0,205	-0,100	-0,119	-0,351	-0,040	-0,132	-0,221	-0,256	0,133	**1**	0,627	0,729
Recovery of	-0,019	-0,025	0,102	0,163	-0,110	0,006	-0,007	-0,073	0,055	-0,020	-0,079	-0,289	0,030	0,627	**1**	0,449
Growth trajec	-0,127	-0,132	0,374	-0,058	-0,333	-0,109	-0,105	-0,438	-0,051	-0,136	-0,219	-0,232	0,142	0,729	0,449	**1**

Analysis of Employment-based resilience performance by Country for the crisis period 2000-2003

ANOVA - Recovery of development level

Goodness of fit statistics (Recovery of development level):

Observations	177
Sum of weigh	177
DF	164
R²	0,215
Adjusted R²	0,158
MSE	0,010
RMSE	0,100
MAPE	357,727
DW	1,724
Cp	13,000
AIC	-804,049
SBC	-762,759
PC	0,909

Analysis of variance (Recovery of development level):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	12	0,446	0,037	3,744	**<0,0001**
Error	164	1,627	0,010		
Corrected To	176	2,072			

Computed against model Y=Mean(Y)

Model parameters (Recovery of development level):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,115	0,017	-6,657	**<0,0001**	-0,150	-0,081
AT	0,023	0,093	0,247	0,805	-0,161	0,207
BE	-0,005	0,093	-0,057	0,955	-0,189	0,179
DE	0,003	0,021	0,137	0,891	-0,038	0,044
EL	0,047	0,026	1,815	0,071	-0,004	0,099
ES	-0,078	0,035	-2,211	**0,028**	-0,147	-0,008
FI	0,136	0,093	1,463	0,145	-0,048	0,321
FR	0,030	0,067	0,441	0,660	-0,103	0,162
IE	-0,056	0,037	-1,512	0,133	-0,128	0,017
IT	0,039	0,037	1,070	0,286	-0,033	0,112
LU	0,018	0,093	0,198	0,843	-0,166	0,203
NL	-0,035	0,024	-1,466	0,144	-0,081	0,012
PT	-0,121	0,027	-4,515	**<0,0001**	-0,174	-0,068
UK	-0,003	0,035	-0,084	0,933	-0,072	0,066

ANOVA - Growth trajectory retention (4-year recovery period)

Goodness of fit statistics (Growth trajectory retention (4 years)):

Observations	177
Sum of weigh	177
DF	164
R²	0,374
Adjusted R²	0,328
MSE	0,000
RMSE	0,021
MAPE	181,404
DW	1,788
Cp	13,000
AIC	-1355,785
SBC	-1314,495
PC	0,725

Analysis of variance (Growth trajectory retention (4 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	12	0,043	0,004	8,174	**<0,0001**
Error	164	0,072	0,000		
Corrected To	176	0,115			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (4 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,020	0,004	-5,507	**<0,0001**	-0,027	-0,013
AT	-0,008	0,020	-0,420	0,675	-0,047	0,030
BE	-0,003	0,020	-0,138	0,890	-0,041	0,036
DE	0,016	0,004	3,558	**0,000**	0,007	0,024
EL	0,013	0,005	2,381	**0,018**	0,002	0,024
ES	-0,015	0,007	-2,010	**0,046**	-0,029	0,000
FI	0,030	0,020	1,517	0,131	-0,009	0,069
FR	0,003	0,014	0,223	0,824	-0,025	0,031
IE	-0,042	0,008	-5,385	**<0,0001**	-0,057	-0,026
IT	0,013	0,008	1,639	0,103	-0,003	0,028
LU	-0,005	0,020	-0,236	0,814	-0,043	0,034
NL	-0,007	0,005	-1,390	0,166	-0,017	0,003
PT	-0,013	0,006	-2,345	**0,020**	-0,024	-0,002
UK	0,018	0,007	2,421	**0,017**	0,003	0,032

ANOVA - Growth trajectory retention (8-year recovery period)

Goodness of fit statistics (Growth trajectory retention (8 years)):

Observations	167
Sum of weigh	167
DF	154
R²	0,605
Adjusted R²	0,574
MSE	0,000
RMSE	0,015
MAPE	151,296
DW	1,857
Cp	13,000
AIC	-1397,693
SBC	-1357,160
PC	0,462

Analysis of variance (Growth trajectory retention (8 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	12	0,051	0,004	19,642	**<0,0001**
Error	154	0,033	0,000		
Corrected To	166	0,084			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (8 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,022	0,003	-8,542	**<0,0001**	-0,027	-0,017
AT	0,008	0,014	0,601	0,549	-0,019	0,035
BE	0,004	0,014	0,265	0,791	-0,023	0,031
DE	0,017	0,003	5,439	**<0,0001**	0,011	0,023
EL	0,003	0,004	0,892	0,374	-0,004	0,011
ES	-0,032	0,005	-5,876	**<0,0001**	-0,043	-0,021
FI	0,025	0,014	1,802	0,073	-0,002	0,052
FR	0,013	0,010	1,290	0,199	-0,007	0,032
IE	-0,048	0,005	-8,846	**<0,0001**	-0,059	-0,037
IT	0,012	0,007	1,796	0,075	-0,001	0,025
LU	0,000	0,014	0,035	0,972	-0,027	0,028
NL	-0,006	0,003	-1,745	0,083	-0,013	0,001
PT	-0,012	0,004	-2,684	**0,008**	-0,020	-0,003
UK	0,016	0,005	3,000	**0,003**	0,005	0,026

Analysis of Employment-based resilience performance by Country for the crisis period 2000-2003

Kruskal-Wallis - Recovery of development level

Kruskal-Wallis test / Two-tailed test (Recovery of development level):

K (Observed	34,090
K (Critical va	21,026
DF	12
p-value (one-	0,001
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
PT	20	854,000	42,700	A
IE	8	549,000	68,625	A
ES	9	636,000	70,667	A
NL	33	2618,000	79,333	A
BE	1	83,000	83,000	A
UK	9	847,000	94,111	A
DE	62	6035,000	97,339	
LU	1	100,000	100,000	
AT	1	107,000	107,000	
FR	2	228,000	114,000	
EL	22	2571,000	116,864	
IT	8	956,000	119,500	
FI	1	169,000	169,000	

Groupings could not be properly performed because the significance of differences is not transitive in this particular case.

Pairwise comparisons (Recovery of development level):

Differences:

	AT	BE	DE	EL	ES	FI	FR	IE	IT	LU	NL	PT	UK
AT	0	24,000	9,661	-9,864	36,333	-62,000	-7,000	38,375	-12,500	7,000	27,667	64,300	12,889
BE	-24,000	0	-14,339	-33,864	12,333	-86,000	-31,000	14,375	-36,500	-17,000	3,667	40,300	-11,111
DE	-9,661	14,339	0	-19,525	26,672	-71,661	-16,661	28,714	-22,161	-2,661	18,005	**54,639**	3,228
EL	9,864	33,864	19,525	0	46,197	-52,136	2,864	48,239	-2,636	16,864	37,530	**74,164**	22,753
ES	-36,333	-12,333	-26,672	-46,197	0	-98,333	-43,333	2,042	-48,833	-29,333	-8,667	27,967	-23,444
FI	62,000	86,000	71,661	52,136	98,333	0	55,000	100,375	49,500	69,000	89,667	126,300	74,889
FR	7,000	31,000	16,661	-2,864	43,333	-55,000	0	45,375	-5,500	14,000	34,667	71,300	19,889
IE	-38,375	-14,375	-28,714	-48,239	-2,042	-100,375	-45,375	0	-50,875	-31,375	-10,708	25,925	-25,486
IT	12,500	36,500	22,161	2,636	48,833	-49,500	5,500	50,875	0	19,500	40,167	**76,800**	25,389
LU	-7,000	17,000	2,661	-16,864	29,333	-69,000	-14,000	31,375	-19,500	0	20,667	57,300	5,889
NL	-27,667	-3,667	-18,005	-37,530	8,667	-89,667	-34,667	10,708	-40,167	-20,667	0	36,633	-14,778
PT	-64,300	-40,300	**-54,639**	**-74,164**	-27,967	-126,300	-71,300	-25,925	**-76,800**	-57,300	-36,633	0	-51,411
UK	-12,889	11,111	-3,228	-22,753	23,444	-74,889	-19,889	25,486	-25,389	-5,889	14,778	51,411	0

p-values:

	AT	BE	DE	EL	ES	FI	FR	IE	IT	LU	NL	PT	UK
AT	1	0,740	0,852	0,851	0,501	0,392	0,911	0,480	0,818	0,923	0,595	0,221	0,811
BE	0,740	1	0,781	0,518	0,819	0,235	0,621	0,791	0,502	0,815	0,944	0,443	0,837
DE	0,852	0,781	1	0,125	0,144	0,165	0,651	0,136	0,250	0,959	0,103	**<0,0001**	0,860
EL	0,851	0,518	0,125	1	0,023	0,320	0,940	0,023	0,901	0,748	0,008	**<0,0001**	0,262
ES	0,501	0,819	0,144	0,023	1	0,069	0,279	0,935	0,050	0,587	0,653	0,174	0,332
FI	0,392	0,235	0,165	0,320	0,069	1	0,381	0,065	0,362	0,341	0,085	0,016	0,166
FR	0,911	0,621	0,651	0,940	0,279	0,381	1	0,263	0,892	0,823	0,353	0,061	0,620
IE	0,480	0,791	0,136	0,023	0,935	0,065	0,263	1	0,047	0,564	0,596	0,226	0,306
IT	0,818	0,502	0,250	0,901	0,050	0,362	0,892	0,047	1	0,720	0,047	**0,000**	0,308
LU	0,923	0,815	0,959	0,748	0,587	0,341	0,823	0,564	0,720	1	0,691	0,275	0,913
NL	0,595	0,944	0,103	0,008	0,653	0,085	0,353	0,596	0,047	0,691	1	0,012	0,443
PT	0,221	0,443	**<0,0001**	**<0,0001**	0,174	0,016	0,061	0,226	**0,000**	0,275	0,012	1	0,012
UK	0,811	0,837	0,860	0,262	0,332	0,166	0,620	0,306	0,308	0,913	0,443	0,012	1

Bonferroni corrected significance level: 0,0006

Analysis of Employment-based resilience performance by Country for the crisis period 2000-2003

Kruskal-Wallis - Growth trajectory retention (4-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (4 years)):

K (Observed	61,814
K (Critical va	21,026
DF	12
p-value (one-	< 0,0001
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
IE	8	240,000	30,000	A
AT	1	48,000	48,000	A
PT	20	1040,000	52,000	A
LU	1	58,000	58,000	A
NL	33	1919,000	58,152	A
BE	1	63,000	63,000	A
ES	9	583,000	64,778	A
FR	2	161,000	80,500	A
EL	22	2420,000	110,000	
IT	8	886,000	110,750	
DE	62	7101,000	114,532	
UK	9	1078,000	119,778	
FI	1	156,000	156,000	

Groupings could not be properly performed because the significance of differences is not transitive in this particular case.

Pairwise comparisons (Growth trajectory retention (4 years)):

Differences:

	AT	BE	DE	EL	ES	FI	FR	IE	IT	LU	NL	PT	UK
AT	0	-15,000	-66,532	-62,000	-16,778	-108,000	-32,500	18,000	-62,750	-10,000	-10,152	-4,000	-71,778
BE	15,000	0	-51,532	-47,000	-1,778	-93,000	-17,500	33,000	-47,750	5,000	4,848	11,000	-56,778
DE	66,532	51,532	0	4,532	49,754	-41,468	34,032	**84,532**	3,782	56,532	**56,381**	**62,532**	-5,246
EL	62,000	47,000	-4,532	0	45,222	-46,000	29,500	**80,000**	-0,750	52,000	**51,848**	**58,000**	-9,778
ES	16,778	1,778	-49,754	-45,222	0	-91,222	-15,722	34,778	-45,972	6,778	6,626	12,778	-55,000
FI	108,000	93,000	41,468	46,000	91,222	0	75,500	126,000	45,250	98,000	97,848	104,000	36,222
FR	32,500	17,500	-34,032	-29,500	15,722	-75,500	0	50,500	-30,250	22,500	22,348	28,500	-39,278
IE	-18,000	-33,000	**-84,532**	**-80,000**	-34,778	-126,000	-50,500	0	-80,750	-28,000	-28,152	-22,000	**-89,778**
IT	62,750	47,750	-3,782	0,750	45,972	-45,250	30,250	80,750	0	52,750	52,598	58,750	-9,028
LU	10,000	-5,000	-56,532	-52,000	-6,778	-98,000	-22,500	28,000	-52,750	0	-0,152	6,000	-61,778
NL	10,152	-4,848	**-56,381**	**-51,848**	-6,626	-97,848	-22,348	28,152	-52,598	0,152	0	6,152	-61,626
PT	4,000	-11,000	**-62,532**	**-58,000**	-12,778	-104,000	-28,500	22,000	-58,750	-6,000	-6,152	0	-67,778
UK	71,778	56,778	5,246	9,778	55,000	-36,222	39,278	**89,778**	9,028	61,778	61,626	67,778	0

p-values:

	AT	BE	DE	EL	ES	FI	FR	IE	IT	LU	NL	PT	UK
AT	1	0,836	0,198	0,237	0,756	0,136	0,605	0,740	0,248	0,890	0,845	0,939	0,184
BE	0,836	1	0,318	0,370	0,974	0,199	0,780	0,544	0,380	0,945	0,926	0,834	0,293
DE	0,198	0,318	1	0,722	0,006	0,422	0,355	**<0,0001**	0,844	0,274	**<0,0001**	**<0,0001**	0,774
EL	0,237	0,370	0,722	1	0,026	0,380	0,436	**0,000**	0,972	0,321	**0,000**	**0,000**	0,630
ES	0,756	0,974	0,006	0,026	1	0,091	0,695	0,162	0,065	0,900	0,731	0,534	0,023
FI	0,136	0,199	0,422	0,380	0,091	1	0,229	0,020	0,405	0,176	0,060	0,048	0,502
FR	0,605	0,780	0,355	0,436	0,695	0,229	1	0,213	0,455	0,720	0,549	0,453	0,327
IE	0,740	0,544	**<0,0001**	**0,000**	0,162	0,020	0,213	1	0,002	0,606	0,163	0,305	**0,000**
IT	0,248	0,380	0,844	0,972	0,065	0,405	0,455	0,002	1	0,332	0,009	0,006	0,717
LU	0,890	0,945	0,274	0,321	0,900	0,176	0,720	0,606	0,332	1	0,998	0,909	0,253
NL	0,845	0,926	**<0,0001**	**0,000**	0,731	0,060	0,549	0,163	0,009	0,998	1	0,672	0,001
PT	0,939	0,834	**<0,0001**	**0,000**	0,534	0,048	0,453	0,305	0,006	0,909	0,672	1	0,001
UK	0,184	0,293	0,774	0,630	0,023	0,502	0,327	**0,000**	0,717	0,253	0,001	0,001	1

Bonferroni corrected significance level: 0,0006

Analysis of Employment-based resilience performance by Country for the crisis period 2000-2003

Kruskal-Wallis - Growth trajectory retention (8-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (8 years)):

K (Observed	95,465
K (Critical va	21,026
DF	12
p-value (one-	< 0,0001
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
IE	8	70,000	8,750	A
ES	8	194,000	24,250	A
PT	15	604,000	40,267	A
NL	33	1860,000	56,364	A
LU	1	66,000	66,000	A
BE	1	73,000	73,000	A
EL	21	1733,000	82,524	
AT	1	91,000	91,000	
IT	5	518,000	103,600	
FR	2	221,000	110,500	
UK	9	1021,000	113,444	
DE	62	7427,000	119,790	
FI	1	150,000	150,000	

Groupings could not be properly performed because the significance of differences is not transitive in this particular case.

Pairwise comparisons (Growth trajectory retention (8 years)):

Differences:

	AT	BE	DE	EL	ES	FI	FR	IE	IT	LU	NL	PT	UK
AT	0	18,000	-28,790	8,476	66,750	-59,000	-19,500	82,250	-12,600	25,000	34,636	50,733	-22,444
BE	-18,000	0	-46,790	-9,524	48,750	-77,000	-37,500	64,250	-30,600	7,000	16,636	32,733	-40,444
DE	28,790	46,790	0	37,267	**95,540**	-30,210	9,290	**111,040**	16,190	53,790	**63,427**	**79,524**	6,346
EL	-8,476	9,524	-37,267	0	58,274	-67,476	-27,976	**73,774**	-21,076	16,524	26,160	42,257	-30,921
ES	-66,750	-48,750	**-95,540**	-58,274	0	-125,750	-86,250	15,500	-79,350	-41,750	-32,114	-16,017	**-89,194**
FI	59,000	77,000	30,210	67,476	125,750	0	39,500	141,250	46,400	84,000	93,636	109,733	36,556
FR	19,500	37,500	-9,290	27,976	86,250	-39,500	0	101,750	6,900	44,500	54,136	70,233	-2,944
IE	-82,250	-64,250	**-111,040**	**-73,774**	-15,500	-141,250	-101,750	0	**-94,850**	-57,250	-47,614	-31,517	**-104,694**
IT	12,600	30,600	-16,190	21,076	79,350	-46,400	-6,900	**94,850**	0	37,600	47,236	63,333	-9,844
LU	-25,000	-7,000	-53,790	-16,524	41,750	-84,000	-44,500	57,250	-37,600	0	9,636	25,733	-47,444
NL	-34,636	-16,636	**-63,427**	-26,160	32,114	-93,636	-54,136	47,614	-47,236	-9,636	0	16,097	-57,081
PT	-50,733	-32,733	**-79,524**	-42,257	16,017	-109,733	-70,233	31,517	-63,333	-25,733	-16,097	0	**-73,178**
UK	22,444	40,444	-6,346	30,921	**89,194**	-36,556	2,944	**104,694**	9,844	47,444	57,081	**73,178**	0

p-values:

	AT	BE	DE	EL	ES	FI	FR	IE	IT	LU	NL	PT	UK
AT	1	0,792	0,555	0,864	0,193	0,388	0,742	0,109	0,812	0,715	0,480	0,310	0,660
BE	0,792	1	0,337	0,847	0,342	0,260	0,527	0,210	0,563	0,918	0,735	0,512	0,427
DE	0,555	0,337	1	0,002	**<0,0001**	0,535	0,789	**<0,0001**	0,471	0,270	**<0,0001**	**<0,0001**	0,713
EL	0,864	0,847	0,002	1	0,004	0,173	0,434	**0,000**	0,381	0,738	0,053	0,010	0,108
ES	0,193	0,342	**<0,0001**	0,004	1	0,014	0,024	0,521	0,004	0,416	0,092	0,449	**0,000**
FI	0,388	0,260	0,535	0,173	0,014	1	0,505	0,006	0,381	0,219	0,056	0,028	0,473
FR	0,742	0,527	0,789	0,434	0,024	0,505	1	0,008	0,865	0,452	0,124	0,054	0,938
IE	0,109	0,210	**<0,0001**	**0,000**	0,521	0,006	0,008	1	**0,001**	0,264	0,012	0,137	**<0,0001**
IT	0,812	0,563	0,471	0,381	0,004	0,381	0,865	**0,001**	1	0,478	0,042	0,011	0,715
LU	0,715	0,918	0,270	0,738	0,416	0,219	0,452	0,264	0,478	1	0,844	0,606	0,352
NL	0,480	0,735	**<0,0001**	0,053	0,092	0,056	0,124	0,012	0,042	0,844	1	0,285	0,002
PT	0,310	0,512	**<0,0001**	0,010	0,449	0,028	0,054	0,137	0,011	0,606	0,285	1	**0,000**
UK	0,660	0,427	0,713	0,108	**0,000**	0,473	0,938	**<0,0001**	0,715	0,352	0,002	**0,000**	1

Bonferroni corrected significance level: 0,0006

Analysis of Employment-based resilience performance by Country for the crisis period 2008-2009

Correlation matrix:

	AT	DE	DK	EL	ES	FI	FR	IE	IT	LU	PT	SE	UK	Growth trajectory retention (4 years)	Recovery of development level	Growth trajectory retention (8 years)
AT	**1**	0,910	0,927	0,923	0,955	0,910	0,979	0,960	0,867	0,979	0,931	0,907	-0,986	-0,157	-0,241	
DE	0,910	**1**	0,858	0,854	0,890	0,838	0,917	0,896	0,770	0,917	0,863	0,835	-0,923	-0,097	-0,126	-0,143
DK	0,927	0,858	**1**	0,873	0,908	0,858	0,934	0,914	0,799	0,934	0,882	0,855	-0,941	-0,121	-0,235	-0,148
EL	0,923	0,854	0,873	**1**	0,904	0,854	0,930	0,910	0,792	0,930	0,878	0,851	-0,937	-0,115	-0,347	
ES	0,955	0,890	0,908	0,904	**1**	0,890	0,962	0,942	0,841	0,962	0,912	0,887	-0,968	-0,152	-0,304	
FI	0,910	0,838	0,858	0,854	0,890	**1**	0,917	0,896	0,770	0,917	0,863	0,835	-0,923	-0,244	-0,223	-0,280
FR	0,979	0,917	0,934	0,930	0,962	0,917	**1**	0,967	0,876	0,986	0,938	0,914	-0,993	-0,160	-0,248	
IE	0,960	0,896	0,914	0,910	0,942	0,896	0,967	**1**	0,849	0,967	0,918	0,893	-0,974	-0,148	-0,310	
IT	0,867	0,770	0,799	0,792	0,841	0,770	0,876	0,849	**1**	0,876	0,805	0,765	-0,882	-0,264	-0,269	-0,295
LU	0,979	0,917	0,934	0,930	0,962	0,917	0,986	0,967	0,876	**1**	0,938	0,914	-0,993	-0,159	-0,249	
PT	0,931	0,863	0,882	0,878	0,912	0,863	0,938	0,918	0,805	0,938	**1**	0,860	-0,945	-0,070	-0,227	
SE	0,907	0,835	0,855	0,851	0,887	0,835	0,914	0,893	0,765	0,914	0,860	**1**	-0,920	-0,102	-0,121	-0,119
UK	-0,986	-0,923	-0,941	-0,937	-0,968	-0,923	-0,993	-0,974	-0,882	-0,993	-0,945	-0,920	**1**	0,161	0,255	0,198
Growth trajec	-0,157	-0,097	-0,121	-0,115	-0,152	-0,244	-0,160	-0,148	-0,264	-0,159	-0,070	-0,102	0,161	**1**	0,440	0,881
Recovery of	-0,241	-0,126	-0,235	-0,347	-0,304	-0,223	-0,248	-0,310	-0,269	-0,249	-0,227	-0,121	0,255	0,440	**1**	0,728
Growth trajectory retention	-0,143	-0,148				-0,280			-0,295			-0,119	0,198	0,881	0,728	**1**

Analysis of Employment-based resilience performance by Country for the crisis period 2008-2009

ANOVA - Recovery of development level

Goodness of fit statistics (Recovery of development level):

Observations	282
Sum of weigl	282
DF	269
R²	0,443
Adjusted R²	0,418
MSE	0,004
RMSE	0,063
MAPE	166,525
DW	1,709
Cp	13,000
AIC	-1549,935
SBC	-1502,590
PC	0,611

Analysis of variance (Recovery of development level):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	12	0,837	0,070	17,795	**<0,0001**
Error	269	1,055	0,004		
Corrected To	281	1,892			

Computed against model Y=Mean(Y)

Model parameters (Recovery of development level):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,110	0,009	-12,369	**<0,0001**	-0,128	-0,093
AT	0,062	0,042	1,476	0,141	-0,021	0,144
DE	0,096	0,017	5,650	**<0,0001**	0,062	0,129
DK	0,008	0,020	0,426	0,671	-0,030	0,047
EL	-0,116	0,019	-6,146	**<0,0001**	-0,153	-0,079
ES	-0,137	0,027	-5,020	**<0,0001**	-0,191	-0,083
FI	0,013	0,017	0,795	0,427	-0,020	0,047
FR	0,061	0,058	1,041	0,299	-0,054	0,175
IE	-0,183	0,030	-6,066	**<0,0001**	-0,242	-0,124
IT	-0,010	0,012	-0,878	0,380	-0,033	0,013
LU	0,046	0,058	0,796	0,426	-0,068	0,161
PT	0,020	0,020	0,990	0,323	-0,020	0,060
SE	0,095	0,017	5,718	**<0,0001**	0,062	0,127
UK	0,045	0,010	4,344	**<0,0001**	0,025	0,065

ANOVA - Growth trajectory retention (4-year recovery period)

Goodness of fit statistics (Growth trajectory retention (4 years)):

Observations	282
Sum of weigl	282
DF	269
R²	0,232
Adjusted R²	0,198
MSE	0,000
RMSE	0,015
MAPE	156,628
DW	1,712
Cp	13,000
AIC	-2355,867
SBC	-2308,522
PC	0,842

Analysis of variance (Growth trajectory retention (4 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	12	0,018	0,002	6,785	**<0,0001**
Error	269	0,061	0,000		
Corrected To	281	0,079			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (4 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,001	0,002	-0,398	0,691	-0,005	0,003
AT	-0,001	0,010	-0,111	0,911	-0,021	0,019
DE	0,005	0,004	1,295	0,196	-0,003	0,013
DK	0,004	0,005	0,792	0,429	-0,006	0,013
EL	0,004	0,005	0,945	0,346	-0,005	0,013
ES	-0,002	0,007	-0,292	0,771	-0,015	0,011
FI	-0,020	0,004	-5,009	**<0,0001**	-0,028	-0,012
FR	-0,004	0,014	-0,286	0,775	-0,031	0,023
IE	0,002	0,007	0,293	0,770	-0,012	0,016
IT	-0,011	0,003	-3,973	**<0,0001**	-0,016	-0,006
LU	-0,001	0,014	-0,050	0,961	-0,028	0,027
PT	0,018	0,005	3,706	**0,000**	0,008	0,028
SE	0,004	0,004	1,003	0,317	-0,004	0,012
UK	0,002	0,002	0,666	0,506	-0,003	0,007

ANOVA - Growth trajectory retention (8-year recovery period)

Goodness of fit statistics (Growth trajectory retention (8 years)):

Observations	58
Sum of weigl	58
DF	52
R²	0,208
Adjusted R²	0,132
MSE	0,000
RMSE	0,013
MAPE	137,835
DW	2,501
Cp	6,000
AIC	-497,098
SBC	-484,735
PC	0,975

Analysis of variance (Growth trajectory retention (8 years)):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	5	0,002	0,000	2,728	**0,029**
Error	52	0,009	0,000		
Corrected To	57	0,011			

Computed against model Y=Mean(Y)

Model parameters (Growth trajectory retention (8 years)):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,005	0,002	2,550	**0,014**	0,001	0,009
AT	0,000	0,000				
DE	0,004	0,009	0,481	0,633	-0,013	0,022
DK	0,008	0,012	0,636	0,528	-0,017	0,032
EL	0,000	0,000				
ES	0,000	0,000				
FI	-0,018	0,007	-2,426	**0,019**	-0,032	-0,003
FR	0,000	0,000				
IE	0,000	0,000				
IT	-0,013	0,005	-2,530	**0,014**	-0,024	-0,003
LU	0,000	0,000				
PT	0,000	0,000				
SE	0,003	0,004	0,730	0,469	-0,005	0,011
UK	0,002	0,002	1,185	0,242	-0,001	0,005

Analysis of Employment-based resilience performance by Country for the crisis period 2008-2009

Kruskal-Wallis - Recovery of development level

Kruskal-Wallis test / Two-tailed test (Recovery of development level):

K (Observed	101,921
K (Critical va	21,026
DF	12
p-value (one-	< 0,0001
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
IE	4	49,000	12,250	A
EL	12	496,000	41,333	A
ES	5	219,000	43,800	A
IT	63	6426,000	102,000	A
DK	11	1249,000	113,545	A
FI	16	1881,000	117,563	A
PT	10	1310,000	131,000	A
UK	124	19859,000	160,153	
LU	1	168,000	168,000	
FR	1	184,000	184,000	
AT	2	376,000	188,000	
DE	16	3721,000	232,563	
SE	17	3965,000	233,235	

Groupings could not be properly performed because the significance of differences is not transitive in this particular case.

Pairwise comparisons (Recovery of development level):

Differences:

	AT	DE	DK	EL	ES	FI	FR	IE	IT	LU	PT	SE	UK
AT	0	-44,563	74,455	146,667	144,200	70,438	4,000	175,750	86,000	20,000	57,000	-45,235	27,847
DE	44,563	0	**119,017**	**191,229**	**188,763**	**115,000**	48,563	**220,313**	**130,563**	64,563	101,563	-0,673	72,409
DK	-74,455	**-119,017**	0	72,212	69,745	-4,017	-70,455	101,295	11,545	-54,455	-17,455	**-119,690**	-46,608
EL	-146,667	**-191,229**	-72,212	0	-2,467	-76,229	-142,667	29,083	-60,667	-126,667	-89,667	**-191,902**	**-118,820**
ES	-144,200	**-188,763**	-69,745	2,467	0	-73,763	-140,200	31,550	-58,200	-124,200	-87,200	**-189,435**	-116,353
FI	-70,438	**-115,000**	4,017	76,229	73,763	0	-66,438	105,313	15,563	-50,438	-13,438	**-115,673**	-42,591
FR	-4,000	-48,563	70,455	142,667	140,200	66,438	0	171,750	82,000	16,000	53,000	-49,235	23,847
IE	-175,750	**-220,313**	-101,295	-29,083	-31,550	-105,313	-171,750	0	-89,750	-155,750	-118,750	**-220,985**	**-147,903**
IT	-86,000	**-130,563**	-11,545	60,667	58,200	-15,563	-82,000	89,750	0	-66,000	-29,000	**-131,235**	**-58,153**
LU	-20,000	-64,563	54,455	126,667	124,200	50,438	-16,000	155,750	66,000	0	37,000	-65,235	7,847
PT	-57,000	-101,563	17,455	89,667	87,200	13,438	-53,000	118,750	29,000	-37,000	0	-102,235	-29,153
SE	45,235	0,673	**119,690**	**191,902**	**189,435**	**115,673**	49,235	**220,985**	**131,235**	65,235	102,235	0	**73,082**
UK	-27,847	-72,409	46,608	**118,820**	116,353	42,591	-23,847	**147,903**	**58,153**	-7,847	29,153	**-73,082**	0

p-values:

	AT	DE	DK	EL	ES	FI	FR	IE	IT	LU	PT	SE	UK
AT	1	0,466	0,235	0,019	0,035	0,249	0,968	0,013	0,142	0,841	0,367	0,458	0,632
DE	0,466	1	**0,000**	**<0,0001**	**<0,0001**	**<0,0001**	0,563	**<0,0001**	**<0,0001**	0,442	0,002	0,981	0,001
DK	0,235	**0,000**	1	0,034	0,113	0,900	0,408	0,033	0,665	0,523	0,624	**0,000**	0,069
EL	0,019	**<0,0001**	0,034	1	0,955	0,014	0,093	0,537	0,018	0,136	0,010	**<0,0001**	**<0,0001**
ES	0,035	**<0,0001**	0,113	0,955	1	0,077	0,117	0,564	0,125	0,164	0,051	**<0,0001**	0,002
FI	0,249	**<0,0001**	0,900	0,014	0,077	1	0,429	0,021	0,495	0,548	0,683	**<0,0001**	0,049
FR	0,968	0,563	0,408	0,093	0,117	0,429	1	0,060	0,318	0,890	0,535	0,557	0,771
IE	0,013	**<0,0001**	0,033	0,537	0,564	0,021	0,060	1	0,033	0,088	0,014	**<0,0001**	**0,000**
IT	0,142	**<0,0001**	0,665	0,018	0,125	0,495	0,318	0,033	1	0,422	0,296	**<0,0001**	**<0,0001**
LU	0,841	0,442	0,523	0,136	0,164	0,548	0,890	0,088	0,422	1	0,665	0,437	0,924
PT	0,367	0,002	0,624	0,010	0,051	0,683	0,535	0,014	0,296	0,665	1	0,002	0,277
SE	0,458	0,981	**0,000**	**<0,0001**	**<0,0001**	**<0,0001**	0,557	**<0,0001**	**<0,0001**	0,437	0,002	1	**0,001**
UK	0,632	0,001	0,069	**<0,0001**	0,002	0,049	0,771	**0,000**	**<0,0001**	0,924	0,277	**0,001**	1

Bonferroni corrected significance level: 0,0006

Analysis of Employment-based resilience performance by Country for the crisis period 2008-2009

Kruskal-Wallis - Growth trajectory retention (8-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (8 years)):

K (Observed	14,488
K (Critical va	11,070
DF	5
p-value (one-	0,013
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
AT	0			
EL	0			
ES	0			
FR	0			
IE	0			
LU	0			
PT	0			
FI	3	20,000	6,667	
IT	6	74,000	12,333	
UK	35	1132,000	32,343	
SE	11	368,000	33,455	
DE	2	71,000	35,500	
DK	1	46,000	46,000	

Pairwise comparisons (Growth trajectory retention (8 years)):

Differences:

	AT	DE	DK	EL	ES	FI	FR	IE	IT	LU	PT	SE	UK
AT													
DE		0	-10,500			28,833			23,167			2,045	3,157
DK		10,500	0			39,333			33,667			12,545	13,657
EL													
ES													
FI		-28,833	-39,333			0			-5,667			-26,788	-25,676
FR													
IE													
IT		-23,167	-33,667			5,667			0			-21,121	-20,010
LU													
PT													
SE		-2,045	-12,545			26,788			21,121			0	1,112
UK		-3,157	-13,657			25,676			20,010			-1,112	0

p-values:

	AT	DE	DK	EL	ES	FI	FR	IE	IT	LU	PT	SE	UK
AT													
DE		1	0,612			0,061			0,093			0,875	0,797
DK		0,612	1			0,044			0,065			0,477	0,425
EL													
ES													
FI		0,061	0,044			1			0,635			0,015	0,011
FR													
IE													
IT		0,093	0,065			0,635			1			0,014	0,007
LU													
PT													
SE		0,875	0,477			0,015			0,014			1	0,849
UK		0,797	0,425			0,011			0,007			0,849	1

Bonferroni corrected significance level: 0,0033

Analysis of Employment-based resilience performance by Country for the crisis period 2008-2009

Kruskal-Wallis - Growth trajectory retention (4-year recovery period)

Kruskal-Wallis test / Two-tailed test (Growth trajectory retention (4 years)):

K (Observed	73,872
K (Critical va	21,026
DF	12
p-value (one-	< 0,0001
alpha	0,05

An approximation has been used to compute the p-value.

Multiple pairwise comparisons using Dunn's procedure / Two-tailed test:

Sample	Frequency	Sum of ranks	Mean of ranks	Groups
FI	16	702,000	43,875	A
IT	63	5790,000	91,905	A
FR	1	115,000	115,000	A
AT	2	272,000	136,000	A
LU	1	138,000	138,000	A
ES	5	694,000	138,800	A
UK	124	19257,000	155,298	
IE	4	638,000	159,500	
SE	17	2970,000	174,706	
DK	11	1931,000	175,545	
EL	12	2138,000	178,167	
DE	16	2936,000	183,500	
PT	10	2322,000	232,200	

Groupings could not be properly performed because the significance of differences is not transitive in this particular case.

Pairwise comparisons (Growth trajectory retention (4 years)):

Differences:

	AT	DE	DK	EL	ES	FI	FR	IE	IT	LU	PT	SE	UK
AT	0	-47,500	-39,545	-42,167	-2,800	92,125	21,000	-23,500	44,095	-2,000	-96,200	-38,706	-19,298
DE	47,500	0	7,955	5,333	44,700	**139,625**	68,500	24,000	**91,595**	45,500	-48,700	8,794	28,202
DK	39,545	-7,955	0	-2,621	36,745	**131,670**	60,545	16,045	83,641	37,545	-56,655	0,840	20,247
EL	42,167	-5,333	2,621	0	39,367	**134,292**	63,167	18,667	86,262	40,167	-54,033	3,461	22,868
ES	2,800	-44,700	-36,745	-39,367	0	94,925	23,800	-20,700	46,895	0,800	-93,400	-35,906	-16,498
FI	-92,125	**-139,625**	**-131,670**	**-134,292**	-94,925	0	-71,125	-115,625	-48,030	-94,125	**-188,325**	**-130,831**	**-111,423**
FR	-21,000	-68,500	-60,545	-63,167	-23,800	71,125	0	-44,500	23,095	-23,000	-117,200	-59,706	-40,298
IE	23,500	-24,000	-16,045	-18,667	20,700	115,625	44,500	0	67,595	21,500	-72,700	-15,206	4,202
IT	-44,095	**-91,595**	-83,641	-86,262	-46,895	48,030	-23,095	-67,595	0	-46,095	**-140,295**	**-82,801**	**-63,394**
LU	2,000	-45,500	-37,545	-40,167	-0,800	94,125	23,000	-21,500	46,095	0	-94,200	-36,706	-17,298
PT	96,200	48,700	56,655	54,033	93,400	**188,325**	117,200	72,700	**140,295**	94,200	0	57,494	76,902
SE	38,706	-8,794	-0,840	-3,461	35,906	**130,831**	59,706	15,206	**82,801**	36,706	-57,494	0	19,407
UK	19,298	-28,202	-20,247	-22,868	16,498	**111,423**	40,298	-4,202	**63,394**	17,298	-76,902	-19,407	0

p-values:

	AT	DE	DK	EL	ES	FI	FR	IE	IT	LU	PT	SE	UK
AT	1	0,437	0,528	0,498	0,967	0,132	0,833	0,739	0,452	0,984	0,128	0,525	0,740
DE	0,437	1	0,803	0,864	0,285	**<0,0001**	0,415	0,599	**<0,0001**	0,588	0,138	0,757	0,193
DK	0,528	0,803	1	0,939	0,403	**<0,0001**	0,477	0,736	0,002	0,659	0,112	0,979	0,430
EL	0,498	0,864	0,939	1	0,364	**<0,0001**	0,457	0,692	0,001	0,636	0,122	0,910	0,354
ES	0,967	0,285	0,403	0,364	1	0,023	0,790	0,705	0,216	0,993	0,037	0,387	0,657
FI	0,132	**<0,0001**	**<0,0001**	**<0,0001**	0,023	1	0,397	0,011	0,035	0,263	**<0,0001**	**<0,0001**	**<0,0001**
FR	0,833	0,415	0,477	0,457	0,790	0,397	1	0,626	0,779	0,842	0,171	0,477	0,623
IE	0,739	0,599	0,736	0,692	0,705	0,011	0,626	1	0,108	0,814	0,132	0,737	0,919
IT	0,452	**<0,0001**	0,002	0,001	0,216	0,035	0,779	0,108	1	0,575	**<0,0001**	**0,000**	**<0,0001**
LU	0,984	0,588	0,659	0,636	0,993	0,263	0,842	0,814	0,575	1	0,271	0,662	0,833
PT	0,128	0,138	0,112	0,122	0,037	**<0,0001**	0,171	0,132	**<0,0001**	0,271	1	0,077	0,004
SE	0,525	0,757	0,979	0,910	0,387	**<0,0001**	0,477	0,737	**0,000**	0,662	0,077	1	0,357
UK	0,740	0,193	0,430	0,354	0,657	**<0,0001**	0,623	0,919	**<0,0001**	0,833	0,004	0,357	1

Bonferroni corrected significance level: 0,0006

III. Appendix to Section 7.

III.a. Analysis of the effect of resilience capabilities on resilience performance

III.a.i. RGVA – Stepwise regression

Stepwise regression analysis on regional RGVA resilience performance

Settings:
Confidence interval (%): 95
Tolerance: 0,0001
Model selection: Stepwise
Probability for entry: 0,05 / Probability for removal: 0,1
Covariances: Corrections = Newey West (adjusted)(Lag = 1)

Explanation of the variable codes can be found in table 28

Summary statistics:

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Rec_DL	1902	0	1902	-0,590	0,509	-0,077	0,098
Ret_Tra_4	1902	0	1902	-0,125	0,138	-0,010	0,024
Ret_Tra_8	1902	396	1506	-0,127	0,051	-0,012	0,019
Pop_age	1902	0	1902	0,192	2,946	1,122	0,386
Mig_net	1902	0	1902	-27,218	66,719	3,075	6,329
Pop_work	1902	0	1902	0,265	0,667	0,470	0,049
Agri_GVA	1902	0	1902	0,000	0,177	0,022	0,023
Manu_GVA	1902	0	1902	0,020	0,720	0,222	0,095
Const_GVA	1902	0	1902	0,011	0,352	0,076	0,031
Serv_GVA	1902	0	1902	0,176	0,782	0,445	0,084
Pub_GVA	1902	0	1902	0,062	0,568	0,234	0,067
HHI	1902	0	1902	0,176	0,543	0,232	0,031
GDP_PC	1902	0	1902	-1,199	5,176	-0,003	0,727
GFCF_PC	1902	0	1902	-1,759	2,618	0,019	0,757
PROD	1902	0	1902	-2,654	4,694	0,238	0,951
RnD_GDP	1902	0	1902	0,000	14,868	1,958	1,507
RnD_EMP	1902	0	1902	0,000	4,938	1,413	0,853
MM_Ac	1902	0	1902	24,795	192,930	108,026	33,259
Avg_bus	1902	0	1902	1,349	18,605	9,390	5,172
Gov_debt	1902	0	1902	-11,100	6,700	-4,045	2,496
Cur_blc	1902	0	1902	-14,500	10,200	0,299	3,664
Gov_close	1902	0	1902	0,370	31,490	5,712	3,937
Lab_comp	1902	0	1902	324,327	271583,24	28538,04	28757,02
Union	1902	0	1902	7,794	84,677	28,465	14,385
ML_barg	1902	0	1902	1,000	4,875	2,608	0,873
SHDI	1902	0	1902	0,701	0,958	0,850	0,052
SC_Org	1902	0	1902	0,038	0,286	0,120	0,046
EoC	1902	0	1902	46,900	100,000	74,391	16,522
Clu	1902	0	1902	0,000	82,000	2,729	3,189

Number of removed observations: 222

Stepwise regression analysis on regional RGVA resilience performance

Correlation matrix:

	Pop_age	Mig_net	Pop_work	Agri_GVA	Manu_GVA	Const_GVA	Serv_GVA	Pub_GVA	HHI	GDP_PC	GFCF_PC	PROD	RnD_GDP	RnD_EMP	MM_Ac	Avg_bus	Gov_debt	Cur_blc	Gov_close	Lab_comp	Union	ML_barg	SHDI	SC_Org	EoC	Clu	Rec_DL	Ret_Tra_4	Ret_Tra_8
Pop_age	**1**	-0,165	0,209	0,048	-0,025	-0,212	-0,013	0,132	-0,020	-0,017	-0,194	-0,154	-0,013	0,000	-0,075	0,167	-0,017	0,281	-0,014	-0,003	-0,149	-0,030	0,352	0,140	-0,026	-0,105	0,088	0,078	0,223
Mig_net	-0,165	**1**	-0,061	-0,041	0,023	0,058	0,063	-0,123	0,062	0,091	0,167	0,135	0,018	0,021	0,091	0,091	0,060	-0,195	-0,020	-0,058	0,116	0,009	-0,056	0,123	0,062	-0,010	0,026	-0,031	-0,051
Pop_work	0,209	-0,061	**1**	-0,257	0,086	-0,151	0,041	-0,015	0,101	0,141	0,291	0,039	0,299	0,328	0,193	0,348	0,399	0,260	0,188	0,111	0,012	-0,316	0,520	0,228	0,457	0,124	0,004	-0,021	0,013
Agri_GVA	0,048	-0,041	-0,257	**1**	-0,178	0,301	-0,223	0,045	-0,470	-0,375	-0,236	-0,311	-0,250	-0,317	-0,566	-0,375	-0,145	-0,129	-0,050	-0,201	-0,015	0,228	-0,322	-0,143	-0,375	-0,069	-0,114	-0,062	-0,111
Manu_GVA	-0,025	0,023	0,086	-0,178	**1**	-0,195	-0,592	-0,527	0,241	0,147	0,065	0,097	0,137	0,111	0,164	0,370	0,191	0,054	0,023	-0,020	0,105	-0,015	0,030	0,221	0,175	0,037	-0,043	-0,054	-0,060
Const_GVA	-0,212	0,058	-0,151	0,301	-0,195	**1**	-0,244	0,014	-0,451	-0,413	-0,104	-0,345	-0,116	-0,248	-0,393	-0,265	-0,008	-0,325	-0,108	-0,204	0,024	-0,009	-0,499	-0,238	-0,027	-0,076	-0,067	-0,004	-0,063
Serv_GVA	-0,013	0,063	0,041	-0,223	-0,592	-0,244	**1**	-0,219	0,069	0,319	0,214	0,286	0,057	0,154	0,336	-0,101	-0,256	0,035	-0,039	0,319	-0,108	0,057	0,233	-0,046	-0,114	-0,051	0,028	0,040	0,053
Pub_GVA	0,132	-0,123	-0,015	0,045	-0,527	0,014	-0,219	**1**	-0,057	-0,286	-0,229	-0,228	-0,125	-0,125	-0,274	-0,146	0,103	0,076	0,083	-0,206	-0,019	-0,125	0,009	-0,096	0,036	0,070	0,097	0,050	0,086
HHI	-0,020	0,062	0,101	-0,470	0,241	-0,451	0,069	-0,057	**1**	0,512	0,148	0,245	0,149	0,216	0,292	0,232	0,088	0,048	-0,039	0,155	0,004	-0,070	0,153	0,145	0,149	0,116	-0,103	-0,034	-0,034
GDP_PC	-0,017	0,091	0,141	-0,375	0,147	-0,413	0,319	-0,286	0,512	**1**	0,434	0,469	0,211	0,309	0,456	0,221	0,056	0,117	0,101	0,303	0,041	0,038	0,210	0,246	0,062	0,041	0,006	-0,020	-0,018
GFCF_PC	-0,194	0,167	0,291	-0,236	0,065	-0,104	0,214	-0,229	0,148	0,434	**1**	0,680	0,456	0,598	0,365	0,168	0,167	0,197	0,301	0,390	0,186	0,060	0,243	0,349	0,094	0,108	0,077	0,028	0,015
PROD	-0,154	0,135	0,039	-0,311	0,097	-0,345	0,286	-0,228	0,245	0,469	0,680	**1**	0,344	0,499	0,608	0,284	0,040	0,380	0,221	0,483	0,021	0,133	0,395	0,475	0,014	0,032	0,188	0,076	0,094
RnD_GDP	-0,013	0,018	0,299	-0,250	0,137	-0,116	0,057	-0,125	0,149	0,211	0,456	0,344	**1**	0,776	0,301	0,304	0,206	0,187	0,170	0,238	0,026	-0,164	0,251	0,208	0,250	0,217	0,049	0,025	0,010
RnD_EMP	0,000	0,021	0,328	-0,317	0,111	-0,248	0,154	-0,125	0,216	0,309	0,598	0,499	0,776	**1**	0,383	0,316	0,212	0,226	0,231	0,440	0,003	-0,194	0,435	0,267	0,212	0,028	0,064	0,051	0,062
MM_Ac	-0,075	0,091	0,193	-0,566	0,164	-0,393	0,336	-0,274	0,292	0,456	0,365	0,608	0,301	0,383	**1**	0,486	0,062	0,281	-0,083	0,429	-0,085	-0,071	0,402	0,292	0,238	-0,025	0,180	0,078	0,123
Avg_bus	0,167	0,091	0,348	-0,375	0,370	-0,265	-0,101	-0,146	0,232	0,221	0,168	0,284	0,304	0,316	0,486	**1**	0,380	0,303	-0,012	0,107	-0,111	-0,345	0,423	0,548	0,648	0,029	0,184	0,076	0,152
Gov_debt	-0,017	0,060	0,399	-0,145	0,191	-0,008	-0,256	0,103	0,088	0,056	0,167	0,040	0,206	0,212	0,062	0,380	**1**	0,270	0,350	-0,104	0,234	-0,273	0,186	0,396	0,513	0,188	-0,017	-0,074	-0,085
Cur_blc	0,281	-0,195	0,260	-0,129	0,054	-0,325	0,035	0,076	0,048	0,117	0,197	0,380	0,187	0,226	0,281	0,303	0,270	**1**	0,364	0,126	-0,089	0,168	0,567	0,602	-0,010	0,070	0,215	0,063	0,137
Gov_close	-0,014	-0,020	0,188	-0,050	0,023	-0,108	-0,039	0,083	-0,039	0,101	0,301	0,221	0,170	0,231	-0,083	-0,012	0,350	0,364	**1**	-0,012	0,515	0,117	0,218	0,398	0,023	0,128	0,051	-0,033	0,001
Lab_comp	-0,003	-0,058	0,111	-0,201	-0,020	-0,204	0,319	-0,206	0,155	0,303	0,390	0,483	0,238	0,440	0,429	0,107	-0,104	0,126	-0,012	**1**	-0,251	-0,017	0,317	0,088	-0,118	-0,163	0,075	0,037	0,058
Union	-0,149	0,116	0,012	-0,015	0,105	0,024	-0,108	-0,019	0,004	0,041	0,186	0,021	0,026	0,003	-0,085	-0,111	0,234	-0,089	0,515	-0,251	**1**	0,297	-0,203	0,012	0,118	0,166	-0,135	-0,078	-0,096
ML_barg	-0,030	0,009	-0,316	0,228	-0,015	-0,009	0,057	-0,125	-0,070	0,038	0,060	0,133	-0,164	-0,194	-0,071	-0,345	-0,273	0,168	0,117	-0,017	0,297	**1**	-0,243	0,179	-0,697	0,015	-0,043	-0,084	-0,172
SHDI	0,352	-0,056	0,520	-0,322	0,030	-0,499	0,233	0,009	0,153	0,210	0,243	0,395	0,251	0,435	0,402	0,423	0,186	0,567	0,218	0,317	-0,203	-0,243	**1**	0,463	0,208	0,079	0,133	0,088	0,203
SC_Org	0,140	0,123	0,228	-0,143	0,221	-0,238	-0,046	-0,096	0,145	0,246	0,349	0,475	0,208	0,267	0,292	0,548	0,396	0,602	0,398	0,088	0,012	0,179	0,463	**1**	0,103	0,098	0,199	0,067	0,094
EoC	-0,026	0,062	0,457	-0,375	0,175	-0,027	-0,114	0,036	0,149	0,062	0,094	0,014	0,250	0,212	0,238	0,648	0,513	-0,010	0,023	-0,118	0,118	-0,697	0,208	0,103	**1**	0,122	0,046	0,062	0,163
Clu	-0,105	-0,010	0,124	-0,069	0,037	-0,076	-0,051	0,070	0,116	0,041	0,108	0,032	0,217	0,028	-0,025	0,029	0,188	0,070	0,128	-0,163	0,166	0,015	0,079	0,098	0,122	**1**	-0,110	-0,017	-0,134
Rec_DL	0,088	0,026	0,004	-0,114	-0,043	-0,067	0,028	0,097	-0,103	0,006	0,077	0,188	0,049	0,064	0,180	0,184	-0,017	0,215	0,051	0,075	-0,135	-0,043	0,133	0,199	0,046	-0,110	**1**	0,519	0,475
Ret_Tra_4	0,078	-0,031	-0,021	-0,062	-0,054	-0,004	0,040	0,050	-0,034	-0,020	0,028	0,076	0,025	0,051	0,078	0,076	-0,074	0,063	-0,033	0,037	-0,078	-0,084	0,088	0,067	0,062	-0,017	0,519	**1**	0,707
Ret_Tra_8	0,223	-0,051	0,013	-0,111	-0,060	-0,063	0,053	0,086	-0,034	-0,018	0,015	0,094	0,010	0,062	0,123	0,152	-0,085	0,137	0,001	0,058	-0,096	-0,172	0,203	0,094	0,163	-0,134	0,475	0,707	**1**

Stepwise regression analysis on regional RGVA resilience performance - Recovery of development level

Summary of the variables selection Rec_DL:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R²	Adjusted R²	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	Cur_blc	Cur_blc	IN	0,009	0,046	0,046	290,796	-8927,604	-8916,503	0,956
2	Cur_blc / Clu	Clu	IN	0,009	0,062	0,061	256,967	-8956,996	-8940,344	0,941
3	Avg_bus / Cur_blc / Clu	Avg_bus	IN	0,009	0,078	0,076	222,705	-8987,304	-8965,101	0,926
4	HHI / Avg_bus / Cur_blc / Clu	HHI	IN	0,009	0,095	0,093	184,702	-9021,593	-8993,840	0,910
5	HHI / PROD / Avg_bus / Cur_blc / Clu	PROD	IN	0,009	0,111	0,108	151,592	-9052,024	-9018,720	0,895
6	Pub_GVA / HHI / PROD / Avg_bus / Cur_blc / Clu	Pub_GVA	IN	0,008	0,132	0,129	105,031	-9095,812	-9056,957	0,875
7	Pub_GVA / HHI / PROD / Avg_bus / Gov_debt / Cur_blc / Clu	Gov_debt	IN	0,008	0,143	0,140	81,313	-9118,515	-9074,110	0,864
8	Agri_GVA / Pub_GVA / HHI / PROD / Avg_bus / Gov_debt / Cur_blc / Clu	Agri_GVA	IN	0,008	0,152	0,148	63,153	-9136,107	-9086,151	0,856
9	Agri_GVA / Pub_GVA / HHI / PROD / Avg_bus / Gov_debt / Cur_blc / SHDI / Clu	SHDI	IN	0,008	0,156	0,152	54,895	-9144,153	-9088,646	0,853
10	Agri_GVA / Pub_GVA / HHI / PROD / Avg_bus / Gov_debt / Cur_blc / Union / SHDI / Clu	Union	IN	0,008	0,162	0,158	42,574	-9156,268	-9095,210	0,847
11	Agri_GVA / Pub_GVA / HHI / PROD / Avg_bus / Gov_debt / Cur_blc / Union / SHDI / SC_Org / Clu	SC_Org	IN	0,008	0,167	0,162	33,228	-9165,525	-9098,917	0,843
12	Agri_GVA / Pub_GVA / HHI / PROD / Avg_bus / Gov_debt / Cur_blc / Union / ML_barg / SHDI / SC_Org / Clu	ML_barg	IN	0,008	0,172	0,166	25,532	-9173,200	-9101,041	0,840
13	Agri_GVA / Const_GVA / Pub_GVA / HHI / PROD / Avg_bus / Gov_debt / Cur_blc / Union / ML_barg / SHDI / SC_Org / Clu	Const_GVA	IN	0,008	0,174	0,168	22,145	-9176,595	-9098,886	0,838
14	Mig_net / Agri_GVA / Const_GVA / Pub_GVA / HHI / PROD / Avg_bus / Gov_debt / Cur_blc / Union / ML_barg / SHDI / SC_Org / Clu	Mig_net	IN	0,008	0,176	0,170	19,039	-9179,724	-9096,464	0,837
15	Pop_age / Mig_net / Agri_GVA / Const_GVA / Pub_GVA / HHI / PROD / Avg_bus / Gov_debt / Cur_blc / Union / ML_barg / SHDI / SC_Org / Clu	Pop_age	IN	0,008	0,178	0,172	16,178	-9182,620	-9093,809	0,836

Stepwise regression analysis on regional RGVA resilience performance - Recovery of development level

Goodness of fit statistics (Rec_DL):

Observations	1902
Sum of weights	1902
DF	1886
R²	0,178
Adjusted R²	0,172
MSE	0,008
RMSE	0,089
MAPE	1822,418
DW	1,575
Cp	16,178
AIC	-9182,620
SBC	-9093,809
PC	0,836
Press	15,314
Q²	0,159

Analysis of variance (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	15	3,246	0,216	27,268	**<0,0001**
Error	1886	14,969	0,008		
Corrected	1901	18,215			

Computed against model Y=Mean(Y)

Stepwise regression analysis on regional RGVA resilience performance - Recovery of development level

Type I Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,143	0,143	17,974	0,000
Mig_net	1,000	0,030	0,030	3,840	0,050
Pop_work	0,000	0,000			
Agri_GVA	1,000	0,251	0,251	31,615	0,000
Manu_GVA	0,000	0,000			
Const_GVA	1,000	0,003	0,003	0,413	0,521
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,166	0,166	20,884	0,000
HHI	1,000	0,709	0,709	89,323	0,000
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,716	0,716	90,168	0,000
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	1,000	0,268	0,268	33,754	0,000
Gov_debt	1,000	0,179	0,179	22,509	0,000
Cur_blc	1,000	0,191	0,191	24,118	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,113	0,113	14,260	0,000
ML_barg	1,000	0,000	0,000	0,060	0,807
SHDI	1,000	0,239	0,239	30,145	0,000
SC_Org	1,000	0,137	0,137	17,214	0,000
EoC	0,000	0,000			
Clu	1,000	0,101	0,101	12,742	0,000

Type III Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,039	0,039	4,861	0,028
Mig_net	1,000	0,046	0,046	5,739	0,017
Pop_work	0,000	0,000			
Agri_GVA	1,000	0,282	0,282	35,479	0,000
Manu_GVA	0,000	0,000			
Const_GVA	1,000	0,040	0,040	5,090	0,024
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,331	0,331	41,740	0,000
HHI	1,000	0,670	0,670	84,459	0,000
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,231	0,231	29,062	0,000
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	1,000	0,057	0,057	7,210	0,007
Gov_debt	1,000	0,199	0,199	25,086	0,000
Cur_blc	1,000	0,191	0,191	24,106	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,063	0,063	7,903	0,005
ML_barg	1,000	0,103	0,103	12,985	0,000
SHDI	1,000	0,274	0,274	34,515	0,000
SC_Org	1,000	0,143	0,143	17,985	0,000
EoC	0,000	0,000			
Clu	1,000	0,101	0,101	12,742	0,000

Stepwise regression analysis on regional RGVA resilience performance - Recovery of development level

Model parameters (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,361	0,088	4,100	**<0,0001**	0,188	0,534
Pop_age	0,014	0,006	2,190	**0,029**	0,001	0,027
Mig_net	0,001	0,000	1,741	0,082	0,000	0,002
Pop_work	0,000	0,000				
Agri_GVA	-0,669	0,151	-4,419	**<0,0001**	-0,965	-0,372
Manu_GVA	0,000	0,000				
Const_GVA	-0,201	0,110	-1,831	0,067	-0,416	0,014
Serv_GVA	0,000	0,000				
Pub_GVA	0,215	0,041	5,183	**<0,0001**	0,134	0,296
HHI	-0,775	0,149	-5,219	**<0,0001**	-1,066	-0,484
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,016	0,004	4,210	**<0,0001**	0,009	0,023
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,002	0,001	2,471	**0,014**	0,000	0,003
Gov_debt	-0,006	0,001	-3,965	**<0,0001**	-0,009	-0,003
Cur_blc	0,004	0,001	3,726	**0,000**	0,002	0,007
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000	-2,474	**0,013**	-0,001	0,000
ML_barg	-0,013	0,005	-2,846	**0,004**	-0,022	-0,004
SHDI	-0,384	0,081	-4,750	**<0,0001**	-0,542	-0,225
SC_Org	0,334	0,091	3,667	**0,000**	0,156	0,513
EoC	0,000	0,000				
Clu	-0,002	0,001	-3,234	**0,001**	-0,004	-0,001

Standardized coefficients (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,056	0,026	2,190	**0,029**	0,006	0,106
Mig_net	0,055	0,031	1,741	0,082	-0,007	0,116
Pop_work	0,000	0,000				
Agri_GVA	-0,158	0,036	-4,419	**<0,0001**	-0,229	-0,088
Manu_GVA	0,000	0,000				
Const_GVA	-0,064	0,035	-1,831	0,067	-0,132	0,005
Serv_GVA	0,000	0,000				
Pub_GVA	0,147	0,028	5,183	**<0,0001**	0,091	0,203
HHI	-0,244	0,047	-5,219	**<0,0001**	-0,335	-0,152
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,156	0,037	4,210	**<0,0001**	0,083	0,228
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,086	0,035	2,471	**0,014**	0,018	0,155
Gov_debt	-0,145	0,037	-3,965	**<0,0001**	-0,217	-0,073
Cur_blc	0,163	0,044	3,726	**0,000**	0,077	0,249
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	-0,071	0,029	-2,474	**0,013**	-0,127	-0,015
ML_barg	-0,119	0,042	-2,846	**0,004**	-0,200	-0,037
SHDI	-0,204	0,043	-4,750	**<0,0001**	-0,289	-0,120
SC_Org	0,159	0,043	3,667	**0,000**	0,074	0,244
EoC	0,000	0,000				
Clu	-0,078	0,024	-3,234	**0,001**	-0,126	-0,031

Stepwise regression analysis on regional RGVA resilience performance - Growth trajectory retention 4-year recovery period

Summary of the variables selection Ret_Tra_4:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	SHDI	SHDI	IN	0,001	0,008	0,007	105,437	-14218,970	-14207,869	0,994
2	Gov_debt / SHDI	Gov_debt	IN	0,001	0,016	0,015	90,213	-14233,392	-14216,740	0,987
3	Gov_debt / SHDI / EoC	EoC	IN	0,001	0,027	0,026	70,253	-14252,538	-14230,336	0,977
4	Gov_debt / SHDI / SC_Org / EoC	SC_Org	IN	0,001	0,035	0,033	55,783	-14266,554	-14238,800	0,970
5	Pub_GVA / Gov_debt / SHDI / SC_Org / EoC	Pub_GVA	IN	0,001	0,041	0,039	45,873	-14276,219	-14242,915	0,965
4	Pub_GVA / Gov_debt / SC_Org / EoC	SHDI	OUT	0,001	0,041	0,039	43,873	-14278,219	-14250,466	0,964
5	Pub_GVA / Gov_debt / ML_barg / SC_Org / EoC	ML_barg	IN	0,001	0,046	0,043	36,272	-14285,676	-14252,372	0,960
6	Pop_work / Pub_GVA / Gov_debt / ML_barg / SC_Org / EoC	Pop_work	IN	0,001	0,049	0,046	31,123	-14290,748	-14251,893	0,958
7	Pop_work / Pub_GVA / HHI / Gov_debt / ML_barg / SC_Org / EoC	HHI	IN	0,001	0,053	0,049	26,179	-14295,643	-14251,237	0,955
8	Pop_work / Pub_GVA / HHI / MM_Ac / Gov_debt / ML_barg / SC_Org / EoC	MM_Ac	IN	0,001	0,055	0,051	23,558	-14298,245	-14248,289	0,954
9	Pop_age / Pop_work / Pub_GVA / HHI / MM_Ac / Gov_debt / ML_barg / SC_Org / EoC	Pop_age	IN	0,001	0,058	0,054	19,515	-14302,280	-14246,773	0,952
10	Pop_age / Pop_work / Pub_GVA / HHI / MM_Ac / Avg_bus / Gov_debt / ML_barg / SC_Org / EoC	Avg_bus	IN	0,001	0,061	0,056	14,932	-14306,876	-14245,818	0,949

Stepwise regression analysis on regional RGVA resilience performance - Growth trajectory retention 4-year recovery period

Goodness of fit statistics (Ret_Tra_4):

Observations	1902
Sum of weights	1902
DF	1891
R^2	0,061
Adjusted R^2	0,056
MSE	0,001
RMSE	0,023
MAPE	242,418
DW	1,518
Cp	14,932
AIC	-14306,88
SBC	-14245,82
PC	0,949
Press	1,035
Q^2	0,045

Analysis of variance (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	10	0,067	0,007	12,382	**<0,0001**
Error	1891	1,017	0,001		
Corrected	1901	1,084			

Computed against model Y=Mean(Y)

Stepwise regression analysis on regional RGVA resilience performance - Growth trajectory retention 4-year recovery period

Type I Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,007	0,007	12,207	0,000
Mig_net	0,000	0,000			
Pop_work	1,000	0,002	0,002	2,916	0,088
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,002	0,002	2,895	0,089
HHI	1,000	0,001	0,001	1,465	0,226
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,016	0,016	29,243	0,000
Avg_bus	1,000	0,003	0,003	5,108	0,024
Gov_debt	1,000	0,009	0,009	16,471	0,000
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,008	0,008	14,167	0,000
SHDI	0,000	0,000			
SC_Org	1,000	0,015	0,015	27,261	0,000
EoC	1,000	0,006	0,006	12,065	0,001
Clu	0,000	0,000			

Type III Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,005	0,005	9,448	0,002
Mig_net	0,000	0,000			
Pop_work	1,000	0,005	0,005	9,057	0,003
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,004	0,004	6,897	0,009
HHI	1,000	0,004	0,004	8,308	0,004
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,006	0,006	10,745	0,001
Avg_bus	1,000	0,004	0,004	6,569	0,010
Gov_debt	1,000	0,023	0,023	42,336	0,000
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,005	0,005	10,104	0,002
SHDI	0,000	0,000			
SC_Org	1,000	0,016	0,016	30,292	0,000
EoC	1,000	0,006	0,006	12,065	0,001
Clu	0,000	0,000			

Stepwise regression analysis on regional RGVA resilience performance - Growth trajectory retention 4-year recovery period

Model parameters (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,020	0,014	-1,418	0,156	-0,047	0,008
Pop_age	0,005	0,002	2,600	**0,009**	0,001	0,009
Mig_net	0,000	0,000				
Pop_work	-0,045	0,021	-2,137	**0,033**	-0,086	-0,004
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,023	0,012	1,935	0,053	0,000	0,046
HHI	-0,052	0,031	-1,676	0,094	-0,114	0,009
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000	2,251	**0,024**	0,000	0,000
Avg_bus	-0,001	0,000	-2,295	**0,022**	-0,001	0,000
Gov_debt	-0,002	0,000	-5,272	**<0,0001**	-0,003	-0,001
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	-0,003	0,001	-2,337	**0,020**	-0,006	-0,001
SHDI	0,000	0,000				
SC_Org	0,106	0,028	3,776	**0,000**	0,051	0,161
EoC	0,000	0,000	2,856	**0,004**	0,000	0,000
Clu	0,000	0,000				

Standardized coefficients (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,080	0,031	2,600	**0,009**	0,020	0,140
Mig_net	0,000	0,000				
Pop_work	-0,091	0,043	-2,137	**0,033**	-0,175	-0,008
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,064	0,033	1,935	0,053	-0,001	0,128
HHI	-0,068	0,040	-1,676	0,094	-0,147	0,011
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,097	0,043	2,251	**0,024**	0,013	0,182
Avg_bus	-0,112	0,049	-2,295	**0,022**	-0,209	-0,016
Gov_debt	-0,198	0,038	-5,272	**<0,0001**	-0,271	-0,124
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	-0,116	0,050	-2,337	**0,020**	-0,213	-0,019
SHDI	0,000	0,000				
SC_Org	0,206	0,054	3,776	**0,000**	0,099	0,312
EoC	0,162	0,057	2,856	**0,004**	0,051	0,274
Clu	0,000	0,000				

Stepwise regression analysis on regional RGVA resilience performance - Growth trajectory retention 8-year recovery period

Summary of the variables selection Ret_Tra_8:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	Pop_age	Pop_age	IN	0,000	0,050	0,049	262,037	-12026,049	-12015,415	0,953
2	Pop_age / ML_barg	ML_barg	IN	0,000	0,076	0,075	214,169	-12067,237	-12051,285	0,927
3	Pop_age / Gov_debt / ML_barg	Gov_debt	IN	0,000	0,099	0,097	174,381	-12102,405	-12081,136	0,906
4	Pop_age / Gov_debt / ML_barg / SC_Org	SC_Org	IN	0,000	0,122	0,120	133,378	-12139,636	-12113,050	0,884
5	Pop_age / Gov_debt / ML_barg / SC_Org / EoC	EoC	IN	0,000	0,136	0,133	109,874	-12161,395	-12129,492	0,871
6	Pop_age / Gov_debt / Cur_blc / ML_barg / SC_Org / EoC	Cur_blc	IN	0,000	0,146	0,142	93,918	-12176,351	-12139,130	0,862
7	Pop_age / Pop_work / Gov_debt / Cur_blc / ML_barg / SC_Org / EoC	Pop_work	IN	0,000	0,157	0,153	75,111	-12194,240	-12151,702	0,852
8	Pop_age / Pop_work / Gov_debt / Cur_blc / ML_barg / SC_Org / EoC / Clu	Clu	IN	0,000	0,166	0,162	59,548	-12209,235	-12161,380	0,844
9	Pop_age / Pop_work / Avg_bus / Gov_debt / Cur_blc / ML_barg / SC_Org / EoC / Clu	Avg_bus	IN	0,000	0,178	0,173	40,594	-12227,765	-12174,593	0,833
10	Pop_age / Pop_work / Avg_bus / Gov_debt / Cur_blc / ML_barg / SHDI / SC_Org / EoC / Clu	SHDI	IN	0,000	0,183	0,178	32,265	-12235,990	-12177,501	0,829
11	Pop_age / Pop_work / Pub_GVA / Avg_bus / Gov_debt / Cur_blc / ML_barg / SHDI / SC_Org / EoC / Clu	Pub_GVA	IN	0,000	0,188	0,182	25,770	-12242,452	-12178,645	0,825
12	Pop_age / Pop_work / Pub_GVA / GFCF_PC / Avg_bus / Gov_debt / Cur_blc / ML_barg / SHDI / SC_Org / EoC / Clu	GFCF_PC	IN	0,000	0,192	0,185	20,535	-12247,695	-12178,571	0,823
13	Pop_age / Pop_work / Pub_GVA / HHI / GFCF_PC / Avg_bus / Gov_debt / Cur_blc / ML_barg / SHDI / SC_Org / EoC / Clu	HHI	IN	0,000	0,194	0,187	17,623	-12250,633	-12176,192	0,821
14	Pop_age / Pop_work / Pub_GVA / HHI / GFCF_PC / MM_Ac / Avg_bus / Gov_debt / Cur_blc / ML_barg / SHDI / SC_Org / EoC / Clu	MM_Ac	IN	0,000	0,197	0,190	14,118	-12254,186	-12174,428	0,819

Stepwise regression analysis on regional RGVA resilience performance - Growth trajectory retention 8-year recovery period

Goodness of fit statistics (Ret_Tra_8):

Observations	1506
Sum of weights	1506
DF	1491
R^2	0,197
Adjusted R^2	0,190
MSE	0,000
RMSE	0,017
MAPE	379,529
DW	1,439
Cp	14,118
AIC	-12254,19
SBC	-12174,43
PC	0,819
Press	0,443
Q^2	0,176

Analysis of variance (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	14	0,106	0,008	26,154	**<0,0001**
Error	1491	0,432	0,000		
Corrected	1505	0,538			

Computed against model Y=Mean(Y)

Stepwise regression analysis on regional RGVA resilience performance - Growth trajectory retention 8-year recovery period

Type I Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,027	0,027	92,078	0,000
Mig_net	0,000	0,000			
Pop_work	1,000	0,001	0,001	3,873	0,049
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,002	0,002	6,077	0,014
HHI	1,000	0,000	0,000	1,116	0,291
GDP_PC	0,000	0,000			
GFCF_PC	1,000	0,005	0,005	15,631	0,000
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,014	0,014	48,602	0,000
Avg_bus	1,000	0,004	0,004	12,883	0,000
Gov_debt	1,000	0,006	0,006	21,289	0,000
Cur_blc	1,000	0,000	0,000	1,665	0,197
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,022	0,022	74,629	0,000
SHDI	1,000	0,001	0,001	3,526	0,061
SC_Org	1,000	0,002	0,002	5,699	0,017
EoC	1,000	0,017	0,017	58,881	0,000
Clu	1,000	0,006	0,006	20,210	0,000

Type III Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,011	0,011	39,242	0,000
Mig_net	0,000	0,000			
Pop_work	1,000	0,008	0,008	27,599	0,000
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,004	0,004	13,903	0,000
HHI	1,000	0,002	0,002	7,233	0,007
GDP_PC	0,000	0,000			
GFCF_PC	1,000	0,001	0,001	5,063	0,025
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,002	0,002	5,508	0,019
Avg_bus	1,000	0,005	0,005	18,927	0,000
Gov_debt	1,000	0,020	0,020	69,557	0,000
Cur_blc	1,000	0,001	0,001	4,896	0,027
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,002	0,002	8,609	0,003
SHDI	1,000	0,002	0,002	6,012	0,014
SC_Org	1,000	0,004	0,004	15,068	0,000
EoC	1,000	0,019	0,019	64,742	0,000
Clu	1,000	0,006	0,006	20,210	0,000

Stepwise regression analysis on regional RGVA resilience performance - Growth trajectory retention 8-year recovery period

Model parameters (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,058	0,020	-2,977	**0,003**	-0,096	-0,020
Pop_age	0,009	0,002	5,252	**<0,0001**	0,006	0,012
Mig_net	0,000	0,000				
Pop_work	-0,068	0,018	-3,696	**0,000**	-0,104	-0,032
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,027	0,011	2,551	**0,011**	0,006	0,048
HHI	-0,042	0,029	-1,452	0,147	-0,099	0,015
GDP_PC	0,000	0,000				
GFCF_PC	0,002	0,001	1,819	0,069	0,000	0,003
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000	1,728	0,084	0,000	0,000
Avg_bus	-0,001	0,000	-3,456	**0,001**	-0,001	0,000
Gov_debt	-0,002	0,000	-5,422	**<0,0001**	-0,003	-0,001
Cur_blc	0,000	0,000	1,504	0,133	0,000	0,001
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	-0,002	0,001	-2,075	**0,038**	-0,005	0,000
SHDI	0,038	0,023	1,657	0,098	-0,007	0,082
SC_Org	0,066	0,024	2,720	**0,007**	0,018	0,113
EoC	0,000	0,000	5,312	**<0,0001**	0,000	0,001
Clu	-0,001	0,000	-4,061	**<0,0001**	-0,001	0,000

Standardized coefficients (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,179	0,034	5,252	**<0,0001**	0,112	0,246
Mig_net	0,000	0,000				
Pop_work	-0,176	0,048	-3,696	**0,000**	-0,270	-0,083
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,098	0,038	2,551	**0,011**	0,023	0,173
HHI	-0,067	0,046	-1,452	0,147	-0,159	0,024
GDP_PC	0,000	0,000				
GFCF_PC	0,064	0,035	1,819	0,069	-0,005	0,132
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,076	0,044	1,728	0,084	-0,010	0,162
Avg_bus	-0,199	0,058	-3,456	**0,001**	-0,312	-0,086
Gov_debt	-0,281	0,052	-5,422	**<0,0001**	-0,382	-0,179
Cur_blc	0,079	0,052	1,504	0,133	-0,024	0,181
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	-0,111	0,054	-2,075	**0,038**	-0,217	-0,006
SHDI	0,107	0,065	1,657	0,098	-0,020	0,233
SC_Org	0,161	0,059	2,720	**0,007**	0,045	0,277
EoC	0,387	0,073	5,312	**<0,0001**	0,244	0,530
Clu	-0,113	0,028	-4,061	**<0,0001**	-0,168	-0,058

III.a.ii. RGVA – ANCOVA without country category

Stepwise analysis of covariance on regional RGVA resilience performance (excluding country category) - Recovery of development level

Settings:
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Model selection: Stepwise
Probability for entry: 0,05 / Probability for removal: 0,1
Covariances: Corrections = Newey West (adjusted)(Lag = 1)
Explanation of the variable codes can be found in table 28

Summary statistics (Quantitative data):

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Rec_DL	1902	0	1902	-0,590	0,509	-0,077	0,098
Ret_Tra_4	1902	0	1902	-0,125	0,138	-0,010	0,024
Ret_Tra_8	1902	396	1506	-0,127	0,051	-0,012	0,019
Pop_age	1902	0	1902	0,192	2,946	1,122	0,386
Mig_net	1902	0	1902	-27,218	66,719	3,075	6,329
Pop_work	1902	0	1902	0,265	0,667	0,470	0,049
Agri_GVA	1902	0	1902	0,000	0,177	0,022	0,023
Manu_GVA	1902	0	1902	0,020	0,720	0,222	0,095
Const_GVA	1902	0	1902	0,011	0,352	0,076	0,031
Serv_GVA	1902	0	1902	0,176	0,782	0,445	0,084
Pub_GVA	1902	0	1902	0,062	0,568	0,234	0,067
HHI	1902	0	1902	0,176	0,543	0,232	0,031
GDP_PC	1902	0	1902	-1,199	5,176	-0,003	0,727
GFCF_PC	1902	0	1902	-1,759	2,618	0,019	0,757
PROD	1902	0	1902	-2,654	4,694	0,238	0,951
RnD_GDP	1902	0	1902	0,000	14,868	1,958	1,507
RnD_EMP	1902	0	1902	0,000	4,938	1,413	0,853
MM_Ac	1902	0	1902	24,795	192,930	108,026	33,259
Avg_bus	1902	0	1902	1,349	18,605	9,390	5,172
Gov_debt	1902	0	1902	-11,100	6,700	-4,045	2,496
Cur_blc	1902	0	1902	-14,500	10,200	0,299	3,664
Gov_close	1902	0	1902	0,370	31,490	5,712	3,937
Lab_comp	1902	0	1902	324,327	271583,242	28538,040	28757,018
Union	1902	0	1902	7,794	84,677	28,465	14,385
ML_barg	1902	0	1902	1,000	4,875	2,608	0,873
SHDI	1902	0	1902	0,701	0,958	0,850	0,052
SC_Org	1902	0	1902	0,038	0,286	0,120	0,046
EoC	1902	0	1902	46,900	100,000	74,391	16,522
Clu	1902	0	1902	0,000	82,000	2,729	3,189

Number of removed observations: 222

Summary statistics (Qualitative data):

Variable	Categories	Counts	Frequencies	%
CRISIS	1: 90-93	653	653	34,332
	2: 00-03	421	421	22,135
	3: 08-09	694	694	36,488
	4:BTW	134	134	7,045
Urb_1	Urban	593	593	31,178
	Intermediate	796	796	41,851
	Rural	513	513	26,972
Shock	LIS	166	166	8,728
	NED	1564	1564	82,229
	NIS	172	172	9,043

Stepwise analysis of covariance on regional RGVA resilience performance (excluding country category)

Correlation matrix:

	Pop_age	Mig_net	Pop_work	Agri_GVA	Manu_GVA	Const_GVA	Serv_GVA	Pub_GVA	HHI	GDP_PC	GFCF_PC	PROD	RnD_GDP	RnD_EMP	MM_Ac	Avg_bus	Gov_debt	Cur_blc	Gov_close	Lab_comp	Union	ML_barg	SHDI	SC_Org	EoC	Clu	CRISIS-1: 90-93	CRISIS-2: 00-03	CRISIS-3: 08-09	CRISIS-4BTW	Urban	Intermediate	Rural	LIS	NED	NIS	Rec_DL	Ret_Tra_4	Ret_Tra_8
Pop_age	**1**	-0,165	0,209	0,048	-0,025	-0,212	-0,013	0,132	-0,020	-0,017	-0,194	-0,154	-0,013	0,000	-0,075	0,167	-0,017	0,281	-0,014	-0,003	-0,149	-0,030	0,352	0,140	-0,026	-0,105	-0,241	-0,033	0,294	-0,016	-0,193	-0,038	0,133	-0,053	0,027	0,007	0,088	0,078	0,223
Mig_net	-0,165	**1**	-0,061	-0,041	0,023	0,058	0,063	-0,123	0,062	0,091	0,167	0,135	0,018	0,021	0,091	0,091	0,060	-0,195	-0,020	-0,058	0,116	0,009	-0,056	0,123	0,062	-0,010	0,098	-0,082	-0,121	0,055	0,011	0,085	-0,058	0,086	-0,015	-0,032	0,026	-0,031	-0,051
Pop_work	0,209	-0,061	**1**	-0,257	0,086	-0,151	0,041	-0,015	0,101	0,141	0,291	0,039	0,299	0,328	0,193	0,348	0,399	0,260	0,188	0,111	0,012	-0,316	0,520	0,228	0,457	0,124	-0,279	0,171	0,304	-0,103	0,065	0,032	-0,057	0,011	0,080	-0,063	0,004	-0,021	0,013
Agri_GVA	0,048	-0,041	-0,257	**1**	-0,178	0,301	-0,223	0,045	-0,470	-0,375	-0,236	-0,311	-0,250	-0,317	-0,566	-0,375	-0,145	-0,129	-0,050	-0,201	-0,015	0,228	-0,322	-0,143	-0,375	-0,069	0,002	-0,077	-0,181	0,142	-0,518	-0,257	0,454	-0,081	-0,230	0,204	-0,114	-0,062	-0,111
Manu_GVA	-0,025	0,023	0,086	-0,178	**1**	-0,195	-0,592	-0,527	0,241	0,147	0,065	0,097	0,137	0,111	0,164	0,370	0,191	0,054	0,023	-0,020	0,105	-0,015	0,030	0,221	0,175	0,037	0,094	0,059	-0,137	-0,004	0,034	0,063	-0,058	0,022	-0,167	0,109	-0,043	-0,054	-0,060
Const_GVA	-0,212	0,058	-0,151	0,301	-0,195	**1**	-0,244	0,014	-0,451	-0,413	-0,104	-0,345	-0,116	-0,248	-0,393	-0,265	-0,008	-0,325	-0,108	-0,204	0,024	-0,009	-0,499	-0,238	-0,027	-0,076	0,179	-0,092	-0,262	0,096	-0,223	-0,137	0,211	0,082	-0,125	0,049	-0,067	-0,004	-0,063
Serv_GVA	-0,013	0,063	0,041	-0,223	-0,592	-0,244	**1**	-0,219	0,069	0,319	0,214	0,286	0,057	0,154	0,336	-0,101	-0,256	0,035	-0,039	0,319	-0,108	0,057	0,233	-0,046	-0,114	-0,051	-0,036	0,001	0,222	-0,108	0,325	0,107	-0,251	-0,049	0,246	-0,152	0,028	0,040	0,053
Pub_GVA	0,132	-0,123	-0,015	0,045	-0,527	0,014	-0,219	**1**	-0,057	-0,286	-0,229	-0,228	-0,125	-0,125	-0,274	-0,146	0,103	0,076	0,083	-0,206	-0,019	-0,125	0,009	-0,096	0,036	0,070	-0,172	-0,016	0,102	0,047	-0,171	-0,072	0,142	0,020	0,068	-0,058	0,097	0,050	0,086
HHI	-0,020	0,062	0,101	-0,470	0,241	-0,451	0,069	-0,057	**1**	0,512	0,148	0,245	0,149	0,216	0,292	0,232	0,088	0,048	-0,039	0,155	0,004	-0,070	0,153	0,145	0,149	0,116	-0,066	-0,033	-0,004	0,057	0,292	0,116	-0,239	0,120	-0,115	0,023	-0,103	-0,034	-0,034
GDP_PC	-0,017	0,091	0,141	-0,375	0,147	-0,413	0,319	-0,286	0,512	**1**	0,434	0,469	0,211	0,309	0,456	0,221	0,056	0,117	0,101	0,303	0,041	0,038	0,210	0,246	0,062	0,041	0,058	-0,001	0,002	-0,034	0,318	0,107	-0,247	0,037	0,063	-0,063	0,006	-0,020	-0,018
GFCF_PC	-0,194	0,167	0,291	-0,236	0,065	-0,104	0,214	-0,229	0,148	0,434	**1**	0,680	0,456	0,598	0,365	0,168	0,167	0,197	0,301	0,390	0,186	0,060	0,243	0,349	0,094	0,108	0,049	0,009	-0,037	-0,011	0,105	0,064	-0,099	0,046	0,063	-0,067	0,077	0,028	0,015
PROD	-0,154	0,135	0,039	-0,311	0,097	-0,345	0,286	-0,228	0,245	0,469	0,680	**1**	0,344	0,499	0,608	0,284	0,040	0,380	0,221	0,483	0,021	0,133	0,395	0,475	0,014	0,032	0,034	0,041	0,020	-0,051	0,218	0,117	-0,196	0,051	0,127	-0,115	0,188	0,076	0,094
RnD_GDP	-0,013	0,018	0,299	-0,250	0,137	-0,116	0,057	-0,125	0,149	0,211	0,456	0,344	**1**	0,776	0,301	0,304	0,206	0,187	0,170	0,238	0,026	-0,164	0,251	0,208	0,250	0,217	0,046	0,083	0,126	-0,141	0,130	0,035	-0,096	0,025	0,059	-0,054	0,049	0,025	0,010
RnD_EMP	0,000	0,021	0,328	-0,317	0,111	-0,248	0,154	-0,125	0,216	0,309	0,598	0,499	0,776	**1**	0,383	0,316	0,212	0,226	0,231	0,440	0,003	-0,194	0,435	0,267	0,212	0,028	-0,072	0,094	0,216	-0,131	0,167	0,041	-0,121	0,003	0,076	-0,056	0,064	0,051	0,062
MM_Ac	-0,075	0,091	0,193	-0,566	0,164	-0,393	0,336	-0,274	0,292	0,456	0,365	0,608	0,301	0,383	**1**	0,486	0,062	0,281	-0,083	0,429	-0,085	-0,071	0,402	0,292	0,238	-0,025	0,083	0,094	0,158	-0,186	0,492	0,158	-0,378	0,044	0,189	-0,157	0,180	0,078	0,123
Avg_bus	0,167	0,091	0,348	-0,375	0,370	-0,265	-0,101	-0,146	0,232	0,221	0,168	0,284	0,304	0,316	0,486	**1**	0,380	0,303	-0,012	0,107	-0,111	-0,345	0,423	0,548	0,648	0,029	-0,038	0,119	0,042	-0,063	0,157	0,132	-0,171	0,081	0,050	-0,076	0,184	0,076	0,152
Gov_debt	-0,017	0,060	0,399	-0,145	0,191	-0,008	-0,256	0,103	0,088	0,056	0,167	0,040	0,206	0,212	0,062	0,380	**1**	0,270	0,350	-0,104	0,234	-0,273	0,186	0,396	0,513	0,188	-0,114	0,207	-0,102	0,019	0,059	0,038	-0,057	0,049	-0,142	0,077	-0,017	-0,074	-0,085
Cur_blc	0,281	-0,195	0,260	-0,129	0,054	-0,325	0,035	0,076	0,048	0,117	0,197	0,380	0,187	0,226	0,281	0,303	0,270	**1**	0,364	0,126	-0,089	0,168	0,567	0,602	-0,010	0,070	-0,207	0,137	0,269	-0,107	-0,088	0,054	0,017	-0,051	0,060	-0,018	0,215	0,063	0,137
Gov_close	-0,014	-0,020	0,188	-0,050	0,023	-0,108	-0,039	0,083	-0,039	0,101	0,301	0,221	0,170	0,231	-0,083	-0,012	0,350	0,364	**1**	-0,012	0,515	0,117	0,218	0,398	0,023	0,128	-0,070	0,168	0,057	-0,078	-0,120	-0,010	0,075	0,002	0,054	-0,039	0,051	-0,033	0,001
Lab_comp	-0,003	-0,058	0,111	-0,201	-0,020	-0,204	0,319	-0,206	0,155	0,303	0,390	0,483	0,238	0,440	0,429	0,107	-0,104	0,126	-0,012	**1**	-0,251	-0,017	0,317	0,088	-0,118	-0,163	-0,065	0,089	0,165	-0,104	0,225	0,022	-0,143	-0,033	0,056	-0,024	0,075	0,037	0,058
Union	-0,149	0,116	0,012	-0,015	0,105	0,024	-0,108	-0,019	0,004	0,041	0,186	0,021	0,026	0,003	-0,085	-0,111	0,234	-0,089	0,515	-0,251	**1**	0,297	-0,203	0,012	0,118	0,166	0,209	-0,052	-0,167	0,003	0,072	0,052	-0,073	0,042	0,024	-0,037	-0,135	-0,078	-0,096
ML_barg	-0,030	0,009	-0,316	0,228	-0,015	-0,009	0,057	-0,125	-0,070	0,038	0,060	0,133	-0,164	-0,194	-0,071	-0,345	-0,273	0,168	0,117	-0,017	0,297	**1**	-0,243	0,179	-0,697	0,015	0,236	0,072	-0,216	-0,046	-0,151	0,038	0,063	0,009	0,018	-0,017	-0,043	-0,084	-0,172
SHDI	0,352	-0,056	0,520	-0,322	0,030	-0,499	0,233	0,009	0,153	0,210	0,243	0,395	0,251	0,435	0,402	0,423	0,186	0,567	0,218	0,317	-0,203	-0,243	**1**	0,463	0,208	0,079	-0,562	0,200	0,547	-0,097	0,064	0,083	-0,088	-0,044	0,117	-0,062	0,133	0,088	0,203
SC_Org	0,140	0,123	0,228	-0,143	0,221	-0,238	-0,046	-0,096	0,145	0,246	0,349	0,475	0,208	0,267	0,292	0,548	0,396	0,602	0,398	0,088	0,012	0,179	0,463	**1**	0,103	0,098	-0,136	0,199	-0,040	0,000	-0,105	0,124	-0,016	0,080	0,022	-0,055	0,199	0,067	0,094
EoC	-0,026	0,062	0,457	-0,375	0,175	-0,027	-0,114	0,036	0,149	0,062	0,094	0,014	0,250	0,212	0,238	0,648	0,513	-0,010	0,023	-0,118	0,118	-0,697	0,208	0,103	**1**	0,122	-0,003	0,000	0,076	-0,042	0,283	0,101	-0,223	0,060	0,079	-0,086	0,046	0,062	0,163
Clu	-0,105	-0,010	0,124	-0,069	0,037	-0,076	-0,051	0,070	0,116	0,041	0,108	0,032	0,217	0,028	-0,025	0,029	0,188	0,070	0,128	-0,163	0,166	0,015	0,079	0,098	0,122	**1**	-0,070	0,042	0,001	0,018	0,016	-0,006	-0,005	0,070	0,014	-0,044	-0,110	-0,017	-0,134
CRISIS-1: 90	-0,241	0,098	-0,279	0,002	0,094	0,179	-0,036	-0,172	-0,066	0,058	0,049	0,034	0,046	-0,072	0,083	-0,038	-0,114	-0,207	-0,070	-0,065	0,209	0,236	-0,562	-0,136	-0,003	-0,070	**1**	0,097	-0,029	-0,602	0,114	0,033	-0,085	0,046	0,193	-0,160	0,062	-0,015	-0,046
CRISIS-2: 00	-0,033	-0,082	0,171	-0,077	0,059	-0,092	0,001	-0,016	-0,033	-0,001	0,009	0,041	0,083	0,094	0,094	0,119	0,207	0,137	0,168	0,089	-0,052	0,072	0,200	0,199	0,000	0,042	0,097	**1**	0,085	-0,611	-0,037	-0,005	0,024	-0,087	0,035	0,018	-0,003	-0,177	-0,194
CRISIS-3: 08	0,294	-0,121	0,304	-0,181	-0,137	-0,262	0,222	0,102	-0,004	0,002	-0,037	0,020	0,126	0,216	0,158	0,042	-0,102	0,269	0,057	0,165	-0,167	-0,216	0,547	-0,040	0,076	0,001	-0,029	0,085	**1**	-0,604	0,087	0,037	-0,072	-0,091	0,261	-0,142	0,088	0,095	0,249
CRISIS-4BT	-0,016	0,055	-0,103	0,142	-0,004	0,096	-0,108	0,047	0,057	-0,034	-0,011	-0,051	-0,141	-0,131	-0,186	-0,063	0,019	-0,107	-0,078	-0,104	0,003	-0,046	-0,097	0,000	-0,042	0,018	-0,602	-0,611	-0,604	**1**	-0,096	-0,038	0,078	0,070	-0,278	0,164	-0,084	0,043	0,007
Urban	-0,193	0,011	0,065	-0,518	0,034	-0,223	0,325	-0,171	0,292	0,318	0,105	0,218	0,130	0,167	0,492	0,157	0,059	-0,088	-0,120	0,225	0,072	-0,151	0,064	-0,105	0,283	0,016	0,114	-0,037	0,087	-0,096	**1**	0,424	-0,832	0,023	0,143	-0,114	-0,031	0,023	-0,005
Intermediate	-0,038	0,085	0,032	-0,257	0,063	-0,137	0,107	-0,072	0,116	0,107	0,064	0,117	0,035	0,041	0,158	0,132	0,038	0,054	-0,010	0,022	0,052	0,038	0,083	0,124	0,101	-0,006	0,033	-0,005	0,037	-0,038	0,424	**1**	-0,855	0,012	0,094	-0,073	0,043	0,038	0,030
Rural	0,133	-0,058	-0,057	0,454	-0,058	0,211	-0,251	0,142	-0,239	-0,247	-0,099	-0,196	-0,096	-0,121	-0,378	-0,171	-0,057	0,017	0,075	-0,143	-0,073	0,063	-0,088	-0,016	-0,223	-0,005	-0,085	0,024	-0,072	0,078	-0,832	-0,855	**1**	-0,021	-0,140	0,110	-0,008	-0,037	-0,015
LIS	-0,053	0,086	0,011	-0,081	0,022	0,082	-0,049	0,020	0,120	0,037	0,046	0,051	0,025	0,003	0,044	0,081	0,049	-0,051	0,002	-0,033	0,042	0,009	-0,044	0,080	0,060	0,070	0,046	-0,087	-0,091	0,070	0,023	0,012	-0,021	**1**	0,358	-0,746	-0,006	0,032	-0,001
NED	0,027	-0,015	0,080	-0,230	-0,167	-0,125	0,246	0,068	-0,115	0,063	0,063	0,127	0,059	0,076	0,189	0,050	-0,142	0,060	0,054	0,056	0,024	0,018	0,117	0,022	0,079	0,014	0,193	0,035	0,261	-0,278	0,143	0,094	-0,140	0,358	**1**	-0,889	0,159	0,050	0,083
NIS	0,007	-0,032	-0,063	0,204	0,109	0,049	-0,152	-0,058	0,023	-0,063	-0,067	-0,115	-0,054	-0,056	-0,157	-0,076	0,077	-0,018	-0,039	-0,024	-0,037	-0,017	-0,062	-0,055	-0,086	-0,044	-0,160	0,018	-0,142	0,164	-0,114	-0,073	0,110	-0,746	-0,889	**1**	-0,111	-0,052	-0,059
Rec_DL	0,088	0,026	0,004	-0,114	-0,043	-0,067	0,028	0,097	-0,103	0,006	0,077	0,188	0,049	0,064	0,180	0,184	-0,017	0,215	0,051	0,075	-0,135	-0,043	0,133	0,199	0,046	-0,110	0,062	-0,003	0,088	-0,084	-0,031	0,043	-0,008	-0,006	0,159	-0,111	**1**	0,519	0,475
Ret_Tra_4	0,078	-0,031	-0,021	-0,062	-0,054	-0,004	0,040	0,050	-0,034	-0,020	0,028	0,076	0,025	0,051	0,078	0,076	-0,074	0,063	-0,033	0,037	-0,078	-0,084	0,088	0,067	0,062	-0,017	-0,015	-0,177	0,095	0,043	0,023	0,038	-0,037	0,032	0,050	-0,052	0,519	**1**	0,707
Ret_Tra_8	0,223	-0,051	0,013	-0,111	-0,060	-0,063	0,053	0,086	-0,034	-0,018	0,015	0,094	0,010	0,062	0,123	0,152	-0,085	0,137	0,001	0,058	-0,096	-0,172	0,203	0,094	0,163	-0,134	-0,046	-0,194	0,249	0,007	-0,005	0,030	-0,015	-0,001	0,083	-0,059	0,475	0,707	**1**

Stepwise analysis of covariance on regional RGVA resilience performance (excluding country category) - Recovery of development level

Summary of the variables selection Rec_DL:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	Cur_blc	Cur_blc	IN	0,009	0,046	0,046	315,475	-8927,604	-8916,503	0,956
2	Cur_blc / Shock Type	Shock Type	IN	0,009	0,071	0,069	263,264	-8972,529	-8950,327	0,933
3	Avg_bus / Cur_blc / Shock Type	Avg_bus	IN	0,009	0,086	0,084	228,824	-9002,932	-8975,179	0,919
4	Avg_bus / Cur_blc / Clu / Shock Type	Clu	IN	0,009	0,101	0,099	195,749	-9032,651	-8999,347	0,904
5	HHI / Avg_bus / Cur_blc / Clu / Shock Type	HHI	IN	0,009	0,113	0,110	171,194	-9055,022	-9016,168	0,894
6	HHI / PROD / Avg_bus / Cur_blc / Clu / Shock Type	PROD	IN	0,008	0,124	0,121	146,968	-9077,401	-9032,996	0,883
7	Pub_GVA / HHI / PROD / Avg_bus / Cur_blc / Clu / Shock Type	Pub_GVA	IN	0,008	0,142	0,139	106,786	-9115,281	-9065,326	0,866
8	Pub_GVA / HHI / PROD / Avg_bus / Cur_blc / Union / Clu / Shock Type	Union	IN	0,008	0,151	0,147	89,104	-9132,179	-9076,672	0,858
9	Pub_GVA / HHI / PROD / Avg_bus / Cur_blc / Union / Clu / CRISIS / Shock Type	CRISIS	IN	0,008	0,164	0,159	63,661	-9156,764	-9084,606	0,847
10	Agri_GVA / Pub_GVA / HHI / PROD / Avg_bus / Cur_blc / Union / Clu / CRISIS / Shock Type	Agri_GVA	IN	0,008	0,170	0,165	51,816	-9168,389	-9090,679	0,842
11	Agri_GVA / Pub_GVA / HHI / PROD / Avg_bus / Cur_blc / Union / SC_Org / Clu / CRISIS / Shock Type	SC_Org	IN	0,008	0,176	0,170	41,430	-9178,661	-9095,401	0,837
12	Agri_GVA / Pub_GVA / HHI / PROD / Avg_bus / Gov_debt / Cur_blc / Union / SC_Org / Clu / CRISIS / Shock Type	Gov_debt	IN	0,008	0,179	0,173	35,298	-9184,762	-9095,952	0,835
13	Agri_GVA / Pub_GVA / HHI / PROD / Avg_bus / Gov_debt / Cur_blc / Union / ML_barg / SC_Org / Clu / CRISIS / Shock Type	ML_barg	IN	0,008	0,182	0,175	29,662	-9190,401	-9096,039	0,832
14	Agri_GVA / Pub_GVA / HHI / PROD / Avg_bus / Gov_debt / Cur_blc / Union / ML_barg / SC_Org / EoC / Clu / CRISIS / Shock Type	EoC	IN	0,008	0,185	0,178	25,879	-9194,206	-9094,294	0,831
15	Agri_GVA / Pub_GVA / HHI / PROD / RnD_EMP / Avg_bus / Gov_debt / Cur_blc / Union / ML_barg / SC_Org / EoC / Clu / CRISIS / Shock Type	RnD_EMP	IN	0,008	0,187	0,179	23,704	-9196,408	-9090,945	0,830

Stepwise analysis of covariance on regional RGVA resilience performance (excluding country category) - Recovery of development level

Goodness of fit statistics (Rec_DL):

Observations	1902
Sum of weights	1902
DF	1883
R^2	0,187
Adjusted R^2	0,179
MSE	0,008
RMSE	0,089
MAPE	1788,334
DW	1,595
Cp	23,704
AIC	-9196,408
SBC	-9090,945
PC	0,830
Press	15,232
Q^2	0,164

Analysis of variance (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	18	3,401	0,189	24,018	**<0,0001**
Error	1883	14,814	0,008		
Corrected To	1901	18,215			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance (excluding country category) - Recovery of development level

Type I Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	1,000	0,238	0,238	30,217	0,000
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,190	0,190	24,101	0,000
HHI	1,000	0,546	0,546	69,373	0,000
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,792	0,792	100,660	0,000
RnD_GDP	0,000	0,000			
RnD_EMP	1,000	0,025	0,025	3,220	0,073
MM_Ac	0,000	0,000			
Avg_bus	1,000	0,444	0,444	56,452	0,000
Gov_debt	1,000	0,181	0,181	22,971	0,000
Cur_blc	1,000	0,207	0,207	26,297	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,111	0,111	14,102	0,000
ML_barg	1,000	0,002	0,002	0,277	0,598
SHDI	0,000	0,000			
SC_Org	1,000	0,085	0,085	10,864	0,001
EoC	1,000	0,015	0,015	1,900	0,168
Clu	1,000	0,147	0,147	18,646	0,000
CRISIS	3,000	0,364	0,121	15,439	0,000
Urb_1	0,000	0,000			
Shock	2,000	0,055	0,027	3,467	0,031

Type II Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	1,000	0,166	0,166	21,103	0,000
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,379	0,379	48,162	0,000
HHI	1,000	0,420	0,420	53,410	0,000
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,136	0,136	17,330	0,000
RnD_GDP	0,000	0,000			
RnD_EMP	1,000	0,033	0,033	4,165	0,041
MM_Ac	0,000	0,000			
Avg_bus	1,000	0,088	0,088	11,159	0,001
Gov_debt	1,000	0,058	0,058	7,362	0,007
Cur_blc	1,000	0,121	0,121	15,398	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,023	0,023	2,983	0,084
ML_barg	1,000	0,123	0,123	15,605	0,000
SHDI	0,000	0,000			
SC_Org	1,000	0,135	0,135	17,140	0,000
EoC	1,000	0,055	0,055	7,007	0,008
Clu	1,000	0,102	0,102	12,966	0,000
CRISIS	3,000	0,339	0,113	14,358	0,000
Urb_1	0,000	0,000			
Shock	2,000	0,055	0,027	3,467	0,031

Type III Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	1,000	0,166	0,166	21,103	0,000
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,379	0,379	48,162	0,000
HHI	1,000	0,420	0,420	53,410	0,000
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,136	0,136	17,330	0,000
RnD_GDP	0,000	0,000			
RnD_EMP	1,000	0,033	0,033	4,165	0,041
MM_Ac	0,000	0,000			
Avg_bus	1,000	0,088	0,088	11,159	0,001
Gov_debt	1,000	0,058	0,058	7,362	0,007
Cur_blc	1,000	0,121	0,121	15,398	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,023	0,023	2,983	0,084
ML_barg	1,000	0,123	0,123	15,605	0,000
SHDI	0,000	0,000			
SC_Org	1,000	0,135	0,135	17,140	0,000
EoC	1,000	0,055	0,055	7,007	0,008
Clu	1,000	0,102	0,102	12,966	0,000
CRISIS	3,000	0,339	0,113	14,358	0,000
Urb_1	0,000	0,000			
Shock	2,000	0,055	0,027	3,467	0,031

Stepwise analysis of covariance on regional RGVA resilience performance (excluding country category) - Recovery of development level

Model parameters (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,063	0,045	1,381	0,167	-0,026	0,151
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	-0,538	0,154	-3,495	**0,000**	-0,840	-0,236
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,232	0,042	5,493	**<0,0001**	0,149	0,315
HHI	-0,594	0,144	-4,134	**<0,0001**	-0,875	-0,312
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,013	0,004	3,215	**0,001**	0,005	0,020
RnD_GDP	0,000	0,000				
RnD_EMP	-0,006	0,003	-1,808	0,071	-0,013	0,001
MM_Ac	0,000	0,000				
Avg_bus	0,003	0,001	3,050	**0,002**	0,001	0,004
Gov_debt	-0,003	0,002	-2,146	**0,032**	-0,007	0,000
Cur_blc	0,003	0,001	3,025	**0,003**	0,001	0,005
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000	-1,489	0,137	-0,001	0,000
ML_barg	-0,020	0,006	-3,098	**0,002**	-0,032	-0,007
SHDI	0,000	0,000				
SC_Org	0,323	0,089	3,609	**0,000**	0,147	0,498
EoC	-0,001	0,000	-2,325	**0,020**	-0,001	0,000
Clu	-0,002	0,001	-3,464	**0,001**	-0,004	-0,001
CRISIS-1: 90	0,025	0,005	4,725	**<0,0001**	0,015	0,036
CRISIS-2: 00	-0,013	0,005	-2,314	**0,021**	-0,023	-0,002
CRISIS-3: 08	-0,005	0,005	-1,052	0,293	-0,015	0,005
CRISIS-4:BT	-0,008	0,011	-0,713	0,476	-0,029	0,013
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	-0,009	0,008	-1,161	0,246	-0,024	0,006
NED	0,011	0,006	1,836	0,067	-0,001	0,022
NIS	-0,002	0,007	-0,245	0,807	-0,016	0,013

Standardized coefficients (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	-0,128	0,036	-3,495	**0,000**	-0,199	-0,056
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,159	0,029	5,493	**<0,0001**	0,102	0,215
HHI	-0,187	0,045	-4,134	**<0,0001**	-0,275	-0,098
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,123	0,038	3,215	**0,001**	0,048	0,198
RnD_GDP	0,000	0,000				
RnD_EMP	-0,055	0,030	-1,808	0,071	-0,114	0,005
MM_Ac	0,000	0,000				
Avg_bus	0,135	0,044	3,050	**0,002**	0,048	0,222
Gov_debt	-0,087	0,040	-2,146	**0,032**	-0,166	-0,007
Cur_blc	0,124	0,041	3,025	**0,003**	0,044	0,204
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	-0,050	0,034	-1,489	0,137	-0,116	0,016
ML_barg	-0,176	0,057	-3,098	**0,002**	-0,288	-0,065
SHDI	0,000	0,000				
SC_Org	0,153	0,042	3,609	**0,000**	0,070	0,236
EoC	-0,136	0,058	-2,325	**0,020**	-0,250	-0,021
Clu	-0,079	0,023	-3,464	**0,001**	-0,123	-0,034
CRISIS-1: 90	0,151	0,032	4,725	**<0,0001**	0,088	0,214
CRISIS-2: 00	-0,066	0,029	-2,314	**0,021**	-0,123	-0,010
CRISIS-3: 08	-0,032	0,030	-1,052	0,293	-0,091	0,027
CRISIS-4:BT	-0,020	0,028	-0,713	0,476	-0,075	0,035
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	-0,039	0,034	-1,161	0,246	-0,105	0,027
NED	0,068	0,037	1,836	0,067	-0,005	0,141
NIS	-0,005	0,022	-0,245	0,807	-0,048	0,037

Stepwise analysis of covariance on regional RGVA resilience performance (excluding country category) - Growth trajectory retention 4-year recovery period

Summary of the variables selection Ret_Tra_4:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	CRISIS	CRISIS	IN	0,001	0,044	0,042	97,492	-14285,074	-14262,872	0,960
2	SHDI / CRISIS	SHDI	IN	0,001	0,057	0,055	72,620	-14308,914	-14281,161	0,948
3	Union / SHDI / CRISIS	Union	IN	0,001	0,062	0,060	62,739	-14318,451	-14285,147	0,944
4	GDP_PC / Union / SHDI / CRISIS	GDP_PC	IN	0,001	0,067	0,064	54,142	-14326,800	-14287,945	0,940
5	GDP_PC / Union / SHDI / SC_Org / CRISIS	SC_Org	IN	0,001	0,071	0,067	49,029	-14331,779	-14287,373	0,937
6	Manu_GVA / GDP_PC / Union / SHDI / SC_Org / CRISIS	Manu_GVA	IN	0,001	0,074	0,070	44,816	-14335,896	-14285,940	0,935
7	Agri_GVA / Manu_GVA / GDP_PC / Union / SHDI / SC_Org / CRISIS	Agri_GVA	IN	0,001	0,077	0,073	39,865	-14340,763	-14285,256	0,933
8	Agri_GVA / Manu_GVA / GDP_PC / Gov_debt / Union / SHDI / SC_Org / CRISIS	Gov_debt	IN	0,001	0,080	0,075	35,747	-14344,827	-14283,770	0,931
9	Agri_GVA / Manu_GVA / GDP_PC / Gov_debt / Union / ML_barg / SHDI / SC_Org / CRISIS	ML_barg	IN	0,001	0,087	0,081	23,800	-14356,724	-14290,116	0,925
8	Agri_GVA / Manu_GVA / GDP_PC / Gov_debt / ML_barg / SHDI / SC_Org / CRISIS	Union	OUT	0,001	0,087	0,082	21,800	-14358,724	-14297,667	0,924
9	Mig_net / Agri_GVA / Manu_GVA / GDP_PC / Gov_debt / ML_barg / SHDI / SC_Org / CRISIS	Mig_net	IN	0,001	0,090	0,085	16,670	-14363,869	-14297,261	0,921
10	Mig_net / Agri_GVA / Manu_GVA / HHI / GDP_PC / Gov_debt / ML_barg / SHDI / SC_Org / CRISIS	HHI	IN	0,001	0,092	0,086	14,547	-14366,012	-14293,853	0,920
11	Mig_net / Pop_work / Agri_GVA / Manu_GVA / HHI / GDP_PC / Gov_debt / ML_barg / SHDI / SC_Org / CRISIS	Pop_work	IN	0,001	0,094	0,088	12,123	-14368,468	-14290,759	0,919

Stepwise analysis of covariance on regional RGVA resilience performance (excluding country category) - Growth trajectory retention 4-year recovery period

Goodness of fit statistics (Ret_Tra_4):

Observations	1902
Sum of weights	1902
DF	1888
R^2	0,094
Adjusted R^2	0,088
MSE	0,001
RMSE	0,023
MAPE	237,686
DW	1,581
Cp	12,123
AIC	-14368,468
SBC	-14290,759
PC	0,919
Press	1,003
Q^2	0,075

Analysis of variance (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	13	0,102	0,008	15,107	**<0,0001**
Error	1888	0,982	0,001		
Corrected Tc	1901	1,084			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance (excluding country category) - Growth trajectory retention 4-year recovery period

Type I Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	1,000	0,001	0,001	1,979	0,160
Pop_work	1,000	0,001	0,001	1,088	0,297
Agri_GVA	1,000	0,006	0,006	10,722	0,001
Manu_GVA	1,000	0,004	0,004	8,434	0,004
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	1,000	0,004	0,004	7,639	0,006
GDP_PC	1,000	0,000	0,000	0,380	0,538
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,004	0,004	8,397	0,004
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,009	0,009	17,809	0,000
SHDI	1,000	0,009	0,009	17,728	0,000
SC_Org	1,000	0,020	0,020	38,771	0,000
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	3,000	0,043	0,014	27,747	0,000
Urb_1	0,000	0,000			
Shock	0,000	0,000			

Type II Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	1,000	0,004	0,004	7,423	0,006
Pop_work	1,000	0,002	0,002	4,429	0,035
Agri_GVA	1,000	0,004	0,004	8,239	0,004
Manu_GVA	1,000	0,003	0,003	6,090	0,014
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	1,000	0,002	0,002	4,505	0,034
GDP_PC	1,000	0,003	0,003	5,010	0,025
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,006	0,006	11,611	0,001
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,009	0,009	17,305	0,000
SHDI	1,000	0,003	0,003	5,016	0,025
SC_Org	1,000	0,014	0,014	27,727	0,000
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	3,000	0,043	0,014	27,747	0,000
Urb_1	0,000	0,000			
Shock	0,000	0,000			

Type III Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	1,000	0,004	0,004	7,423	0,006
Pop_work	1,000	0,002	0,002	4,429	0,035
Agri_GVA	1,000	0,004	0,004	8,239	0,004
Manu_GVA	1,000	0,003	0,003	6,090	0,014
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	1,000	0,002	0,002	4,505	0,034
GDP_PC	1,000	0,003	0,003	5,010	0,025
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,006	0,006	11,611	0,001
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,009	0,009	17,305	0,000
SHDI	1,000	0,003	0,003	5,016	0,025
SC_Org	1,000	0,014	0,014	27,727	0,000
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	3,000	0,043	0,014	27,747	0,000
Urb_1	0,000	0,000			
Shock	0,000	0,000			

Stepwise analysis of covariance on regional RGVA resilience performance (excluding country category) - Growth trajectory retention 4-year recovery period

Model parameters (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,033	0,027	-1,214	0,225	-0,086	0,020
Pop_age	0,000	0,000				
Mig_net	0,000	0,000	-2,131	**0,033**	0,000	0,000
Pop_work	-0,029	0,016	-1,861	0,063	-0,060	0,002
Agri_GVA	-0,082	0,038	-2,137	**0,033**	-0,157	-0,007
Manu_GVA	-0,015	0,007	-2,004	**0,045**	-0,029	0,000
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	-0,046	0,034	-1,356	0,175	-0,114	0,021
GDP_PC	-0,002	0,001	-1,818	0,069	-0,004	0,000
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	-0,001	0,000	-2,447	**0,014**	-0,002	0,000
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	-0,003	0,001	-3,126	**0,002**	-0,006	-0,001
SHDI	0,055	0,032	1,732	0,083	-0,007	0,118
SC_Org	0,093	0,022	4,169	**<0,0001**	0,049	0,137
EoC	0,000	0,000				
Clu	0,000	0,000				
CRISIS-1: 90	0,005	0,002	2,384	**0,017**	0,001	0,009
CRISIS-2: 00	-0,010	0,001	-7,288	**<0,0001**	-0,013	-0,007
CRISIS-3: 08	0,000	0,002	0,175	0,861	-0,003	0,003
CRISIS-4:BT	0,005	0,002	2,420	**0,016**	0,001	0,009
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	-0,062	0,029	-2,131	**0,033**	-0,119	-0,005
Pop_work	-0,060	0,032	-1,861	0,063	-0,123	0,003
Agri_GVA	-0,080	0,037	-2,137	**0,033**	-0,153	-0,007
Manu_GVA	-0,059	0,029	-2,004	**0,045**	-0,117	-0,001
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	-0,060	0,044	-1,356	0,175	-0,146	0,027
GDP_PC	-0,062	0,034	-1,818	0,069	-0,129	0,005
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	-0,105	0,043	-2,447	**0,014**	-0,190	-0,021
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	-0,125	0,040	-3,126	**0,002**	-0,204	-0,047
SHDI	0,120	0,070	1,732	0,083	-0,016	0,257
SC_Org	0,182	0,044	4,169	**<0,0001**	0,096	0,267
EoC	0,000	0,000				
Clu	0,000	0,000				
CRISIS-1: 90	0,114	0,048	2,384	**0,017**	0,020	0,208
CRISIS-2: 00	-0,218	0,030	-7,288	**<0,0001**	-0,277	-0,159
CRISIS-3: 08	0,007	0,038	0,175	0,861	-0,067	0,081
CRISIS-4:BT	0,055	0,023	2,420	**0,016**	0,010	0,099
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Stepwise analysis of covariance on regional RGVA resilience performance (excluding country category) - Growth trajectory retention 8-year recovery period

Summary of the variables selection Ret_Tra_8:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	CRISIS	CRISIS	IN	0,000	0,116	0,115	243,320	-12131,846	-12110,577	0,888
2	SHDI / CRISIS	SHDI	IN	0,000	0,142	0,140	194,292	-12174,637	-12148,051	0,863
3	SHDI / Clu / CRISIS	Clu	IN	0,000	0,162	0,160	156,545	-12208,474	-12176,571	0,844
4	Pub_GVA / SHDI / Clu / CRISIS	Pub_GVA	IN	0,000	0,177	0,174	129,366	-12233,336	-12196,116	0,830
5	Pub_GVA / ML_barg / SHDI / Clu / CRISIS	ML_barg	IN	0,000	0,185	0,181	116,403	-12245,298	-12202,761	0,824
6	Pub_GVA / Gov_debt / ML_barg / SHDI / Clu / CRISIS	Gov_debt	IN	0,000	0,196	0,192	96,663	-12263,819	-12215,964	0,814
7	Pub_GVA / Gov_debt / ML_barg / SHDI / SC_Org / Clu / CRISIS	SC_Org	IN	0,000	0,205	0,200	81,003	-12278,696	-12225,524	0,806
8	Pub_GVA / Gov_debt / ML_barg / SHDI / SC_Org / EoC / Clu / CRISIS	EoC	IN	0,000	0,211	0,205	71,737	-12287,563	-12229,074	0,801
9	Pop_work / Pub_GVA / Gov_debt / ML_barg / SHDI / SC_Org / EoC / Clu / CRISIS	Pop_work	IN	0,000	0,218	0,212	60,032	-12298,889	-12235,082	0,795
10	Pop_age / Pop_work / Pub_GVA / Gov_debt / ML_barg / SHDI / SC_Org / EoC / Clu / CRISIS	Pop_age	IN	0,000	0,224	0,218	48,735	-12309,931	-12240,807	0,789
11	Pop_age / Pop_work / Pub_GVA / Avg_bus / Gov_debt / ML_barg / SHDI / SC_Org / EoC / Clu / CRISIS	Avg_bus	IN	0,000	0,232	0,225	35,281	-12323,233	-12248,792	0,782
12	Pop_age / Mig_net / Pop_work / Pub_GVA / Avg_bus / Gov_debt / ML_barg / SHDI / SC_Org / EoC / Clu / CRISIS	Mig_net	IN	0,000	0,235	0,228	31,686	-12326,811	-12247,053	0,780
13	Pop_age / Mig_net / Pop_work / Pub_GVA / HHI / Avg_bus / Gov_debt / ML_barg / SHDI / SC_Org / EoC / Clu / CRISIS	HHI	IN	0,000	0,238	0,230	28,191	-12330,310	-12245,235	0,779

Stepwise analysis of covariance on regional RGVA resilience performance (excluding country category) - Growth trajectory retention 8-year recovery period

Goodness of fit statistics (Ret_Tra_8):

Observations	1506
Sum of weights	1506
DF	1490
R^2	0,238
Adjusted R^2	0,230
MSE	0,000
RMSE	0,017
MAPE	466,754
DW	1,490
Cp	28,191
AIC	-12330,310
SBC	-12245,235
PC	0,779
Press	0,422
Q^2	0,216

Analysis of variance (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	15	0,128	0,009	30,982	**<0,0001**
Error	1490	0,410	0,000		
Corrected Tc	1505	0,538			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance (excluding country category) - Growth trajectory retention 8-year recovery period

Type I Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,027	0,027	96,915	0,000
Mig_net	1,000	0,000	0,000	0,394	0,530
Pop_work	1,000	0,001	0,001	4,119	0,043
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,002	0,002	6,057	0,014
HHI	1,000	0,000	0,000	1,149	0,284
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	1,000	0,012	0,012	45,396	0,000
Gov_debt	1,000	0,008	0,008	30,493	0,000
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,014	0,014	50,008	0,000
SHDI	1,000	0,009	0,009	33,625	0,000
SC_Org	1,000	0,003	0,003	9,982	0,002
EoC	1,000	0,018	0,018	65,328	0,000
Clu	1,000	0,006	0,006	23,544	0,000
CRISIS	3,000	0,027	0,009	32,573	0,000
Urb_1	0,000	0,000			
Shock	0,000	0,000			

Type II Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,004	0,004	14,459	0,000
Mig_net	1,000	0,002	0,002	5,616	0,018
Pop_work	1,000	0,005	0,005	19,361	0,000
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,004	0,004	14,398	0,000
HHI	1,000	0,001	0,001	5,450	0,020
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	1,000	0,003	0,003	11,903	0,001
Gov_debt	1,000	0,009	0,009	34,462	0,000
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,002	0,002	6,889	0,009
SHDI	1,000	0,006	0,006	22,509	0,000
SC_Org	1,000	0,006	0,006	22,056	0,000
EoC	1,000	0,009	0,009	31,260	0,000
Clu	1,000	0,007	0,007	25,566	0,000
CRISIS	3,000	0,027	0,009	32,573	0,000
Urb_1	0,000	0,000			
Shock	0,000	0,000			

Type III Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,004	0,004	14,459	0,000
Mig_net	1,000	0,002	0,002	5,616	0,018
Pop_work	1,000	0,005	0,005	19,361	0,000
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,004	0,004	14,398	0,000
HHI	1,000	0,001	0,001	5,450	0,020
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	1,000	0,003	0,003	11,903	0,001
Gov_debt	1,000	0,009	0,009	34,462	0,000
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,002	0,002	6,889	0,009
SHDI	1,000	0,006	0,006	22,509	0,000
SC_Org	1,000	0,006	0,006	22,056	0,000
EoC	1,000	0,009	0,009	31,260	0,000
Clu	1,000	0,007	0,007	25,566	0,000
CRISIS	3,000	0,027	0,009	32,573	0,000
Urb_1	0,000	0,000			
Shock	0,000	0,000			

Stepwise analysis of covariance on regional RGVA resilience performance (excluding country category) - Growth trajectory retention 8-year recovery period

Model parameters (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,098	0,028	-3,529	**0,000**	-0,153	-0,044
Pop_age	0,005	0,002	3,260	**0,001**	0,002	0,008
Mig_net	0,000	0,000	-1,987	**0,047**	0,000	0,000
Pop_work	-0,054	0,017	-3,266	**0,001**	-0,087	-0,022
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,027	0,010	2,581	**0,010**	0,006	0,047
HHI	-0,034	0,027	-1,281	0,200	-0,087	0,018
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	-0,001	0,000	-2,621	**0,009**	-0,001	0,000
Gov_debt	-0,001	0,000	-3,943	**<0,0001**	-0,002	-0,001
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	-0,002	0,001	-1,930	0,054	-0,004	0,000
SHDI	0,098	0,036	2,751	**0,006**	0,028	0,168
SC_Org	0,077	0,024	3,196	**0,001**	0,030	0,124
EoC	0,000	0,000	3,572	**0,000**	0,000	0,001
Clu	-0,001	0,000	-4,707	**<0,0001**	-0,001	-0,001
CRISIS-1: 90	0,004	0,002	2,079	**0,038**	0,000	0,008
CRISIS-2: 00	-0,008	0,001	-5,490	**<0,0001**	-0,010	-0,005
CRISIS-3: 08	0,003	0,002	1,322	0,186	-0,001	0,007
CRISIS-4:BT	0,001	0,002	0,365	0,715	-0,004	0,006
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,103	0,032	3,260	**0,001**	0,041	0,165
Mig_net	-0,057	0,029	-1,987	**0,047**	-0,114	-0,001
Pop_work	-0,140	0,043	-3,266	**0,001**	-0,225	-0,056
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,095	0,037	2,581	**0,010**	0,023	0,168
HHI	-0,055	0,043	-1,281	0,200	-0,140	0,029
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	-0,150	0,057	-2,621	**0,009**	-0,262	-0,038
Gov_debt	-0,197	0,050	-3,943	**<0,0001**	-0,295	-0,099
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	-0,099	0,051	-1,930	0,054	-0,199	0,002
SHDI	0,278	0,101	2,751	**0,006**	0,080	0,477
SC_Org	0,189	0,059	3,196	**0,001**	0,073	0,304
EoC	0,273	0,076	3,572	**0,000**	0,123	0,423
Clu	-0,124	0,026	-4,707	**<0,0001**	-0,175	-0,072
CRISIS-1: 90	0,126	0,061	2,079	**0,038**	0,007	0,245
CRISIS-2: 00	-0,221	0,040	-5,490	**<0,0001**	-0,299	-0,142
CRISIS-3: 08	0,078	0,059	1,322	0,186	-0,038	0,194
CRISIS-4:BT	0,012	0,032	0,365	0,715	-0,052	0,075
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

III.a.iii. RGVA – ANCOVA all variables

Stepwise analysis of covariance on regional RGVA resilience performance (all variables)

Settings:
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Model selection: Stepwise
Probability for entry: 0,05 / Probability for removal: 0,1
Covariances: Corrections = Newey West (adjusted)(Lag = 1)
Explanation of the variable codes can be found in table 28

Summary statistics (Quantitative data):

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Rec_DL	1902	0	1902	-0,590	0,509	-0,077	0,098
Ret_Tra_4	1902	0	1902	-0,125	0,138	-0,010	0,024
Ret_Tra_8	1902	396	1506	-0,127	0,051	-0,012	0,019
Pop_age	1902	0	1902	0,192	2,946	1,122	0,386
Mig_net	1902	0	1902	-27,218	66,719	3,075	6,329
Pop_work	1902	0	1902	0,265	0,667	0,470	0,049
Agri_GVA	1902	0	1902	0,000	0,177	0,022	0,023
Manu_GVA	1902	0	1902	0,020	0,720	0,222	0,095
Const_GVA	1902	0	1902	0,011	0,352	0,076	0,031
Serv_GVA	1902	0	1902	0,176	0,782	0,445	0,084
Pub_GVA	1902	0	1902	0,062	0,568	0,234	0,067
HHI	1902	0	1902	0,176	0,543	0,232	0,031
GDP_PC	1902	0	1902	-1,199	5,176	-0,003	0,727
GFCF_PC	1902	0	1902	-1,759	2,618	0,019	0,757
PROD	1902	0	1902	-2,654	4,694	0,238	0,951
RnD_GDP	1902	0	1902	0,000	14,868	1,958	1,507
RnD_EMP	1902	0	1902	0,000	4,938	1,413	0,853
MM_Ac	1902	0	1902	24,795	192,930	108,026	33,259
Avg_bus	1902	0	1902	1,349	18,605	9,390	5,172
Gov_debt	1902	0	1902	-11,100	6,700	-4,045	2,496
Cur_blc	1902	0	1902	-14,500	10,200	0,299	3,664
Gov_close	1902	0	1902	0,370	31,490	5,712	3,937
Lab_comp	1902	0	1902	324,327	271583,242	28538,040	28757,018
Union	1902	0	1902	7,794	84,677	28,465	14,385
ML_barg	1902	0	1902	1,000	4,875	2,608	0,873
SHDI	1902	0	1902	0,701	0,958	0,850	0,052
SC_Org	1902	0	1902	0,038	0,286	0,120	0,046
EoC	1902	0	1902	46,900	100,000	74,391	16,522
Clu	1902	0	1902	0,000	82,000	2,729	3,189

Number of removed observations: 222

Summary statistics (Qualitative data):

Variable	Categories	Counts	Frequencies	%
NAT	AT	38	38	1,998
	BE	80	80	4,206
	DE	826	826	43,428
	DK	20	20	1,052
	EL	17	17	0,894
	ES	71	71	3,733
	FI	24	24	1,262
	FR	214	214	11,251
	IE	2	2	0,105
	IT	172	172	9,043
	NL	69	69	3,628
	PT	54	54	2,839
	SE	35	35	1,840
	UK	280	280	14,721
CRISIS	1: 90-93	653	653	34,332
	2: 00-03	421	421	22,135
	3: 08-09	694	694	36,488
	4:BTW	134	134	7,045
Urb_1	Urban	593	593	31,178
	Intermediate	796	796	41,851
	Rural	513	513	26,972
Shock	LIS	166	166	8,728
	NED	1564	1564	82,229
	NIS	172	172	9,043

Stepwise analysis of covariance on regional RGVA resilience performance (all variables)

Correlation matrix:

	Pop_age	Mig_net	Pop_work	Agri_GVA	Manu_GVA	Const_GVA	Serv_GVA	Pub_GVA	HHI	GDP_PC	GFCF_PC	PROD	RnD_GDP	RnD_EMP	MM_Ac	Avg_bus	Gov_debt
Pop_age	**1**	-0,165	0,209	0,048	-0,025	-0,212	-0,013	0,132	-0,020	-0,017	-0,194	-0,154	-0,013	0,000	-0,075	0,167	-0,017
Mig_net	-0,165	**1**	-0,061	-0,041	0,023	0,058	0,063	-0,123	0,062	0,091	0,167	0,135	0,018	0,021	0,091	0,091	0,060
Pop_work	0,209	-0,061	**1**	-0,257	0,086	-0,151	0,041	-0,015	0,101	0,141	0,291	0,039	0,299	0,328	0,193	0,348	0,399
Agri_GVA	0,048	-0,041	-0,257	**1**	-0,178	0,301	-0,223	0,045	-0,470	-0,375	-0,236	-0,311	-0,250	-0,317	-0,566	-0,375	-0,145
Manu_GVA	-0,025	0,023	0,086	-0,178	**1**	-0,195	-0,592	-0,527	0,241	0,147	0,065	0,097	0,137	0,111	0,164	0,370	0,191
Const_GVA	-0,212	0,058	-0,151	0,301	-0,195	**1**	-0,244	0,014	-0,451	-0,413	-0,104	-0,345	-0,116	-0,248	-0,393	-0,265	-0,008
Serv_GVA	-0,013	0,063	0,041	-0,223	-0,592	-0,244	**1**	-0,219	0,069	0,319	0,214	0,286	0,057	0,154	0,336	-0,101	-0,256
Pub_GVA	0,132	-0,123	-0,015	0,045	-0,527	0,014	-0,219	**1**	-0,057	-0,286	-0,229	-0,228	-0,125	-0,125	-0,274	-0,146	0,103
HHI	-0,020	0,062	0,101	-0,470	0,241	-0,451	0,069	-0,057	**1**	0,512	0,148	0,245	0,149	0,216	0,292	0,232	0,088
GDP_PC	-0,017	0,091	0,141	-0,375	0,147	-0,413	0,319	-0,286	0,512	**1**	0,434	0,469	0,211	0,309	0,456	0,221	0,056
GFCF_PC	-0,194	0,167	0,291	-0,236	0,065	-0,104	0,214	-0,229	0,148	0,434	**1**	0,680	0,456	0,598	0,365	0,168	0,167
PROD	-0,154	0,135	0,039	-0,311	0,097	-0,345	0,286	-0,228	0,245	0,469	0,680	**1**	0,344	0,499	0,608	0,284	0,040
RnD_GDP	-0,013	0,018	0,299	-0,250	0,137	-0,116	0,057	-0,125	0,149	0,211	0,456	0,344	**1**	0,776	0,301	0,304	0,206
RnD_EMP	0,000	0,021	0,328	-0,317	0,111	-0,248	0,154	-0,125	0,216	0,309	0,598	0,499	0,776	**1**	0,383	0,316	0,212
MM_Ac	-0,075	0,091	0,193	-0,566	0,164	-0,393	0,336	-0,274	0,292	0,456	0,365	0,608	0,301	0,383	**1**	0,486	0,062
Avg_bus	0,167	0,091	0,348	-0,375	0,370	-0,265	-0,101	-0,146	0,232	0,221	0,168	0,284	0,304	0,316	0,486	**1**	0,380
Gov_debt	-0,017	0,060	0,399	-0,145	0,191	-0,008	-0,256	0,103	0,088	0,056	0,167	0,040	0,206	0,212	0,062	0,380	**1**
Cur_blc	0,281	-0,195	0,260	-0,129	0,054	-0,325	0,035	0,076	0,048	0,117	0,197	0,380	0,187	0,226	0,281	0,303	0,270
Gov_close	-0,014	-0,020	0,188	-0,050	0,023	-0,108	-0,039	0,083	-0,039	0,101	0,301	0,221	0,170	0,231	-0,083	-0,012	0,350
Lab_comp	-0,003	-0,058	0,111	-0,201	-0,020	-0,204	0,319	-0,206	0,155	0,303	0,390	0,483	0,238	0,440	0,429	0,107	-0,104
Union	-0,149	0,116	0,012	-0,015	0,105	0,024	-0,108	-0,019	0,004	0,041	0,186	0,021	0,026	0,003	-0,085	-0,111	0,234
ML_barg	-0,030	0,009	-0,316	0,228	-0,015	-0,009	0,057	-0,125	-0,070	0,038	0,060	0,133	-0,164	-0,194	-0,071	-0,345	-0,273
SHDI	0,352	-0,056	0,520	-0,322	0,030	-0,499	0,233	0,009	0,153	0,210	0,243	0,395	0,251	0,435	0,402	0,423	0,186
SC_Org	0,140	0,123	0,228	-0,143	0,221	-0,238	-0,046	-0,096	0,145	0,246	0,349	0,475	0,208	0,267	0,292	0,548	0,396
EoC	-0,026	0,062	0,457	-0,375	0,175	-0,027	-0,114	0,036	0,149	0,062	0,094	0,014	0,250	0,212	0,238	0,648	0,513
Clu	-0,105	-0,010	0,124	-0,069	0,037	-0,076	-0,051	0,070	0,116	0,041	0,108	0,032	0,217	0,028	-0,025	0,029	0,188
AT	0,202	0,004	-0,174	0,177	0,060	-0,112	0,012	-0,110	-0,025	0,089	0,099	0,221	-0,059	0,007	0,017	0,004	-0,126
BE	0,139	0,063	-0,281	0,137	0,009	-0,164	0,040	-0,033	-0,001	0,052	0,071	0,273	-0,095	-0,038	0,109	-0,066	-0,190
DE	0,322	0,073	0,058	-0,084	0,240	-0,266	-0,057	-0,117	0,126	0,171	0,097	0,323	0,095	0,133	0,321	0,637	0,138
DK	0,190	0,020	-0,178	0,166	0,046	-0,168	0,017	-0,067	-0,007	0,097	0,103	0,264	-0,051	0,030	0,016	0,015	-0,089
EL	0,231	0,018	-0,229	0,232	0,056	-0,169	0,009	-0,093	0,007	0,073	0,024	0,192	-0,094	-0,027	-0,014	-0,004	-0,146
ES	0,124	0,056	-0,315	0,252	-0,008	0,002	0,002	-0,079	-0,015	0,023	-0,035	0,133	-0,135	-0,096	-0,111	-0,069	-0,099
FI	0,193	0,005	-0,192	0,193	0,056	-0,155	-0,003	-0,071	-0,020	0,084	0,071	0,235	-0,053	0,008	-0,021	-0,002	-0,037
FR	0,068	-0,022	-0,338	0,195	-0,096	-0,062	0,065	0,016	-0,102	0,034	0,053	0,226	-0,057	-0,004	-0,030	-0,239	-0,263
IE	0,213	0,022	-0,224	0,183	0,060	-0,157	0,013	-0,093	-0,010	0,091	0,066	0,248	-0,074	-0,015	0,029	0,027	-0,121
IT	0,261	-0,011	-0,393	0,236	0,015	-0,110	0,101	-0,179	-0,055	0,069	0,002	0,128	-0,168	-0,126	-0,075	-0,188	-0,365
NL	0,115	-0,007	-0,116	0,177	0,039	-0,173	0,036	-0,082	0,003	0,117	0,100	0,309	-0,082	-0,034	0,076	-0,042	-0,079
PT	0,202	-0,015	-0,146	0,255	0,050	-0,073	-0,044	-0,070	-0,048	0,010	-0,083	0,034	-0,117	-0,078	-0,090	-0,055	-0,156
SE	0,189	0,023	-0,170	0,173	0,054	-0,136	-0,008	-0,065	-0,028	0,097	0,101	0,248	-0,038	-0,004	-0,020	-0,017	-0,022
UK	-0,218	-0,022	0,224	-0,184	-0,058	0,157	-0,014	0,092	0,009	-0,092	-0,060	-0,251	0,072	0,014	-0,035	-0,030	0,127
CRISIS-1: 90	-0,241	0,098	-0,279	0,002	0,094	0,179	-0,036	-0,172	-0,066	0,058	0,049	0,034	0,046	-0,072	0,083	-0,038	-0,114
CRISIS-2: 00	-0,033	-0,082	0,171	-0,077	0,059	-0,092	0,001	-0,016	-0,033	-0,001	0,009	0,041	0,083	0,094	0,094	0,119	0,207
CRISIS-3: 08	0,294	-0,121	0,304	-0,181	-0,137	-0,262	0,222	0,102	-0,004	0,002	-0,037	0,020	0,126	0,216	0,158	0,042	-0,102
CRISIS-4:BT	-0,016	0,055	-0,103	0,142	-0,004	0,096	-0,108	0,047	0,057	-0,034	-0,011	-0,051	-0,141	-0,131	-0,186	-0,063	0,019
Urban	-0,193	0,011	0,065	-0,518	0,034	-0,223	0,325	-0,171	0,292	0,318	0,105	0,218	0,130	0,167	0,492	0,157	0,059
Intermediate	-0,038	0,085	0,032	-0,257	0,063	-0,137	0,107	-0,072	0,116	0,107	0,064	0,117	0,035	0,041	0,158	0,132	0,038
Rural	0,133	-0,058	-0,057	0,454	-0,058	0,211	-0,251	0,142	-0,239	-0,247	-0,099	-0,196	-0,096	-0,121	-0,378	-0,171	-0,057
LIS	-0,053	0,086	0,011	-0,081	0,022	0,082	-0,049	0,020	0,120	0,037	0,046	0,051	0,025	0,003	0,044	0,081	0,049
NED	0,027	-0,015	0,080	-0,230	-0,167	-0,125	0,246	0,068	-0,115	0,063	0,063	0,127	0,059	0,076	0,189	0,050	-0,142
NIS	0,007	-0,032	-0,063	0,204	0,109	0,049	-0,152	-0,058	0,023	-0,063	-0,067	-0,115	-0,054	-0,056	-0,157	-0,076	0,077
Rec_DL	0,088	0,026	0,004	-0,114	-0,043	-0,067	0,028	0,097	-0,103	0,006	0,077	0,188	0,049	0,064	0,180	0,184	-0,017
Ret_Tra_4	0,078	-0,031	-0,021	-0,062	-0,054	-0,004	0,040	0,050	-0,034	-0,020	0,028	0,076	0,025	0,051	0,078	0,076	-0,074
Ret_Tra_8	0,223	-0,051	0,013	-0,111	-0,060	-0,063	0,053	0,086	-0,034	-0,018	0,015	0,094	0,010	0,062	0,123	0,152	-0,085

	Cur_blc	Gov_close	Lab_comp	Union	ML_barg	SHDI	SC_Org	EoC	Clu	AT	BE	DE	DK	EL	ES	FI	FR	IE	IT	NL	PT
Pop_age	0,281	-0,014	-0,003	-0,149	-0,030	0,352	0,140	-0,026	-0,105	0,202	0,139	0,322	0,190	0,231	0,124	0,193	0,068	0,213	0,261	0,115	0,202
Mig_net	-0,195	-0,020	-0,058	0,116	0,009	-0,056	0,123	0,062	-0,010	0,004	0,063	0,073	0,020	0,018	0,056	0,005	-0,022	0,022	-0,011	-0,007	-0,015
Pop_work	0,260	0,188	0,111	0,012	-0,316	0,520	0,228	0,457	0,124	-0,174	-0,281	0,058	-0,178	-0,229	-0,315	-0,192	-0,338	-0,224	-0,393	-0,116	-0,146
Agri_GVA	-0,129	-0,050	-0,201	-0,015	0,228	-0,322	-0,143	-0,375	-0,069	0,177	0,137	-0,084	0,166	0,232	0,252	0,193	0,195	0,183	0,236	0,177	0,255
Manu_GVA	0,054	0,023	-0,020	0,105	-0,015	0,030	0,221	0,175	0,037	0,060	0,009	0,240	0,046	0,056	-0,008	0,056	-0,096	0,060	0,015	0,039	0,050
Const_GVA	-0,325	-0,108	-0,204	0,024	-0,009	-0,499	-0,238	-0,027	-0,076	-0,112	-0,164	-0,266	-0,168	-0,169	0,002	-0,155	-0,062	-0,157	-0,110	-0,173	-0,073
Serv_GVA	0,035	-0,039	0,319	-0,108	0,057	0,233	-0,046	-0,114	-0,051	0,012	0,040	-0,057	0,017	0,009	0,002	-0,003	0,065	0,013	0,101	0,036	-0,044
Pub_GVA	0,076	0,083	-0,206	-0,019	-0,125	0,009	-0,096	0,036	0,070	-0,110	-0,033	-0,117	-0,067	-0,093	-0,079	-0,071	0,016	-0,093	-0,179	-0,082	-0,070
HHI	0,048	-0,039	0,155	0,004	-0,070	0,153	0,145	0,149	0,116	-0,025	-0,001	0,126	-0,007	0,007	-0,015	-0,020	-0,102	-0,010	-0,055	0,003	-0,048
GDP_PC	0,117	0,101	0,303	0,041	0,038	0,210	0,246	0,062	0,041	0,089	0,052	0,171	0,097	0,073	0,023	0,084	0,034	0,091	0,069	0,117	0,010
GFCF_PC	0,197	0,301	0,390	0,186	0,060	0,243	0,349	0,094	0,108	0,099	0,071	0,097	0,103	0,024	-0,035	0,071	0,053	0,066	0,002	0,100	-0,083
PROD	0,380	0,221	0,483	0,021	0,133	0,395	0,475	0,014	0,032	0,221	0,273	0,323	0,264	0,192	0,133	0,235	0,226	0,248	0,128	0,309	0,034
RnD_GDP	0,187	0,170	0,238	0,026	-0,164	0,251	0,208	0,250	0,217	-0,059	-0,095	0,095	-0,051	-0,094	-0,135	-0,053	-0,057	-0,074	-0,168	-0,082	-0,117
RnD_EMP	0,226	0,231	0,440	0,003	-0,194	0,435	0,267	0,212	0,028	0,007	-0,038	0,133	0,030	-0,027	-0,096	0,008	-0,004	-0,015	-0,126	-0,034	-0,078
MM_Ac	0,281	-0,083	0,429	-0,085	-0,071	0,402	0,292	0,238	-0,025	0,017	0,109	0,321	0,016	-0,014	-0,111	-0,021	-0,030	0,029	-0,075	0,076	-0,090
Avg_bus	0,303	-0,012	0,107	-0,111	-0,345	0,423	0,548	0,648	0,029	0,004	-0,066	0,637	0,015	-0,004	-0,069	-0,002	-0,239	0,027	-0,188	-0,042	-0,055
Gov_debt	0,270	0,350	-0,104	0,234	-0,273	0,186	0,396	0,513	0,188	-0,126	-0,190	0,138	-0,089	-0,146	-0,099	-0,037	-0,263	-0,121	-0,365	-0,079	-0,156
Cur_blc	**1**	0,364	0,126	-0,089	0,168	0,567	0,602	-0,010	0,070	0,425	0,411	0,511	0,437	0,357	0,277	0,456	0,305	0,433	0,200	0,459	0,274
Gov_close	0,364	**1**	-0,012	0,515	0,117	0,218	0,398	0,023	0,128	0,274	0,173	0,129	0,418	0,202	0,135	0,345	0,186	0,240	0,122	0,163	0,168
Lab_comp	0,126	-0,012	**1**	-0,251	-0,017	0,317	0,088	-0,118	-0,163	0,131	0,083	0,177	0,156	0,144	0,108	0,143	0,245	0,169	0,180	0,146	0,120
Union	-0,089	0,515	-0,251	**1**	0,297	-0,203	0,012	0,118	0,166	-0,112	0,073	-0,218	-0,043	-0,123	-0,185	-0,020	-0,398	-0,130	0,012	-0,158	-0,117
ML_barg	0,168	0,117	-0,017	0,297	**1**	-0,243	0,179	-0,697	0,015	0,566	0,706	0,210	0,590	0,610	0,557	0,644	0,428	0,630	0,674	0,663	0,605
SHDI	0,567	0,218	0,317	-0,203	-0,243	**1**	0,463	0,208	0,079	0,161	0,136	0,381	0,177	0,147	0,003	0,157	0,058	0,161	-0,017	0,190	0,020
SC_Org	0,602	0,398	0,088	0,012	0,179	0,463	**1**	0,103	0,098	0,554	0,464	0,770	0,573	0,540	0,501	0,614	0,301	0,580	0,230	0,565	0,402
EoC	-0,010	0,023	-0,118	0,118	-0,697	0,208	0,103	**1**	0,122	-0,605	-0,650	-0,043	-0,602	-0,657	-0,580	-0,605	-0,733	-0,638	-0,733	-0,651	-0,672
Clu	0,070	0,128	-0,163	0,166	0,015	0,079	0,098	0,122	**1**	-0,025	-0,015	-0,055	-0,032	-0,051	-0,044	-0,034	-0,119	-0,020	-0,145	0,001	-0,054
AT	0,425	0,274	0,131	-0,112	0,566	0,161	0,554	-0,605	-0,025	**1**	0,816	0,669	0,896	0,901	0,826	0,889	0,723	0,929	0,744	0,828	0,846
BE	0,411	0,173	0,083	0,073	0,706	0,136	0,464	-0,650	-0,015	0,816	**1**	0,595	0,844	0,849	0,774	0,837	0,669	0,877	0,691	0,776	0,794
DE	0,511	0,129	0,177	-0,218	0,210	0,381	0,770	-0,043	-0,055	0,669	0,595	**1**	0,708	0,715	0,609	0,699	0,438	0,752	0,478	0,613	0,639
DK	0,437	0,418	0,156	-0,043	0,590	0,177	0,573	-0,602	-0,032	0,896	0,844	0,708	**1**	0,930	0,854	0,918	0,751	0,958	0,772	0,856	0,874
EL	0,357	0,202	0,144	-0,123	0,610	0,147	0,540	-0,657	-0,051	0,901	0,849	0,715	0,930	**1**	0,859	0,923	0,757	0,963	0,778	0,861	0,879
ES	0,277	0,135	0,108	-0,185	0,557	0,003	0,501	-0,580	-0,044	0,826	0,774	0,609	0,854	0,859	**1**	0,847	0,679	0,887	0,701	0,786	0,804
FI	0,456	0,345	0,143	-0,020	0,644	0,157	0,614	-0,605	-0,034	0,889	0,837	0,699	0,918	0,923	0,847	**1**	0,745	0,951	0,766	0,849	0,867
FR	0,305	0,186	0,245	-0,398	0,428	0,058	0,301	-0,733	-0,119	0,723	0,669	0,438	0,751	0,757	0,679	0,745	**1**	0,785	0,590	0,681	0,700
IE	0,433	0,240	0,169	-0,130	0,630	0,161	0,580	-0,638	-0,020	0,929	0,877	0,752	0,958	0,963	0,887	0,951	0,785	**1**	0,805	0,889	0,907
IT	0,200	0,122	0,180	0,012	0,674	-0,017	0,230	-0,733	-0,145	0,744	0,691	0,478	0,772	0,778	0,701	0,766	0,590	0,805	**1**	0,703	0,722
NL	0,459	0,163	0,146	-0,158	0,663	0,190	0,565	-0,651	0,001	0,828	0,776	0,613	0,856	0,861	0,786	0,849	0,681	0,889	0,703	**1**	0,806
PT	0,274	0,168	0,120	-0,117	0,605	0,020	0,402	-0,672	-0,054	0,846	0,794	0,639	0,874	0,879	0,804	0,867	0,700	0,907	0,722	0,806	**1**
SE	0,439	0,401	0,133	0,037	0,609	0,163	0,598	-0,582	0,003	0,872	0,820	0,675	0,900	0,906	0,830	0,894	0,727	0,934	0,749	0,832	0,850
UK	-0,435	-0,245	-0,172	0,132	-0,626	-0,161	-0,586	0,644	0,055	-0,933	-0,881	-0,757	-0,962	-0,967	-0,891	-0,955	-0,789	-0,996	-0,809	-0,893	-0,911
CRISIS-1: 90	-0,207	-0,070	-0,065	0,209	0,236	-0,562	-0,136	-0,003	-0,070	-0,116	-0,052	-0,112	-0,104	-0,140	-0,063	-0,113	-0,027	-0,097	-0,007	-0,141	-0,070
CRISIS-2: 00	0,137	0,168	0,089	-0,052	0,072	0,200	0,199	0,000	0,042	0,134	0,101	0,180	0,164	0,100	0,087	0,163	0,131	0,156	0,049	0,161	0,157
CRISIS-3: 08	0,269	0,057	0,165	-0,167	-0,216	0,547	-0,040	0,076	0,001	-0,041	-0,047	-0,045	-0,073	-0,129	-0,149	-0,098	-0,024	-0,088	-0,078	-0,097	-0,094
CRISIS-4:BT	-0,107	-0,078	-0,104	0,003	-0,046	-0,097	0,000	-0,042	0,018	0,021	0,005	-0,001	0,018	0,103	0,078	0,038	-0,038	0,026	0,024	0,054	0,015
Urban	-0,088	-0,120	0,225	0,072	-0,151	0,064	-0,105	0,283	0,016	-0,321	-0,266	-0,154	-0,300	-0,319	-0,258	-0,310	-0,343	-0,309	-0,223	-0,209	-0,327
Intermediate	0,054	-0,010	0,022	0,052	0,038	0,083	0,124	0,101	-0,006	-0,025	0,010	0,104	0,010	-0,005	0,034	0,002	-0,102	0,012	0,048	0,046	-0,036
Rural	0,017	0,075	-0,143	-0,073	0,063	-0,088	-0,016	-0,223	-0,005	0,199	0,146	0,025	0,166	0,185	0,127	0,176	0,258	0,170	0,098	0,091	0,209
LIS	-0,051	0,002	-0,033	0,042	0,009	-0,044	0,080	0,060	0,070	-0,028	-0,002	0,067	0,011	0,007	0,016	0,021	-0,020	0,011	-0,016	0,034	-0,012
NED	0,060	0,054	0,056	0,024	0,018	0,117	0,022	0,079	0,014	-0,086	-0,036	-0,008	-0,045	-0,066	-0,103	-0,063	-0,021	-0,059	-0,078	-0,049	-0,084
NIS	-0,018	-0,039	-0,024	-0,037	-0,017	-0,062	-0,055	-0,086	-0,044	0,075	0,026	-0,027	0,027	0,043	0,066	0,035	0,025	0,037	0,063	0,018	0,066
Rec_DL	0,215	0,051	0,075	-0,135	-0,043	0,133	0,199	0,046	-0,110	0,126	0,126	0,243	0,134	0,072	0,113	0,130	0,169	0,141	0,058	0,092	0,088
Ret_Tra_4	0,063	-0,033	0,037	-0,078	-0,084	0,088	0,067	0,062	-0,017	0,004	0,020	0,078	0,009	0,012	0,044	0,006	0,015	0,021	-0,003	-0,009	-0,034
Ret_Tra_8	0,137	0,001	0,058	-0,096	-0,172	0,203	0,094	0,163	-0,134	-0,021	0,001	0,113	-0,024		-0,009	-0,035	-0,015	-0,023	-0,037	-0,101	-0,116

	SE	UK	CRISIS-1: 90-93	CRISIS-2: 00-03	CRISIS-3: 08-09	CRISIS-4:BTW	Urban	Intermediate	Rural	LIS	NED	NIS	Rec_DL	Ret_Tra_4	Ret_Tra_8
Pop_age	0,189	-0,218	-0,241	-0,033	0,294	-0,016	-0,193	-0,038	0,133	-0,053	0,027	0,007	0,088	0,078	0,223
Mig_net	0,023	-0,022	0,098	-0,082	-0,121	0,055	0,011	0,085	-0,058	0,086	-0,015	-0,032	0,026	-0,031	-0,051
Pop_work	-0,170	0,224	-0,279	0,171	0,304	-0,103	0,065	0,032	-0,057	0,011	0,080	-0,063	0,004	-0,021	0,013
Agri_GVA	0,173	-0,184	0,002	-0,077	-0,181	0,142	-0,518	-0,257	0,454	-0,081	-0,230	0,204	-0,114	-0,062	-0,111
Manu_GVA	0,054	-0,058	0,094	0,059	-0,137	-0,004	0,034	0,063	-0,058	0,022	-0,167	0,109	-0,043	-0,054	-0,060
Const_GVA	-0,136	0,157	0,179	-0,092	-0,262	0,096	-0,223	-0,137	0,211	0,082	-0,125	0,049	-0,067	-0,004	-0,063
Serv_GVA	-0,008	-0,014	-0,036	0,001	0,222	-0,108	0,325	0,107	-0,251	-0,049	0,246	-0,152	0,028	0,040	0,053
Pub_GVA	-0,065	0,092	-0,172	-0,016	0,102	0,047	-0,171	-0,072	0,142	0,020	0,068	-0,058	0,097	0,050	0,086
HHI	-0,028	0,009	-0,066	-0,033	-0,004	0,057	0,292	0,116	-0,239	0,120	-0,115	0,023	-0,103	-0,034	-0,034
GDP_PC	0,097	-0,092	0,058	-0,001	0,002	-0,034	0,318	0,107	-0,247	0,037	0,063	-0,063	0,006	-0,020	-0,018
GFCF_PC	0,101	-0,060	0,049	0,009	-0,037	-0,011	0,105	0,064	-0,099	0,046	0,063	-0,067	0,077	0,028	0,015
PROD	0,248	-0,251	0,034	0,041	0,020	-0,051	0,218	0,117	-0,196	0,051	0,127	-0,115	0,188	0,076	0,094
RnD_GDP	-0,038	0,072	0,046	0,083	0,126	-0,141	0,130	0,035	-0,096	0,025	0,059	-0,054	0,049	0,025	0,010
RnD_EMP	-0,004	0,014	-0,072	0,094	0,216	-0,131	0,167	0,041	-0,121	0,003	0,076	-0,056	0,064	0,051	0,062
MM_Ac	-0,020	-0,035	0,083	0,094	0,158	-0,186	0,492	0,158	-0,378	0,044	0,189	-0,157	0,180	0,078	0,123
Avg_bus	-0,017	-0,030	-0,038	0,119	0,042	-0,063	0,157	0,132	-0,171	0,081	0,050	-0,076	0,184	0,076	0,152
Gov_debt	-0,022	0,127	-0,114	0,207	-0,102	0,019	0,059	0,038	-0,057	0,049	-0,142	0,077	-0,017	-0,074	-0,085
Cur_blc	0,439	-0,435	-0,207	0,137	0,269	-0,107	-0,088	0,054	0,017	-0,051	0,060	-0,018	0,215	0,063	0,137
Gov_close	0,401	-0,245	-0,070	0,168	0,057	-0,078	-0,120	-0,010	0,075	0,002	0,054	-0,039	0,051	-0,033	0,001
Lab_comp	0,133	-0,172	-0,065	0,089	0,165	-0,104	0,225	0,022	-0,143	-0,033	0,056	-0,024	0,075	0,037	0,058
Union	0,037	0,132	0,209	-0,052	-0,167	0,003	0,072	0,052	-0,073	0,042	0,024	-0,037	-0,135	-0,078	-0,096
ML_barg	0,609	-0,626	0,236	0,072	-0,216	-0,046	-0,151	0,038	0,063	0,009	0,018	-0,017	-0,043	-0,084	-0,172
SHDI	0,163	-0,161	-0,562	0,200	0,547	-0,097	0,064	0,083	-0,088	-0,044	0,117	-0,062	0,133	0,088	0,203
SC_Org	0,598	-0,586	-0,136	0,199	-0,040	0,000	-0,105	0,124	-0,016	0,080	0,022	-0,055	0,199	0,067	0,094
EoC	-0,582	0,644	-0,003	0,000	0,076	-0,042	0,283	0,101	-0,223	0,060	0,079	-0,086	0,046	0,062	0,163
Clu	0,003	0,055	-0,070	0,042	0,001	0,018	0,016	-0,006	-0,005	0,070	0,014	-0,044	-0,110	-0,017	-0,134
AT	0,872	-0,933	-0,116	0,134	-0,041	0,021	-0,321	-0,025	0,199	-0,028	-0,086	0,075	0,126	0,004	-0,021
BE	0,820	-0,881	-0,052	0,101	-0,047	0,005	-0,266	0,010	0,146	-0,002	-0,036	0,026	0,126	0,020	0,001
DE	0,675	-0,757	-0,112	0,180	-0,045	-0,001	-0,154	0,104	0,025	0,067	-0,008	-0,027	0,243	0,078	0,113
DK	0,900	-0,962	-0,104	0,164	-0,073	0,018	-0,300	0,010	0,166	0,011	-0,045	0,027	0,134	0,009	-0,024
EL	0,906	-0,967	-0,140	0,100	-0,129	0,103	-0,319	-0,005	0,185	0,007	-0,066	0,043	0,072	0,012	
ES	0,830	-0,891	-0,063	0,087	-0,149	0,078	-0,258	0,034	0,127	0,016	-0,103	0,066	0,113	0,044	-0,009
FI	0,894	-0,955	-0,113	0,163	-0,098	0,038	-0,310	0,002	0,176	0,021	-0,063	0,035	0,130	0,006	-0,035
FR	0,727	-0,789	-0,027	0,131	-0,024	-0,038	-0,343	-0,102	0,258	-0,020	-0,021	0,025	0,169	0,015	-0,015
IE	0,934	-0,996	-0,097	0,156	-0,088	0,026	-0,309	0,012	0,170	0,011	-0,059	0,037	0,141	0,021	-0,023
IT	0,749	-0,809	-0,007	0,049	-0,078	0,024	-0,223	0,048	0,098	-0,016	-0,078	0,063	0,058	-0,003	-0,037
NL	0,832	-0,893	-0,141	0,161	-0,097	0,054	-0,209	0,046	0,091	0,034	-0,049	0,018	0,092	-0,009	-0,101
PT	0,850	-0,911	-0,070	0,157	-0,094	0,015	-0,327	-0,036	0,209	-0,012	-0,084	0,066	0,088	-0,034	-0,116
SE	**1**	-0,938	-0,082	0,160	-0,080	0,012	-0,284	0,034	0,141	0,007	-0,039	0,024	0,119	0,011	-0,012
UK	-0,938	**1**	0,096	-0,152	0,087	-0,027	0,306	-0,016	-0,166	-0,011	0,061	-0,038	-0,147	-0,019	0,017
CRISIS-1: 90	-0,082	0,096	**1**	0,097	-0,029	-0,602	0,114	0,033	-0,085	0,046	0,193	-0,160	0,062	-0,015	-0,046
CRISIS-2: 00	0,160	-0,152	0,097	**1**	0,085	-0,611	-0,037	-0,005	0,024	-0,087	0,035	0,018	-0,003	-0,177	-0,194
CRISIS-3: 08	-0,080	0,087	-0,029	0,085	**1**	-0,604	0,087	0,037	-0,072	-0,091	0,261	-0,142	0,088	0,095	0,249
CRISIS-4:BT	0,012	-0,027	-0,602	-0,611	-0,604	**1**	-0,096	-0,038	0,078	0,070	-0,278	0,164	-0,084	0,043	0,007
Urban	-0,284	0,306	0,114	-0,037	0,087	-0,096	**1**	0,424	-0,832	0,023	0,143	-0,114	-0,031	0,023	-0,005
Intermediate	0,034	-0,016	0,033	-0,005	0,037	-0,038	0,424	**1**	-0,855	0,012	0,094	-0,073	0,043	0,038	0,030
Rural	0,141	-0,166	-0,085	0,024	-0,072	0,078	-0,832	-0,855	**1**	-0,021	-0,140	0,110	-0,008	-0,037	-0,015
LIS	0,007	-0,011	0,046	-0,087	-0,091	0,070	0,023	0,012	-0,021	**1**	0,358	-0,746	-0,006	0,032	-0,001
NED	-0,039	0,061	0,193	0,035	0,261	-0,278	0,143	0,094	-0,140	0,358	**1**	-0,889	0,159	0,050	0,083
NIS	0,024	-0,038	-0,160	0,018	-0,142	0,164	-0,114	-0,073	0,110	-0,746	-0,889	**1**	-0,111	-0,052	-0,059
Rec_DL	0,119	-0,147	0,062	-0,003	0,088	-0,084	-0,031	0,043	-0,008	-0,006	0,159	-0,111	**1**	0,519	0,475
Ret_Tra_4	0,011	-0,019	-0,015	-0,177	0,095	0,043	0,023	0,038	-0,037	0,032	0,050	-0,052	0,519	**1**	0,707
Ret_Tra_8	-0,012	0,017	-0,046	-0,194	0,249	0,007	-0,005	0,030	-0,015	-0,001	0,083	-0,059	0,475	0,707	**1**

Stepwise analysis of covariance on regional RGVA resilience performance (all variables) - Recovery of development level

Summary of the variables selection Rec_DL:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R²	Adjusted R²	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	NAT	NAT	IN	0,008	0,166	0,160	186,913	-9158,286	-9080,577	0,846
2	NAT / Shock	Shock	IN	0,008	0,192	0,186	125,852	-9215,298	-9126,488	0,821
3	Pub_GVA / NAT / Shock	Pub_GVA	IN	0,008	0,201	0,194	106,029	-9234,210	-9139,849	0,813
4	Pub_GVA / NAT / CRISIS / Shock	CRISIS	IN	0,008	0,213	0,205	83,488	-9255,910	-9144,897	0,804
5	Pub_GVA / HHI / NAT / CRISIS / Shock	HHI	IN	0,008	0,220	0,212	67,419	-9271,658	-9155,094	0,798
6	Pub_GVA / HHI / SHDI / NAT / CRISIS / Shock	SHDI	IN	0,007	0,229	0,220	47,085	-9291,826	-9169,711	0,789
7	Pub_GVA / HHI / ML_barg / SHDI / NAT / CRISIS / Shock	ML_barg	IN	0,007	0,233	0,224	39,481	-9299,439	-9171,773	0,786
8	Pub_GVA / HHI / ML_barg / SHDI / Clu / NAT / CRISIS / Shock	Clu	IN	0,007	0,235	0,226	35,867	-9303,081	-9169,865	0,784
9	Agri_GVA / Pub_GVA / HHI / ML_barg / SHDI / Clu / NAT / CRISIS / Shock	Agri_GVA	IN	0,007	0,237	0,227	33,929	-9305,048	-9166,282	0,784
10	Agri_GVA / Pub_GVA / HHI / Gov_debt / ML_barg / SHDI / Clu / NAT / CRISIS / Shock	Gov_debt	IN	0,007	0,238	0,228	31,997	-9307,017	-9162,700	0,783

Stepwise analysis of covariance on regional RGVA resilience performance (all variables) - Recovery of development level

Goodness of fit statistics (Rec_DL):

Observations	1902
Sum of weights	1902
DF	1876
R²	0,238
Adjusted R²	0,228
MSE	0,007
RMSE	0,086
MAPE	1848,500
DW	1,686
Cp	31,997
AIC	-9307,017
SBC	-9162,700
PC	0,783
Press	14,406
Q²	0,209

Analysis of variance (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	25	4,341	0,174	23,476	**<0,0001**
Error	1876	13,874	0,007		
Corrected Tc	1901	18,215			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance (all variables) - Recovery of development level

Type I Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	1,000	0,238	0,238	32,143	0,000
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,190	0,190	25,637	0,000
HHI	1,000	0,546	0,546	73,795	0,000
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,030	0,030	4,002	0,046
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,001	0,001	0,104	0,747
SHDI	1,000	0,208	0,208	28,171	0,000
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,215	0,215	29,064	0,000
NAT	13,000	2,322	0,179	24,147	0,000
CRISIS	3,000	0,408	0,136	18,397	0,000
Urb_1	0,000	0,000			
Shock	2,000	0,184	0,092	12,446	0,000

Type II Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	1,000	0,032	0,032	4,323	0,038
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,269	0,269	36,367	0,000
HHI	1,000	0,176	0,176	23,769	0,000
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,029	0,029	3,919	0,048
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,089	0,089	12,079	0,001
SHDI	1,000	0,124	0,124	16,729	0,000
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,041	0,041	5,556	0,019
NAT	13,000	2,046	0,157	21,280	0,000
CRISIS	3,000	0,377	0,126	17,007	0,000
Urb_1	0,000	0,000			
Shock	2,000	0,184	0,092	12,446	0,000

Type III Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	1,000	0,032	0,032	4,323	0,038
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,269	0,269	36,367	0,000
HHI	1,000	0,176	0,176	23,769	0,000
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,029	0,029	3,919	0,048
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,089	0,089	12,079	0,001
SHDI	1,000	0,124	0,124	16,729	0,000
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,041	0,041	5,556	0,019
NAT	13,000	2,046	0,157	21,280	0,000
CRISIS	3,000	0,377	0,126	17,007	0,000
Urb_1	0,000	0,000			
Shock	2,000	0,184	0,092	12,446	0,000

Stepwise analysis of covariance on regional RGVA resilience performance (all variables) - Recovery of development level

Model parameters (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,395	0,124	-3,190	**0,001**	-0,638	-0,152
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	-0,248	0,147	-1,692	0,091	-0,536	0,040
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,203	0,044	4,617	**<0,0001**	0,117	0,289
HHI	-0,393	0,131	-2,992	**0,003**	-0,650	-0,135
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	-0,003	0,002	-1,447	0,148	-0,006	0,001
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	-0,021	0,008	-2,605	**0,009**	-0,036	-0,005
SHDI	0,446	0,137	3,243	**0,001**	0,176	0,715
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	-0,002	0,001	-2,099	**0,036**	-0,003	0,000
AT	0,030	0,012	2,395	**0,017**	0,005	0,054
BE	0,041	0,012	3,451	**0,001**	0,018	0,064
DE	0,045	0,008	5,387	**<0,0001**	0,029	0,062
DK	-0,001	0,015	-0,043	0,966	-0,030	0,028
EL	-0,235	0,032	-7,332	**<0,0001**	-0,297	-0,172
ES	0,039	0,016	2,397	**0,017**	0,007	0,072
FI	0,055	0,030	1,822	0,069	-0,004	0,115
FR	0,041	0,011	3,877	**0,000**	0,020	0,062
IE	-0,035	0,040	-0,866	0,386	-0,113	0,044
IT	0,020	0,012	1,635	0,102	-0,004	0,043
NL	0,023	0,016	1,408	0,159	-0,009	0,054
PT	0,013	0,018	0,703	0,482	-0,023	0,048
SE	0,003	0,020	0,156	0,876	-0,037	0,043
UK	-0,040	0,017	-2,330	**0,020**	-0,074	-0,006
CRISIS-1: 90	0,036	0,008	4,667	**<0,0001**	0,021	0,051
CRISIS-2: 00	-0,026	0,006	-4,403	**<0,0001**	-0,037	-0,014
CRISIS-3: 08	-0,026	0,007	-3,559	**0,000**	-0,041	-0,012
CRISIS-4:BT	0,016	0,010	1,607	0,108	-0,004	0,037
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	-0,018	0,008	-2,310	**0,021**	-0,033	-0,003
NED	0,020	0,005	3,920	**<0,0001**	0,010	0,030
NIS	-0,003	0,007	-0,376	0,707	-0,016	0,011

Standardized coefficients (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	-0,059	0,035	-1,692	0,091	-0,127	0,009
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,139	0,030	4,617	**<0,0001**	0,080	0,198
HHI	-0,123	0,041	-2,992	**0,003**	-0,204	-0,043
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	-0,065	0,045	-1,447	0,148	-0,152	0,023
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	-0,185	0,071	-2,605	**0,009**	-0,325	-0,046
SHDI	0,237	0,073	3,243	**0,001**	0,094	0,381
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	-0,056	0,026	-2,099	**0,036**	-0,107	-0,004
AT	0,118	0,049	2,395	**0,017**	0,021	0,215
BE	0,176	0,051	3,451	**0,001**	0,076	0,275
DE	0,327	0,061	5,387	**<0,0001**	0,208	0,446
DK	-0,002	0,056	-0,043	0,966	-0,113	0,108
EL	-0,887	0,121	-7,332	**<0,0001**	-1,124	-0,650
ES	0,168	0,070	2,397	**0,017**	0,030	0,305
FI	0,213	0,117	1,822	0,069	-0,016	0,443
FR	0,214	0,055	3,877	**0,000**	0,106	0,322
IE	-0,126	0,145	-0,866	0,386	-0,411	0,159
IT	0,097	0,060	1,635	0,102	-0,019	0,214
NL	0,096	0,068	1,408	0,159	-0,038	0,230
PT	0,052	0,074	0,703	0,482	-0,094	0,198
SE	0,012	0,080	0,156	0,876	-0,145	0,170
UK	-0,146	0,063	-2,330	**0,020**	-0,269	-0,023
CRISIS-1: 90	0,214	0,046	4,667	**<0,0001**	0,124	0,304
CRISIS-2: 00	-0,137	0,031	-4,403	**<0,0001**	-0,199	-0,076
CRISIS-3: 08	-0,160	0,045	-3,559	**0,000**	-0,248	-0,072
CRISIS-4:BT	0,043	0,027	1,607	0,108	-0,010	0,096
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	-0,076	0,033	-2,310	**0,021**	-0,141	-0,011
NED	0,127	0,032	3,920	**<0,0001**	0,064	0,191
NIS	-0,008	0,020	-0,376	0,707	-0,048	0,032

Stepwise analysis of covariance on regional RGVA resilience performance (all variables) - Growth trajectory retention (4-year recovery period)

Summary of the variables selection Ret_Tra_4:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R²	Adjusted R²	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	CRISIS	CRISIS	IN	0,001	0,044	0,042	133,988	-14285,074	-14262,872	0,960
2	NAT / CRISIS	NAT	IN	0,001	0,080	0,072	82,576	-14333,100	-14238,738	0,936
3	Gov_debt / NAT / CRISIS	Gov_debt	IN	0,001	0,089	0,081	65,537	-14349,755	-14249,843	0,928
4	Gov_debt / ML_barg / NAT / CRISIS	ML_barg	IN	0,001	0,098	0,089	49,509	-14365,591	-14260,129	0,921
5	HHI / Gov_debt / ML_barg / NAT / CRISIS	HHI	IN	0,001	0,102	0,093	42,077	-14372,990	-14261,976	0,917
6	Agri_GVA / HHI / Gov_debt / ML_barg / NAT / CRISIS	Agri_GVA	IN	0,001	0,106	0,096	35,733	-14379,343	-14262,779	0,914
7	Mig_net / Agri_GVA / HHI / Gov_debt / ML_barg / NAT / CRISIS	Mig_net	IN	0,001	0,110	0,100	29,526	-14385,594	-14263,480	0,911
8	Mig_net / Agri_GVA / Pub_GVA / HHI / Gov_debt / ML_barg / NAT / CRISIS	Pub_GVA	IN	0,001	0,112	0,102	26,852	-14388,311	-14260,645	0,910
9	Mig_net / Agri_GVA / Pub_GVA / HHI / RnD_EMP / Gov_debt / ML_barg / NAT / CRISIS	RnD_EMP	IN	0,001	0,114	0,103	24,996	-14390,210	-14256,994	0,909

Stepwise analysis of covariance on regional RGVA resilience performance (all variables) - Growth trajectory retention (4-year recovery period)

Goodness of fit statistics (Ret_Tra_4):

Observations	1902
Sum of weights	1902
DF	1878
R^2	0,114
Adjusted R^2	0,103
MSE	0,001
RMSE	0,023
MAPE	232,477
DW	1,600
Cp	24,996
AIC	-14390,210
SBC	-14256,994
PC	0,909
Press	1,012
Q^2	0,066

Analysis of variance (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	23	0,123	0,005	10,494	**<0,0001**
Error	1878	0,960	0,001		
Corrected Tc	1901	1,084			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance (all variables) - Growth trajectory retention (4-year recovery period)

Type I Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	1,000	0,001	0,001	2,012	0,156
Pop_work	0,000	0,000			
Agri_GVA	1,000	0,004	0,004	8,492	0,004
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,003	0,003	5,016	0,025
HHI	1,000	0,005	0,005	9,987	0,002
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	1,000	0,002	0,002	4,172	0,041
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,010	0,010	20,181	0,000
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,007	0,007	13,451	0,000
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	13,000	0,053	0,004	7,964	0,000
CRISIS	3,000	0,038	0,013	24,840	0,000
Urb_1	0,000	0,000			
Shock	0,000	0,000			

Type II Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	1,000	0,003	0,003	6,839	0,009
Pop_work	0,000	0,000			
Agri_GVA	1,000	0,004	0,004	7,839	0,005
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,003	0,003	6,272	0,012
HHI	1,000	0,009	0,009	17,539	0,000
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	1,000	0,002	0,002	3,854	0,050
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,014	0,014	26,792	0,000
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,010	0,010	20,050	0,000
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	13,000	0,057	0,004	8,586	0,000
CRISIS	3,000	0,038	0,013	24,840	0,000
Urb_1	0,000	0,000			
Shock	0,000	0,000			

Type III Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	1,000	0,003	0,003	6,839	0,009
Pop_work	0,000	0,000			
Agri_GVA	1,000	0,004	0,004	7,839	0,005
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,003	0,003	6,272	0,012
HHI	1,000	0,009	0,009	17,539	0,000
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	1,000	0,002	0,002	3,854	0,050
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,014	0,014	26,792	0,000
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,010	0,010	20,050	0,000
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	13,000	0,057	0,004	8,586	0,000
CRISIS	3,000	0,038	0,013	24,840	0,000
Urb_1	0,000	0,000			
Shock	0,000	0,000			

Stepwise analysis of covariance on regional RGVA resilience performance (all variables) - Growth trajectory retention (4-year recovery period)

Model parameters (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,020	0,011	1,806	0,071	-0,002	0,042
Pop_age	0,000	0,000				
Mig_net	0,000	0,000	-2,000	**0,046**	0,000	0,000
Pop_work	0,000	0,000				
Agri_GVA	-0,084	0,039	-2,173	**0,030**	-0,160	-0,008
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,021	0,012	1,772	0,077	-0,002	0,045
HHI	-0,084	0,035	-2,436	**0,015**	-0,152	-0,016
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,001	0,001	1,799	0,072	0,000	0,003
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	-0,002	0,000	-4,031	**<0,0001**	-0,003	-0,001
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	-0,007	0,002	-3,646	**0,000**	-0,011	-0,003
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	-0,012	0,004	-2,926	**0,003**	-0,021	-0,004
BE	0,002	0,003	0,686	0,493	-0,004	0,009
DE	0,000	0,003	-0,036	0,972	-0,006	0,005
DK	-0,008	0,006	-1,390	0,165	-0,019	0,003
EL	-0,007	0,007	-0,957	0,339	-0,022	0,007
ES	0,007	0,004	1,547	0,122	-0,002	0,015
FI	0,011	0,009	1,236	0,216	-0,006	0,028
FR	-0,009	0,003	-2,736	**0,006**	-0,015	-0,003
IE	0,047	0,028	1,688	0,092	-0,008	0,102
IT	-0,006	0,003	-1,802	0,072	-0,012	0,001
NL	0,003	0,004	0,790	0,430	-0,005	0,012
PT	-0,017	0,005	-3,525	**0,000**	-0,026	-0,007
SE	0,006	0,005	1,166	0,244	-0,004	0,015
UK	-0,017	0,005	-3,557	**0,000**	-0,026	-0,008
CRISIS-1: 90	0,004	0,001	2,543	**0,011**	0,001	0,007
CRISIS-2: 00	-0,009	0,001	-6,502	**<0,0001**	-0,012	-0,006
CRISIS-3: 08	0,002	0,001	1,429	0,153	-0,001	0,004
CRISIS-4:BT	0,004	0,002	1,529	0,127	-0,001	0,008
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	-0,059	0,030	-2,000	**0,046**	-0,118	-0,001
Pop_work	0,000	0,000				
Agri_GVA	-0,082	0,038	-2,173	**0,030**	-0,155	-0,008
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,060	0,034	1,772	0,077	-0,006	0,127
HHI	-0,108	0,044	-2,436	**0,015**	-0,196	-0,021
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,050	0,028	1,799	0,072	-0,004	0,104
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	-0,177	0,044	-4,031	**<0,0001**	-0,262	-0,091
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	-0,256	0,070	-3,646	**0,000**	-0,393	-0,118
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	-0,200	0,068	-2,926	**0,003**	-0,334	-0,066
BE	0,041	0,060	0,686	0,493	-0,077	0,160
DE	-0,003	0,083	-0,036	0,972	-0,166	0,160
DK	-0,122	0,088	-1,390	0,165	-0,294	0,050
EL	-0,110	0,115	-0,957	0,339	-0,337	0,116
ES	0,118	0,076	1,547	0,122	-0,032	0,267
FI	0,170	0,137	1,236	0,216	-0,099	0,439
FR	-0,189	0,069	-2,736	**0,006**	-0,325	-0,054
IE	0,701	0,415	1,688	0,092	-0,113	1,516
IT	-0,120	0,066	-1,802	0,072	-0,250	0,011
NL	0,058	0,073	0,790	0,430	-0,086	0,202
PT	-0,282	0,080	-3,525	**0,000**	-0,440	-0,125
SE	0,089	0,077	1,166	0,244	-0,061	0,239
UK	-0,250	0,070	-3,557	**0,000**	-0,387	-0,112
CRISIS-1: 90	0,093	0,037	2,543	**0,011**	0,021	0,165
CRISIS-2: 00	-0,195	0,030	-6,502	**<0,0001**	-0,254	-0,136
CRISIS-3: 08	0,041	0,029	1,429	0,153	-0,015	0,097
CRISIS-4:BT	0,038	0,025	1,529	0,127	-0,011	0,086
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Stepwise analysis of covariance on regional RGVA resilience performance (all variables) - Growth trajectory retention (8-year recovery period)

Summary of the variables selection Ret_Tra_8:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	CRISIS	CRISIS	IN	0,000	0,116	0,115	316,303	-12131,846	-12110,577	0,888
2	NAT / CRISIS	NAT	IN	0,000	0,207	0,199	154,517	-12270,541	-12185,466	0,810
3	Union / NAT / CRISIS	Union	IN	0,000	0,228	0,220	112,842	-12309,483	-12219,090	0,789
4	Union / Clu / NAT / CRISIS	Clu	IN	0,000	0,243	0,235	83,592	-12337,475	-12241,765	0,775
5	Cur_blc / Union / Clu / NAT / CRISIS	Cur_blc	IN	0,000	0,254	0,245	64,147	-12356,407	-12255,380	0,765
6	Pop_age / Cur_blc / Union / Clu / NAT / CRISIS	Pop_age	IN	0,000	0,261	0,252	50,513	-12369,853	-12263,509	0,758
7	Pop_age / Pub_GVA / Cur_blc / Union / Clu / NAT / CRISIS	Pub_GVA	IN	0,000	0,266	0,257	42,353	-12377,977	-12266,316	0,754
8	Pop_age / Pub_GVA / Gov_debt / Cur_blc / Union / Clu / NAT / CRISIS	Gov_debt	IN	0,000	0,271	0,261	34,839	-12385,519	-12268,540	0,751

Stepwise analysis of covariance on regional RGVA resilience performance (all variables) - Growth trajectory retention (8-year recovery period)

Goodness of fit statistics (Ret_Tra_8):

Observations	1506
Sum of weights	1506
DF	1484
R^2	0,271
Adjusted R^2	0,261
MSE	0,000
RMSE	0,016
MAPE	436,096
DW	1,534
Cp	34,839
AIC	-12385,519
SBC	-12268,540
PC	0,751
Press	0,407
Q^2	0,244

Analysis of variance (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	21	0,146	0,007	26,272	**<0,0001**
Error	1484	0,392	0,000		
Corrected Tc	1505	0,538			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance (all variables) - Growth trajectory retention (8-year recovery period)

Type I Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,027	0,027	100,930	0,000
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,002	0,002	6,730	0,010
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,005	0,005	17,490	0,000
Cur_blc	1,000	0,003	0,003	12,787	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,001	0,001	2,621	0,106
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,007	0,007	24,916	0,000
NAT	12,000	0,074	0,006	23,244	0,000
CRISIS	3,000	0,028	0,009	35,768	0,000
Urb_1	0,000	0,000			
Shock	0,000	0,000			

Type II Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,003	0,003	12,097	0,001
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,003	0,003	10,864	0,001
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,002	0,002	9,432	0,002
Cur_blc	1,000	0,005	0,005	19,157	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,010	0,010	38,842	0,000
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,008	0,008	28,474	0,000
NAT	12,000	0,063	0,005	19,795	0,000
CRISIS	3,000	0,028	0,009	35,768	0,000
Urb_1	0,000	0,000			
Shock	0,000	0,000			

Type III Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,003	0,003	12,097	0,001
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,003	0,003	10,864	0,001
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,002	0,002	9,432	0,002
Cur_blc	1,000	0,005	0,005	19,157	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,010	0,010	38,842	0,000
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,008	0,008	28,474	0,000
NAT	12,000	0,063	0,005	19,795	0,000
CRISIS	3,000	0,028	0,009	35,768	0,000
Urb_1	0,000	0,000			
Shock	0,000	0,000			

Stepwise analysis of covariance on regional RGVA resilience performance (all variables) - Growth trajectory retention (8-year recovery period)

Model parameters (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,023	0,013	1,714	0,087	-0,003	0,049
Pop_age	0,005	0,002	3,000	**0,003**	0,002	0,008
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,023	0,010	2,240	**0,025**	0,003	0,042
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	-0,001	0,001	-1,716	0,086	-0,002	0,000
Cur_blc	-0,001	0,000	-3,073	**0,002**	-0,002	0,000
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	-0,001	0,000	-4,247	**<0,0001**	-0,002	-0,001
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	-0,001	0,000	-5,289	**<0,0001**	-0,001	-0,001
AT	-0,003	0,004	-0,683	0,495	-0,011	0,006
BE	0,026	0,007	3,967	**<0,0001**	0,013	0,039
DE	-0,008	0,004	-2,085	**0,037**	-0,015	0,000
DK	0,055	0,011	4,783	**<0,0001**	0,032	0,077
EL	0,000	0,000				
ES	-0,028	0,009	-3,181	**0,001**	-0,046	-0,011
FI	0,056	0,012	4,718	**<0,0001**	0,033	0,079
FR	-0,037	0,009	-4,264	**<0,0001**	-0,054	-0,020
IE	-0,038	0,002	-15,423	**<0,0001**	-0,043	-0,033
IT	-0,012	0,003	-3,573	**0,000**	-0,019	-0,005
NL	-0,024	0,006	-3,969	**<0,0001**	-0,036	-0,012
PT	-0,042	0,007	-6,300	**<0,0001**	-0,055	-0,029
SE	0,066	0,011	5,813	**<0,0001**	0,044	0,088
UK	-0,005	0,003	-1,702	0,089	-0,012	0,001
CRISIS-1: 90	0,006	0,002	3,006	**0,003**	0,002	0,009
CRISIS-2: 00	-0,009	0,001	-6,358	**<0,0001**	-0,011	-0,006
CRISIS-3: 08	0,002	0,002	1,237	0,216	-0,001	0,006
CRISIS-4:BT	0,001	0,002	0,361	0,718	-0,004	0,006
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,100	0,033	3,000	**0,003**	0,035	0,166
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,081	0,036	2,240	**0,025**	0,010	0,151
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	-0,123	0,071	-1,716	0,086	-0,263	0,018
Cur_blc	-0,195	0,063	-3,073	**0,002**	-0,319	-0,071
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	-0,988	0,233	-4,247	**<0,0001**	-1,444	-0,532
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	-0,130	0,025	-5,289	**<0,0001**	-0,178	-0,082
AT	-0,056	0,082	-0,683	0,495	-0,217	0,105
BE	0,559	0,141	3,967	**<0,0001**	0,283	0,836
DE	-0,281	0,135	-2,085	**0,037**	-0,545	-0,017
DK	1,034	0,216	4,783	**<0,0001**	0,610	1,458
EL	0,000	0,000				
ES	-0,620	0,195	-3,181	**0,001**	-1,002	-0,238
FI	1,086	0,230	4,718	**<0,0001**	0,635	1,538
FR	-0,947	0,222	-4,264	**<0,0001**	-1,382	-0,511
IE	-0,689	0,045	-15,423	**<0,0001**	-0,776	-0,601
IT	-0,296	0,083	-3,573	**0,000**	-0,459	-0,134
NL	-0,499	0,126	-3,969	**<0,0001**	-0,745	-0,252
PT	-0,870	0,138	-6,300	**<0,0001**	-1,141	-0,599
SE	1,321	0,227	5,813	**<0,0001**	0,875	1,767
UK	-0,099	0,058	-1,702	0,089	-0,212	0,015
CRISIS-1: 90	0,179	0,060	3,006	**0,003**	0,062	0,296
CRISIS-2: 00	-0,250	0,039	-6,358	**<0,0001**	-0,328	-0,173
CRISIS-3: 08	0,062	0,050	1,237	0,216	-0,036	0,160
CRISIS-4:BT	0,011	0,031	0,361	0,718	-0,050	0,073
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

III.a.iv. Employment – Stepwise regression

Stepwise regression analysis on regional Employment resilience performance

Settings:
Confidence interval (%): 95
Tolerance: 0,0001
Model selection: Stepwise
Probability for entry: 0,05 / Probability for removal: 0,1
Covariances: Corrections = Newey West (adjusted)(Lag = 1)

Explanation of the variable codes can be found in table 28

Summary statistics:

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Rec_DL	1902	0	1902	-0,590	0,509	-0,077	0,098
Ret_Tra_4	1902	0	1902	-0,125	0,138	-0,010	0,024
Ret_Tra_8	1902	396	1506	-0,127	0,051	-0,012	0,019
Pop_age	1902	0	1902	0,192	2,946	1,122	0,386
Mig_net	1902	0	1902	-27,218	66,719	3,075	6,329
Pop_work	1902	0	1902	0,265	0,667	0,470	0,049
Agri_GVA	1902	0	1902	0,000	0,177	0,022	0,023
Manu_GVA	1902	0	1902	0,020	0,720	0,222	0,095
Const_GVA	1902	0	1902	0,011	0,352	0,076	0,031
Serv_GVA	1902	0	1902	0,176	0,782	0,445	0,084
Pub_GVA	1902	0	1902	0,062	0,568	0,234	0,067
HHI	1902	0	1902	0,176	0,543	0,232	0,031
GDP_PC	1902	0	1902	-1,199	5,176	-0,003	0,727
GFCF_PC	1902	0	1902	-1,759	2,618	0,019	0,757
PROD	1902	0	1902	-2,654	4,694	0,238	0,951
RnD_GDP	1902	0	1902	0,000	14,868	1,958	1,507
RnD_EMP	1902	0	1902	0,000	4,938	1,413	0,853
MM_Ac	1902	0	1902	24,795	192,930	108,026	33,259
Avg_bus	1902	0	1902	1,349	18,605	9,390	5,172
Gov_debt	1902	0	1902	-11,100	6,700	-4,045	2,496
Cur_blc	1902	0	1902	-14,500	10,200	0,299	3,664
Gov_close	1902	0	1902	0,370	31,490	5,712	3,937
Lab_comp	1902	0	1902	324,327	271583,242	28538,040	28757,018
Union	1902	0	1902	7,794	84,677	28,465	14,385
ML_barg	1902	0	1902	1,000	4,875	2,608	0,873
SHDI	1902	0	1902	0,701	0,958	0,850	0,052
SC_Org	1902	0	1902	0,038	0,286	0,120	0,046
EoC	1902	0	1902	46,900	100,000	74,391	16,522
Clu	1902	0	1902	0,000	82,000	2,729	3,189

Number of removed observations: 204

Stepwise regression analysis on regional Employment resilience performance

Correlation matrix:

	Pop_age	Mig_net	Pop_work	Agri_GVA	Manu_GVA	Const_GVA	Serv_GVA	Pub_GVA	HHI	GDP_PC	GFCF_PC	PROD	RnD_GDP	RnD_EMP	MM_Ac	Avg_bus	Gov_debt	Cur_blc	Gov_close	Lab_comp	Union	ML_barg	SHDI	SC_Org	EoC	Clu	Rec_DL	Ret_Tra_4	Ret_Tra_8
Pop_age	**1**	-0,165	0,209	0,048	-0,025	-0,212	-0,013	0,132	-0,020	-0,017	-0,194	-0,154	-0,013	0,000	-0,075	0,167	-0,017	0,281	-0,014	-0,003	-0,149	-0,030	0,352	0,140	-0,026	-0,105	0,088	0,078	0,223
Mig_net	-0,165	**1**	-0,061	-0,041	0,023	0,058	0,063	-0,123	0,062	0,091	0,167	0,135	0,018	0,021	0,091	0,091	0,060	-0,195	-0,020	-0,058	0,116	0,009	-0,056	0,123	0,062	-0,010	0,026	-0,031	-0,051
Pop_work	0,209	-0,061	**1**	-0,257	0,086	-0,151	0,041	-0,015	0,101	0,141	0,291	0,039	0,299	0,328	0,193	0,348	0,399	0,260	0,188	0,111	0,012	-0,316	0,520	0,228	0,457	0,124	0,004	-0,021	0,013
Agri_GVA	0,048	-0,041	-0,257	**1**	-0,178	0,301	-0,223	0,045	-0,470	-0,375	-0,236	-0,311	-0,250	-0,317	-0,566	-0,375	-0,145	-0,129	-0,050	-0,201	-0,015	0,228	-0,322	-0,143	-0,375	-0,069	-0,114	-0,062	-0,111
Manu_GVA	-0,025	0,023	0,086	-0,178	**1**	-0,195	-0,592	-0,527	0,241	0,147	0,065	0,097	0,137	0,111	0,164	0,370	0,191	0,054	0,023	-0,020	0,105	-0,015	0,030	0,221	0,175	0,037	-0,043	-0,054	-0,060
Const_GVA	-0,212	0,058	-0,151	0,301	-0,195	**1**	-0,244	0,014	-0,451	-0,413	-0,104	-0,345	-0,116	-0,248	-0,393	-0,265	-0,008	-0,325	-0,108	-0,204	0,024	-0,009	-0,499	-0,238	-0,027	-0,076	-0,067	-0,004	-0,063
Serv_GVA	-0,013	0,063	0,041	-0,223	-0,592	-0,244	**1**	-0,219	0,069	0,319	0,214	0,286	0,057	0,154	0,336	-0,101	-0,256	0,035	-0,039	0,319	-0,108	0,057	0,233	-0,046	-0,114	-0,051	0,028	0,040	0,053
Pub_GVA	0,132	-0,123	-0,015	0,045	-0,527	0,014	-0,219	**1**	-0,057	-0,286	-0,229	-0,228	-0,125	-0,125	-0,274	-0,146	0,103	0,076	0,083	-0,206	-0,019	-0,125	0,009	-0,096	0,036	0,070	0,097	0,050	0,086
HHI	-0,020	0,062	0,101	-0,470	0,241	-0,451	0,069	-0,057	**1**	0,512	0,148	0,245	0,149	0,216	0,292	0,232	0,088	0,048	-0,039	0,155	0,004	-0,070	0,153	0,145	0,149	0,116	-0,103	-0,034	-0,034
GDP_PC	-0,017	0,091	0,141	-0,375	0,147	-0,413	0,319	-0,286	0,512	**1**	0,434	0,469	0,211	0,309	0,456	0,221	0,056	0,117	0,101	0,303	0,041	0,038	0,210	0,246	0,062	0,041	0,006	-0,020	-0,018
GFCF_PC	-0,194	0,167	0,291	-0,236	0,065	-0,104	0,214	-0,229	0,148	0,434	**1**	0,680	0,456	0,598	0,365	0,168	0,167	0,197	0,301	0,390	0,186	0,060	0,243	0,349	0,094	0,108	0,077	0,028	0,015
PROD	-0,154	0,135	0,039	-0,311	0,097	-0,345	0,286	-0,228	0,245	0,469	0,680	**1**	0,344	0,499	0,608	0,284	0,040	0,380	0,221	0,483	0,021	0,133	0,395	0,475	0,014	0,032	0,188	0,076	0,094
RnD_GDP	-0,013	0,018	0,299	-0,250	0,137	-0,116	0,057	-0,125	0,149	0,211	0,456	0,344	**1**	0,776	0,301	0,304	0,206	0,187	0,170	0,238	0,026	-0,164	0,251	0,208	0,250	0,217	0,049	0,025	0,010
RnD_EMP	0,000	0,021	0,328	-0,317	0,111	-0,248	0,154	-0,125	0,216	0,309	0,598	0,499	0,776	**1**	0,383	0,316	0,212	0,226	0,231	0,440	0,003	-0,194	0,435	0,267	0,212	0,028	0,064	0,051	0,062
MM_Ac	-0,075	0,091	0,193	-0,566	0,164	-0,393	0,336	-0,274	0,292	0,456	0,365	0,608	0,301	0,383	**1**	0,486	0,062	0,281	-0,083	0,429	-0,085	-0,071	0,402	0,292	0,238	-0,025	0,180	0,078	0,123
Avg_bus	0,167	0,091	0,348	-0,375	0,370	-0,265	-0,101	-0,146	0,232	0,221	0,168	0,284	0,304	0,316	0,486	**1**	0,380	0,303	-0,012	0,107	-0,111	-0,345	0,423	0,548	0,648	0,029	0,184	0,076	0,152
Gov_debt	-0,017	0,060	0,399	-0,145	0,191	-0,008	-0,256	0,103	0,088	0,056	0,167	0,040	0,206	0,212	0,062	0,380	**1**	0,270	0,350	-0,104	0,234	-0,273	0,186	0,396	0,513	0,188	-0,017	-0,074	-0,085
Cur_blc	0,281	-0,195	0,260	-0,129	0,054	-0,325	0,035	0,076	0,048	0,117	0,197	0,380	0,187	0,226	0,281	0,303	0,270	**1**	0,364	0,126	-0,089	0,168	0,567	0,602	-0,010	0,070	0,215	0,063	0,137
Gov_close	-0,014	-0,020	0,188	-0,050	0,023	-0,108	-0,039	0,083	-0,039	0,101	0,301	0,221	0,170	0,231	-0,083	-0,012	0,350	0,364	**1**	-0,012	0,515	0,117	0,218	0,398	0,023	0,128	0,051	-0,033	0,001
Lab_comp	-0,003	-0,058	0,111	-0,201	-0,020	-0,204	0,319	-0,206	0,155	0,303	0,390	0,483	0,238	0,440	0,429	0,107	-0,104	0,126	-0,012	**1**	-0,251	-0,017	0,317	0,088	-0,118	-0,163	0,075	0,037	0,058
Union	-0,149	0,116	0,012	-0,015	0,105	0,024	-0,108	-0,019	0,004	0,041	0,186	0,021	0,026	0,003	-0,085	-0,111	0,234	-0,089	0,515	-0,251	**1**	0,297	-0,203	0,012	0,118	0,166	-0,135	-0,078	-0,096
ML_barg	-0,030	0,009	-0,316	0,228	-0,015	-0,009	0,057	-0,125	-0,070	0,038	0,060	0,133	-0,164	-0,194	-0,071	-0,345	-0,273	0,168	0,117	-0,017	0,297	**1**	-0,243	0,179	-0,697	0,015	-0,043	-0,084	-0,172
SHDI	0,352	-0,056	0,520	-0,322	0,030	-0,499	0,233	0,009	0,153	0,210	0,243	0,395	0,251	0,435	0,402	0,423	0,186	0,567	0,218	0,317	-0,203	-0,243	**1**	0,463	0,208	0,079	0,133	0,088	0,203
SC_Org	0,140	0,123	0,228	-0,143	0,221	-0,238	-0,046	-0,096	0,145	0,246	0,349	0,475	0,208	0,267	0,292	0,548	0,396	0,602	0,398	0,088	0,012	0,179	0,463	**1**	0,103	0,098	0,199	0,067	0,094
EoC	-0,026	0,062	0,457	-0,375	0,175	-0,027	-0,114	0,036	0,149	0,062	0,094	0,014	0,250	0,212	0,238	0,648	0,513	-0,010	0,023	-0,118	0,118	-0,697	0,208	0,103	**1**	0,122	0,046	0,062	0,163
Clu	-0,105	-0,010	0,124	-0,069	0,037	-0,076	-0,051	0,070	0,116	0,041	0,108	0,032	0,217	0,028	-0,025	0,029	0,188	0,070	0,128	-0,163	0,166	0,015	0,079	0,098	0,122	**1**	-0,110	-0,017	-0,134
Rec_DL	0,088	0,026	0,004	-0,114	-0,043	-0,067	0,028	0,097	-0,103	0,006	0,077	0,188	0,049	0,064	0,180	0,184	-0,017	0,215	0,051	0,075	-0,135	-0,043	0,133	0,199	0,046	-0,110	**1**	0,519	0,475
Ret_Tra_4	0,078	-0,031	-0,021	-0,062	-0,054	-0,004	0,040	0,050	-0,034	-0,020	0,028	0,076	0,025	0,051	0,078	0,076	-0,074	0,063	-0,033	0,037	-0,078	-0,084	0,088	0,067	0,062	-0,017	0,519	**1**	0,707
Ret_Tra_8	0,223	-0,051	0,013	-0,111	-0,060	-0,063	0,053	0,086	-0,034	-0,018	0,015	0,094	0,010	0,062	0,123	0,152	-0,085	0,137	0,001	0,058	-0,096	-0,172	0,203	0,094	0,163	-0,134	0,475	0,707	**1**

Stepwise regression analysis on regional Employment resilience performance - Recovery of development level

Summary of the variables selection Rec_DL:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R²	Adjusted R²	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	Cur_blc	Cur_blc	IN	0,009	0,046	0,046	290,796	-8927,604	-8916,503	0,956
2	Cur_blc / Clu	Clu	IN	0,009	0,062	0,061	256,967	-8956,996	-8940,344	0,941
3	Avg_bus / Cur_blc / Clu	Avg_bus	IN	0,009	0,078	0,076	222,705	-8987,304	-8965,101	0,926
4	HHI / Avg_bus / Cur_blc / Clu	HHI	IN	0,009	0,095	0,093	184,702	-9021,593	-8993,840	0,910
5	HHI / PROD / Avg_bus / Cur_blc / Clu	PROD	IN	0,009	0,111	0,108	151,592	-9052,024	-9018,720	0,895
6	Pub_GVA / HHI / PROD / Avg_bus / Cur_blc / Clu	Pub_GVA	IN	0,008	0,132	0,129	105,031	-9095,812	-9056,957	0,875
7	Pub_GVA / HHI / PROD / Avg_bus / Gov_debt / Cur_blc / Clu	Gov_debt	IN	0,008	0,143	0,140	81,313	-9118,515	-9074,110	0,864
8	Agri_GVA / Pub_GVA / HHI / PROD / Avg_bus / Gov_debt / Cur_blc / Clu	Agri_GVA	IN	0,008	0,152	0,148	63,153	-9136,107	-9086,151	0,856
9	Agri_GVA / Pub_GVA / HHI / PROD / Avg_bus / Gov_debt / Cur_blc / SHDI / Clu	SHDI	IN	0,008	0,156	0,152	54,895	-9144,153	-9088,646	0,853
10	Agri_GVA / Pub_GVA / HHI / PROD / Avg_bus / Gov_debt / Cur_blc / Union / SHDI / Clu	Union	IN	0,008	0,162	0,158	42,574	-9156,268	-9095,210	0,847
11	Agri_GVA / Pub_GVA / HHI / PROD / Avg_bus / Gov_debt / Cur_blc / Union / SHDI / SC_Org / Clu	SC_Org	IN	0,008	0,167	0,162	33,228	-9165,525	-9098,917	0,843
12	Agri_GVA / Pub_GVA / HHI / PROD / Avg_bus / Gov_debt / Cur_blc / Union / ML_barg / SHDI / SC_Org / Clu	ML_barg	IN	0,008	0,172	0,166	25,532	-9173,200	-9101,041	0,840
13	Agri_GVA / Const_GVA / Pub_GVA / HHI / PROD / Avg_bus / Gov_debt / Cur_blc / Union / ML_barg / SHDI / SC_Org / Clu	Const_GVA	IN	0,008	0,174	0,168	22,145	-9176,595	-9098,886	0,838
14	Mig_net / Agri_GVA / Const_GVA / Pub_GVA / HHI / PROD / Avg_bus / Gov_debt / Cur_blc / Union / ML_barg / SHDI / SC_Org / Clu	Mig_net	IN	0,008	0,176	0,170	19,039	-9179,724	-9096,464	0,837
15	Pop_age / Mig_net / Agri_GVA / Const_GVA / Pub_GVA / HHI / PROD / Avg_bus / Gov_debt / Cur_blc / Union / ML_barg / SHDI / SC_Org / Clu	Pop_age	IN	0,008	0,178	0,172	16,178	-9182,620	-9093,809	0,836

Stepwise regression analysis on regional Employment resilience performance - Recovery of development level

Goodness of fit statistics (Rec_DL):

Observations	1902
Sum of weights	1902
DF	1886
R²	0,178
Adjusted R²	0,172
MSE	0,008
RMSE	0,089
MAPE	1822,418
DW	1,575
Cp	16,178
AIC	-9182,620
SBC	-9093,809
PC	0,836
Press	15,314
Q²	0,159

Analysis of variance (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	15	3,246	0,216	27,268	**<0,0001**
Error	1886	14,969	0,008		
Corrected Tc	1901	18,215			

Computed against model Y=Mean(Y)

Stepwise regression analysis on regional Employment resilience performance - Recovery of development level

Type I Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,143	0,143	17,974	0,000
Mig_net	1,000	0,030	0,030	3,840	0,050
Pop_work	0,000	0,000			
Agri_GVA	1,000	0,251	0,251	31,615	0,000
Manu_GVA	0,000	0,000			
Const_GVA	1,000	0,003	0,003	0,413	0,521
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,166	0,166	20,884	0,000
HHI	1,000	0,709	0,709	89,323	0,000
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,716	0,716	90,168	0,000
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	1,000	0,268	0,268	33,754	0,000
Gov_debt	1,000	0,179	0,179	22,509	0,000
Cur_blc	1,000	0,191	0,191	24,118	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,113	0,113	14,260	0,000
ML_barg	1,000	0,000	0,000	0,060	0,807
SHDI	1,000	0,239	0,239	30,145	0,000
SC_Org	1,000	0,137	0,137	17,214	0,000
EoC	0,000	0,000			
Clu	1,000	0,101	0,101	12,742	0,000

Type III Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,039	0,039	4,861	0,028
Mig_net	1,000	0,046	0,046	5,739	0,017
Pop_work	0,000	0,000			
Agri_GVA	1,000	0,282	0,282	35,479	0,000
Manu_GVA	0,000	0,000			
Const_GVA	1,000	0,040	0,040	5,090	0,024
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,331	0,331	41,740	0,000
HHI	1,000	0,670	0,670	84,459	0,000
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,231	0,231	29,062	0,000
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	1,000	0,057	0,057	7,210	0,007
Gov_debt	1,000	0,199	0,199	25,086	0,000
Cur_blc	1,000	0,191	0,191	24,106	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,063	0,063	7,903	0,005
ML_barg	1,000	0,103	0,103	12,985	0,000
SHDI	1,000	0,274	0,274	34,515	0,000
SC_Org	1,000	0,143	0,143	17,985	0,000
EoC	0,000	0,000			
Clu	1,000	0,101	0,101	12,742	0,000

Stepwise regression analysis on regional Employment resilience performance - Recovery of development level

Model parameters (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,361	0,088	4,100	**<0,0001**	0,188	0,534
Pop_age	0,014	0,006	2,190	**0,029**	0,001	0,027
Mig_net	0,001	0,000	1,741	0,082	0,000	0,002
Pop_work	0,000	0,000				
Agri_GVA	-0,669	0,151	-4,419	**<0,0001**	-0,965	-0,372
Manu_GVA	0,000	0,000				
Const_GVA	-0,201	0,110	-1,831	0,067	-0,416	0,014
Serv_GVA	0,000	0,000				
Pub_GVA	0,215	0,041	5,183	**<0,0001**	0,134	0,296
HHI	-0,775	0,149	-5,219	**<0,0001**	-1,066	-0,484
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,016	0,004	4,210	**<0,0001**	0,009	0,023
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,002	0,001	2,471	**0,014**	0,000	0,003
Gov_debt	-0,006	0,001	-3,965	**<0,0001**	-0,009	-0,003
Cur_blc	0,004	0,001	3,726	**0,000**	0,002	0,007
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000	-2,474	**0,013**	-0,001	0,000
ML_barg	-0,013	0,005	-2,846	**0,004**	-0,022	-0,004
SHDI	-0,384	0,081	-4,750	**<0,0001**	-0,542	-0,225
SC_Org	0,334	0,091	3,667	**0,000**	0,156	0,513
EoC	0,000	0,000				
Clu	-0,002	0,001	-3,234	**0,001**	-0,004	-0,001

Standardized coefficients (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,056	0,026	2,190	**0,029**	0,006	0,106
Mig_net	0,055	0,031	1,741	0,082	-0,007	0,116
Pop_work	0,000	0,000				
Agri_GVA	-0,158	0,036	-4,419	**<0,0001**	-0,229	-0,088
Manu_GVA	0,000	0,000				
Const_GVA	-0,064	0,035	-1,831	0,067	-0,132	0,005
Serv_GVA	0,000	0,000				
Pub_GVA	0,147	0,028	5,183	**<0,0001**	0,091	0,203
HHI	-0,244	0,047	-5,219	**<0,0001**	-0,335	-0,152
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,156	0,037	4,210	**<0,0001**	0,083	0,228
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,086	0,035	2,471	**0,014**	0,018	0,155
Gov_debt	-0,145	0,037	-3,965	**<0,0001**	-0,217	-0,073
Cur_blc	0,163	0,044	3,726	**0,000**	0,077	0,249
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	-0,071	0,029	-2,474	**0,013**	-0,127	-0,015
ML_barg	-0,119	0,042	-2,846	**0,004**	-0,200	-0,037
SHDI	-0,204	0,043	-4,750	**<0,0001**	-0,289	-0,120
SC_Org	0,159	0,043	3,667	**0,000**	0,074	0,244
EoC	0,000	0,000				
Clu	-0,078	0,024	-3,234	**0,001**	-0,126	-0,031

Stepwise regression analysis on regional Employment resilience performance - Growth trajectory retention (4-years recovery period)

Summary of the variables selection Ret_Tra_4:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	SHDI	SHDI	IN	0,001	0,008	0,007	105,437	-14218,970	-14207,869	0,994
2	Gov_debt / SHDI	Gov_debt	IN	0,001	0,016	0,015	90,213	-14233,392	-14216,740	0,987
3	Gov_debt / SHDI / EoC	EoC	IN	0,001	0,027	0,026	70,253	-14252,538	-14230,336	0,977
4	Gov_debt / SHDI / SC_Org / EoC	SC_Org	IN	0,001	0,035	0,033	55,783	-14266,554	-14238,800	0,970
5	Pub_GVA / Gov_debt / SHDI / SC_Org / EoC	Pub_GVA	IN	0,001	0,041	0,039	45,873	-14276,219	-14242,915	0,965
4	Pub_GVA / Gov_debt / SC_Org / EoC	SHDI	OUT	0,001	0,041	0,039	43,873	-14278,219	-14250,466	0,964
5	Pub_GVA / Gov_debt / ML_barg / SC_Org / EoC	ML_barg	IN	0,001	0,046	0,043	36,272	-14285,676	-14252,372	0,960
6	Pop_work / Pub_GVA / Gov_debt / ML_barg / SC_Org / EoC	Pop_work	IN	0,001	0,049	0,046	31,123	-14290,748	-14251,893	0,958
7	Pop_work / Pub_GVA / HHI / Gov_debt / ML_barg / SC_Org / EoC	HHI	IN	0,001	0,053	0,049	26,179	-14295,643	-14251,237	0,955
8	Pop_work / Pub_GVA / HHI / MM_Ac / Gov_debt / ML_barg / SC_Org / EoC	MM_Ac	IN	0,001	0,055	0,051	23,558	-14298,245	-14248,289	0,954
9	Pop_age / Pop_work / Pub_GVA / HHI / MM_Ac / Gov_debt / ML_barg / SC_Org / EoC	Pop_age	IN	0,001	0,058	0,054	19,515	-14302,280	-14246,773	0,952
10	Pop_age / Pop_work / Pub_GVA / HHI / MM_Ac / Avg_bus / Gov_debt / ML_barg / SC_Org / EoC	Avg_bus	IN	0,001	0,061	0,056	14,932	-14306,876	-14245,818	0,949

Stepwise regression analysis on regional Employment resilience performance - Growth trajectory retention (4-years recovery period)

Goodness of fit statistics (Ret_Tra_4):

Observations	1902
Sum of weights	1902
DF	1891
R^2	0,061
Adjusted R^2	0,056
MSE	0,001
RMSE	0,023
MAPE	242,418
DW	1,518
Cp	14,932
AIC	-14306,876
SBC	-14245,818
PC	0,949
Press	1,035
Q^2	0,045

Analysis of variance (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	10	0,067	0,007	12,382	**<0,0001**
Error	1891	1,017	0,001		
Corrected Tc	1901	1,084			

Computed against model Y=Mean(Y)

Stepwise regression analysis on regional Employment resilience performance - Growth trajectory retention (4-years recovery period)

Type I Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,007	0,007	12,207	0,000
Mig_net	0,000	0,000			
Pop_work	1,000	0,002	0,002	2,916	0,088
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,002	0,002	2,895	0,089
HHI	1,000	0,001	0,001	1,465	0,226
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,016	0,016	29,243	0,000
Avg_bus	1,000	0,003	0,003	5,108	0,024
Gov_debt	1,000	0,009	0,009	16,471	0,000
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,008	0,008	14,167	0,000
SHDI	0,000	0,000			
SC_Org	1,000	0,015	0,015	27,261	0,000
EoC	1,000	0,006	0,006	12,065	0,001
Clu	0,000	0,000			

Type III Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,005	0,005	9,448	0,002
Mig_net	0,000	0,000			
Pop_work	1,000	0,005	0,005	9,057	0,003
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,004	0,004	6,897	0,009
HHI	1,000	0,004	0,004	8,308	0,004
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,006	0,006	10,745	0,001
Avg_bus	1,000	0,004	0,004	6,569	0,010
Gov_debt	1,000	0,023	0,023	42,336	0,000
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,005	0,005	10,104	0,002
SHDI	0,000	0,000			
SC_Org	1,000	0,016	0,016	30,292	0,000
EoC	1,000	0,006	0,006	12,065	0,001
Clu	0,000	0,000			

Stepwise regression analysis on regional Employment resilience performance - Growth trajectory retention (4-years recovery period)

Model parameters (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,020	0,014	-1,418	0,156	-0,047	0,008
Pop_age	0,005	0,002	2,600	**0,009**	0,001	0,009
Mig_net	0,000	0,000				
Pop_work	-0,045	0,021	-2,137	**0,033**	-0,086	-0,004
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,023	0,012	1,935	0,053	0,000	0,046
HHI	-0,052	0,031	-1,676	0,094	-0,114	0,009
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000	2,251	**0,024**	0,000	0,000
Avg_bus	-0,001	0,000	-2,295	**0,022**	-0,001	0,000
Gov_debt	-0,002	0,000	-5,272	**<0,0001**	-0,003	-0,001
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	-0,003	0,001	-2,337	**0,020**	-0,006	-0,001
SHDI	0,000	0,000				
SC_Org	0,106	0,028	3,776	**0,000**	0,051	0,161
EoC	0,000	0,000	2,856	**0,004**	0,000	0,000
Clu	0,000	0,000				

Standardized coefficients (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,080	0,031	2,600	**0,009**	0,020	0,140
Mig_net	0,000	0,000				
Pop_work	-0,091	0,043	-2,137	**0,033**	-0,175	-0,008
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,064	0,033	1,935	0,053	-0,001	0,128
HHI	-0,068	0,040	-1,676	0,094	-0,147	0,011
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,097	0,043	2,251	**0,024**	0,013	0,182
Avg_bus	-0,112	0,049	-2,295	**0,022**	-0,209	-0,016
Gov_debt	-0,198	0,038	-5,272	**<0,0001**	-0,271	-0,124
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	-0,116	0,050	-2,337	**0,020**	-0,213	-0,019
SHDI	0,000	0,000				
SC_Org	0,206	0,054	3,776	**0,000**	0,099	0,312
EoC	0,162	0,057	2,856	**0,004**	0,051	0,274
Clu	0,000	0,000				

Stepwise regression analysis on regional Employment resilience performance - Growth trajectory retention (8-years recovery period)

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R²	Adjusted R²	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	Pop_age	Pop_age	IN	0,000	0,050	0,049	262,037	-12026,049	-12015,415	0,953
2	Pop_age / ML_barg	ML_barg	IN	0,000	0,076	0,075	214,169	-12067,237	-12051,285	0,927
3	Pop_age / Gov_debt / ML_barg	Gov_debt	IN	0,000	0,099	0,097	174,381	-12102,405	-12081,136	0,906
4	Pop_age / Gov_debt / ML_barg / SC_Org	SC_Org	IN	0,000	0,122	0,120	133,378	-12139,636	-12113,050	0,884
5	Pop_age / Gov_debt / ML_barg / SC_Org / EoC	EoC	IN	0,000	0,136	0,133	109,874	-12161,395	-12129,492	0,871
6	Pop_age / Gov_debt / Cur_blc / ML_barg / SC_Org / EoC	Cur_blc	IN	0,000	0,146	0,142	93,918	-12176,351	-12139,130	0,862
7	Pop_age / Pop_work / Gov_debt / Cur_blc / ML_barg / SC_Org / EoC	Pop_work	IN	0,000	0,157	0,153	75,111	-12194,240	-12151,702	0,852
8	Pop_age / Pop_work / Gov_debt / Cur_blc / ML_barg / SC_Org / EoC / Clu	Clu	IN	0,000	0,166	0,162	59,548	-12209,235	-12161,380	0,844
9	Pop_age / Pop_work / Avg_bus / Gov_debt / Cur_blc / ML_barg / SC_Org / EoC / Clu	Avg_bus	IN	0,000	0,178	0,173	40,594	-12227,765	-12174,593	0,833
10	Pop_age / Pop_work / Avg_bus / Gov_debt / Cur_blc / ML_barg / SHDI / SC_Org / EoC / Clu	SHDI	IN	0,000	0,183	0,178	32,265	-12235,990	-12177,501	0,829
11	Pop_age / Pop_work / Pub_GVA / Avg_bus / Gov_debt / Cur_blc / ML_barg / SHDI / SC_Org / EoC / Clu	Pub_GVA	IN	0,000	0,188	0,182	25,770	-12242,452	-12178,645	0,825
12	Pop_age / Pop_work / Pub_GVA / GFCF_PC / Avg_bus / Gov_debt / Cur_blc / ML_barg / SHDI / SC_Org / EoC / Clu	GFCF_PC	IN	0,000	0,192	0,185	20,535	-12247,695	-12178,571	0,823
13	Pop_age / Pop_work / Pub_GVA / HHI / GFCF_PC / Avg_bus / Gov_debt / Cur_blc / ML_barg / SHDI / SC_Org / EoC / Clu	HHI	IN	0,000	0,194	0,187	17,623	-12250,633	-12176,192	0,821
14	Pop_age / Pop_work / Pub_GVA / HHI / GFCF_PC / MM_Ac / Avg_bus / Gov_debt / Cur_blc / ML_barg / SHDI / SC_Org / EoC / Clu	MM_Ac	IN	0,000	0,197	0,190	14,118	-12254,186	-12174,428	0,819

Stepwise regression analysis on regional Employment resilience performance - Growth trajectory retention (8-years recovery period)

Goodness of fit statistics (Ret_Tra_8):

Observations	1506
Sum of weigl	1506
DF	1491
R²	0,197
Adjusted R²	0,190
MSE	0,000
RMSE	0,017
MAPE	379,529
DW	1,439
Cp	14,118
AIC	-12254,186
SBC	-12174,428
PC	0,819
Press	0,443
Q²	0,176

Analysis of variance (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	14	0,106	0,008	26,154	**<0,0001**
Error	1491	0,432	0,000		
Corrected Tc	1505	0,538			

Computed against model Y=Mean(Y)

Stepwise regression analysis on regional Employment resilience performance - Growth trajectory retention (8-years recovery period)

Type I Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,027	0,027	92,078	0,000
Mig_net	0,000	0,000			
Pop_work	1,000	0,001	0,001	3,873	0,049
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,002	0,002	6,077	0,014
HHI	1,000	0,000	0,000	1,116	0,291
GDP_PC	0,000	0,000			
GFCF_PC	1,000	0,005	0,005	15,631	0,000
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,014	0,014	48,602	0,000
Avg_bus	1,000	0,004	0,004	12,883	0,000
Gov_debt	1,000	0,006	0,006	21,289	0,000
Cur_blc	1,000	0,000	0,000	1,665	0,197
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,022	0,022	74,629	0,000
SHDI	1,000	0,001	0,001	3,526	0,061
SC_Org	1,000	0,002	0,002	5,699	0,017
EoC	1,000	0,017	0,017	58,881	0,000
Clu	1,000	0,006	0,006	20,210	0,000

Type III Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,011	0,011	39,242	0,000
Mig_net	0,000	0,000			
Pop_work	1,000	0,008	0,008	27,599	0,000
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,004	0,004	13,903	0,000
HHI	1,000	0,002	0,002	7,233	0,007
GDP_PC	0,000	0,000			
GFCF_PC	1,000	0,001	0,001	5,063	0,025
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,002	0,002	5,508	0,019
Avg_bus	1,000	0,005	0,005	18,927	0,000
Gov_debt	1,000	0,020	0,020	69,557	0,000
Cur_blc	1,000	0,001	0,001	4,896	0,027
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,002	0,002	8,609	0,003
SHDI	1,000	0,002	0,002	6,012	0,014
SC_Org	1,000	0,004	0,004	15,068	0,000
EoC	1,000	0,019	0,019	64,742	0,000
Clu	1,000	0,006	0,006	20,210	0,000

Stepwise regression analysis on regional Employment resilience performance - Growth trajectory retention (8-years recovery period)

Model parameters (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,058	0,020	-2,977	**0,003**	-0,096	-0,020
Pop_age	0,009	0,002	5,252	**<0,0001**	0,006	0,012
Mig_net	0,000	0,000				
Pop_work	-0,068	0,018	-3,696	**0,000**	-0,104	-0,032
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,027	0,011	2,551	**0,011**	0,006	0,048
HHI	-0,042	0,029	-1,452	0,147	-0,099	0,015
GDP_PC	0,000	0,000				
GFCF_PC	0,002	0,001	1,819	0,069	0,000	0,003
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000	1,728	0,084	0,000	0,000
Avg_bus	-0,001	0,000	-3,456	**0,001**	-0,001	0,000
Gov_debt	-0,002	0,000	-5,422	**<0,0001**	-0,003	-0,001
Cur_blc	0,000	0,000	1,504	0,133	0,000	0,001
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	-0,002	0,001	-2,075	**0,038**	-0,005	0,000
SHDI	0,038	0,023	1,657	0,098	-0,007	0,082
SC_Org	0,066	0,024	2,720	**0,007**	0,018	0,113
EoC	0,000	0,000	5,312	**<0,0001**	0,000	0,001
Clu	-0,001	0,000	-4,061	**<0,0001**	-0,001	0,000

Standardized coefficients (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,179	0,034	5,252	**<0,0001**	0,112	0,246
Mig_net	0,000	0,000				
Pop_work	-0,176	0,048	-3,696	**0,000**	-0,270	-0,083
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,098	0,038	2,551	**0,011**	0,023	0,173
HHI	-0,067	0,046	-1,452	0,147	-0,159	0,024
GDP_PC	0,000	0,000				
GFCF_PC	0,064	0,035	1,819	0,069	-0,005	0,132
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,076	0,044	1,728	0,084	-0,010	0,162
Avg_bus	-0,199	0,058	-3,456	**0,001**	-0,312	-0,086
Gov_debt	-0,281	0,052	-5,422	**<0,0001**	-0,382	-0,179
Cur_blc	0,079	0,052	1,504	0,133	-0,024	0,181
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	-0,111	0,054	-2,075	**0,038**	-0,217	-0,006
SHDI	0,107	0,065	1,657	0,098	-0,020	0,233
SC_Org	0,161	0,059	2,720	**0,007**	0,045	0,277
EoC	0,387	0,073	5,312	**<0,0001**	0,244	0,530
Clu	-0,113	0,028	-4,061	**<0,0001**	-0,168	-0,058

III.a.v. Employment – ANCOVA without country category

Stepwise analysis of covariance on regional Employment resilience performance (excluding country category)

Settings:
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Model selection: Stepwise
Probability for entry: 0,05 / Probability for removal: 0,1
Covariances: Corrections = Newey West (adjusted)(Lag = 1)
Explanation of the variable codes can be found in table 28

Summary statistics (Quantitative data):

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Rec_DL	1902	0	1902	-0,590	0,509	-0,077	0,098
Ret_Tra_4	1902	0	1902	-0,125	0,138	-0,010	0,024
Ret_Tra_8	1902	396	1506	-0,127	0,051	-0,012	0,019
Pop_age	1902	0	1902	0,192	2,946	1,122	0,386
Mig_net	1902	0	1902	-27,218	66,719	3,075	6,329
Pop_work	1902	0	1902	0,265	0,667	0,470	0,049
Agri_GVA	1902	0	1902	0,000	0,177	0,022	0,023
Manu_GVA	1902	0	1902	0,020	0,720	0,222	0,095
Const_GVA	1902	0	1902	0,011	0,352	0,076	0,031
Serv_GVA	1902	0	1902	0,176	0,782	0,445	0,084
Pub_GVA	1902	0	1902	0,062	0,568	0,234	0,067
HHI	1902	0	1902	0,176	0,543	0,232	0,031
GDP_PC	1902	0	1902	-1,199	5,176	-0,003	0,727
GFCF_PC	1902	0	1902	-1,759	2,618	0,019	0,757
PROD	1902	0	1902	-2,654	4,694	0,238	0,951
RnD_GDP	1902	0	1902	0,000	14,868	1,958	1,507
RnD_EMP	1902	0	1902	0,000	4,938	1,413	0,853
MM_Ac	1902	0	1902	24,795	192,930	108,026	33,259
Avg_bus	1902	0	1902	1,349	18,605	9,390	5,172
Gov_debt	1902	0	1902	-11,100	6,700	-4,045	2,496
Cur_blc	1902	0	1902	-14,500	10,200	0,299	3,664
Gov_close	1902	0	1902	0,370	31,490	5,712	3,937
Lab_comp	1902	0	1902	324,327	271583,242	28538,040	28757,018
Union	1902	0	1902	7,794	84,677	28,465	14,385
ML_barg	1902	0	1902	1,000	4,875	2,608	0,873
SHDI	1902	0	1902	0,701	0,958	0,850	0,052
SC_Org	1902	0	1902	0,038	0,286	0,120	0,046
EoC	1902	0	1902	46,900	100,000	74,391	16,522
Clu	1902	0	1902	0,000	82,000	2,729	3,189

Number of removed observations: 204

Summary statistics (Qualitative data):

Variable	Categories	Counts	Frequencies	%
CRISIS	1: 90-93	653	653	34,332
	2: 00-03	421	421	22,135
	3: 08-09	694	694	36,488
	4:BTW	134	134	7,045
Urb_1	Urban	593	593	31,178
	Intermediate	796	796	41,851
	Rural	513	513	26,972
Shock	LIS	166	166	8,728
	NED	1564	1564	82,229
	NIS	172	172	9,043

Stepwise analysis of covariance on regional Employment resilience performance (excluding country category)

Correlation matrix:

	Pop_age	Mig_net	Pop_work	Agri_GVA	Manu_GVA	Const_GVA	Serv_GVA	Pub_GVA	HHI	GDP_PC	GFCF_PC	PROD	RnD_GDP	RnD_EMP	MM_Ac	Avg_bus	Gov_debt	Cur_blc	Gov_close	Lab_comp	Union	ML_barg	SHDI	SC_Org	EoC	Cla	CRISIS-1: 90-93	CRISIS-2: 00-03	CRISIS-3: 08-09	CRISIS-4:BTW	Urban	Intermediate	Rural	LIS	NED	NIS	Rec_DL	Ret_Tra_4	Ret_Tra_8
Pop_age	**1**	-0,165	0,209	0,048	-0,025	-0,212	-0,013	0,132	-0,020	-0,017	-0,194	-0,154	-0,013	0,000	-0,075	0,167	-0,017	0,281	-0,014	-0,003	-0,149	-0,030	0,352	0,140	-0,026	-0,105	-0,241	-0,033	0,294	-0,016	-0,193	-0,038	0,133	-0,053	0,027	0,007	0,088	0,078	0,223
Mig_net	-0,165	**1**	-0,061	-0,041	0,023	0,058	0,063	-0,123	0,062	0,091	0,167	0,135	0,018	0,021	0,091	0,091	0,060	-0,195	-0,020	-0,058	0,116	0,009	-0,056	0,123	0,062	-0,010	0,098	-0,082	-0,121	0,055	0,011	0,085	-0,058	0,086	-0,015	-0,032	0,026	-0,031	-0,051
Pop_work	0,209	-0,061	**1**	-0,257	0,086	-0,151	0,041	-0,015	0,101	0,141	0,291	0,039	0,299	0,328	0,193	0,348	0,399	0,260	0,188	0,111	0,012	-0,316	0,520	0,228	0,457	0,124	-0,279	0,171	0,304	-0,103	0,065	0,032	-0,057	0,011	0,080	-0,063	0,004	-0,021	0,013
Agri_GVA	0,048	-0,041	-0,257	**1**	-0,178	0,301	-0,223	0,045	-0,470	-0,375	-0,236	-0,311	-0,250	-0,317	-0,566	-0,375	-0,145	-0,129	-0,050	-0,201	-0,015	0,228	-0,322	-0,143	-0,375	-0,069	0,002	-0,077	-0,181	0,142	-0,518	-0,257	0,454	-0,081	-0,230	0,204	-0,114	-0,062	-0,111
Manu_GVA	-0,025	0,023	0,086	-0,178	**1**	-0,195	-0,592	-0,527	0,241	0,147	0,065	0,097	0,137	0,111	0,164	0,370	0,191	0,054	0,023	-0,020	0,105	-0,015	0,030	0,221	0,175	0,037	0,094	0,059	-0,137	-0,004	0,034	0,063	-0,058	0,022	-0,167	0,109	-0,043	-0,054	-0,060
Const_GVA	-0,212	0,058	-0,151	0,301	-0,195	**1**	-0,244	0,014	-0,451	-0,413	-0,104	-0,345	-0,116	-0,248	-0,393	-0,265	-0,008	-0,325	-0,108	-0,204	0,024	-0,009	-0,499	-0,238	-0,027	-0,076	0,179	-0,092	-0,262	0,096	-0,223	-0,137	0,211	0,082	-0,125	0,049	-0,067	-0,004	-0,063
Serv_GVA	-0,013	0,063	0,041	-0,223	-0,592	-0,244	**1**	-0,219	0,069	0,319	0,214	0,286	0,057	0,154	0,336	-0,101	-0,256	0,035	-0,039	0,319	-0,108	0,057	0,233	-0,046	-0,114	-0,051	-0,036	0,001	0,222	-0,108	0,325	0,107	-0,251	-0,049	0,246	-0,152	0,028	0,040	0,053
Pub_GVA	0,132	-0,123	-0,015	0,045	-0,527	0,014	-0,219	**1**	-0,057	-0,286	-0,229	-0,228	-0,125	-0,125	-0,274	-0,146	0,103	0,076	0,083	-0,206	-0,019	-0,125	0,009	-0,096	0,036	0,070	-0,172	-0,016	0,102	0,047	-0,171	-0,072	0,142	0,020	0,068	-0,058	0,097	0,050	0,086
HHI	-0,020	0,062	0,101	-0,470	0,241	-0,451	0,069	-0,057	**1**	0,512	0,148	0,245	0,149	0,216	0,292	0,232	0,088	0,048	-0,039	0,155	0,004	-0,070	0,153	0,145	0,149	0,116	-0,066	-0,033	-0,004	0,057	0,292	0,116	-0,239	0,120	-0,115	0,023	-0,103	-0,034	-0,034
GDP_PC	-0,017	0,091	0,141	-0,375	0,147	-0,413	0,319	-0,286	0,512	**1**	0,434	0,469	0,211	0,309	0,456	0,221	0,056	0,117	0,101	0,303	0,041	0,038	0,210	0,246	0,062	0,041	0,058	-0,001	0,002	-0,034	0,318	0,107	-0,247	0,037	0,063	-0,063	0,006	-0,020	-0,018
GFCF_PC	-0,194	0,167	0,291	-0,236	0,065	-0,104	0,214	-0,229	0,148	0,434	**1**	0,680	0,456	0,598	0,365	0,168	0,167	0,197	0,301	0,390	0,186	0,060	0,243	0,349	0,094	0,108	0,049	0,009	-0,037	-0,011	0,105	0,064	-0,099	0,046	0,063	-0,067	0,077	0,028	0,015
PROD	-0,154	0,135	0,039	-0,311	0,097	-0,345	0,286	-0,228	0,245	0,469	0,680	**1**	0,344	0,499	0,608	0,284	0,040	0,380	0,221	0,483	0,021	0,133	0,395	0,475	0,014	0,032	0,034	0,041	0,020	-0,051	0,218	0,117	-0,196	0,051	0,127	-0,115	0,188	0,076	0,094
RnD_GDP	-0,013	0,018	0,299	-0,250	0,137	-0,116	0,057	-0,125	0,149	0,211	0,456	0,344	**1**	0,776	0,301	0,304	0,206	0,187	0,170	0,238	0,026	-0,164	0,251	0,208	0,250	0,217	0,046	0,083	0,126	-0,141	0,130	0,035	-0,096	0,025	0,059	-0,054	0,049	0,025	0,010
RnD_EMP	0,000	0,021	0,328	-0,317	0,111	-0,248	0,154	-0,125	0,216	0,309	0,598	0,499	0,776	**1**	0,383	0,316	0,212	0,226	0,231	0,440	0,003	-0,194	0,435	0,267	0,212	0,028	-0,072	0,094	0,216	-0,131	0,167	0,041	-0,121	0,003	0,076	-0,056	0,064	0,051	0,062
MM_Ac	-0,075	0,091	0,193	-0,566	0,164	-0,393	0,336	-0,274	0,292	0,456	0,365	0,608	0,301	0,383	**1**	0,486	0,062	0,281	-0,083	0,429	-0,085	-0,071	0,402	0,292	0,238	-0,025	0,083	0,094	0,158	-0,186	0,492	0,158	-0,378	0,044	0,189	-0,157	0,180	0,078	0,123
Avg_bus	0,167	0,091	0,348	-0,375	0,370	-0,265	-0,101	-0,146	0,232	0,221	0,168	0,284	0,304	0,316	0,486	**1**	0,380	0,303	-0,012	0,107	-0,111	-0,345	0,423	0,548	0,648	0,029	-0,038	0,119	0,042	-0,063	0,157	0,132	-0,171	0,081	0,050	-0,076	0,184	0,076	0,152
Gov_debt	-0,017	0,060	0,399	-0,145	0,191	-0,008	-0,256	0,103	0,088	0,056	0,167	0,040	0,206	0,212	0,062	0,380	**1**	0,270	0,350	-0,104	0,234	-0,273	0,186	0,396	0,513	0,188	-0,114	0,207	-0,102	0,019	0,059	0,038	-0,057	0,049	-0,142	0,077	-0,017	-0,074	-0,085
Cur_blc	0,281	-0,195	0,260	-0,129	0,054	-0,325	0,035	0,076	0,048	0,117	0,197	0,380	0,187	0,226	0,281	0,303	0,270	**1**	0,364	0,126	-0,089	0,168	0,567	0,602	-0,010	0,070	-0,207	0,137	0,269	-0,107	-0,088	0,054	0,017	-0,051	0,060	-0,018	0,215	0,063	0,137
Gov_close	-0,014	-0,020	0,188	-0,050	0,023	-0,108	-0,039	0,083	-0,039	0,101	0,301	0,221	0,170	0,231	-0,083	-0,012	0,350	0,364	**1**	-0,012	0,515	0,117	0,218	0,398	0,023	0,128	-0,070	0,168	0,057	-0,078	-0,120	-0,010	0,075	0,002	0,054	-0,039	0,051	-0,033	0,001
Lab_comp	-0,003	-0,058	0,111	-0,201	-0,020	-0,204	0,319	-0,206	0,155	0,303	0,390	0,483	0,238	0,440	0,429	0,107	-0,104	0,126	-0,012	**1**	-0,251	-0,017	0,317	0,088	-0,118	-0,163	-0,065	0,089	0,165	-0,104	0,225	0,022	-0,143	-0,033	0,056	-0,024	0,075	0,037	0,058
Union	-0,149	0,116	0,012	-0,015	0,105	0,024	-0,108	-0,019	0,004	0,041	0,186	0,021	0,026	0,003	-0,085	-0,111	0,234	-0,089	0,515	-0,251	**1**	0,297	-0,203	0,012	0,118	0,166	0,209	-0,052	-0,167	0,003	0,072	0,052	-0,073	0,042	0,024	-0,037	-0,135	-0,078	-0,096
ML_barg	-0,030	0,009	-0,316	0,228	-0,015	-0,009	0,057	-0,125	-0,070	0,038	0,060	0,133	-0,164	-0,194	-0,071	-0,345	-0,273	0,168	0,117	-0,017	0,297	**1**	-0,243	0,179	-0,697	0,015	0,236	0,072	-0,216	-0,046	-0,151	0,038	0,063	0,009	0,018	-0,017	-0,043	-0,084	-0,172
SHDI	0,352	-0,056	0,520	-0,322	0,030	-0,499	0,233	0,009	0,153	0,210	0,243	0,395	0,251	0,435	0,402	0,423	0,186	0,567	0,218	0,317	-0,203	-0,243	**1**	0,463	0,208	0,079	-0,562	0,200	0,547	-0,097	0,064	0,083	-0,088	-0,044	0,117	-0,062	0,133	0,088	0,203
SC_Org	0,140	0,123	0,228	-0,143	0,221	-0,238	-0,046	-0,096	0,145	0,246	0,349	0,475	0,208	0,267	0,292	0,548	0,396	0,602	0,398	0,088	0,012	0,179	0,463	**1**	0,103	0,098	-0,136	0,199	-0,040	0,000	-0,105	0,124	-0,016	0,080	0,022	-0,055	0,199	0,067	0,094
EoC	-0,026	0,062	0,457	-0,375	0,175	-0,027	-0,114	0,036	0,149	0,062	0,094	0,014	0,250	0,212	0,238	0,648	0,513	-0,010	0,023	-0,118	0,118	-0,697	0,208	0,103	**1**	0,122	-0,003	0,000	0,076	-0,042	0,283	0,101	-0,223	0,060	0,079	-0,086	0,046	0,062	0,163
Cla	-0,105	-0,010	0,124	-0,069	0,037	-0,076	-0,051	0,070	0,116	0,041	0,108	0,032	0,217	0,028	-0,025	0,029	0,188	0,070	0,128	-0,163	0,166	0,015	0,079	0,098	0,122	**1**	-0,070	0,042	0,001	0,018	0,016	-0,006	-0,005	0,070	0,014	-0,044	-0,110	-0,017	-0,134
CRISIS-1: 90	-0,241	0,098	-0,279	0,002	0,094	0,179	-0,036	-0,172	-0,066	0,058	0,049	0,034	0,046	-0,072	0,083	-0,038	-0,114	-0,207	-0,070	-0,065	0,209	0,236	-0,562	-0,136	-0,003	-0,070	**1**	0,097	-0,029	-0,602	0,114	0,033	-0,085	0,046	0,193	-0,160	0,062	-0,015	-0,046
CRISIS-2: 00	-0,033	-0,082	0,171	-0,077	0,059	-0,092	0,001	-0,016	-0,033	-0,001	0,009	0,041	0,083	0,094	0,094	0,119	0,207	0,137	0,168	0,089	-0,052	0,072	0,200	0,199	0,000	0,042	0,097	**1**	0,085	-0,611	-0,037	-0,005	0,024	-0,087	0,035	0,018	-0,003	-0,177	-0,194
CRISIS-3: 08	0,294	-0,121	0,304	-0,181	-0,137	-0,262	0,222	0,102	-0,004	0,002	-0,037	0,020	0,126	0,216	0,158	0,042	-0,102	0,269	0,057	0,165	-0,167	-0,216	0,547	-0,040	0,076	0,001	-0,029	0,085	**1**	-0,604	0,087	0,037	-0,072	-0,091	0,261	-0,142	0,088	0,095	0,249
CRISIS-4:BT	-0,016	0,055	-0,103	0,142	-0,004	0,096	-0,108	0,047	0,057	-0,034	-0,011	-0,051	-0,141	-0,131	-0,186	-0,063	0,019	-0,107	-0,078	-0,104	0,003	-0,046	-0,097	0,000	-0,042	0,018	-0,602	-0,611	-0,604	**1**	-0,096	-0,038	0,078	0,070	-0,278	0,164	-0,084	0,043	0,007
Urban	-0,193	0,011	0,065	-0,518	0,034	-0,223	0,325	-0,171	0,292	0,318	0,105	0,218	0,130	0,167	0,492	0,157	0,059	-0,088	-0,120	0,225	0,072	-0,151	0,064	-0,105	0,283	0,016	0,114	-0,037	0,087	-0,096	**1**	0,424	-0,832	0,023	0,143	-0,114	-0,031	0,023	-0,005
Intermediate	-0,038	0,085	0,032	-0,257	0,063	-0,137	0,107	-0,072	0,116	0,107	0,064	0,117	0,035	0,041	0,158	0,132	0,038	0,054	-0,010	0,022	0,052	0,038	0,083	0,124	0,101	-0,006	0,033	-0,005	0,037	-0,038	0,424	**1**	-0,855	0,012	0,094	-0,073	0,043	0,038	0,030
Rural	0,133	-0,058	-0,057	0,454	-0,058	0,211	-0,251	0,142	-0,239	-0,247	-0,099	-0,196	-0,096	-0,121	-0,378	-0,171	-0,057	0,017	0,075	-0,143	-0,073	0,063	-0,088	-0,016	-0,223	-0,005	-0,085	0,024	-0,072	0,078	-0,832	-0,855	**1**	-0,021	-0,140	0,110	-0,008	-0,037	-0,015
LIS	-0,053	0,086	0,011	-0,081	0,022	0,082	-0,049	0,020	0,120	0,037	0,046	0,051	0,025	0,003	0,044	0,081	0,049	-0,051	0,002	-0,033	0,042	0,009	-0,044	0,080	0,060	0,070	0,046	-0,087	-0,091	0,070	0,023	0,012	-0,021	**1**	0,358	-0,746	-0,006	0,032	-0,001
NED	0,027	-0,015	0,080	-0,230	-0,167	-0,125	0,246	0,068	-0,115	0,063	0,063	0,127	0,059	0,076	0,189	0,050	-0,142	0,060	0,054	0,056	0,024	0,018	0,117	0,022	0,079	0,014	0,193	0,035	0,261	-0,278	0,143	0,094	-0,140	0,358	**1**	-0,889	0,159	0,050	0,083
NIS	0,007	-0,032	-0,063	0,204	0,109	0,049	-0,152	-0,058	0,023	-0,063	-0,067	-0,115	-0,054	-0,056	-0,157	-0,076	0,077	-0,018	-0,039	-0,024	-0,037	-0,017	-0,062	-0,055	-0,086	-0,044	-0,160	0,018	-0,142	0,164	-0,114	-0,073	0,110	-0,746	-0,889	**1**	-0,111	-0,052	-0,059
Rec_DL	0,088	0,026	0,004	-0,114	-0,043	-0,067	0,028	0,097	-0,103	0,006	0,077	0,188	0,049	0,064	0,180	0,184	-0,017	0,215	0,051	0,075	-0,135	-0,043	0,133	0,199	0,046	-0,110	0,062	-0,003	0,088	-0,084	-0,031	0,043	-0,008	-0,006	0,159	-0,111	**1**	0,519	0,475
Ret_Tra_4	0,078	-0,031	-0,021	-0,062	-0,054	-0,004	0,040	0,050	-0,034	-0,020	0,028	0,076	0,025	0,051	0,078	0,076	-0,074	0,063	-0,033	0,037	-0,078	-0,084	0,088	0,067	0,062	-0,017	-0,015	-0,177	0,095	0,043	0,023	0,038	-0,037	0,032	0,050	-0,052	0,519	**1**	0,707
Ret_Tra_8	0,223	-0,051	0,013	-0,111	-0,060	-0,063	0,053	0,086	-0,034	-0,018	0,015	0,094	0,010	0,062	0,123	0,152	-0,085	0,137	0,001	0,058	-0,096	-0,172	0,203	0,094	0,163	-0,134	-0,046	-0,194	0,249	0,007	-0,005	0,030	-0,015	-0,001	0,083	-0,059	0,475	0,707	**1**

Stepwise analysis of covariance on regional RGVA resilience performance (excluding country category) - Recovery of development level

Summary of the variables selection Rec_DL:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	Cur_blc	Cur_blc	IN	0,009	0,046	0,046	315,475	-8927,604	-8916,503	0,956
2	Cur_blc / Shock	Shock	IN	0,009	0,071	0,069	263,264	-8972,529	-8950,327	0,933
3	Avg_bus / Cur_blc / Shock	Avg_bus	IN	0,009	0,086	0,084	228,824	-9002,932	-8975,179	0,919
4	Avg_bus / Cur_blc / Clu / Shock	Clu	IN	0,009	0,101	0,099	195,749	-9032,651	-8999,347	0,904
5	HHI / Avg_bus / Cur_blc / Clu / Shock	HHI	IN	0,009	0,113	0,110	171,194	-9055,022	-9016,168	0,894
6	HHI / PROD / Avg_bus / Cur_blc / Clu / Shock	PROD	IN	0,008	0,124	0,121	146,968	-9077,401	-9032,996	0,883
7	Pub_GVA / HHI / PROD / Avg_bus / Cur_blc / Clu / Shock	Pub_GVA	IN	0,008	0,142	0,139	106,786	-9115,281	-9065,326	0,866
8	Pub_GVA / HHI / PROD / Avg_bus / Cur_blc / Union / Clu / Shock	Union	IN	0,008	0,151	0,147	89,104	-9132,179	-9076,672	0,858
9	Pub_GVA / HHI / PROD / Avg_bus / Cur_blc / Union / Clu / CRISIS / Shock	CRISIS	IN	0,008	0,164	0,159	63,661	-9156,764	-9084,606	0,847
10	Agri_GVA / Pub_GVA / HHI / PROD / Avg_bus / Cur_blc / Union / Clu / CRISIS / Shock	Agri_GVA	IN	0,008	0,170	0,165	51,816	-9168,389	-9090,679	0,842
11	Agri_GVA / Pub_GVA / HHI / PROD / Avg_bus / Cur_blc / Union / SC_Org / Clu / CRISIS / Shock	SC_Org	IN	0,008	0,176	0,170	41,430	-9178,661	-9095,401	0,837
12	Agri_GVA / Pub_GVA / HHI / PROD / Avg_bus / Gov_debt / Cur_blc / Union / SC_Org / Clu / CRISIS / Shock	Gov_debt	IN	0,008	0,179	0,173	35,298	-9184,762	-9095,952	0,835
13	Agri_GVA / Pub_GVA / HHI / PROD / Avg_bus / Gov_debt / Cur_blc / Union / ML_barg / SC_Org / Clu / CRISIS / Shock	ML_barg	IN	0,008	0,182	0,175	29,662	-9190,401	-9096,039	0,832
14	Agri_GVA / Pub_GVA / HHI / PROD / Avg_bus / Gov_debt / Cur_blc / Union / ML_barg / SC_Org / EoC / Clu / CRISIS / Shock	EoC	IN	0,008	0,185	0,178	25,879	-9194,206	-9094,294	0,831
15	Agri_GVA / Pub_GVA / HHI / PROD / RnD_EMP / Avg_bus / Gov_debt / Cur_blc / Union / ML_barg / SC_Org / EoC / Clu / CRISIS / Shock	RnD_EMP	IN	0,008	0,187	0,179	23,704	-9196,408	-9090,945	0,830

Stepwise analysis of covariance on regional Employment resilience performance (excluding country category) - Recovery of development level

Goodness of fit statistics (Rec_DL):

Observations	1902
Sum of weights	1902
DF	1883
R^2	0,187
Adjusted R^2	0,179
MSE	0,008
RMSE	0,089
MAPE	1788,334
DW	1,595
Cp	23,704
AIC	-9196,408
SBC	-9090,945
PC	0,830
Press	15,232
Q^2	0,164

Analysis of variance (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	18	3,401	0,189	24,018	**<0,0001**
Error	1883	14,814	0,008		
Corrected Tc	1901	18,215			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional Employment resilience performance (excluding country category) - Recovery of development level

Type I Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	1,000	0,238	0,238	30,217	0,000
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,190	0,190	24,101	0,000
HHI	1,000	0,546	0,546	69,373	0,000
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,792	0,792	100,660	0,000
RnD_GDP	0,000	0,000			
RnD_EMP	1,000	0,025	0,025	3,220	0,073
MM_Ac	0,000	0,000			
Avg_bus	1,000	0,444	0,444	56,452	0,000
Gov_debt	1,000	0,181	0,181	22,971	0,000
Cur_blc	1,000	0,207	0,207	26,297	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,111	0,111	14,102	0,000
ML_barg	1,000	0,002	0,002	0,277	0,598
SHDI	0,000	0,000			
SC_Org	1,000	0,085	0,085	10,864	0,001
EoC	1,000	0,015	0,015	1,900	0,168
Clu	1,000	0,147	0,147	18,646	0,000
CRISIS	3,000	0,364	0,121	15,439	0,000
Urb_1	0,000	0,000			
NORM_SHC	2,000	0,055	0,027	3,467	0,031

Type II Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	1,000	0,166	0,166	21,103	0,000
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,379	0,379	48,162	0,000
HHI	1,000	0,420	0,420	53,410	0,000
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,136	0,136	17,330	0,000
RnD_GDP	0,000	0,000			
RnD_EMP	1,000	0,033	0,033	4,165	0,041
MM_Ac	0,000	0,000			
Avg_bus	1,000	0,088	0,088	11,159	0,001
Gov_debt	1,000	0,058	0,058	7,362	0,007
Cur_blc	1,000	0,121	0,121	15,398	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,023	0,023	2,983	0,084
ML_barg	1,000	0,123	0,123	15,605	0,000
SHDI	0,000	0,000			
SC_Org	1,000	0,135	0,135	17,140	0,000
EoC	1,000	0,055	0,055	7,007	0,008
Clu	1,000	0,102	0,102	12,966	0,000
CRISIS	3,000	0,339	0,113	14,358	0,000
Urb_1	0,000	0,000			
NORM_SHC	2,000	0,055	0,027	3,467	0,031

Type III Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	1,000	0,166	0,166	21,103	0,000
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,379	0,379	48,162	0,000
HHI	1,000	0,420	0,420	53,410	0,000
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,136	0,136	17,330	0,000
RnD_GDP	0,000	0,000			
RnD_EMP	1,000	0,033	0,033	4,165	0,041
MM_Ac	0,000	0,000			
Avg_bus	1,000	0,088	0,088	11,159	0,001
Gov_debt	1,000	0,058	0,058	7,362	0,007
Cur_blc	1,000	0,121	0,121	15,398	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,023	0,023	2,983	0,084
ML_barg	1,000	0,123	0,123	15,605	0,000
SHDI	0,000	0,000			
SC_Org	1,000	0,135	0,135	17,140	0,000
EoC	1,000	0,055	0,055	7,007	0,008
Clu	1,000	0,102	0,102	12,966	0,000
CRISIS	3,000	0,339	0,113	14,358	0,000
Urb_1	0,000	0,000			
NORM_SHC	2,000	0,055	0,027	3,467	0,031

Stepwise analysis of covariance on regional Employment resilience performance (excluding country category) - Recovery of development level

Model parameters (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,063	0,045	1,381	0,167	-0,026	0,151
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	-0,538	0,154	-3,495	**0,000**	-0,840	-0,236
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,232	0,042	5,493	**<0,0001**	0,149	0,315
HHI	-0,594	0,144	-4,134	**<0,0001**	-0,875	-0,312
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,013	0,004	3,215	**0,001**	0,005	0,020
RnD_GDP	0,000	0,000				
RnD_EMP	-0,006	0,003	-1,808	0,071	-0,013	0,001
MM_Ac	0,000	0,000				
Avg_bus	0,003	0,001	3,050	**0,002**	0,001	0,004
Gov_debt	-0,003	0,002	-2,146	**0,032**	-0,007	0,000
Cur_blc	0,003	0,001	3,025	**0,003**	0,001	0,005
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000	-1,489	0,137	-0,001	0,000
ML_barg	-0,020	0,006	-3,098	**0,002**	-0,032	-0,007
SHDI	0,000	0,000				
SC_Org	0,323	0,089	3,609	**0,000**	0,147	0,498
EoC	-0,001	0,000	-2,325	**0,020**	-0,001	0,000
Clu	-0,002	0,001	-3,464	**0,001**	-0,004	-0,001
CRISIS-1: 90	0,025	0,005	4,725	**<0,0001**	0,015	0,036
CRISIS-2: 00	-0,013	0,005	-2,314	**0,021**	-0,023	-0,002
CRISIS-3: 08	-0,005	0,005	-1,052	0,293	-0,015	0,005
CRISIS-4:BT	-0,008	0,011	-0,713	0,476	-0,029	0,013
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	-0,009	0,008	-1,161	0,246	-0,024	0,006
NED	0,011	0,006	1,836	0,067	-0,001	0,022
NIS	-0,002	0,007	-0,245	0,807	-0,016	0,013

Standardized coefficients (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	-0,128	0,036	-3,495	**0,000**	-0,199	-0,056
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,159	0,029	5,493	**<0,0001**	0,102	0,215
HHI	-0,187	0,045	-4,134	**<0,0001**	-0,275	-0,098
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,123	0,038	3,215	**0,001**	0,048	0,198
RnD_GDP	0,000	0,000				
RnD_EMP	-0,055	0,030	-1,808	0,071	-0,114	0,005
MM_Ac	0,000	0,000				
Avg_bus	0,135	0,044	3,050	**0,002**	0,048	0,222
Gov_debt	-0,087	0,040	-2,146	**0,032**	-0,166	-0,007
Cur_blc	0,124	0,041	3,025	**0,003**	0,044	0,204
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	-0,050	0,034	-1,489	0,137	-0,116	0,016
ML_barg	-0,176	0,057	-3,098	**0,002**	-0,288	-0,065
SHDI	0,000	0,000				
SC_Org	0,153	0,042	3,609	**0,000**	0,070	0,236
EoC	-0,136	0,058	-2,325	**0,020**	-0,250	-0,021
Clu	-0,079	0,023	-3,464	**0,001**	-0,123	-0,034
CRISIS-1: 90	0,151	0,032	4,725	**<0,0001**	0,088	0,214
CRISIS-2: 00	-0,066	0,029	-2,314	**0,021**	-0,123	-0,010
CRISIS-3: 08	-0,032	0,030	-1,052	0,293	-0,091	0,027
CRISIS-4:BT	-0,020	0,028	-0,713	0,476	-0,075	0,035
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	-0,039	0,034	-1,161	0,246	-0,105	0,027
NED	0,068	0,037	1,836	0,067	-0,005	0,141
NIS	-0,005	0,022	-0,245	0,807	-0,048	0,037

Stepwise analysis of covariance on regional Employment resilience performance (excluding country category) - Growth trajectory retention (4-years recovery period)

Summary of the variables selection Ret_Tra_4:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R²	Adjusted R²	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	CRISIS	CRISIS	IN	0,001	0,044	0,042	97,492	-14285,074	-14262,872	0,960
2	SHDI / CRISIS	SHDI	IN	0,001	0,057	0,055	72,620	-14308,914	-14281,161	0,948
3	Union / SHDI / CRISIS	Union	IN	0,001	0,062	0,060	62,739	-14318,451	-14285,147	0,944
4	GDP_PC / Union / SHDI / CRISIS	GDP_PC	IN	0,001	0,067	0,064	54,142	-14326,800	-14287,945	0,940
5	GDP_PC / Union / SHDI / SC_Org / CRISIS	SC_Org	IN	0,001	0,071	0,067	49,029	-14331,779	-14287,373	0,937
6	Manu_GVA / GDP_PC / Union / SHDI / SC_Org / CRISIS	Manu_GVA	IN	0,001	0,074	0,070	44,816	-14335,896	-14285,940	0,935
7	Agri_GVA / Manu_GVA / GDP_PC / Union / SHDI / SC_Org / CRISIS	Agri_GVA	IN	0,001	0,077	0,073	39,865	-14340,763	-14285,256	0,933
8	Agri_GVA / Manu_GVA / GDP_PC / Gov_debt / Union / SHDI / SC_Org / CRISIS	Gov_debt	IN	0,001	0,080	0,075	35,747	-14344,827	-14283,770	0,931
9	Agri_GVA / Manu_GVA / GDP_PC / Gov_debt / Union / ML_barg / SHDI / SC_Org / CRISIS	ML_barg	IN	0,001	0,087	0,081	23,800	-14356,724	-14290,116	0,925
8	Agri_GVA / Manu_GVA / GDP_PC / Gov_debt / ML_barg / SHDI / SC_Org / CRISIS	Union	OUT	0,001	0,087	0,082	21,800	-14358,724	-14297,667	0,924
9	Mig_net / Agri_GVA / Manu_GVA / GDP_PC / Gov_debt / ML_barg / SHDI / SC_Org / CRISIS	Mig_net	IN	0,001	0,090	0,085	16,670	-14363,869	-14297,261	0,921
10	Mig_net / Agri_GVA / Manu_GVA / HHI / GDP_PC / Gov_debt / ML_barg / SHDI / SC_Org / CRISIS	HHI	IN	0,001	0,092	0,086	14,547	-14366,012	-14293,853	0,920
11	Mig_net / Pop_work / Agri_GVA / Manu_GVA / HHI / GDP_PC / Gov_debt / ML_barg / SHDI / SC_Org / CRISIS	Pop_work	IN	0,001	0,094	0,088	12,123	-14368,468	-14290,759	0,919

Stepwise analysis of covariance on regional Employment resilience performance (excluding country category) - Growth trajectory retention (4-years recovery period)

Goodness of fit statistics (Ret_Tra_4):

Observations	1902
Sum of weights	1902
DF	1888
R²	0,094
Adjusted R²	0,088
MSE	0,001
RMSE	0,023
MAPE	237,686
DW	1,581
Cp	12,123
AIC	-14368,468
SBC	-14290,759
PC	0,919
Press	1,003
Q²	0,075

Analysis of variance (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	13	0,102	0,008	15,107	**<0,0001**
Error	1888	0,982	0,001		
Corrected Tc	1901	1,084			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional Employment resilience performance (excluding country category) - Growth trajectory retention (4-years recovery period)

Type I Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	1,000	0,001	0,001	1,979	0,160
Pop_work	1,000	0,001	0,001	1,088	0,297
Agri_GVA	1,000	0,006	0,006	10,722	0,001
Manu_GVA	1,000	0,004	0,004	8,434	0,004
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	1,000	0,004	0,004	7,639	0,006
GDP_PC	1,000	0,000	0,000	0,380	0,538
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,004	0,004	8,397	0,004
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,009	0,009	17,809	0,000
SHDI	1,000	0,009	0,009	17,728	0,000
SC_Org	1,000	0,020	0,020	38,771	0,000
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	3,000	0,043	0,014	27,747	0,000
Urb_1	0,000	0,000			
NORM_SHC	0,000	0,000			

Type II Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	1,000	0,004	0,004	7,423	0,006
Pop_work	1,000	0,002	0,002	4,429	0,035
Agri_GVA	1,000	0,004	0,004	8,239	0,004
Manu_GVA	1,000	0,003	0,003	6,090	0,014
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	1,000	0,002	0,002	4,505	0,034
GDP_PC	1,000	0,003	0,003	5,010	0,025
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,006	0,006	11,611	0,001
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,009	0,009	17,305	0,000
SHDI	1,000	0,003	0,003	5,016	0,025
SC_Org	1,000	0,014	0,014	27,727	0,000
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	3,000	0,043	0,014	27,747	0,000
Urb_1	0,000	0,000			
NORM_SHC	0,000	0,000			

Type III Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	1,000	0,004	0,004	7,423	0,006
Pop_work	1,000	0,002	0,002	4,429	0,035
Agri_GVA	1,000	0,004	0,004	8,239	0,004
Manu_GVA	1,000	0,003	0,003	6,090	0,014
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	1,000	0,002	0,002	4,505	0,034
GDP_PC	1,000	0,003	0,003	5,010	0,025
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,006	0,006	11,611	0,001
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,009	0,009	17,305	0,000
SHDI	1,000	0,003	0,003	5,016	0,025
SC_Org	1,000	0,014	0,014	27,727	0,000
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	3,000	0,043	0,014	27,747	0,000
Urb_1	0,000	0,000			
NORM_SHC	0,000	0,000			

Stepwise analysis of covariance on regional Employment resilience performance (excluding country category) - Growth trajectory retention (4-years recovery period)

Model parameters (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,033	0,027	-1,214	0,225	-0,086	0,020
Pop_age	0,000	0,000				
Mig_net	0,000	0,000	-2,131	**0,033**	0,000	0,000
Pop_work	-0,029	0,016	-1,861	0,063	-0,060	0,002
Agri_GVA	-0,082	0,038	-2,137	**0,033**	-0,157	-0,007
Manu_GVA	-0,015	0,007	-2,004	**0,045**	-0,029	0,000
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	-0,046	0,034	-1,356	0,175	-0,114	0,021
GDP_PC	-0,002	0,001	-1,818	0,069	-0,004	0,000
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	-0,001	0,000	-2,447	**0,014**	-0,002	0,000
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	-0,003	0,001	-3,126	**0,002**	-0,006	-0,001
SHDI	0,055	0,032	1,732	0,083	-0,007	0,118
SC_Org	0,093	0,022	4,169	**<0,0001**	0,049	0,137
EoC	0,000	0,000				
Clu	0,000	0,000				
CRISIS-1: 90	0,005	0,002	2,384	**0,017**	0,001	0,009
CRISIS-2: 00	-0,010	0,001	-7,288	**<0,0001**	-0,013	-0,007
CRISIS-3: 08	0,000	0,002	0,175	0,861	-0,003	0,003
CRISIS-4:BT	0,005	0,002	2,420	**0,016**	0,001	0,009
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	-0,062	0,029	-2,131	**0,033**	-0,119	-0,005
Pop_work	-0,060	0,032	-1,861	0,063	-0,123	0,003
Agri_GVA	-0,080	0,037	-2,137	**0,033**	-0,153	-0,007
Manu_GVA	-0,059	0,029	-2,004	**0,045**	-0,117	-0,001
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	-0,060	0,044	-1,356	0,175	-0,146	0,027
GDP_PC	-0,062	0,034	-1,818	0,069	-0,129	0,005
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	-0,105	0,043	-2,447	**0,014**	-0,190	-0,021
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	-0,125	0,040	-3,126	**0,002**	-0,204	-0,047
SHDI	0,120	0,070	1,732	0,083	-0,016	0,257
SC_Org	0,182	0,044	4,169	**<0,0001**	0,096	0,267
EoC	0,000	0,000				
Clu	0,000	0,000				
CRISIS-1: 90	0,114	0,048	2,384	**0,017**	0,020	0,208
CRISIS-2: 00	-0,218	0,030	-7,288	**<0,0001**	-0,277	-0,159
CRISIS-3: 08	0,007	0,038	0,175	0,861	-0,067	0,081
CRISIS-4:BT	0,055	0,023	2,420	**0,016**	0,010	0,099
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Stepwise analysis of covariance on regional Employment resilience performance (excluding country category) - Growth trajectory retention (8-years recovery period)

Summary of the variables selection Ret_Tra_8:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R²	Adjusted R²	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	CRISIS	CRISIS	IN	0,000	0,116	0,115	243,320	-12131,846	-12110,577	0,888
2	SHDI / CRISIS	SHDI	IN	0,000	0,142	0,140	194,292	-12174,637	-12148,051	0,863
3	SHDI / Clu / CRISIS	Clu	IN	0,000	0,162	0,160	156,545	-12208,474	-12176,571	0,844
4	Pub_GVA / SHDI / Clu / CRISIS	Pub_GVA	IN	0,000	0,177	0,174	129,366	-12233,336	-12196,116	0,830
5	Pub_GVA / ML_barg / SHDI / Clu / CRISIS	ML_barg	IN	0,000	0,185	0,181	116,403	-12245,298	-12202,761	0,824
6	Pub_GVA / Gov_debt / ML_barg / SHDI / Clu / CRISIS	Gov_debt	IN	0,000	0,196	0,192	96,663	-12263,819	-12215,964	0,814
7	Pub_GVA / Gov_debt / ML_barg / SHDI / SC_Org / Clu / CRISIS	SC_Org	IN	0,000	0,205	0,200	81,003	-12278,696	-12225,524	0,806
8	Pub_GVA / Gov_debt / ML_barg / SHDI / SC_Org / EoC / Clu / CRISIS	EoC	IN	0,000	0,211	0,205	71,737	-12287,563	-12229,074	0,801
9	Pop_work / Pub_GVA / Gov_debt / ML_barg / SHDI / SC_Org / EoC / Clu / CRISIS	Pop_work	IN	0,000	0,218	0,212	60,032	-12298,889	-12235,082	0,795
10	Pop_age / Pop_work / Pub_GVA / Gov_debt / ML_barg / SHDI / SC_Org / EoC / Clu / CRISIS	Pop_age	IN	0,000	0,224	0,218	48,735	-12309,931	-12240,807	0,789
11	Pop_age / Pop_work / Pub_GVA / Avg_bus / Gov_debt / ML_barg / SHDI / SC_Org / EoC / Clu / CRISIS	Avg_bus	IN	0,000	0,232	0,225	35,281	-12323,233	-12248,792	0,782
12	Pop_age / Mig_net / Pop_work / Pub_GVA / Avg_bus / Gov_debt / ML_barg / SHDI / SC_Org / EoC / Clu / CRISIS	Mig_net	IN	0,000	0,235	0,228	31,686	-12326,811	-12247,053	0,780
13	Pop_age / Mig_net / Pop_work / Pub_GVA / HHI / Avg_bus / Gov_debt / ML_barg / SHDI / SC_Org / EoC / Clu / CRISIS	HHI	IN	0,000	0,238	0,230	28,191	-12330,310	-12245,235	0,779

Stepwise analysis of covariance on regional Employment resilience performance (excluding country category) - Growth trajectory retention (8-years recovery period)

Goodness of fit statistics (Ret_Tra_8):

Observations	1506
Sum of weights	1506
DF	1490
R²	0,238
Adjusted R²	0,230
MSE	0,000
RMSE	0,017
MAPE	466,754
DW	1,490
Cp	28,191
AIC	-12330,310
SBC	-12245,235
PC	0,779
Press	0,422
Q²	0,216

Analysis of variance (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	15	0,128	0,009	30,982	**<0,0001**
Error	1490	0,410	0,000		
Corrected Tc	1505	0,538			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional Employment resilience performance (excluding country category) - Growth trajectory retention (8-years recovery period)

Type I Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,027	0,027	96,915	0,000
Mig_net	1,000	0,000	0,000	0,394	0,530
Pop_work	1,000	0,001	0,001	4,119	0,043
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,002	0,002	6,057	0,014
HHI	1,000	0,000	0,000	1,149	0,284
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	1,000	0,012	0,012	45,396	0,000
Gov_debt	1,000	0,008	0,008	30,493	0,000
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,014	0,014	50,008	0,000
SHDI	1,000	0,009	0,009	33,625	0,000
SC_Org	1,000	0,003	0,003	9,982	0,002
EoC	1,000	0,018	0,018	65,328	0,000
Clu	1,000	0,006	0,006	23,544	0,000
CRISIS	3,000	0,027	0,009	32,573	0,000
Urb_1	0,000	0,000			
NORM_SHC	0,000	0,000			

Type II Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,004	0,004	14,459	0,000
Mig_net	1,000	0,002	0,002	5,616	0,018
Pop_work	1,000	0,005	0,005	19,361	0,000
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,004	0,004	14,398	0,000
HHI	1,000	0,001	0,001	5,450	0,020
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	1,000	0,003	0,003	11,903	0,001
Gov_debt	1,000	0,009	0,009	34,462	0,000
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,002	0,002	6,889	0,009
SHDI	1,000	0,006	0,006	22,509	0,000
SC_Org	1,000	0,006	0,006	22,056	0,000
EoC	1,000	0,009	0,009	31,260	0,000
Clu	1,000	0,007	0,007	25,566	0,000
CRISIS	3,000	0,027	0,009	32,573	0,000
Urb_1	0,000	0,000			
NORM_SHC	0,000	0,000			

Type III Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,004	0,004	14,459	0,000
Mig_net	1,000	0,002	0,002	5,616	0,018
Pop_work	1,000	0,005	0,005	19,361	0,000
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,004	0,004	14,398	0,000
HHI	1,000	0,001	0,001	5,450	0,020
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	1,000	0,003	0,003	11,903	0,001
Gov_debt	1,000	0,009	0,009	34,462	0,000
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,002	0,002	6,889	0,009
SHDI	1,000	0,006	0,006	22,509	0,000
SC_Org	1,000	0,006	0,006	22,056	0,000
EoC	1,000	0,009	0,009	31,260	0,000
Clu	1,000	0,007	0,007	25,566	0,000
CRISIS	3,000	0,027	0,009	32,573	0,000
Urb_1	0,000	0,000			
NORM_SHC	0,000	0,000			

Stepwise analysis of covariance on regional Employment resilience performance (excluding country category) - Growth trajectory retention (8-years recovery period)

Model parameters (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,098	0,028	-3,529	**0,000**	-0,153	-0,044
Pop_age	0,005	0,002	3,260	**0,001**	0,002	0,008
Mig_net	0,000	0,000	-1,987	**0,047**	0,000	0,000
Pop_work	-0,054	0,017	-3,266	**0,001**	-0,087	-0,022
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,027	0,010	2,581	**0,010**	0,006	0,047
HHI	-0,034	0,027	-1,281	0,200	-0,087	0,018
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	-0,001	0,000	-2,621	**0,009**	-0,001	0,000
Gov_debt	-0,001	0,000	-3,943	**<0,0001**	-0,002	-0,001
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	-0,002	0,001	-1,930	0,054	-0,004	0,000
SHDI	0,098	0,036	2,751	**0,006**	0,028	0,168
SC_Org	0,077	0,024	3,196	**0,001**	0,030	0,124
EoC	0,000	0,000	3,572	**0,000**	0,000	0,001
Clu	-0,001	0,000	-4,707	**<0,0001**	-0,001	-0,001
CRISIS-1: 90	0,004	0,002	2,079	**0,038**	0,000	0,008
CRISIS-2: 00	-0,008	0,001	-5,490	**<0,0001**	-0,010	-0,005
CRISIS-3: 08	0,003	0,002	1,322	0,186	-0,001	0,007
CRISIS-4:BT	0,001	0,002	0,365	0,715	-0,004	0,006
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,103	0,032	3,260	**0,001**	0,041	0,165
Mig_net	-0,057	0,029	-1,987	**0,047**	-0,114	-0,001
Pop_work	-0,140	0,043	-3,266	**0,001**	-0,225	-0,056
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,095	0,037	2,581	**0,010**	0,023	0,168
HHI	-0,055	0,043	-1,281	0,200	-0,140	0,029
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	-0,150	0,057	-2,621	**0,009**	-0,262	-0,038
Gov_debt	-0,197	0,050	-3,943	**<0,0001**	-0,295	-0,099
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	-0,099	0,051	-1,930	0,054	-0,199	0,002
SHDI	0,278	0,101	2,751	**0,006**	0,080	0,477
SC_Org	0,189	0,059	3,196	**0,001**	0,073	0,304
EoC	0,273	0,076	3,572	**0,000**	0,123	0,423
Clu	-0,124	0,026	-4,707	**<0,0001**	-0,175	-0,072
CRISIS-1: 90	0,126	0,061	2,079	**0,038**	0,007	0,245
CRISIS-2: 00	-0,221	0,040	-5,490	**<0,0001**	-0,299	-0,142
CRISIS-3: 08	0,078	0,059	1,322	0,186	-0,038	0,194
CRISIS-4:BT	0,012	0,032	0,365	0,715	-0,052	0,075
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

III.a.vi. Employment – ANCOVA all variables

Stepwise analysis of covariance on regional RGVA resilience performance (all variables)

Settings:
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Model selection: Stepwise
Probability for entry: 0,05 / Probability for removal: 0,1
Covariances: Corrections = Newey West (adjusted)(Lag = 1)
Explanation of the variable codes can be found in table 28

Summary statistics (Quantitative data):

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Rec_DL	1902	0	1902	-0,590	0,509	-0,077	0,098
Ret_Tra_4	1902	0	1902	-0,125	0,138	-0,010	0,024
Ret_Tra_8	1902	396	1506	-0,127	0,051	-0,012	0,019
Pop_age	1902	0	1902	0,192	2,946	1,122	0,386
Mig_net	1902	0	1902	-27,218	66,719	3,075	6,329
Pop_work	1902	0	1902	0,265	0,667	0,470	0,049
Agri_GVA	1902	0	1902	0,000	0,177	0,022	0,023
Manu_GVA	1902	0	1902	0,020	0,720	0,222	0,095
Const_GVA	1902	0	1902	0,011	0,352	0,076	0,031
Serv_GVA	1902	0	1902	0,176	0,782	0,445	0,084
Pub_GVA	1902	0	1902	0,062	0,568	0,234	0,067
HHI	1902	0	1902	0,176	0,543	0,232	0,031
GDP_PC	1902	0	1902	-1,199	5,176	-0,003	0,727
GFCF_PC	1902	0	1902	-1,759	2,618	0,019	0,757
PROD	1902	0	1902	-2,654	4,694	0,238	0,951
RnD_GDP	1902	0	1902	0,000	14,868	1,958	1,507
RnD_EMP	1902	0	1902	0,000	4,938	1,413	0,853
MM_Ac	1902	0	1902	24,795	192,930	108,026	33,259
Avg_bus	1902	0	1902	1,349	18,605	9,390	5,172
Gov_debt	1902	0	1902	-11,100	6,700	-4,045	2,496
Cur_blc	1902	0	1902	-14,500	10,200	0,299	3,664
Gov_close	1902	0	1902	0,370	31,490	5,712	3,937
Lab_comp	1902	0	1902	324,327	271583,242	28538,040	28757,018
Union	1902	0	1902	7,794	84,677	28,465	14,385
ML_barg	1902	0	1902	1,000	4,875	2,608	0,873
SHDI	1902	0	1902	0,701	0,958	0,850	0,052
SC_Org	1902	0	1902	0,038	0,286	0,120	0,046
EoC	1902	0	1902	46,900	100,000	74,391	16,522
Clu	1902	0	1902	0,000	82,000	2,729	3,189

Number of removed observations: 204

Summary statistics (Qualitative data):

Variable	Categories	Counts	Frequencies	%
NAT	AT	38	38	1,998
	BE	80	80	4,206
	DE	826	826	43,428
	DK	20	20	1,052
	EL	17	17	0,894
	ES	71	71	3,733
	FI	24	24	1,262
	FR	214	214	11,251
	IE	2	2	0,105
	IT	172	172	9,043
	NL	69	69	3,628
	PT	54	54	2,839
	SE	35	35	1,840
	UK	280	280	14,721
CRISIS	1: 90-93	653	653	34,332
	2: 00-03	421	421	22,135
	3: 08-09	694	694	36,488
	4:BTW	134	134	7,045
Urb_1	Urban	593	593	31,178
	Intermediate	796	796	41,851
	Rural	513	513	26,972
Shock	LIS	166	166	8,728
	NED	1564	1564	82,229
	NIS	172	172	9,043

Stepwise analysis of covariance on regional RGVA resilience performance (all variables)

Correlation matrix:

	Pop_age	Mig_net	Pop_work	Agri_GVA	Manu_GVA	Const_GVA	Serv_GVA	Pub_GVA	HHI	GDP_PC	GFCF_PC	PROD	RnD_GDP	RnD_EMP	MM_Ac	Avg_bus	Gov_debt
Pop_age	**1**	-0,165	0,209	0,048	-0,025	-0,212	-0,013	0,132	-0,020	-0,017	-0,194	-0,154	-0,013	0,000	-0,075	0,167	-0,017
Mig_net	-0,165	**1**	-0,061	-0,041	0,023	0,058	0,063	-0,123	0,062	0,091	0,167	0,135	0,018	0,021	0,091	0,091	0,060
Pop_work	0,209	-0,061	**1**	-0,257	0,086	-0,151	0,041	-0,015	0,101	0,141	0,291	0,039	0,299	0,328	0,193	0,348	0,399
Agri_GVA	0,048	-0,041	-0,257	**1**	-0,178	0,301	-0,223	0,045	-0,470	-0,375	-0,236	-0,311	-0,250	-0,317	-0,566	-0,375	-0,145
Manu_GVA	-0,025	0,023	0,086	-0,178	**1**	-0,195	-0,592	-0,527	0,241	0,147	0,065	0,097	0,137	0,111	0,164	0,370	0,191
Const_GVA	-0,212	0,058	-0,151	0,301	-0,195	**1**	-0,244	0,014	-0,451	-0,413	-0,104	-0,345	-0,116	-0,248	-0,393	-0,265	-0,008
Serv_GVA	-0,013	0,063	0,041	-0,223	-0,592	-0,244	**1**	-0,219	0,069	0,319	0,214	0,286	0,057	0,154	0,336	-0,101	-0,256
Pub_GVA	0,132	-0,123	-0,015	0,045	-0,527	0,014	-0,219	**1**	-0,057	-0,286	-0,229	-0,228	-0,125	-0,125	-0,274	-0,146	0,103
HHI	-0,020	0,062	0,101	-0,470	0,241	-0,451	0,069	-0,057	**1**	0,512	0,148	0,245	0,149	0,216	0,292	0,232	0,088
GDP_PC	-0,017	0,091	0,141	-0,375	0,147	-0,413	0,319	-0,286	0,512	**1**	0,434	0,469	0,211	0,309	0,456	0,221	0,056
GFCF_PC	-0,194	0,167	0,291	-0,236	0,065	-0,104	0,214	-0,229	0,148	0,434	**1**	0,680	0,456	0,598	0,365	0,168	0,167
PROD	-0,154	0,135	0,039	-0,311	0,097	-0,345	0,286	-0,228	0,245	0,469	0,680	**1**	0,344	0,499	0,608	0,284	0,040
RnD_GDP	-0,013	0,018	0,299	-0,250	0,137	-0,116	0,057	-0,125	0,149	0,211	0,456	0,344	**1**	0,776	0,301	0,304	0,206
RnD_EMP	0,000	0,021	0,328	-0,317	0,111	-0,248	0,154	-0,125	0,216	0,309	0,598	0,499	0,776	**1**	0,383	0,316	0,212
MM_Ac	-0,075	0,091	0,193	-0,566	0,164	-0,393	0,336	-0,274	0,292	0,456	0,365	0,608	0,301	0,383	**1**	0,486	0,062
Avg_bus	0,167	0,091	0,348	-0,375	0,370	-0,265	-0,101	-0,146	0,232	0,221	0,168	0,284	0,304	0,316	0,486	**1**	0,380
Gov_debt	-0,017	0,060	0,399	-0,145	0,191	-0,008	-0,256	0,103	0,088	0,056	0,167	0,040	0,206	0,212	0,062	0,380	**1**
Cur_blc	0,281	-0,195	0,260	-0,129	0,054	-0,325	0,035	0,076	0,048	0,117	0,197	0,380	0,187	0,226	0,281	0,303	0,270
Gov_close	-0,014	-0,020	0,188	-0,050	0,023	-0,108	-0,039	0,083	-0,039	0,101	0,301	0,221	0,170	0,231	-0,083	-0,012	0,350
Lab_comp	-0,003	-0,058	0,111	-0,201	-0,020	-0,204	0,319	-0,206	0,155	0,303	0,390	0,483	0,238	0,440	0,429	0,107	-0,104
Union	-0,149	0,116	0,012	-0,015	0,105	0,024	-0,108	-0,019	0,004	0,041	0,186	0,021	0,026	0,003	-0,085	-0,111	0,234
ML_barg	-0,030	0,009	-0,316	0,228	-0,015	-0,009	0,057	-0,125	-0,070	0,038	0,060	0,133	-0,164	-0,194	-0,071	-0,345	-0,273
SHDI	0,352	-0,056	0,520	-0,322	0,030	-0,499	0,233	0,009	0,153	0,210	0,243	0,395	0,251	0,435	0,402	0,423	0,186
SC_Org	0,140	0,123	0,228	-0,143	0,221	-0,238	-0,046	-0,096	0,145	0,246	0,349	0,475	0,208	0,267	0,292	0,548	0,396
EoC	-0,026	0,062	0,457	-0,375	0,175	-0,027	-0,114	0,036	0,149	0,062	0,094	0,014	0,250	0,212	0,238	0,648	0,513
Clu	-0,105	-0,010	0,124	-0,069	0,037	-0,076	-0,051	0,070	0,116	0,041	0,108	0,032	0,217	0,028	-0,025	0,029	0,188
AT	0,202	0,004	-0,174	0,177	0,060	-0,112	0,012	-0,110	-0,025	0,089	0,099	0,221	-0,059	0,007	0,017	0,004	-0,126
BE	0,139	0,063	-0,281	0,137	0,009	-0,164	0,040	-0,033	-0,001	0,052	0,071	0,273	-0,095	-0,038	0,109	-0,066	-0,190
DE	0,322	0,073	0,058	-0,084	0,240	-0,266	-0,057	-0,117	0,126	0,171	0,097	0,323	0,095	0,133	0,321	0,637	0,138
DK	0,190	0,020	-0,178	0,166	0,046	-0,168	0,017	-0,067	-0,007	0,097	0,103	0,264	-0,051	0,030	0,016	0,015	-0,089
EL	0,231	0,018	-0,229	0,232	0,056	-0,169	0,009	-0,093	0,007	0,073	0,024	0,192	-0,094	-0,027	-0,014	-0,004	-0,146
ES	0,124	0,056	-0,315	0,252	-0,008	0,002	0,002	-0,079	-0,015	0,023	-0,035	0,133	-0,135	-0,096	-0,111	-0,069	-0,099
FI	0,193	0,005	-0,192	0,193	0,056	-0,155	-0,003	-0,071	-0,020	0,084	0,071	0,235	-0,053	0,008	-0,021	-0,002	-0,037
FR	0,068	-0,022	-0,338	0,195	-0,096	-0,062	0,065	0,016	-0,102	0,034	0,053	0,226	-0,057	-0,004	-0,030	-0,239	-0,263
IE	0,213	0,022	-0,224	0,183	0,060	-0,157	0,013	-0,093	-0,010	0,091	0,066	0,248	-0,074	-0,015	0,029	0,027	-0,121
IT	0,261	-0,011	-0,393	0,236	0,015	-0,110	0,101	-0,179	-0,055	0,069	0,002	0,128	-0,168	-0,126	-0,075	-0,188	-0,365
NL	0,115	-0,007	-0,116	0,177	0,039	-0,173	0,036	-0,082	0,003	0,117	0,100	0,309	-0,082	-0,034	0,076	-0,042	-0,079
PT	0,202	-0,015	-0,146	0,255	0,050	-0,073	-0,044	-0,070	-0,048	0,010	-0,083	0,034	-0,117	-0,078	-0,090	-0,055	-0,156
SE	0,189	0,023	-0,170	0,173	0,054	-0,136	-0,008	-0,065	-0,028	0,097	0,101	0,248	-0,038	-0,004	-0,020	-0,017	-0,022
UK	-0,218	-0,022	0,224	-0,184	-0,058	0,157	-0,014	0,092	0,009	-0,092	-0,060	-0,251	0,072	0,014	-0,035	-0,030	0,127
CRISIS-1: 90	-0,241	0,098	-0,279	0,002	0,094	0,179	-0,036	-0,172	-0,066	0,058	0,049	0,034	0,046	-0,072	0,083	-0,038	-0,114
CRISIS-2: 00	-0,033	-0,082	0,171	-0,077	0,059	-0,092	0,001	-0,016	-0,033	-0,001	0,009	0,041	0,083	0,094	0,094	0,119	0,207
CRISIS-3: 08	0,294	-0,121	0,304	-0,181	-0,137	-0,262	0,222	0,102	-0,004	0,002	-0,037	0,020	0,126	0,216	0,158	0,042	-0,102
CRISIS-4:BT	-0,016	0,055	-0,103	0,142	-0,004	0,096	-0,108	0,047	0,057	-0,034	-0,011	-0,051	-0,141	-0,131	-0,186	-0,063	0,019
Urban	-0,193	0,011	0,065	-0,518	0,034	-0,223	0,325	-0,171	0,292	0,318	0,105	0,218	0,130	0,167	0,492	0,157	0,059
Intermediate	-0,038	0,085	0,032	-0,257	0,063	-0,137	0,107	-0,072	0,116	0,107	0,064	0,117	0,035	0,041	0,158	0,132	0,038
Rural	0,133	-0,058	-0,057	0,454	-0,058	0,211	-0,251	0,142	-0,239	-0,247	-0,099	-0,196	-0,096	-0,121	-0,378	-0,171	-0,057
LIS	-0,053	0,086	0,011	-0,081	0,022	0,082	-0,049	0,020	0,120	0,037	0,046	0,051	0,025	0,003	0,044	0,081	0,049
NED	0,027	-0,015	0,080	-0,230	-0,167	-0,125	0,246	0,068	-0,115	0,063	0,063	0,127	0,059	0,076	0,189	0,050	-0,142
NIS	0,007	-0,032	-0,063	0,204	0,109	0,049	-0,152	-0,058	0,023	-0,063	-0,067	-0,115	-0,054	-0,056	-0,157	-0,076	0,077
Rec_DL	0,088	0,026	0,004	-0,114	-0,043	-0,067	0,028	0,097	-0,103	0,006	0,077	0,188	0,049	0,064	0,180	0,184	-0,017
Ret_Tra_4	0,078	-0,031	-0,021	-0,062	-0,054	-0,004	0,040	0,050	-0,034	-0,020	0,028	0,076	0,025	0,051	0,078	0,076	-0,074
Ret_Tra_8	0,223	-0,051	0,013	-0,111	-0,060	-0,063	0,053	0,086	-0,034	-0,018	0,015	0,094	0,010	0,062	0,123	0,152	-0,085

	Cur_blc	Gov_close	Lab_comp	Union	ML_barg	SHDI	SC_Org	EoC	Clu	AT	BE	DE	DK	EL	ES	FI	FR	IE	IT	NL	PT
Pop_age	0,281	-0,014	-0,003	-0,149	-0,030	0,352	0,140	-0,026	-0,105	0,202	0,139	0,322	0,190	0,231	0,124	0,193	0,068	0,213	0,261	0,115	0,202
Mig_net	-0,195	-0,020	-0,058	0,116	0,009	-0,056	0,123	0,062	-0,010	0,004	0,063	0,073	0,020	0,018	0,056	0,005	-0,022	0,022	-0,011	-0,007	-0,015
Pop_work	0,260	0,188	0,111	0,012	-0,316	0,520	0,228	0,457	0,124	-0,174	-0,281	0,058	-0,178	-0,229	-0,315	-0,192	-0,338	-0,224	-0,393	-0,116	-0,146
Agri_GVA	-0,129	-0,050	-0,201	-0,015	0,228	-0,322	-0,143	-0,375	-0,069	0,177	0,137	-0,084	0,166	0,232	0,252	0,193	0,195	0,183	0,236	0,177	0,255
Manu_GVA	0,054	0,023	-0,020	0,105	-0,015	0,030	0,221	0,175	0,037	0,060	0,009	0,240	0,046	0,056	-0,008	0,056	-0,096	0,060	0,015	0,039	0,050
Const_GVA	-0,325	-0,108	-0,204	0,024	-0,009	-0,499	-0,238	-0,027	-0,076	-0,112	-0,164	-0,266	-0,168	-0,169	0,002	-0,155	-0,062	-0,157	-0,110	-0,173	-0,073
Serv_GVA	0,035	-0,039	0,319	-0,108	0,057	0,233	-0,046	-0,114	-0,051	0,012	0,040	-0,057	0,017	0,009	0,002	-0,003	0,065	0,013	0,101	0,036	-0,044
Pub_GVA	0,076	0,083	-0,206	-0,019	-0,125	0,009	-0,096	0,036	0,070	-0,110	-0,033	-0,117	-0,067	-0,093	-0,079	-0,071	0,016	-0,093	-0,179	-0,082	-0,070
HHI	0,048	-0,039	0,155	0,004	-0,070	0,153	0,145	0,149	0,116	-0,025	-0,001	0,126	-0,007	0,007	-0,015	-0,020	-0,102	-0,010	-0,055	0,003	-0,048
GDP_PC	0,117	0,101	0,303	0,041	0,038	0,210	0,246	0,062	0,041	0,089	0,052	0,171	0,097	0,073	0,023	0,084	0,034	0,091	0,069	0,117	0,010
GFCF_PC	0,197	0,301	0,390	0,186	0,060	0,243	0,349	0,094	0,108	0,099	0,071	0,097	0,103	0,024	-0,035	0,071	0,053	0,066	0,002	0,100	-0,083
PROD	0,380	0,221	0,483	0,021	0,133	0,395	0,475	0,014	0,032	0,221	0,273	0,323	0,264	0,192	0,133	0,235	0,226	0,248	0,128	0,309	0,034
RnD_GDP	0,187	0,170	0,238	0,026	-0,164	0,251	0,208	0,250	0,217	-0,059	-0,095	0,095	-0,051	-0,094	-0,135	-0,053	-0,057	-0,074	-0,168	-0,082	-0,117
RnD_EMP	0,226	0,231	0,440	0,003	-0,194	0,435	0,267	0,212	0,028	0,007	-0,038	0,133	0,030	-0,027	-0,096	0,008	-0,004	-0,015	-0,126	-0,034	-0,078
MM_Ac	0,281	-0,083	0,429	-0,085	-0,071	0,402	0,292	0,238	-0,025	0,017	0,109	0,321	0,016	-0,014	-0,111	-0,021	-0,030	0,029	-0,075	0,076	-0,090
Avg_bus	0,303	-0,012	0,107	-0,111	-0,345	0,423	0,548	0,648	0,029	0,004	-0,066	0,637	0,015	-0,004	-0,069	-0,002	-0,239	0,027	-0,188	-0,042	-0,055
Gov_debt	0,270	0,350	-0,104	0,234	-0,273	0,186	0,396	0,513	0,188	-0,126	-0,190	0,138	-0,089	-0,146	-0,099	-0,037	-0,263	-0,121	-0,365	-0,079	-0,156
Cur_blc	**1**	0,364	0,126	-0,089	0,168	0,567	0,602	-0,010	0,070	0,425	0,411	0,511	0,437	0,357	0,277	0,456	0,305	0,433	0,200	0,459	0,274
Gov_close	0,364	**1**	-0,012	0,515	0,117	0,218	0,398	0,023	0,128	0,274	0,173	0,129	0,418	0,202	0,135	0,345	0,186	0,240	0,122	0,163	0,168
Lab_comp	0,126	-0,012	**1**	-0,251	-0,017	0,317	0,088	-0,118	-0,163	0,131	0,083	0,177	0,156	0,144	0,108	0,143	0,245	0,169	0,180	0,146	0,120
Union	-0,089	0,515	-0,251	**1**	0,297	-0,203	0,012	0,118	0,166	-0,112	0,073	-0,218	-0,043	-0,123	-0,185	-0,020	-0,398	-0,130	0,012	-0,158	-0,117
ML_barg	0,168	0,117	-0,017	0,297	**1**	-0,243	0,179	-0,697	0,015	0,566	0,706	0,210	0,590	0,610	0,557	0,644	0,428	0,630	0,674	0,663	0,605
SHDI	0,567	0,218	0,317	-0,203	-0,243	**1**	0,463	0,208	0,079	0,161	0,136	0,381	0,177	0,147	0,003	0,157	0,058	0,161	-0,017	0,190	0,020
SC_Org	0,602	0,398	0,088	0,012	0,179	0,463	**1**	0,103	0,098	0,554	0,464	0,770	0,573	0,540	0,501	0,614	0,301	0,580	0,230	0,565	0,402
EoC	-0,010	0,023	-0,118	0,118	-0,697	0,208	0,103	**1**	0,122	-0,605	-0,650	-0,043	-0,602	-0,657	-0,580	-0,605	-0,733	-0,638	-0,733	-0,651	-0,672
Clu	0,070	0,128	-0,163	0,166	0,015	0,079	0,098	0,122	**1**	-0,025	-0,015	-0,055	-0,032	-0,051	-0,044	-0,034	-0,119	-0,020	-0,145	0,001	-0,054
AT	0,425	0,274	0,131	-0,112	0,566	0,161	0,554	-0,605	-0,025	**1**	0,816	0,669	0,896	0,901	0,826	0,889	0,723	0,929	0,744	0,828	0,846
BE	0,411	0,173	0,083	0,073	0,706	0,136	0,464	-0,650	-0,015	0,816	**1**	0,595	0,844	0,849	0,774	0,837	0,669	0,877	0,691	0,776	0,794
DE	0,511	0,129	0,177	-0,218	0,210	0,381	0,770	-0,043	-0,055	0,669	0,595	**1**	0,708	0,715	0,609	0,699	0,438	0,752	0,478	0,613	0,639
DK	0,437	0,418	0,156	-0,043	0,590	0,177	0,573	-0,602	-0,032	0,896	0,844	0,708	**1**	0,930	0,854	0,918	0,751	0,958	0,772	0,856	0,874
EL	0,357	0,202	0,144	-0,123	0,610	0,147	0,540	-0,657	-0,051	0,901	0,849	0,715	0,930	**1**	0,859	0,923	0,757	0,963	0,778	0,861	0,879
ES	0,277	0,135	0,108	-0,185	0,557	0,003	0,501	-0,580	-0,044	0,826	0,774	0,609	0,854	0,859	**1**	0,847	0,679	0,887	0,701	0,786	0,804
FI	0,456	0,345	0,143	-0,020	0,644	0,157	0,614	-0,605	-0,034	0,889	0,837	0,699	0,918	0,923	0,847	**1**	0,745	0,951	0,766	0,849	0,867
FR	0,305	0,186	0,245	-0,398	0,428	0,058	0,301	-0,733	-0,119	0,723	0,669	0,438	0,751	0,757	0,679	0,745	**1**	0,785	0,590	0,681	0,700
IE	0,433	0,240	0,169	-0,130	0,630	0,161	0,580	-0,638	-0,020	0,929	0,877	0,752	0,958	0,963	0,887	0,951	0,785	**1**	0,805	0,889	0,907
IT	0,200	0,122	0,180	0,012	0,674	-0,017	0,230	-0,733	-0,145	0,744	0,691	0,478	0,772	0,778	0,701	0,766	0,590	0,805	**1**	0,703	0,722
NL	0,459	0,163	0,146	-0,158	0,663	0,190	0,565	-0,651	0,001	0,828	0,776	0,613	0,856	0,861	0,786	0,849	0,681	0,889	0,703	**1**	0,806
PT	0,274	0,168	0,120	-0,117	0,605	0,020	0,402	-0,672	-0,054	0,846	0,794	0,639	0,874	0,879	0,804	0,867	0,700	0,907	0,722	0,806	**1**
SE	0,439	0,401	0,133	0,037	0,609	0,163	0,598	-0,582	0,003	0,872	0,820	0,675	0,900	0,906	0,830	0,894	0,727	0,934	0,749	0,832	0,850
UK	-0,435	-0,245	-0,172	0,132	-0,626	-0,161	-0,586	0,644	0,055	-0,933	-0,881	-0,757	-0,962	-0,967	-0,891	-0,955	-0,789	-0,996	-0,809	-0,893	-0,911
CRISIS-1: 90	-0,207	-0,070	-0,065	0,209	0,236	-0,562	-0,136	-0,003	-0,070	-0,116	-0,052	-0,112	-0,104	-0,140	-0,063	-0,113	-0,027	-0,097	-0,007	-0,141	-0,070
CRISIS-2: 00	0,137	0,168	0,089	-0,052	0,072	0,200	0,199	0,000	0,042	0,134	0,101	0,180	0,164	0,100	0,087	0,163	0,131	0,156	0,049	0,161	0,157
CRISIS-3: 08	0,269	0,057	0,165	-0,167	-0,216	0,547	-0,040	0,076	0,001	-0,041	-0,047	-0,045	-0,073	-0,129	-0,149	-0,098	-0,024	-0,088	-0,078	-0,097	-0,094
CRISIS-4:BT	-0,107	-0,078	-0,104	0,003	-0,046	-0,097	0,000	-0,042	0,018	0,021	0,005	-0,001	0,018	0,103	0,078	0,038	-0,038	0,026	0,024	0,054	0,015
Urban	-0,088	-0,120	0,225	0,072	-0,151	0,064	-0,105	0,283	0,016	-0,321	-0,266	-0,154	-0,300	-0,319	-0,258	-0,310	-0,343	-0,309	-0,223	-0,209	-0,327
Intermediate	0,054	-0,010	0,022	0,052	0,038	0,083	0,124	0,101	-0,006	-0,025	0,010	0,104	0,010	-0,005	0,034	0,002	-0,102	0,012	0,048	0,046	-0,036
Rural	0,017	0,075	-0,143	-0,073	0,063	-0,088	-0,016	-0,223	-0,005	0,199	0,146	0,025	0,166	0,185	0,127	0,176	0,258	0,170	0,098	0,091	0,209
LIS	-0,051	0,002	-0,033	0,042	0,009	-0,044	0,080	0,060	0,070	-0,028	-0,002	0,067	0,011	0,007	0,016	0,021	-0,020	0,011	-0,016	0,034	-0,012
NED	0,060	0,054	0,056	0,024	0,018	0,117	0,022	0,079	0,014	-0,086	-0,036	-0,008	-0,045	-0,066	-0,103	-0,063	-0,021	-0,059	-0,078	-0,049	-0,084
NIS	-0,018	-0,039	-0,024	-0,037	-0,017	-0,062	-0,055	-0,086	-0,044	0,075	0,026	-0,027	0,027	0,043	0,066	0,035	0,025	0,037	0,063	0,018	0,066
Rec_DL	0,215	0,051	0,075	-0,135	-0,043	0,133	0,199	0,046	-0,110	0,126	0,126	0,243	0,134	0,072	0,113	0,130	0,169	0,141	0,058	0,092	0,088
Ret_Tra_4	0,063	-0,033	0,037	-0,078	-0,084	0,088	0,067	0,062	-0,017	0,004	0,020	0,078	0,009	0,012	0,044	0,006	0,015	0,021	-0,003	-0,009	-0,034
Ret_Tra_8	0,137	0,001	0,058	-0,096	-0,172	0,203	0,094	0,163	-0,134	-0,021	0,001	0,113	-0,024		-0,009	-0,035	-0,015	-0,023	-0,037	-0,101	-0,116

	SE	UK	CRISIS-1: 90-93	CRISIS-2: 00-03	CRISIS-3: 08-09	CRISIS-4:BTW	Urban	Intermediate	Rural	-LIS	-NED	-NIS	Rec_DL	Ret_Tra_4	Ret_Tra_8
Pop_age	0,189	-0,218	-0,241	-0,033	0,294	-0,016	-0,193	-0,038	0,133	-0,053	0,027	0,007	0,088	0,078	0,223
Mig_net	0,023	-0,022	0,098	-0,082	-0,121	0,055	0,011	0,085	-0,058	0,086	-0,015	-0,032	0,026	-0,031	-0,051
Pop_work	-0,170	0,224	-0,279	0,171	0,304	-0,103	0,065	0,032	-0,057	0,011	0,080	-0,063	0,004	-0,021	0,013
Agri_GVA	0,173	-0,184	0,002	-0,077	-0,181	0,142	-0,518	-0,257	0,454	-0,081	-0,230	0,204	-0,114	-0,062	-0,111
Manu_GVA	0,054	-0,058	0,094	0,059	-0,137	-0,004	0,034	0,063	-0,058	0,022	-0,167	0,109	-0,043	-0,054	-0,060
Const_GVA	-0,136	0,157	0,179	-0,092	-0,262	0,096	-0,223	-0,137	0,211	0,082	-0,125	0,049	-0,067	-0,004	-0,063
Serv_GVA	-0,008	-0,014	-0,036	0,001	0,222	-0,108	0,325	0,107	-0,251	-0,049	0,246	-0,152	0,028	0,040	0,053
Pub_GVA	-0,065	0,092	-0,172	-0,016	0,102	0,047	-0,171	-0,072	0,142	0,020	0,068	-0,058	0,097	0,050	0,086
HHI	-0,028	0,009	-0,066	-0,033	-0,004	0,057	0,292	0,116	-0,239	0,120	-0,115	0,023	-0,103	-0,034	-0,034
GDP_PC	0,097	-0,092	0,058	-0,001	0,002	-0,034	0,318	0,107	-0,247	0,037	0,063	-0,063	0,006	-0,020	-0,018
GFCF_PC	0,101	-0,060	0,049	0,009	-0,037	-0,011	0,105	0,064	-0,099	0,046	0,063	-0,067	0,077	0,028	0,015
PROD	0,248	-0,251	0,034	0,041	0,020	-0,051	0,218	0,117	-0,196	0,051	0,127	-0,115	0,188	0,076	0,094
RnD_GDP	-0,038	0,072	0,046	0,083	0,126	-0,141	0,130	0,035	-0,096	0,025	0,059	-0,054	0,049	0,025	0,010
RnD_EMP	-0,004	0,014	-0,072	0,094	0,216	-0,131	0,167	0,041	-0,121	0,003	0,076	-0,056	0,064	0,051	0,062
MM_Ac	-0,020	-0,035	0,083	0,094	0,158	-0,186	0,492	0,158	-0,378	0,044	0,189	-0,157	0,180	0,078	0,123
Avg_bus	-0,017	-0,030	-0,038	0,119	0,042	-0,063	0,157	0,132	-0,171	0,081	0,050	-0,076	0,184	0,076	0,152
Gov_debt	-0,022	0,127	-0,114	0,207	-0,102	0,019	0,059	0,038	-0,057	0,049	-0,142	0,077	-0,017	-0,074	-0,085
Cur_blc	0,439	-0,435	-0,207	0,137	0,269	-0,107	-0,088	0,054	0,017	-0,051	0,060	-0,018	0,215	0,063	0,137
Gov_close	0,401	-0,245	-0,070	0,168	0,057	-0,078	-0,120	-0,010	0,075	0,002	0,054	-0,039	0,051	-0,033	0,001
Lab_comp	0,133	-0,172	-0,065	0,089	0,165	-0,104	0,225	0,022	-0,143	-0,033	0,056	-0,024	0,075	0,037	0,058
Union	0,037	0,132	0,209	-0,052	-0,167	0,003	0,072	0,052	-0,073	0,042	0,024	-0,037	-0,135	-0,078	-0,096
ML_barg	0,609	-0,626	0,236	0,072	-0,216	-0,046	-0,151	0,038	0,063	0,009	0,018	-0,017	-0,043	-0,084	-0,172
SHDI	0,163	-0,161	-0,562	0,200	0,547	-0,097	0,064	0,083	-0,088	-0,044	0,117	-0,062	0,133	0,088	0,203
SC_Org	0,598	-0,586	-0,136	0,199	-0,040	0,000	-0,105	0,124	-0,016	0,080	0,022	-0,055	0,199	0,067	0,094
EoC	-0,582	0,644	-0,003	0,000	0,076	-0,042	0,283	0,101	-0,223	0,060	0,079	-0,086	0,046	0,062	0,163
Clu	0,003	0,055	-0,070	0,042	0,001	0,018	0,016	-0,006	-0,005	0,070	0,014	-0,044	-0,110	-0,017	-0,134
AT	0,872	-0,933	-0,116	0,134	-0,041	0,021	-0,321	-0,025	0,199	-0,028	-0,086	0,075	0,126	0,004	-0,021
BE	0,820	-0,881	-0,052	0,101	-0,047	0,005	-0,266	0,010	0,146	-0,002	-0,036	0,026	0,126	0,020	0,001
DE	0,675	-0,757	-0,112	0,180	-0,045	-0,001	-0,154	0,104	0,025	0,067	-0,008	-0,027	0,243	0,078	0,113
DK	0,900	-0,962	-0,104	0,164	-0,073	0,018	-0,300	0,010	0,166	0,011	-0,045	0,027	0,134	0,009	-0,024
EL	0,906	-0,967	-0,140	0,100	-0,129	0,103	-0,319	-0,005	0,185	0,007	-0,066	0,043	0,072	0,012	
ES	0,830	-0,891	-0,063	0,087	-0,149	0,078	-0,258	0,034	0,127	0,016	-0,103	0,066	0,113	0,044	-0,009
FI	0,894	-0,955	-0,113	0,163	-0,098	0,038	-0,310	0,002	0,176	0,021	-0,063	0,035	0,130	0,006	-0,035
FR	0,727	-0,789	-0,027	0,131	-0,024	-0,038	-0,343	-0,102	0,258	-0,020	-0,021	0,025	0,169	0,015	-0,015
IE	0,934	-0,996	-0,097	0,156	-0,088	0,026	-0,309	0,012	0,170	0,011	-0,059	0,037	0,141	0,021	-0,023
IT	0,749	-0,809	-0,007	0,049	-0,078	0,024	-0,223	0,048	0,098	-0,016	-0,078	0,063	0,058	-0,003	-0,037
NL	0,832	-0,893	-0,141	0,161	-0,097	0,054	-0,209	0,046	0,091	0,034	-0,049	0,018	0,092	-0,009	-0,101
PT	0,850	-0,911	-0,070	0,157	-0,094	0,015	-0,327	-0,036	0,209	-0,012	-0,084	0,066	0,088	-0,034	-0,116
SE	**1**	-0,938	-0,082	0,160	-0,080	0,012	-0,284	0,034	0,141	0,007	-0,039	0,024	0,119	0,011	-0,012
UK	-0,938	**1**	0,096	-0,152	0,087	-0,027	0,306	-0,016	-0,166	-0,011	0,061	-0,038	-0,147	-0,019	0,017
CRISIS-1: 90	-0,082	0,096	**1**	0,097	-0,029	-0,602	0,114	0,033	-0,085	0,046	0,193	-0,160	0,062	-0,015	-0,046
CRISIS-2: 00	0,160	-0,152	0,097	**1**	0,085	-0,611	-0,037	-0,005	0,024	-0,087	0,035	0,018	-0,003	-0,177	-0,194
CRISIS-3: 08	-0,080	0,087	-0,029	0,085	**1**	-0,604	0,087	0,037	-0,072	-0,091	0,261	-0,142	0,088	0,095	0,249
CRISIS-4:BT	0,012	-0,027	-0,602	-0,611	-0,604	**1**	-0,096	-0,038	0,078	0,070	-0,278	0,164	-0,084	0,043	0,007
Urban	-0,284	0,306	0,114	-0,037	0,087	-0,096	**1**	0,424	-0,832	0,023	0,143	-0,114	-0,031	0,023	-0,005
Intermediate	0,034	-0,016	0,033	-0,005	0,037	-0,038	0,424	**1**	-0,855	0,012	0,094	-0,073	0,043	0,038	0,030
Rural	0,141	-0,166	-0,085	0,024	-0,072	0,078	-0,832	-0,855	**1**	-0,021	-0,140	0,110	-0,008	-0,037	-0,015
LIS	0,007	-0,011	0,046	-0,087	-0,091	0,070	0,023	0,012	-0,021	**1**	0,358	-0,746	-0,006	0,032	-0,001
NED	-0,039	0,061	0,193	0,035	0,261	-0,278	0,143	0,094	-0,140	0,358	**1**	-0,889	0,159	0,050	0,083
NIS	0,024	-0,038	-0,160	0,018	-0,142	0,164	-0,114	-0,073	0,110	-0,746	-0,889	**1**	-0,111	-0,052	-0,059
Rec_DL	0,119	-0,147	0,062	-0,003	0,088	-0,084	-0,031	0,043	-0,008	-0,006	0,159	-0,111	**1**	0,519	0,475
Ret_Tra_4	0,011	-0,019	-0,015	-0,177	0,095	0,043	0,023	0,038	-0,037	0,032	0,050	-0,052	0,519	**1**	0,707
Ret_Tra_8	-0,012	0,017	-0,046	-0,194	0,249	0,007	-0,005	0,030	-0,015	-0,001	0,083	-0,059	0,475	0,707	**1**

Stepwise analysis of covariance on regional RGVA resilience performance (all variables) - Recovery of development level

Summary of the variables selection Rec_DL:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R²	Adjusted R²	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	NAT	NAT	IN	0,008	0,166	0,160	186,913	-9158,286	-9080,577	0,846
2	NAT / Shock	Shock	IN	0,008	0,192	0,186	125,852	-9215,298	-9126,488	0,821
3	Pub_GVA / NAT / Shock	Pub_GVA	IN	0,008	0,201	0,194	106,029	-9234,210	-9139,849	0,813
4	Pub_GVA / NAT / CRISIS / Shock	CRISIS	IN	0,008	0,213	0,205	83,488	-9255,910	-9144,897	0,804
5	Pub_GVA / HHI / NAT / CRISIS / Shock	HHI	IN	0,008	0,220	0,212	67,419	-9271,658	-9155,094	0,798
6	Pub_GVA / HHI / SHDI / NAT / CRISIS / Shock	SHDI	IN	0,007	0,229	0,220	47,085	-9291,826	-9169,711	0,789
7	Pub_GVA / HHI / ML_barg / SHDI / NAT / CRISIS / Shock	ML_barg	IN	0,007	0,233	0,224	39,481	-9299,439	-9171,773	0,786
8	Pub_GVA / HHI / ML_barg / SHDI / Clu / NAT / CRISIS / Shock	Clu	IN	0,007	0,235	0,226	35,867	-9303,081	-9169,865	0,784
9	Agri_GVA / Pub_GVA / HHI / ML_barg / SHDI / Clu / NAT / CRISIS / Shock	Agri_GVA	IN	0,007	0,237	0,227	33,929	-9305,048	-9166,282	0,784
10	Agri_GVA / Pub_GVA / HHI / Gov_debt / ML_barg / SHDI / Clu / NAT / CRISIS / Shock	Gov_debt	IN	0,007	0,238	0,228	31,997	-9307,017	-9162,700	0,783

Stepwise analysis of covariance on regional RGVA resilience performance (all variables) - Recovery of development level

Goodness of fit statistics (Rec_DL):

Observations	1902
Sum of weights	1902
DF	1876
R²	0,238
Adjusted R²	0,228
MSE	0,007
RMSE	0,086
MAPE	1848,500
DW	1,686
Cp	31,997
AIC	-9307,017
SBC	-9162,700
PC	0,783
Press	14,406
Q²	0,209

Analysis of variance (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	25	4,341	0,174	23,476	**<0,0001**
Error	1876	13,874	0,007		
Corrected Tc	1901	18,215			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance (all variables) - Recovery of development level

Type I Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	1,000	0,238	0,238	32,143	0,000
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,190	0,190	25,637	0,000
HHI	1,000	0,546	0,546	73,795	0,000
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,030	0,030	4,002	0,046
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,001	0,001	0,104	0,747
SHDI	1,000	0,208	0,208	28,171	0,000
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,215	0,215	29,064	0,000
NAT	13,000	2,322	0,179	24,147	0,000
CRISIS	3,000	0,408	0,136	18,397	0,000
Urb_1	0,000	0,000			
	2,000	0,184	0,092	12,446	0,000

Type II Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	1,000	0,032	0,032	4,323	0,038
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,269	0,269	36,367	0,000
HHI	1,000	0,176	0,176	23,769	0,000
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,029	0,029	3,919	0,048
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,089	0,089	12,079	0,001
SHDI	1,000	0,124	0,124	16,729	0,000
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,041	0,041	5,556	0,019
NAT	13,000	2,046	0,157	21,280	0,000
CRISIS	3,000	0,377	0,126	17,007	0,000
Urb_1	0,000	0,000			
	2,000	0,184	0,092	12,446	0,000

Type III Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	1,000	0,032	0,032	4,323	0,038
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,269	0,269	36,367	0,000
HHI	1,000	0,176	0,176	23,769	0,000
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,029	0,029	3,919	0,048
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,089	0,089	12,079	0,001
SHDI	1,000	0,124	0,124	16,729	0,000
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,041	0,041	5,556	0,019
NAT	13,000	2,046	0,157	21,280	0,000
CRISIS	3,000	0,377	0,126	17,007	0,000
Urb_1	0,000	0,000			
	2,000	0,184	0,092	12,446	0,000

Stepwise analysis of covariance on regional RGVA resilience performance (all variables) - Recovery of development level

Model parameters (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,395	0,124	-3,190	**0,001**	-0,638	-0,152
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	-0,248	0,147	-1,692	0,091	-0,536	0,040
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,203	0,044	4,617	**<0,0001**	0,117	0,289
HHI	-0,393	0,131	-2,992	**0,003**	-0,650	-0,135
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	-0,003	0,002	-1,447	0,148	-0,006	0,001
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	-0,021	0,008	-2,605	**0,009**	-0,036	-0,005
SHDI	0,446	0,137	3,243	**0,001**	0,176	0,715
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	-0,002	0,001	-2,099	**0,036**	-0,003	0,000
AT	0,030	0,012	2,395	**0,017**	0,005	0,054
BE	0,041	0,012	3,451	**0,001**	0,018	0,064
DE	0,045	0,008	5,387	**<0,0001**	0,029	0,062
DK	-0,001	0,015	-0,043	0,966	-0,030	0,028
EL	-0,235	0,032	-7,332	**<0,0001**	-0,297	-0,172
ES	0,039	0,016	2,397	**0,017**	0,007	0,072
FI	0,055	0,030	1,822	0,069	-0,004	0,115
FR	0,041	0,011	3,877	**0,000**	0,020	0,062
IE	-0,035	0,040	-0,866	0,386	-0,113	0,044
IT	0,020	0,012	1,635	0,102	-0,004	0,043
NL	0,023	0,016	1,408	0,159	-0,009	0,054
PT	0,013	0,018	0,703	0,482	-0,023	0,048
SE	0,003	0,020	0,156	0,876	-0,037	0,043
UK	-0,040	0,017	-2,330	**0,020**	-0,074	-0,006
CRISIS-1: 90	0,036	0,008	4,667	**<0,0001**	0,021	0,051
CRISIS-2: 00	-0,026	0,006	-4,403	**<0,0001**	-0,037	-0,014
CRISIS-3: 08	-0,026	0,007	-3,559	**0,000**	-0,041	-0,012
CRISIS-4:BT	0,016	0,010	1,607	0,108	-0,004	0,037
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	-0,018	0,008	-2,310	**0,021**	-0,033	-0,003
NED	0,020	0,005	3,920	**<0,0001**	0,010	0,030
NIS	-0,003	0,007	-0,376	0,707	-0,016	0,011

Standardized coefficients (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	-0,059	0,035	-1,692	0,091	-0,127	0,009
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,139	0,030	4,617	**<0,0001**	0,080	0,198
HHI	-0,123	0,041	-2,992	**0,003**	-0,204	-0,043
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	-0,065	0,045	-1,447	0,148	-0,152	0,023
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	-0,185	0,071	-2,605	**0,009**	-0,325	-0,046
SHDI	0,237	0,073	3,243	**0,001**	0,094	0,381
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	-0,056	0,026	-2,099	**0,036**	-0,107	-0,004
AT	0,118	0,049	2,395	**0,017**	0,021	0,215
BE	0,176	0,051	3,451	**0,001**	0,076	0,275
DE	0,327	0,061	5,387	**<0,0001**	0,208	0,446
DK	-0,002	0,056	-0,043	0,966	-0,113	0,108
EL	-0,887	0,121	-7,332	**<0,0001**	-1,124	-0,650
ES	0,168	0,070	2,397	**0,017**	0,030	0,305
FI	0,213	0,117	1,822	0,069	-0,016	0,443
FR	0,214	0,055	3,877	**0,000**	0,106	0,322
IE	-0,126	0,145	-0,866	0,386	-0,411	0,159
IT	0,097	0,060	1,635	0,102	-0,019	0,214
NL	0,096	0,068	1,408	0,159	-0,038	0,230
PT	0,052	0,074	0,703	0,482	-0,094	0,198
SE	0,012	0,080	0,156	0,876	-0,145	0,170
UK	-0,146	0,063	-2,330	**0,020**	-0,269	-0,023
CRISIS-1: 90	0,214	0,046	4,667	**<0,0001**	0,124	0,304
CRISIS-2: 00	-0,137	0,031	-4,403	**<0,0001**	-0,199	-0,076
CRISIS-3: 08	-0,160	0,045	-3,559	**0,000**	-0,248	-0,072
CRISIS-4:BT	0,043	0,027	1,607	0,108	-0,010	0,096
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	-0,076	0,033	-2,310	**0,021**	-0,141	-0,011
NED	0,127	0,032	3,920	**<0,0001**	0,064	0,191
NIS	-0,008	0,020	-0,376	0,707	-0,048	0,032

Stepwise analysis of covariance on regional RGVA resilience performance (all variables) - Growth trajectory retention (4-years recovery period)

Summary of the variables selection Ret_Tra_4:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R²	Adjusted R²	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	CRISIS	CRISIS	IN	0,001	0,044	0,042	133,988	-14285,074	-14262,872	0,960
2	NAT / CRISIS	NAT	IN	0,001	0,080	0,072	82,576	-14333,100	-14238,738	0,936
3	Gov_debt / NAT / CRISIS	Gov_debt	IN	0,001	0,089	0,081	65,537	-14349,755	-14249,843	0,928
4	Gov_debt / ML_barg / NAT / CRISIS	ML_barg	IN	0,001	0,098	0,089	49,509	-14365,591	-14260,129	0,921
5	HHI / Gov_debt / ML_barg / NAT / CRISIS	HHI	IN	0,001	0,102	0,093	42,077	-14372,990	-14261,976	0,917
6	Agri_GVA / HHI / Gov_debt / ML_barg / NAT / CRISIS	Agri_GVA	IN	0,001	0,106	0,096	35,733	-14379,343	-14262,779	0,914
7	Mig_net / Agri_GVA / HHI / Gov_debt / ML_barg / NAT / CRISIS	Mig_net	IN	0,001	0,110	0,100	29,526	-14385,594	-14263,480	0,911
8	Mig_net / Agri_GVA / Pub_GVA / HHI / Gov_debt / ML_barg / NAT / CRISIS	Pub_GVA	IN	0,001	0,112	0,102	26,852	-14388,311	-14260,645	0,910
9	Mig_net / Agri_GVA / Pub_GVA / HHI / RnD_EMP / Gov_debt / ML_barg / NAT / CRISIS	RnD_EMP	IN	0,001	0,114	0,103	24,996	-14390,210	-14256,994	0,909

Stepwise analysis of covariance on regional RGVA resilience performance (all variables) - Growth trajectory retention (4-years recovery period)

Goodness of fit statistics (Ret_Tra_4):

Observations	1902
Sum of weights	1902
DF	1878
R^2	0,114
Adjusted R^2	0,103
MSE	0,001
RMSE	0,023
MAPE	232,477
DW	1,600
Cp	24,996
AIC	-14390,210
SBC	-14256,994
PC	0,909
Press	1,012
Q^2	0,066

Analysis of variance (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	23	0,123	0,005	10,494	**<0,0001**
Error	1878	0,960	0,001		
Corrected Tc	1901	1,084			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance (all variables) - Growth trajectory retention (4-years recovery period)

Type I Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	1,000	0,001	0,001	2,012	0,156
Pop_work	0,000	0,000			
Agri_GVA	1,000	0,004	0,004	8,492	0,004
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,003	0,003	5,016	0,025
HHI	1,000	0,005	0,005	9,987	0,002
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	1,000	0,002	0,002	4,172	0,041
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,010	0,010	20,181	0,000
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,007	0,007	13,451	0,000
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	13,000	0,053	0,004	7,964	0,000
CRISIS	3,000	0,038	0,013	24,840	0,000
Urb_1	0,000	0,000			
	0,000	0,000			

Type II Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	1,000	0,003	0,003	6,839	0,009
Pop_work	0,000	0,000			
Agri_GVA	1,000	0,004	0,004	7,839	0,005
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,003	0,003	6,272	0,012
HHI	1,000	0,009	0,009	17,539	0,000
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	1,000	0,002	0,002	3,854	0,050
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,014	0,014	26,792	0,000
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,010	0,010	20,050	0,000
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	13,000	0,057	0,004	8,586	0,000
CRISIS	3,000	0,038	0,013	24,840	0,000
Urb_1	0,000	0,000			
	0,000	0,000			

Type III Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	1,000	0,003	0,003	6,839	0,009
Pop_work	0,000	0,000			
Agri_GVA	1,000	0,004	0,004	7,839	0,005
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,003	0,003	6,272	0,012
HHI	1,000	0,009	0,009	17,539	0,000
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	1,000	0,002	0,002	3,854	0,050
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,014	0,014	26,792	0,000
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,010	0,010	20,050	0,000
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	13,000	0,057	0,004	8,586	0,000
CRISIS	3,000	0,038	0,013	24,840	0,000
Urb_1	0,000	0,000			
	0,000	0,000			

Stepwise analysis of covariance on regional RGVA resilience performance (all variables) - Growth trajectory retention (4-years recovery period)

Model parameters (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,020	0,011	1,806	0,071	-0,002	0,042
Pop_age	0,000	0,000				
Mig_net	0,000	0,000	-2,000	**0,046**	0,000	0,000
Pop_work	0,000	0,000				
Agri_GVA	-0,084	0,039	-2,173	**0,030**	-0,160	-0,008
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,021	0,012	1,772	0,077	-0,002	0,045
HHI	-0,084	0,035	-2,436	**0,015**	-0,152	-0,016
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,001	0,001	1,799	0,072	0,000	0,003
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	-0,002	0,000	-4,031	**<0,0001**	-0,003	-0,001
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	-0,007	0,002	-3,646	**0,000**	-0,011	-0,003
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	-0,012	0,004	-2,926	**0,003**	-0,021	-0,004
BE	0,002	0,003	0,686	0,493	-0,004	0,009
DE	0,000	0,003	-0,036	0,972	-0,006	0,005
DK	-0,008	0,006	-1,390	0,165	-0,019	0,003
EL	-0,007	0,007	-0,957	0,339	-0,022	0,007
ES	0,007	0,004	1,547	0,122	-0,002	0,015
FI	0,011	0,009	1,236	0,216	-0,006	0,028
FR	-0,009	0,003	-2,736	**0,006**	-0,015	-0,003
IE	0,047	0,028	1,688	0,092	-0,008	0,102
IT	-0,006	0,003	-1,802	0,072	-0,012	0,001
NL	0,003	0,004	0,790	0,430	-0,005	0,012
PT	-0,017	0,005	-3,525	**0,000**	-0,026	-0,007
SE	0,006	0,005	1,166	0,244	-0,004	0,015
UK	-0,017	0,005	-3,557	**0,000**	-0,026	-0,008
CRISIS-1: 90	0,004	0,001	2,543	**0,011**	0,001	0,007
CRISIS-2: 00	-0,009	0,001	-6,502	**<0,0001**	-0,012	-0,006
CRISIS-3: 08	0,002	0,001	1,429	0,153	-0,001	0,004
CRISIS-4:BT	0,004	0,002	1,529	0,127	-0,001	0,008
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	-0,059	0,030	-2,000	**0,046**	-0,118	-0,001
Pop_work	0,000	0,000				
Agri_GVA	-0,082	0,038	-2,173	**0,030**	-0,155	-0,008
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,060	0,034	1,772	0,077	-0,006	0,127
HHI	-0,108	0,044	-2,436	**0,015**	-0,196	-0,021
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,050	0,028	1,799	0,072	-0,004	0,104
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	-0,177	0,044	-4,031	**<0,0001**	-0,262	-0,091
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	-0,256	0,070	-3,646	**0,000**	-0,393	-0,118
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	-0,200	0,068	-2,926	**0,003**	-0,334	-0,066
BE	0,041	0,060	0,686	0,493	-0,077	0,160
DE	-0,003	0,083	-0,036	0,972	-0,166	0,160
DK	-0,122	0,088	-1,390	0,165	-0,294	0,050
EL	-0,110	0,115	-0,957	0,339	-0,337	0,116
ES	0,118	0,076	1,547	0,122	-0,032	0,267
FI	0,170	0,137	1,236	0,216	-0,099	0,439
FR	-0,189	0,069	-2,736	**0,006**	-0,325	-0,054
IE	0,701	0,415	1,688	0,092	-0,113	1,516
IT	-0,120	0,066	-1,802	0,072	-0,250	0,011
NL	0,058	0,073	0,790	0,430	-0,086	0,202
PT	-0,282	0,080	-3,525	**0,000**	-0,440	-0,125
SE	0,089	0,077	1,166	0,244	-0,061	0,239
UK	-0,250	0,070	-3,557	**0,000**	-0,387	-0,112
CRISIS-1: 90	0,093	0,037	2,543	**0,011**	0,021	0,165
CRISIS-2: 00	-0,195	0,030	-6,502	**<0,0001**	-0,254	-0,136
CRISIS-3: 08	0,041	0,029	1,429	0,153	-0,015	0,097
CRISIS-4:BT	0,038	0,025	1,529	0,127	-0,011	0,086
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Stepwise analysis of covariance on regional RGVA resilience performance (all variables) - Growth trajectory retention (8-years recovery period)

Summary of the variables selection Ret_Tra_8:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R²	Adjusted R²	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	CRISIS	CRISIS	IN	0,000	0,116	0,115	316,303	-12131,846	-12110,577	0,888
2	NAT / CRISIS	NAT	IN	0,000	0,207	0,199	154,517	-12270,541	-12185,466	0,810
3	Union / NAT / CRISIS	Union	IN	0,000	0,228	0,220	112,842	-12309,483	-12219,090	0,789
4	Union / Clu / NAT / CRISIS	Clu	IN	0,000	0,243	0,235	83,592	-12337,475	-12241,765	0,775
5	Cur_blc / Union / Clu / NAT / CRISIS	Cur_blc	IN	0,000	0,254	0,245	64,147	-12356,407	-12255,380	0,765
6	Pop_age / Cur_blc / Union / Clu / NAT / CRISIS	Pop_age	IN	0,000	0,261	0,252	50,513	-12369,853	-12263,509	0,758
7	Pop_age / Pub_GVA / Cur_blc / Union / Clu / NAT / CRISIS	Pub_GVA	IN	0,000	0,266	0,257	42,353	-12377,977	-12266,316	0,754
8	Pop_age / Pub_GVA / Gov_debt / Cur_blc / Union / Clu / NAT / CRISIS	Gov_debt	IN	0,000	0,271	0,261	34,839	-12385,519	-12268,540	0,751

Stepwise analysis of covariance on regional RGVA resilience performance (all variables) - Growth trajectory retention (8-years recovery period)

Goodness of fit statistics (Ret_Tra_8):

Observations	1506
Sum of weights	1506
DF	1484
R^2	0,271
Adjusted R^2	0,261
MSE	0,000
RMSE	0,016
MAPE	436,096
DW	1,534
Cp	34,839
AIC	-12385,519
SBC	-12268,540
PC	0,751
Press	0,407
Q^2	0,244

Analysis of variance (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	21	0,146	0,007	26,272	**<0,0001**
Error	1484	0,392	0,000		
Corrected Tc	1505	0,538			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance (all variables) - Growth trajectory retention (8-years recovery period)

Type I Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,027	0,027	100,930	0,000
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,002	0,002	6,730	0,010
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,005	0,005	17,490	0,000
Cur_blc	1,000	0,003	0,003	12,787	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,001	0,001	2,621	0,106
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,007	0,007	24,916	0,000
NAT	12,000	0,074	0,006	23,244	0,000
CRISIS	3,000	0,028	0,009	35,768	0,000
Urb_1	0,000	0,000			
	0,000	0,000			

Type II Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,003	0,003	12,097	0,001
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,003	0,003	10,864	0,001
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,002	0,002	9,432	0,002
Cur_blc	1,000	0,005	0,005	19,157	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,010	0,010	38,842	0,000
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,008	0,008	28,474	0,000
NAT	12,000	0,063	0,005	19,795	0,000
CRISIS	3,000	0,028	0,009	35,768	0,000
Urb_1	0,000	0,000			
	0,000	0,000			

Type III Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,003	0,003	12,097	0,001
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,003	0,003	10,864	0,001
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,002	0,002	9,432	0,002
Cur_blc	1,000	0,005	0,005	19,157	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,010	0,010	38,842	0,000
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,008	0,008	28,474	0,000
NAT	12,000	0,063	0,005	19,795	0,000
CRISIS	3,000	0,028	0,009	35,768	0,000
Urb_1	0,000	0,000			
	0,000	0,000			

Stepwise analysis of covariance on regional RGVA resilience performance (all variables) - Growth trajectory retention (8-years recovery period)

Model parameters (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,023	0,013	1,714	0,087	-0,003	0,049
Pop_age	0,005	0,002	3,000	**0,003**	0,002	0,008
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,023	0,010	2,240	**0,025**	0,003	0,042
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	-0,001	0,001	-1,716	0,086	-0,002	0,000
Cur_blc	-0,001	0,000	-3,073	**0,002**	-0,002	0,000
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	-0,001	0,000	-4,247	**<0,0001**	-0,002	-0,001
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	-0,001	0,000	-5,289	**<0,0001**	-0,001	-0,001
AT	-0,003	0,004	-0,683	0,495	-0,011	0,006
BE	0,026	0,007	3,967	**<0,0001**	0,013	0,039
DE	-0,008	0,004	-2,085	**0,037**	-0,015	0,000
DK	0,055	0,011	4,783	**<0,0001**	0,032	0,077
EL	0,000	0,000				
ES	-0,028	0,009	-3,181	**0,001**	-0,046	-0,011
FI	0,056	0,012	4,718	**<0,0001**	0,033	0,079
FR	-0,037	0,009	-4,264	**<0,0001**	-0,054	-0,020
IE	-0,038	0,002	-15,423	**<0,0001**	-0,043	-0,033
IT	-0,012	0,003	-3,573	**0,000**	-0,019	-0,005
NL	-0,024	0,006	-3,969	**<0,0001**	-0,036	-0,012
PT	-0,042	0,007	-6,300	**<0,0001**	-0,055	-0,029
SE	0,066	0,011	5,813	**<0,0001**	0,044	0,088
UK	-0,005	0,003	-1,702	0,089	-0,012	0,001
CRISIS-1: 90	0,006	0,002	3,006	**0,003**	0,002	0,009
CRISIS-2: 00	-0,009	0,001	-6,358	**<0,0001**	-0,011	-0,006
CRISIS-3: 08	0,002	0,002	1,237	0,216	-0,001	0,006
CRISIS-4:BT	0,001	0,002	0,361	0,718	-0,004	0,006
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,100	0,033	3,000	**0,003**	0,035	0,166
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,081	0,036	2,240	**0,025**	0,010	0,151
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	-0,123	0,071	-1,716	0,086	-0,263	0,018
Cur_blc	-0,195	0,063	-3,073	**0,002**	-0,319	-0,071
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	-0,988	0,233	-4,247	**<0,0001**	-1,444	-0,532
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	-0,130	0,025	-5,289	**<0,0001**	-0,178	-0,082
AT	-0,056	0,082	-0,683	0,495	-0,217	0,105
BE	0,559	0,141	3,967	**<0,0001**	0,283	0,836
DE	-0,281	0,135	-2,085	**0,037**	-0,545	-0,017
DK	1,034	0,216	4,783	**<0,0001**	0,610	1,458
EL	0,000	0,000				
ES	-0,620	0,195	-3,181	**0,001**	-1,002	-0,238
FI	1,086	0,230	4,718	**<0,0001**	0,635	1,538
FR	-0,947	0,222	-4,264	**<0,0001**	-1,382	-0,511
IE	-0,689	0,045	-15,423	**<0,0001**	-0,776	-0,601
IT	-0,296	0,083	-3,573	**0,000**	-0,459	-0,134
NL	-0,499	0,126	-3,969	**<0,0001**	-0,745	-0,252
PT	-0,870	0,138	-6,300	**<0,0001**	-1,141	-0,599
SE	1,321	0,227	5,813	**<0,0001**	0,875	1,767
UK	-0,099	0,058	-1,702	0,089	-0,212	0,015
CRISIS-1: 90	0,179	0,060	3,006	**0,003**	0,062	0,296
CRISIS-2: 00	-0,250	0,039	-6,358	**<0,0001**	-0,328	-0,173
CRISIS-3: 08	0,062	0,050	1,237	0,216	-0,036	0,160
CRISIS-4:BT	0,011	0,031	0,361	0,718	-0,050	0,073
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

III.b. Analysis of the effect of resilience capabilities on resilience performance by crisis period

III.b.i. RGVA

III.b.i.1. Observations between crisis periods

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations between crisis periods

Settings:
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Model selection: Stepwise
Probability for entry: 0,05 / Probability for removal: 0,1
Covariances: Corrections = Newey West (adjusted)(Lag = 1)
Use least squares means: Yes
Explanation of the variable codes can be found in table 28

Summary statistics (Quantitative data):

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Rec_DL	134	0	134	-0,590	0,213	-0,107	0,165
Ret_Tra_4	134	0	134	-0,090	0,056	-0,006	0,029
Ret_Tra_8	134	36	98	-0,127	0,051	-0,011	0,027
Pop_age	134	0	134	0,192	2,146	1,100	0,398
Mig_net	134	0	134	-11,368	66,719	4,351	9,197
Pop_work	134	0	134	0,343	0,648	0,452	0,048
Agri_GVA	134	0	134	0,000	0,146	0,034	0,030
Manu_GVA	134	0	134	0,020	0,711	0,220	0,124
Const_GVA	134	0	134	0,025	0,352	0,087	0,052
Serv_GVA	134	0	134	0,179	0,702	0,413	0,087
Pub_GVA	134	0	134	0,074	0,567	0,246	0,084
HHI	134	0	134	0,183	0,530	0,238	0,049
GDP_PC	134	0	134	-1,110	3,520	-0,093	0,667
GFCF_PC	134	0	134	-1,517	1,988	-0,012	0,649
PROD	134	0	134	-2,372	4,694	0,061	1,195
RnD_GDP	134	0	134	0,071	7,247	1,186	1,079
RnD_EMP	134	0	134	0,000	3,570	1,006	0,712
MM_Ac	134	0	134	24,795	167,725	85,529	35,942
Avg_bus	134	0	134	2,135	18,605	8,209	4,846
Gov_debt	134	0	134	-10,900	5,100	-3,872	2,871
Cur_blc	134	0	134	-13,900	10,200	-1,126	4,060
Gov_close	134	0	134	0,370	19,180	4,596	3,186
Lab_comp	134	0	134	324,327	96481,74	17715,02	14822,42
Union	134	0	134	7,880	80,777	28,645	11,368
ML_barg	134	0	134	1,000	4,750	2,462	0,612
SHDI	134	0	134	0,731	0,921	0,832	0,042
SC_Org	134	0	134	0,038	0,205	0,119	0,045
EoC	134	0	134	46,900	100,000	71,852	16,676
Clu	134	0	134	0,360	31,000	2,938	3,836

Number of removed observations: 32

Summary statistics (Qualitative data):

Variable	Categories	Counts	Frequencies	%
NAT	AT	2	2	1,493
	BE	2	2	1,493
	DE	53	53	39,552
	EL	15	15	11,194
	ES	16	16	11,940
	FI	4	4	2,985
	FR	1	1	0,746
	IT	13	13	9,701
	NL	11	11	8,209
	PT	2	2	1,493
	UK	15	15	11,194
Urb_1	Urban	23	23	17,164
	Intermediate	58	58	43,284
	Rural	53	53	39,552
Shock	LIS	49	49	36,567
	NED	50	50	37,313
	NIS	35	35	26,119

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations between crisis periods

Correlation matrix:

	Pop_age	Mig_net	Pop_work	Agri_GVA	Manu_GVA	Const_GVA	Serv_GVA	Pub_GVA	HHI	GDP_PC	GFCF_PC	PROD	RnD_GDP	RnD_EMP	MM_Ac	Avg_bus	Gov_debt	Cur_blc	Gov_close	Lab_comp	Union	ML_barg	SHDI	SC_Org	EoC	Clu	AT	BE	DE	EL	ES	FI	FR	IT	NL	PT	UK	Urban	Intermediate	Rural	LIS	NED	NIS	Rec_DL	Ret_Tra_4	Ret_Tra_8
Pop_age	**1**	-0,305	0,169	0,345	0,029	-0,307	-0,020	0,043	-0,120	-0,098	-0,382	-0,330	-0,004	0,082	-0,130	-0,153	-0,066	-0,162	-0,122	0,038	0,059	0,064	0,367	-0,326	-0,294	-0,208	0,085	0,059	0,011	0,313	-0,205	0,033	0,119	0,188	-0,069	0,160	-0,077	-0,331	-0,254	0,320	-0,128	0,085	0,025	-0,156	-0,150	0,083
Mig_net	-0,305	**1**	0,007	-0,079	-0,161	0,163	0,282	-0,125	-0,090	0,042	0,158	0,035	-0,083	-0,057	0,114	0,167	0,028	-0,183	-0,012	0,132	-0,042	-0,093	-0,007	0,070	0,151	-0,121	-0,010	-0,013	0,100	-0,067	0,022	-0,066	-0,013	-0,056	-0,084	-0,061	0,022	0,075	0,147	-0,128	-0,122	-0,043	0,099	-0,069	0,007	-0,007
Pop_work	0,169	0,007	**1**	-0,182	0,104	-0,250	0,005	0,060	0,037	0,215	0,268	0,161	0,395	0,349	0,291	0,275	0,279	0,296	0,181	0,191	0,106	-0,445	0,640	0,078	0,375	-0,027	-0,347	-0,394	-0,116	-0,330	-0,562	-0,296	-0,398	-0,494	-0,161	-0,327	0,405	0,014	-0,121	0,068	0,025	-0,061	0,022	0,206	0,027	0,007
Agri_GVA	0,345	-0,079	-0,182	**1**	-0,207	0,008	-0,044	-0,011	-0,391	-0,460	-0,355	-0,473	-0,230	-0,149	-0,560	-0,524	-0,126	-0,320	-0,270	-0,288	0,013	0,143	-0,041	-0,391	-0,433	-0,069	0,035	0,023	-0,338	0,327	0,056	0,018	0,038	0,087	-0,031	0,048	-0,012	-0,475	-0,346	0,447	-0,302	-0,225	0,315	-0,323	-0,085	-0,084
Manu_GVA	0,029	-0,161	0,104	-0,207	**1**	-0,398	-0,579	-0,558	0,328	0,441	0,081	0,375	0,345	0,283	0,294	0,238	0,086	0,162	0,062	0,099	0,082	-0,119	0,302	0,203	0,063	-0,044	-0,046	-0,062	0,105	0,007	-0,229	-0,008	-0,039	-0,114	0,160	-0,020	0,023	0,167	0,089	-0,138	0,100	0,173	-0,163	0,141	-0,114	-0,177
Const_GVA	-0,307	0,163	-0,250	0,008	-0,398	**1**	-0,011	-0,018	-0,323	-0,400	0,069	-0,210	-0,168	-0,236	-0,283	-0,089	0,052	-0,139	-0,037	-0,124	-0,178	0,017	-0,493	-0,051	0,120	-0,272	-0,040	-0,066	-0,129	-0,195	0,300	-0,071	-0,061	0,000	-0,182	-0,094	0,065	-0,144	-0,042	0,097	0,042	-0,265	0,134	0,031	0,264	0,159
Serv_GVA	-0,020	0,282	0,005	-0,044	-0,579	-0,011	**1**	-0,157	-0,218	0,028	0,064	-0,109	-0,143	-0,026	0,116	-0,040	-0,125	-0,070	-0,057	0,234	-0,055	0,073	0,039	-0,028	-0,111	-0,096	0,152	0,166	0,110	0,122	0,137	0,087	0,136	0,216	0,012	0,138	-0,154	0,096	0,058	-0,083	-0,055	0,076	-0,013	-0,226	-0,050	-0,015
Pub_GVA	0,043	-0,125	0,060	-0,011	-0,558	-0,018	-0,157	**1**	0,080	-0,270	-0,101	-0,142	-0,175	-0,193	-0,181	-0,068	0,015	0,034	0,086	-0,208	0,040	0,039	-0,168	-0,100	0,103	0,355	-0,078	-0,048	-0,069	-0,133	-0,008	-0,041	-0,059	-0,086	-0,126	-0,072	0,089	-0,089	-0,043	0,070	-0,008	-0,091	0,059	0,122	0,088	0,175
HHI	-0,120	-0,090	0,037	-0,391	0,328	-0,323	-0,218	0,080	**1**	0,471	-0,008	0,181	0,250	0,169	0,031	0,001	0,053	0,039	-0,159	-0,093	-0,091	0,054	-0,040	0,065	-0,077	0,425	-0,012	0,027	-0,017	0,081	0,035	-0,023	0,014	-0,053	0,147	0,004	-0,025	0,113	0,074	-0,101	0,298	0,184	-0,288	-0,184	-0,179	-0,256
GDP_PC	-0,098	0,042	0,215	-0,460	0,441	-0,400	0,028	-0,270	0,471	**1**	0,453	0,595	0,360	0,293	0,469	0,397	0,145	0,236	0,192	0,245	0,102	-0,080	0,267	0,335	0,144	0,031	0,058	0,048	0,288	-0,066	-0,128	0,084	0,070	0,028	0,228	0,037	-0,090	0,279	0,292	-0,318	0,119	0,267	-0,231	0,086	-0,223	-0,309
GFCF_PC	-0,382	0,158	0,268	-0,355	0,081	0,069	0,064	-0,101	-0,008	0,453	**1**	0,654	0,326	0,197	0,477	0,448	0,203	0,340	0,316	0,363	0,074	-0,309	0,157	0,297	0,494	0,012	-0,206	-0,183	0,105	-0,535	-0,211	-0,175	-0,229	-0,152	-0,103	-0,283	0,222	0,220	0,159	-0,207	0,042	-0,075	0,020	0,223	-0,097	-0,383
PROD	-0,330	0,035	0,161	-0,473	0,375	-0,210	-0,109	-0,142	0,181	0,595	0,654	**1**	0,307	0,231	0,587	0,512	0,078	0,560	0,337	0,334	0,057	-0,102	0,326	0,591	0,302	0,051	0,053	0,085	0,356	-0,291	-0,121	0,076	0,074	-0,033	0,337	-0,001	-0,077	0,320	0,337	-0,366	0,110	0,162	-0,162	0,415	0,010	-0,139
RnD_GDP	-0,004	-0,083	0,395	-0,230	0,345	-0,168	-0,143	-0,175	0,250	0,360	0,326	0,307	**1**	0,818	0,346	0,270	0,283	0,279	0,268	0,344	0,157	-0,304	0,349	0,096	0,363	-0,073	-0,322	-0,310	-0,118	-0,395	-0,351	-0,187	-0,327	-0,320	-0,155	-0,314	0,331	0,192	0,066	-0,135	0,011	-0,149	0,083	0,154	-0,014	-0,110
RnD_EMP	0,082	-0,057	0,349	-0,149	0,283	-0,236	-0,026	-0,193	0,169	0,293	0,197	0,231	0,818	**1**	0,303	0,163	0,281	0,123	0,045	0,436	0,028	-0,152	0,457	-0,008	0,153	-0,077	-0,232	-0,206	-0,107	-0,168	-0,284	-0,166	-0,219	-0,232	-0,066	-0,198	0,223	0,259	0,118	-0,201	0,025	-0,057	0,019	-0,046	-0,126	-0,186
MM_Ac	-0,130	0,114	0,291	-0,560	0,294	-0,283	0,116	-0,181	0,031	0,469	0,477	0,587	0,346	0,303	**1**	0,641	-0,006	0,441	0,281	0,509	0,082	-0,183	0,353	0,406	0,393	-0,056	0,054	0,062	0,460	-0,266	-0,291	-0,048	0,009	-0,054	0,123	-0,028	-0,023	0,435	0,215	-0,346	-0,022	0,203	-0,109	0,348	-0,087	-0,085
Avg_bus	-0,153	0,167	0,275	-0,524	0,238	-0,089	-0,040	-0,068	0,001	0,397	0,448	0,512	0,270	0,163	0,641	**1**	0,005	0,199	0,317	0,347	-0,013	-0,389	0,206	0,500	0,725	-0,173	-0,065	-0,085	0,644	-0,321	-0,257	-0,105	-0,075	-0,253	-0,150	-0,092	0,053	0,283	0,266	-0,303	-0,125	0,244	-0,072	0,459	-0,010	-0,051
Gov_debt	-0,066	0,028	0,279	-0,126	0,086	0,052	-0,125	0,015	0,053	0,145	0,203	0,078	0,283	0,281	-0,006	0,005	**1**	0,252	0,155	0,151	-0,003	-0,156	0,203	0,024	0,223	-0,008	-0,219	-0,237	-0,244	-0,370	-0,073	-0,158	-0,240	-0,201	-0,133	-0,268	0,261	0,126	0,156	-0,158	0,055	-0,392	0,202	0,006	-0,002	-0,102
Cur_blc	-0,162	-0,183	0,296	-0,320	0,162	-0,139	-0,070	0,034	0,039	0,236	0,340	0,560	0,279	0,123	0,441	0,199	0,252	**1**	0,449	0,296	0,067	0,017	0,359	0,464	0,105	0,137	0,146	0,141	0,159	-0,348	-0,042	0,179	0,120	0,129	0,441	0,102	-0,118	0,219	0,154	-0,203	0,218	-0,069	-0,088	0,481	0,138	0,029
Gov_close	-0,122	-0,012	0,181	-0,270	0,062	-0,037	-0,057	0,086	-0,159	0,192	0,316	0,337	0,268	0,045	0,281	0,317	0,155	0,449	**1**	0,178	0,689	0,087	0,096	0,546	0,310	-0,042	0,193	0,122	0,285	-0,225	-0,077	0,489	0,139	0,087	0,039	0,103	-0,135	0,039	0,111	-0,088	0,053	-0,023	-0,018	0,438	0,146	0,222
Lab_comp	0,038	0,132	0,191	-0,288	0,099	-0,124	0,234	-0,208	-0,093	0,245	0,363	0,334	0,344	0,436	0,509	0,347	0,151	0,296	0,178	**1**	-0,068	-0,133	0,343	0,160	0,170	-0,267	0,042	0,038	0,274	-0,179	-0,060	0,027	0,099	0,154	0,040	0,061	-0,071	0,380	0,260	-0,347	-0,018	0,048	-0,018	0,136	-0,093	-0,098
Union	0,059	-0,042	0,106	0,013	0,082	-0,178	-0,055	0,040	-0,091	0,102	0,074	0,057	0,157	0,028	0,082	-0,013	-0,003	0,067	0,689	-0,068	**1**	0,146	0,103	0,085	0,027	-0,092	-0,027	0,046	-0,056	-0,009	-0,360	0,307	-0,090	0,086	-0,140	-0,083	0,051	-0,086	-0,066	0,083	0,063	0,050	-0,068	0,150	0,057	0,186
ML_barg	0,064	-0,093	-0,445	0,143	-0,119	0,017	0,073	0,039	0,054	-0,080	-0,309	-0,102	-0,304	-0,152	-0,183	-0,389	-0,156	0,017	0,087	-0,133	0,146	**1**	-0,256	0,247	-0,711	0,123	0,750	0,866	0,301	0,698	0,678	0,789	0,774	0,640	0,639	0,750	-0,802	-0,136	0,142	-0,021	0,028	0,026	-0,032	-0,185	0,035	0,042
SHDI	0,367	-0,007	0,640	-0,041	0,302	-0,493	0,039	-0,168	-0,040	0,267	0,157	0,326	0,349	0,457	0,353	0,206	0,203	0,359	0,096	0,343	0,103	-0,256	**1**	0,088	0,080	-0,123	-0,166	-0,139	0,029	-0,074	-0,522	-0,131	-0,138	-0,153	0,096	-0,170	0,159	0,064	-0,020	-0,019	-0,045	0,015	0,018	0,098	-0,115	-0,024
SC_Org	-0,326	0,070	0,078	-0,391	0,203	-0,051	-0,028	-0,100	0,065	0,335	0,297	0,591	0,096	-0,008	0,406	0,500	0,024	0,464	0,546	0,160	0,085	0,247	0,088	**1**	0,187	0,082	0,500	0,452	0,691	0,125	0,324	0,575	0,479	0,082	0,534	0,398	-0,511	0,145	0,341	-0,282	-0,023	0,204	-0,108	0,339	0,107	0,019
EoC	-0,294	0,151	0,375	-0,433	0,063	0,120	-0,111	0,103	-0,077	0,144	0,494	0,302	0,363	0,153	0,393	0,725	0,223	0,105	0,310	0,170	0,027	-0,711	0,080	0,187	**1**	-0,102	-0,561	-0,594	0,077	-0,756	-0,440	-0,501	-0,601	-0,678	-0,613	-0,611	0,602	0,243	0,094	-0,178	-0,141	-0,069	0,125	0,437	0,082	0,083
Clu	-0,208	-0,121	-0,027	-0,069	-0,044	-0,272	-0,096	0,355	0,425	0,031	0,012	0,051	-0,073	-0,077	-0,056	-0,173	-0,008	0,137	-0,042	-0,267	-0,092	0,123	-0,123	0,082	-0,102	**1**	0,037	0,049	-0,099	0,038	0,142	0,067	0,042	-0,070	0,197	0,049	-0,046	0,088	0,032	-0,063	0,181	0,005	-0,111	-0,137	-0,073	-0,186
AT	0,085	-0,010	-0,347	0,035	-0,046	-0,040	0,152	-0,078	-0,012	0,058	-0,206	0,053	-0,322	-0,232	0,054	-0,065	-0,219	0,146	0,193	0,042	-0,027	0,750	-0,166	0,500	-0,561	0,037	**1**	0,873	0,623	0,690	0,684	0,826	0,902	0,706	0,724	0,873	-0,935	-0,118	0,155	-0,038	-0,046	0,178	-0,080	-0,052	-0,006		
BE	0,059	-0,013	-0,394	0,023	-0,062	-0,066	0,166	-0,048	0,027	0,048	-0,183	0,085	-0,310	-0,206	0,062	-0,085	-0,237	0,141	0,122	0,038	0,046	0,866	-0,139	0,452	-0,594	0,049	0,873	**1**	0,623	0,690	0,684	0,826	0,902	0,706	0,724	0,873	-0,935	-0,088	0,203	-0,083	0,010	0,206	-0,129	-0,030	0,011	-0,003
DE	0,011	0,100	-0,116	-0,338	0,105	-0,129	0,110	-0,069	-0,017	0,288	0,105	0,356	-0,118	-0,107	0,460	0,644	-0,244	0,159	0,285	0,274	-0,056	0,301	0,029	0,691	0,077	-0,099	0,623	0,623	**1**	0,362	0,350	0,563	0,658	0,389	0,420	0,623	-0,697	0,087	0,308	-0,234	-0,101	0,402	-0,180	0,254	-0,042	-0,041
EL	0,313	-0,067	-0,330	0,327	0,007	-0,195	0,122	-0,133	0,081	-0,066	-0,535	-0,291	-0,395	-0,168	-0,266	-0,321	-0,370	-0,348	-0,225	-0,179	-0,009	0,698	-0,074	0,125	-0,756	0,038	0,690	0,690	0,362	**1**	0,492	0,644	0,718	0,518	0,538	0,690	-0,750	-0,241	-0,017	0,129	-0,060	0,300	-0,144	-0,412	-0,092	
ES	-0,205	0,022	-0,562	0,056	-0,229	0,300	0,137	-0,008	0,035	-0,128	-0,211	-0,121	-0,351	-0,284	-0,291	-0,257	-0,073	-0,042	-0,077	-0,060	-0,360	0,678	-0,522	0,324	-0,440	0,142	0,684	0,684	0,350	0,492	**1**	0,637	0,712	0,510	0,531	0,684	-0,744	-0,017	0,238	-0,139	-0,022	-0,022	0,026	-0,133	0,099	-0,006
FI	0,033	-0,066	-0,296	0,018	-0,008	-0,071	0,087	-0,041	-0,023	0,084	-0,175	0,076	-0,187	-0,166	-0,048	-0,105	-0,158	0,179	0,489	0,027	0,307	0,789	-0,131	0,575	-0,501	0,067	0,826	0,826	0,563	0,644	0,637	**1**	0,854	0,660	0,678	0,826	-0,887	-0,098	0,188	-0,068	0,056	0,186	-0,145	0,024	0,079	0,090
FR	0,119	-0,013	-0,398	0,038	-0,039	-0,061	0,136	-0,059	0,014	0,070	-0,229	0,074	-0,327	-0,219	0,009	-0,075	-0,240	0,120	0,139	0,099	-0,090	0,774	-0,138	0,479	-0,601	0,042	0,902	0,902	0,658	0,718	0,712	0,854	**1**	0,734	0,752	0,902	-0,965	-0,099	0,187	-0,068	0,042	0,246	-0,172	-0,068	-0,047	
IT	0,188	-0,056	-0,494	0,087	-0,114	0,000	0,216	-0,086	-0,053	0,028	-0,152	-0,033	-0,320	-0,232	-0,054	-0,253	-0,201	0,129	0,087	0,154	0,086	0,640	-0,153	0,082	-0,678	-0,070	0,706	0,706	0,389	0,518	0,510	0,660	0,734	**1**	0,555	0,706	-0,765	-0,124	0,109	-0,007	0,171	0,108	-0,166	-0,131	-0,104	-0,085
NL	-0,069	-0,084	-0,161	-0,031	0,160	-0,182	0,012	-0,126	0,147	0,228	-0,103	0,337	-0,155	-0,066	0,123	-0,150	-0,133	0,441	0,039	0,040	-0,140	0,639	0,096	0,534	-0,613	0,197	0,724	0,724	0,420	0,538	0,531	0,678	0,752	0,555	**1**	0,724	-0,784	0,073	0,245	-0,188	0,139	0,182	-0,192	0,011	0,029	-0,092
PT	0,160	-0,061	-0,327	0,048	-0,020	-0,094	0,138	-0,072	0,004	0,037	-0,283	-0,001	-0,314	-0,198	-0,028	-0,092	-0,268	0,102	0,103	0,061	-0,083	0,750	-0,170	0,398	-0,611	0,049	0,873	0,873	0,623	0,690	0,684	0,826	0,902	0,706	0,724	**1**	-0,935	-0,118	0,155	-0,038	0,010	0,289	-0,179	-0,026	0,017	
UK	-0,077	0,022	0,405	-0,012	0,023	0,065	-0,154	0,089	-0,025	-0,090	0,222	-0,077	0,331	0,223	-0,023	0,053	0,261	-0,118	-0,135	-0,071	0,051	-0,802	0,159	-0,511	0,602	-0,046	-0,935	-0,935	-0,697	-0,750	-0,744	-0,887	-0,965	-0,765	-0,784	-0,935	**1**	0,078	-0,223	0,100	-0,017	-0,260	0,166	0,057	0,011	0,029
Urban	-0,331	0,075	0,014	-0,475	0,167	-0,144	0,096	-0,089	0,113	0,279	0,220	0,320	0,192	0,259	0,435	0,283	0,126	0,219	0,039	0,380	-0,086	-0,136	0,064	0,145	0,243	0,088	-0,118	-0,088	0,087	-0,241	-0,017	-0,098	-0,099	-0,124	0,073	-0,118	0,078	**1**	0,618	-0,873	0,055	0,070	-0,075	0,175	0,118	0,015
Intermediate	-0,254	0,147	-0,121	-0,346	0,089	-0,042	0,058	-0,043	0,074	0,292	0,159	0,337	0,066	0,118	0,215	0,266	0,156	0,154	0,111	0,260	-0,066	0,142	-0,020	0,341	0,094	0,032	0,155	0,203	0,308	-0,017	0,238	0,188	0,187	0,109	0,245	0,155	-0,223	0,618	**1**	-0,922	0,036	0,067	-0,062	0,114	0,084	-0,072
Rural	0,320	-0,128	0,068	0,447	-0,138	0,097	-0,083	0,070	-0,101	-0,318	-0,207	-0,366	-0,135	-0,201	-0,346	-0,303	-0,158	-0,203	-0,088	-0,347	0,083	-0,021	-0,019	-0,282	-0,178	-0,063	-0,038	-0,083	-0,234	0,129	-0,139	-0,068	-0,068	-0,007	-0,188	-0,038	0,100	-0,873	-0,922	**1**	-0,049	-0,076	0,075	-0,156	-0,110	0,037
LIS	-0,128	-0,122	0,025	-0,302	0,100	0,042	-0,055	-0,008	0,298	0,119	0,042	0,110	0,011	0,025	-0,022	-0,125	0,055	0,218	0,053	-0,018	0,063	0,028	-0,045	-0,023	-0,141	0,181	-0,046	0,010	-0,101	-0,060	-0,022	0,056	0,042	0,171	0,139	0,010	-0,017	0,055	0,036	-0,049	**1**	0,404	-0,836	-0,034	0,030	-0,050
NED	0,085	-0,043	-0,061	-0,225	0,173	-0,265	0,076	-0,091	0,184	0,267	-0,075	0,162	-0,149	-0,057	0,203	0,244	-0,392	-0,069	-0,023	0,048	0,050	0,026	0,015	0,204	-0,069	0,005	0,178	0,206	0,402	0,300	-0,022	0,186	0,246	0,108	0,182	0,289	-0,260	0,070	0,067	-0,076	0,404	**1**	-0,838	0,021	-0,095	-0,156
NIS	0,025	0,099	0,022	0,315	-0,163	0,134	-0,013	0,059	-0,288	-0,231	0,020	-0,162	0,083	0,019	-0,109	-0,072	0,202	-0,088	-0,018	-0,018	-0,068	-0,032	0,018	-0,108	0,125	-0,111	-0,080	-0,129	-0,180	-0,144	0,026	-0,145	-0,172	-0,166	-0,192	-0,179	0,166	-0,075	-0,062	0,075	-0,836	-0,838	**1**	0,007	0,039	0,123
Rec_DL	-0,156	-0,069	0,206	-0,323	0,141	0,031	-0,226	0,122	-0,184	0,086	0,223	0,415	0,154	-0,046	0,348	0,459	0,006	0,481	0,438	0,136	0,150	-0,185	0,098	0,339	0,437	-0,137	-0,052	-0,030	0,254	-0,412	-0,133	0,024	-0,068	-0,131	0,011	-0,026	0,057	0,175	0,114	-0,156	-0,034	0,021	0,007	**1**	0,544	0,540
Ret_Tra_4	-0,150	0,007	0,027	-0,085	-0,114	0,264	-0,050	0,088	-0,179	-0,223	-0,097	0,010	-0,014	-0,126	-0,087	-0,010	-0,002	0,138	0,146	-0,093	0,057	0,035	-0,115	0,107	0,082	-0,073	-0,006	0,011	-0,042	-0,092	0,099	0,079	-0,047	-0,104	0,029	0,017	0,011	0,118	0,084	-0,110	0,030	-0,095	0,039	0,544	**1**	0,764
Ret_Tra_8	0,083	-0,007	0,007	-0,084	-0,177	0,159	-0,015	0,175	-0,256	-0,309	-0,383	-0,139	-0,110	-0,186	-0,085	-0,051	-0,102	0,029	0,222	-0,098	0,186	0,042	-0,024	0,019	0,083	-0,186		-0,003	-0,041		-0,006	0,090		-0,085	-0,092		0,029	0,015	-0,072	0,037	-0,050	-0,156	0,123	0,540	0,764	**1**

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations between crisis periods - Recovery of development level

Summary of the variables selection Rec_DL:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya 's PC
1	NAT	NAT	IN	0,016	0,447	0,402	41,369	-540,597	-508,720	0,652
2	GFCF_PC / NAT	GFCF_PC	IN	0,015	0,492	0,446	30,755	-550,098	-515,324	0,608
3	Serv_GVA / GFCF_PC / NAT	Serv_GVA	IN	0,015	0,512	0,464	27,271	-553,422	-515,750	0,593
4	Serv_GVA / HHI / GFCF_PC / NAT	HHI	IN	0,014	0,540	0,490	21,432	-559,422	-518,852	0,567
5	Serv_GVA / HHI / GFCF_PC / Gov_debt / NAT	Gov_debt	IN	0,013	0,559	0,507	18,331	-562,896	-519,428	0,553
6	Serv_GVA / HHI / GFCF_PC / PROD / Gov_debt / NAT	PROD	IN	0,013	0,574	0,519	16,192	-565,509	-519,143	0,542
7	Pop_work / Serv_GVA / HHI / GFCF_PC / PROD / Gov_debt / NAT	Pop_work	IN	0,013	0,598	0,543	11,480	-571,342	-522,079	0,519

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations between crisis periods - Recovery of development level

Goodness of fit statistics (Rec_DL):

Observations	134
Sum of weights	134
DF	117
R^2	0,598
Adjusted R^2	0,543
MSE	0,013
RMSE	0,112
MAPE	143,868
DW	1,799
Cp	11,480
AIC	-571,342
SBC	-522,079
PC	0,519
Press	1,988
Q^2	0,453

Analysis of variance (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	16	2,174	0,136	10,868	**<0,0001**
Error	117	1,463	0,013		
Corrected	133	3,637			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations between crisis periods - Recovery of development level

Type I Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,154	0,154	12,353	0,001
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	1,000	0,187	0,187	14,977	0,000
Pub_GVA	0,000	0,000			
HHI	1,000	0,223	0,223	17,828	0,000
GDP_PC	0,000	0,000			
GFCF_PC	1,000	0,129	0,129	10,285	0,002
PROD	1,000	0,520	0,520	41,582	0,000
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,017	0,017	1,380	0,243
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	10,000	0,944	0,094	7,549	0,000
Urb_1	0,000	0,000			
Shock	0,000	0,000			

Type II Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,088	0,088	7,044	0,009
Agri_GVA	0,000	0,000			
Manu_GV	0,000	0,000			
Const_GV	0,000	0,000			
Serv_GVA	1,000	0,146	0,146	11,666	0,001
Pub_GVA	0,000	0,000			
HHI	1,000	0,145	0,145	11,611	0,001
GDP_PC	0,000	0,000			
GFCF_PC	1,000	0,223	0,223	17,836	0,000
PROD	1,000	0,100	0,100	8,012	0,005
RnD_GDF	0,000	0,000			
RnD_EMI	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,103	0,103	8,272	0,005
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	10,000	0,944	0,094	7,549	0,000
Urb_1	0,000	0,000			
Shock	0,000	0,000			

Type III Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,088	0,088	7,044	0,009
Agri_GVA	0,000	0,000			
Manu_GV	0,000	0,000			
Const_GV	0,000	0,000			
Serv_GVA	1,000	0,146	0,146	11,666	0,001
Pub_GVA	0,000	0,000			
HHI	1,000	0,145	0,145	11,611	0,001
GDP_PC	0,000	0,000			
GFCF_PC	1,000	0,223	0,223	17,836	0,000
PROD	1,000	0,100	0,100	8,012	0,005
RnD_GDF	0,000	0,000			
RnD_EMI	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,103	0,103	8,272	0,005
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	10,000	0,944	0,094	7,549	0,000
Urb_1	0,000	0,000			
Shock	0,000	0,000			

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations between crisis periods - Recovery of development level

Model parameters (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,214	0,212	-1,009	0,315	-0,634	0,206
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,897	0,482	1,863	0,065	-0,057	1,851
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	-0,433	0,126	-3,422	**0,001**	-0,683	-0,182
Pub_GVA	0,000	0,000				
HHI	-0,751	0,227	-3,303	**0,001**	-1,201	-0,300
GDP_PC	0,000	0,000				
GFCF_PC	-0,109	0,029	-3,739	**0,000**	-0,166	-0,051
PROD	0,050	0,027	1,868	0,064	-0,003	0,104
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	-0,012	0,003	-3,715	**0,000**	-0,018	-0,005
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	0,005	0,037	0,143	0,886	-0,067	0,078
BE	0,157	0,046	3,390	**0,001**	0,065	0,249
DE	0,067	0,024	2,837	**0,005**	0,020	0,114
EL	-0,284	0,049	-5,806	**<0,0001**	-0,381	-0,187
ES	0,041	0,046	0,882	0,380	-0,051	0,133
FI	0,123	0,053	2,311	**0,023**	0,018	0,229
FR	-0,134	0,019	-7,127	**<0,0001**	-0,171	-0,097
IT	0,010	0,047	0,210	0,834	-0,084	0,104
NL	-0,029	0,089	-0,327	0,744	-0,206	0,148
PT	-0,005	0,043	-0,117	0,907	-0,091	0,081
UK	0,049	0,039	1,249	0,214	-0,029	0,127
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,261	0,140	1,863	0,065	-0,016	0,539
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	-0,227	0,066	-3,422	**0,001**	-0,358	-0,096
Pub_GVA	0,000	0,000				
HHI	-0,222	0,067	-3,303	**0,001**	-0,355	-0,089
GDP_PC	0,000	0,000				
GFCF_PC	-0,427	0,114	-3,739	**0,000**	-0,654	-0,201
PROD	0,363	0,194	1,868	0,064	-0,022	0,749
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	-0,203	0,055	-3,715	**0,000**	-0,311	-0,095
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	0,011	0,076	0,143	0,886	-0,140	0,162
BE	0,327	0,096	3,390	**0,001**	0,136	0,517
DE	0,265	0,094	2,837	**0,005**	0,080	0,451
EL	-0,815	0,140	-5,806	**<0,0001**	-1,093	-0,537
ES	0,120	0,136	0,882	0,380	-0,149	0,388
FI	0,275	0,119	2,311	**0,023**	0,039	0,510
FR	-0,268	0,038	-7,127	**<0,0001**	-0,343	-0,194
IT	0,028	0,131	0,210	0,834	-0,233	0,288
NL	-0,078	0,238	-0,327	0,744	-0,550	0,394
PT	-0,011	0,090	-0,117	0,907	-0,189	0,168
UK	0,094	0,075	1,249	0,214	-0,055	0,242
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations between crisis periods - Growth trajectory retention (4 year recovery period)

Summary of the variables selection Ret_Tra_4:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya 's PC
1	Const_GVA	Const_GVA	IN	0,001	0,070	0,062	17,030	-957,300	-951,504	0,959
2	Const_GVA / Cur_blc	Cur_blc	IN	0,001	0,100	0,087	14,143	-959,830	-951,136	0,941
3	Const_GVA / GFCF_PC / Cur_blc	GFCF_PC	IN	0,001	0,136	0,116	10,464	-963,293	-951,702	0,917

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations between crisis periods - Growth trajectory retention (4 year recovery period)

Goodness of fit statistics (Ret_Tra_4):

Observations	134
Sum of weights	134
DF	130
R^2	0,136
Adjusted R^2	0,116
MSE	0,001
RMSE	0,027
MAPE	111,839
DW	1,647
Cp	10,464
AIC	-963,29
SBC	-951,70
PC	0,917
Press	0,101
Q^2	0,082

Analysis of variance (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	3	0,015	0,005	6,845	**0,000**
Error	130	0,095	0,001		
Corrected	133	0,110			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations between crisis periods - Growth trajectory retention (4 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	1,000	0,008	0,008	10,469	0,002
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	1,000	0,001	0,001	1,997	0,160
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,006	0,006	8,069	0,005
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	0,000	0,000			
Urb_1	0,000	0,000			
Shock	0,000	0,000			

Type II Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GV	0,000	0,000			
Const_GV	1,000	0,010	0,010	14,191	0,000
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	1,000	0,004	0,004	5,410	0,022
PROD	0,000	0,000			
RnD_GDI	0,000	0,000			
RnD_EMI	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,006	0,006	8,069	0,005
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	0,000	0,000			
Urb_1	0,000	0,000			
Shock	0,000	0,000			

Type III Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GV	0,000	0,000			
Const_GV	1,000	0,010	0,010	14,191	0,000
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	1,000	0,004	0,004	5,410	0,022
PROD	0,000	0,000			
RnD_GDI	0,000	0,000			
RnD_EMI	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,006	0,006	8,069	0,005
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	0,000	0,000			
Urb_1	0,000	0,000			
Shock	0,000	0,000			

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations between crisis periods - Growth trajectory retention (4 year recovery period)

Model parameters (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,020	0,005	-4,173	**<0,0001**	-0,029	-0,010
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,175	0,045	3,868	**0,000**	0,085	0,264
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	-0,009	0,004	-2,375	**0,019**	-0,017	-0,002
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,002	0,001	2,697	**0,008**	0,000	0,003
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	0,000	0,000				
BE	0,000	0,000				
DE	0,000	0,000				
EL	0,000	0,000				
ES	0,000	0,000				
FI	0,000	0,000				
FR	0,000	0,000				
IT	0,000	0,000				
NL	0,000	0,000				
PT	0,000	0,000				
UK	0,000	0,000				
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,312	0,081	3,868	**0,000**	0,153	0,472
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	-0,203	0,086	-2,375	**0,019**	-0,372	-0,034
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,250	0,093	2,697	**0,008**	0,067	0,433
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	0,000	0,000				
BE	0,000	0,000				
DE	0,000	0,000				
EL	0,000	0,000				
ES	0,000	0,000				
FI	0,000	0,000				
FR	0,000	0,000				
IT	0,000	0,000				
NL	0,000	0,000				
PT	0,000	0,000				
UK	0,000	0,000				
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations between crisis periods - Growth trajectory retention (8 year recovery period)

Summary of the variables selection Ret_Tra_8:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya 's PC
1	GFCF_PC	GFCF_PC	IN	0,001	0,147	0,138	16,496	-723,023	-717,853	0,889
2	GFCF_PC / Gov_close	Gov_close	IN	0,001	0,211	0,194	10,219	-728,654	-720,899	0,839
3	Manu_GVA / GFCF_PC / Gov_close	Manu_GVA	IN	0,001	0,251	0,227	6,980	-731,810	-721,470	0,813
4	Manu_GVA / GFCF_PC / Gov_close / Clu	Clu	IN	0,001	0,290	0,259	3,972	-735,006	-722,081	0,787

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations between crisis periods - Growth trajectory retention (8 year recovery period)

Goodness of fit statistics (Ret_Tra_8):

Observations	98
Sum of weights	98
DF	93
R^2	0,290
Adjusted R^2	0,259
MSE	0,001
RMSE	0,023
MAPE	160,044
DW	2,191
Cp	3,972
AIC	-735,01
SBC	-722,08
PC	0,787
Press	0,056
Q^2	0,190

Analysis of variance (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	4	0,020	0,005	9,484	**<0,0001**
Error	93	0,049	0,001		
Corrected	97	0,069			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations between crisis periods - Growth trajectory retention (8 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	1,000	0,002	0,002	4,087	0,046
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	1,000	0,010	0,010	19,165	0,000
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	1,000	0,005	0,005	9,620	0,003
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,003	0,003	5,064	0,027
NAT	0,000	0,000			
Urb_1	0,000	0,000			
Shock	0,000	0,000			

Type II Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GV	1,000	0,003	0,003	6,181	0,015
Const_GV	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	1,000	0,011	0,011	21,409	0,000
PROD	0,000	0,000			
RnD_GDF	0,000	0,000			
RnD_EMI	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	1,000	0,005	0,005	9,104	0,003
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,003	0,003	5,064	0,027
NAT	0,000	0,000			
Urb_1	0,000	0,000			
Shock	0,000	0,000			

Type III Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GV	1,000	0,003	0,003	6,181	0,015
Const_GV	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	1,000	0,011	0,011	21,409	0,000
PROD	0,000	0,000			
RnD_GDF	0,000	0,000			
RnD_EMI	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	1,000	0,005	0,005	9,104	0,003
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,003	0,003	5,064	0,027
NAT	0,000	0,000			
Urb_1	0,000	0,000			
Shock	0,000	0,000			

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations between crisis periods - Growth trajectory retention (8 year recovery period)

Model parameters (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,005	0,008	-0,669	0,505	-0,020	0,010
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GVA	-0,048	0,033	-1,440	0,153	-0,114	0,018
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	-0,023	0,007	-3,271	**0,002**	-0,037	-0,009
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,002	0,001	3,028	**0,003**	0,001	0,004
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	-0,001	0,000	-2,475	**0,015**	-0,002	0,000
AT	0,000	0,000				
BE	0,000	0,000				
DE	0,000	0,000				
EL	0,000	0,000				
ES	0,000	0,000				
FI	0,000	0,000				
FR	0,000	0,000				
IT	0,000	0,000				
NL	0,000	0,000				
PT	0,000	0,000				
UK	0,000	0,000				
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GVA	-0,219	0,152	-1,440	0,153	-0,521	0,083
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	-0,406	0,124	-3,271	**0,002**	-0,652	-0,159
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,266	0,088	3,028	**0,003**	0,092	0,440
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	-0,198	0,080	-2,475	**0,015**	-0,356	-0,039
AT	0,000	0,000				
BE	0,000	0,000				
DE	0,000	0,000				
EL	0,000	0,000				
ES	0,000	0,000				
FI	0,000	0,000				
FR	0,000	0,000				
IT	0,000	0,000				
NL	0,000	0,000				
PT	0,000	0,000				
UK	0,000	0,000				
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

III.b.i.2. Observations from 1990-1993

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations from 1990-1993

Settings:
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Model selection: Stepwise
Probability for entry: 0,05 / Probability for removal: 0,1
Covariances: Corrections = Newey West (adjusted)(Lag = 1)
Use least squares means: Yes
Explanation of the variable codes can be found in table 28

Summary statistics (Quantitative data):

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Rec_DL	653	0	653	-0,569	0,278	-0,073	0,102
Ret_Tra_4	653	0	653	-0,097	0,138	-0,010	0,024
Ret_Tra_8	653	2	651	-0,093	0,049	-0,013	0,018
Pop_age	653	0	653	0,387	2,625	0,960	0,292
Mig_net	653	0	653	-27,218	54,935	4,393	7,245
Pop_work	653	0	653	0,343	0,633	0,444	0,048
Agri_GVA	653	0	653	0,000	0,177	0,025	0,026
Manu_GVA	653	0	653	0,039	0,708	0,237	0,100
Const_GVA	653	0	653	0,021	0,265	0,088	0,032
Serv_GVA	653	0	653	0,176	0,759	0,434	0,087
Pub_GVA	653	0	653	0,062	0,568	0,217	0,069
HHI	653	0	653	0,176	0,525	0,230	0,031
GDP_PC	653	0	653	-1,199	5,176	0,050	0,769
GFCF_PC	653	0	653	-1,759	2,356	0,075	0,728
PROD	653	0	653	-2,646	3,988	0,257	0,951
RnD_GDP	653	0	653	0,282	14,868	1,917	1,559
RnD_EMP	653	0	653	0,000	4,208	1,225	0,761
MM_Ac	653	0	653	30,395	192,930	108,114	33,920
Avg_bus	653	0	653	1,349	18,605	8,812	5,305
Gov_debt	653	0	653	-11,100	6,600	-4,493	3,044
Cur_blc	653	0	653	-4,900	5,100	-1,279	2,001
Gov_close	653	0	653	2,480	20,220	5,017	2,456
Lab_comp	653	0	653	1066,192	143476,42	23162,63	21956,13
Union	653	0	653	9,341	84,677	33,612	13,235
ML_barg	653	0	653	1,625	4,875	2,928	1,015
SHDI	653	0	653	0,701	0,895	0,797	0,033
SC_Org	653	0	653	0,038	0,205	0,109	0,047
EoC	653	0	653	50,000	100,000	73,796	18,068
Clu	653	0	653	0,360	27,600	2,391	2,154

Number of removed observations: 116

Summary statistics (Qualitative data):

Variable	Categories	Counts	Frequencies	%
NAT	BE	37	37	5,666
	DE	228	228	34,916
	ES	44	44	6,738
	FI	1	1	0,153
	FR	82	82	12,557
	IT	94	94	14,395
	NL	3	3	0,459
	PT	23	23	3,522
	SE	12	12	1,838
	UK	129	129	19,755
Urb_1	Urban	239	239	36,600
	Intermedia	263	263	40,276
	Rural	151	151	23,124
Shock	LIS	65	65	9,954
	NED	557	557	85,299
	NIS	31	31	4,747

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations from 1990-1993

Correlation matrix:

	Pop_age	Mig_net	Pop_work	Agri_GVA	Mani_GVA	Const_GVA	Serv_GVA	Pub_GVA	HHI	GDP_PC	GFCF_PC	PROD	RnD_GDP	RnD_EMP	MM_Ac	Avg_bus	Gov_debt	Cur_blc	Gov_close	Lab_comp	Union	ML_barg	SHDI	SC_Org	EoC	Clu	BE	DE	ES	FI	FR	IT	NL	PT	SE	UK	Urban	Intermediate	Rural	LIS	NED	NIS	Rec_DL	Ret_Tra_4	Ret_Tra_8
Pop_age	**1**	0,061	-0,015	0,070	0,001	-0,148	0,155	-0,156	-0,002	0,197	0,060	0,127	-0,055	-0,087	-0,039	0,004	-0,230	-0,082	0,044	0,008	0,064	0,251	0,168	0,091	-0,154	-0,048	0,098	0,143	0,093	0,165	0,061	0,321	0,164	0,131	0,159	-0,171	-0,179	-0,080	0,157	0,070	0,078	-0,103	0,058	0,064	0,121
Mig_net	0,061	**1**	0,144	-0,058	0,244	-0,075	-0,120	-0,145	0,126	0,046	0,205	0,217	0,071	0,140	0,204	0,450	0,221	0,001	0,137	-0,008	0,048	-0,042	0,384	0,516	0,186	0,089	0,144	0,462	0,158	0,208	0,043	0,045	0,200	0,116	0,188	-0,209	-0,116	0,101	0,008	0,257	-0,017	-0,140	0,179	0,030	-0,017
Pop_work	-0,015	0,144	**1**	-0,225	0,227	0,087	-0,201	-0,030	0,136	0,182	0,436	-0,025	0,377	0,324	0,226	0,370	0,531	-0,229	0,090	0,036	0,337	-0,359	0,132	0,045	0,576	0,294	-0,459	-0,146	-0,502	-0,445	-0,509	-0,493	-0,451	-0,352	-0,384	0,462	0,132	0,011	-0,086	0,115	0,080	-0,131	-0,095	-0,140	-0,152
Agri_GVA	0,070	-0,058	-0,225	**1**	-0,272	0,266	-0,110	0,027	-0,490	-0,385	-0,370	-0,317	-0,275	-0,389	-0,602	-0,333	-0,273	0,005	-0,097	-0,176	-0,166	0,225	-0,361	-0,122	-0,339	-0,082	0,170	-0,003	0,319	0,221	0,194	0,230	0,222	0,328	0,208	-0,226	-0,550	-0,220	0,466	0,018	-0,179	0,130	-0,089	-0,092	-0,039
Manu_GVA	0,001	0,244	0,227	-0,272	**1**	-0,306	-0,566	-0,489	0,433	0,216	0,129	0,134	0,104	0,193	0,291	0,481	0,242	-0,153	-0,019	0,096	0,168	-0,130	0,248	0,221	0,305	0,078	-0,097	0,229	-0,103	-0,055	-0,229	-0,075	-0,036	-0,060	-0,066	0,050	0,181	0,088	-0,163	0,193	-0,157	0,008	-0,080	-0,014	-0,041
Const_GVA	-0,148	-0,075	0,087	0,266	-0,306	**1**	-0,223	0,159	-0,460	-0,395	-0,213	-0,413	0,045	-0,115	-0,385	-0,228	0,096	-0,237	-0,155	-0,177	-0,118	-0,196	-0,413	-0,288	0,093	0,007	-0,307	-0,340	-0,110	-0,266	-0,161	-0,240	-0,272	-0,148	-0,244	0,268	-0,168	-0,146	0,191	0,056	-0,035	-0,006	-0,130	-0,080	-0,045
Serv_GVA	0,155	-0,120	-0,201	-0,110	-0,566	-0,223	**1**	-0,297	-0,083	0,219	0,172	0,258	-0,040	-0,029	0,189	-0,259	-0,406	0,147	0,073	0,262	-0,095	0,314	0,134	0,011	-0,391	-0,101	0,286	0,067	0,227	0,284	0,316	0,393	0,258	0,174	0,252	-0,279	0,150	0,090	-0,146	-0,196	0,177	-0,023	0,141	0,117	0,067
Pub_GVA	-0,156	-0,145	-0,030	0,027	-0,489	0,159	-0,297	**1**	-0,123	-0,260	-0,164	-0,208	-0,016	-0,041	-0,252	-0,137	0,221	0,145	0,044	-0,322	-0,006	-0,203	-0,200	-0,154	0,138	0,043	-0,142	-0,258	-0,208	-0,241	-0,066	-0,364	-0,232	-0,190	-0,189	0,243	-0,163	-0,090	0,153	-0,066	0,089	-0,031	0,032	-0,056	0,012
HHI	-0,002	0,126	0,136	-0,490	0,433	-0,460	-0,083	-0,123	**1**	0,454	0,208	0,285	0,107	0,245	0,378	0,294	0,120	-0,005	0,014	0,182	0,104	-0,082	0,242	0,191	0,164	-0,002	0,005	0,170	-0,055	0,004	-0,091	-0,028	0,016	-0,049	-0,018	-0,002	0,341	0,113	-0,274	0,196	-0,201	0,041	-0,089	0,054	-0,045
GDP_PC	0,197	0,046	0,182	-0,385	0,216	-0,395	0,219	-0,260	0,454	**1**	0,472	0,475	0,161	0,327	0,495	0,311	0,047	0,012	0,182	0,343	0,061	0,020	0,476	0,338	0,065	0,042	0,104	0,317	0,050	0,164	0,074	0,133	0,164	0,061	0,161	-0,164	0,265	0,105	-0,224	0,072	0,053	-0,084	0,042	0,130	0,053
GFCF_PC	0,060	0,205	0,436	-0,370	0,129	-0,213	0,172	-0,164	0,208	0,472	**1**	0,658	0,396	0,615	0,500	0,394	0,196	0,078	0,331	0,356	0,213	-0,101	0,626	0,375	0,254	0,127	-0,007	0,206	-0,203	-0,023	-0,035	-0,061	-0,027	-0,202	0,018	0,029	0,137	0,149	-0,174	0,064	0,087	-0,107	0,187	0,150	0,132
PROD	0,127	0,217	-0,025	-0,317	0,134	-0,413	0,258	-0,208	0,285	0,475	0,658	**1**	0,236	0,512	0,612	0,349	-0,022	0,325	0,377	0,525	0,061	0,127	0,786	0,568	-0,049	0,014	0,399	0,512	0,198	0,381	0,313	0,241	0,395	0,140	0,385	-0,382	0,131	0,114	-0,149	0,117	0,040	-0,102	0,236	0,185	0,169
RnD_GDP	-0,055	0,071	0,377	-0,275	0,104	0,045	-0,040	-0,016	0,107	0,161	0,396	0,236	**1**	0,724	0,306	0,289	0,313	-0,037	0,144	0,150	0,078	-0,268	0,244	0,130	0,306	0,520	-0,186	0,008	-0,240	-0,184	-0,127	-0,266	-0,184	-0,216	-0,142	0,186	0,139	0,014	-0,092	0,129	-0,002	-0,076	0,022	0,012	-0,059
RnD_EMP	-0,087	0,140	0,324	-0,389	0,193	-0,115	-0,029	-0,041	0,245	0,327	0,615	0,512	0,724	**1**	0,511	0,480	0,361	0,058	0,116	0,337	0,019	-0,321	0,485	0,320	0,350	0,119	-0,090	0,189	-0,186	-0,100	-0,070	-0,262	-0,098	-0,178	-0,100	0,099	0,195	0,024	-0,132	0,135	0,018	-0,094	0,154	0,131	0,054
MM_Ac	-0,039	0,204	0,226	-0,602	0,291	-0,385	0,189	-0,252	0,378	0,495	0,500	0,612	0,306	0,511	**1**	0,527	0,224	0,239	0,087	0,417	0,141	-0,127	0,653	0,363	0,258	0,115	0,122	0,343	-0,154	0,033	-0,032	-0,089	0,036	-0,100	-0,013	-0,035	0,442	0,120	-0,340	0,104	0,074	-0,120	0,194	0,116	0,053
Avg_bus	0,004	0,450	0,370	-0,333	0,481	-0,228	-0,259	-0,137	0,294	0,311	0,394	0,349	0,289	0,480	0,527	**1**	0,620	-0,124	0,108	0,109	0,151	-0,411	0,586	0,598	0,635	0,208	-0,104	0,580	-0,135	-0,018	-0,245	-0,254	-0,023	-0,094	-0,050	0,016	0,149	0,055	-0,124	0,268	-0,019	-0,144	0,130	0,003	-0,065
Gov_debt	-0,230	0,221	0,531	-0,273	0,242	0,096	-0,406	0,221	0,120	0,047	0,196	-0,022	0,313	0,361	0,224	0,620	**1**	-0,271	0,177	-0,180	0,133	-0,717	0,153	0,285	0,859	0,295	-0,514	0,002	-0,397	-0,463	-0,458	-0,793	-0,468	-0,453	-0,389	0,481	0,198	0,010	-0,126	0,170	0,046	-0,137	-0,017	-0,043	0,005
Cur_blc	-0,082	0,001	-0,229	0,005	-0,153	-0,237	0,147	0,145	-0,005	0,012	0,078	0,325	-0,037	0,058	0,239	-0,124	-0,271	**1**	0,145	-0,002	0,006	0,376	0,374	0,213	-0,456	0,137	0,724	0,256	0,210	0,423	0,515	0,145	0,444	0,419	0,391	-0,433	-0,251	-0,104	0,215	0,013	0,040	-0,039	0,173	0,070	0,023
Gov_close	0,044	0,137	0,090	-0,097	-0,019	-0,155	0,073	0,044	0,014	0,182	0,331	0,377	0,144	0,116	0,087	0,108	0,177	0,145	**1**	0,081	0,356	0,244	0,406	0,458	-0,064	0,200	0,242	0,325	0,123	0,349	0,320	0,173	0,316	0,226	0,571	-0,329	-0,077	0,082	-0,004	0,065	0,049	-0,077	0,027	0,033	0,117
Lab_comp	0,008	-0,008	0,036	-0,176	0,096	-0,177	0,262	-0,322	0,182	0,343	0,356	0,525	0,150	0,337	0,417	0,109	-0,180	-0,002	0,081	**1**	-0,197	0,079	0,356	0,146	-0,188	-0,228	0,155	0,274	0,199	0,277	0,282	0,297	0,269	0,203	0,239	-0,281	0,195	0,019	-0,129	-0,008	-0,009	0,012	0,148	0,065	0,001
Union	0,064	0,048	0,337	-0,166	0,168	-0,118	-0,095	-0,006	0,104	0,061	0,213	0,061	0,078	0,019	0,141	0,151	0,133	0,006	0,356	-0,197	**1**	0,322	0,099	-0,003	0,284	0,279	0,004	-0,112	-0,339	-0,211	-0,567	-0,059	-0,228	-0,206	-0,049	0,224	0,197	0,170	-0,223	-0,020	0,005	0,008	-0,286	-0,162	-0,085
ML_barg	0,251	-0,042	-0,359	0,225	-0,130	-0,196	0,314	-0,203	-0,082	0,020	-0,101	0,127	-0,268	-0,321	-0,127	-0,411	-0,717	0,376	0,244	0,079	0,322	**1**	0,075	0,053	-0,760	-0,055	0,734	0,234	0,502	0,640	0,383	0,798	0,631	0,624	0,663	-0,637	-0,190	0,106	0,049	-0,015	0,072	-0,048	-0,029	-0,013	-0,028
SHDI	0,168	0,384	0,132	-0,361	0,248	-0,413	0,134	-0,200	0,242	0,476	0,626	0,786	0,244	0,485	0,653	0,586	0,153	0,374	0,406	0,356	0,099	0,075	**1**	0,763	0,082	0,157	0,428	0,678	0,206	0,412	0,285	0,160	0,420	0,183	0,410	-0,414	0,036	0,131	-0,102	0,204	0,135	-0,227	0,303	0,172	0,140
SC_Org	0,091	0,516	0,045	-0,122	0,221	-0,288	0,011	-0,154	0,191	0,338	0,375	0,568	0,130	0,320	0,363	0,598	0,285	0,213	0,458	0,146	-0,003	0,053	0,763	**1**	0,073	0,178	0,471	0,822	0,494	0,574	0,349	0,187	0,575	0,395	0,586	-0,570	-0,086	0,116	-0,020	0,263	0,012	-0,166	0,258	0,148	0,090
EoC	-0,154	0,186	0,576	-0,339	0,305	0,093	-0,391	0,138	0,164	0,065	0,254	-0,049	0,306	0,350	0,258	0,635	0,859	-0,456	-0,064	-0,188	0,284	-0,760	0,082	0,073	**1**	0,228	-0,706	-0,179	-0,613	-0,715	-0,763	-0,801	-0,717	-0,733	-0,660	0,720	0,324	0,052	-0,227	0,105	0,037	-0,091	-0,079	-0,052	0,004
Clu	-0,048	0,089	0,294	-0,082	0,078	0,007	-0,101	0,043	-0,002	0,042	0,127	0,014	0,520	0,119	0,115	0,208	0,295	0,137	0,200	-0,228	0,279	-0,055	0,157	0,178	0,228	**1**	-0,011	0,021	-0,154	-0,101	-0,161	-0,241	-0,079	-0,080	-0,029	0,105	0,012	0,013	-0,016	0,098	0,013	-0,068	-0,095	-0,112	-0,161
BE	0,098	0,144	-0,459	0,170	-0,097	-0,307	0,286	-0,142	0,005	0,104	-0,007	0,399	-0,186	-0,090	0,122	-0,104	-0,514	0,724	0,242	0,155	0,004	0,734	0,428	0,471	-0,706	-0,011	**1**	0,625	0,743	0,876	0,687	0,674	0,867	0,794	0,830	-0,881	-0,277	0,024	0,152	0,057	-0,012	-0,024	0,191	0,121	0,043
DE	0,143	0,462	-0,146	-0,003	0,229	-0,340	0,067	-0,258	0,170	0,317	0,206	0,512	0,008	0,189	0,343	0,580	0,002	0,256	0,325	0,274	-0,112	0,234	0,678	0,822	-0,179	0,021	0,625	**1**	0,603	0,783	0,511	0,488	0,772	0,676	0,724	-0,790	-0,179	0,052	0,076	0,250	-0,041	-0,116	0,273	0,104	-0,014
ES	0,093	0,158	-0,502	0,319	-0,103	-0,110	0,227	-0,208	-0,055	0,050	-0,203	0,198	-0,240	-0,186	-0,154	-0,135	-0,397	0,210	0,123	0,199	-0,339	0,502	0,206	0,494	-0,613	-0,154	0,743	0,603	**1**	0,862	0,670	0,658	0,853	0,780	0,816	-0,867	-0,241	0,050	0,114	0,076	-0,022	-0,028	0,200	0,165	0,089
FI	0,165	0,208	-0,445	0,221	-0,055	-0,266	0,284	-0,241	0,004	0,164	-0,023	0,381	-0,184	-0,100	0,033	-0,018	-0,463	0,423	0,349	0,277	-0,211	0,640	0,412	0,574	-0,715	-0,101	0,876	0,783	0,862	**1**	0,812	0,802	0,981	0,910	0,945	-0,995	-0,305	0,024	0,169	0,107	-0,037	-0,035	0,223	0,121	0,025
FR	0,061	0,043	-0,509	0,194	-0,229	-0,161	0,316	-0,066	-0,091	0,074	-0,035	0,313	-0,127	-0,070	-0,032	-0,245	-0,458	0,515	0,320	0,282	-0,567	0,383	0,285	0,349	-0,763	-0,161	0,687	0,511	0,670	0,812	**1**	0,590	0,802	0,726	0,764	-0,817	-0,370	-0,098	0,283	0,046	-0,006	-0,023	0,303	0,179	0,115
IT	0,321	0,045	-0,493	0,230	-0,075	-0,240	0,393	-0,364	-0,028	0,133	-0,061	0,241	-0,266	-0,262	-0,089	-0,254	-0,793	0,145	0,173	0,297	-0,059	0,798	0,160	0,187	-0,801	-0,241	0,674	0,488	0,658	0,802	0,590	**1**	0,792	0,714	0,753	-0,807	-0,208	0,091	0,069	-0,029	-0,051	0,058	0,088	0,057	-0,003
NL	0,164	0,200	-0,451	0,222	-0,036	-0,272	0,258	-0,232	0,016	0,164	-0,027	0,395	-0,184	-0,098	0,036	-0,023	-0,468	0,444	0,316	0,269	-0,228	0,631	0,420	0,575	-0,717	-0,079	0,867	0,772	0,853	0,981	0,802	0,792	**1**	0,901	0,936	-0,986	-0,302	0,032	0,162	0,135	-0,056	-0,036	0,214	0,117	0,022
PT	0,131	0,116	-0,352	0,328	-0,060	-0,148	0,174	-0,190	-0,049	0,061	-0,202	0,140	-0,216	-0,178	-0,100	-0,094	-0,453	0,419	0,226	0,203	-0,206	0,624	0,183	0,395	-0,733	-0,080	0,794	0,676	0,780	0,910	0,726	0,714	0,901	**1**	0,865	-0,915	-0,349	-0,043	0,236	0,084	-0,065	0,001	0,121	-0,002	-0,134
SE	0,159	0,188	-0,384	0,208	-0,066	-0,244	0,252	-0,189	-0,018	0,161	0,018	0,385	-0,142	-0,100	-0,013	-0,050	-0,389	0,391	0,571	0,239	-0,049	0,663	0,410	0,586	-0,660	-0,029	0,830	0,724	0,816	0,945	0,764	0,753	0,936	0,865	**1**	-0,950	-0,287	0,060	0,136	0,095	-0,020	-0,041	0,170	0,101	0,050
UK	-0,171	-0,209	0,462	-0,226	0,050	0,268	-0,279	0,243	-0,002	-0,164	0,029	-0,382	0,186	0,099	-0,035	0,016	0,481	-0,433	-0,329	-0,281	0,224	-0,637	-0,414	-0,570	0,720	0,105	-0,881	-0,790	-0,867	-0,995	-0,817	-0,807	-0,986	-0,915	-0,950	**1**	0,311	-0,025	-0,172	-0,109	0,039	0,034	-0,230	-0,123	-0,025
Urban	-0,179	-0,116	0,132	-0,550	0,181	-0,168	0,150	-0,163	0,341	0,265	0,137	0,131	0,139	0,195	0,442	0,149	0,198	-0,251	-0,077	0,195	0,197	-0,190	0,036	-0,086	0,324	0,012	-0,277	-0,179	-0,241	-0,305	-0,370	-0,208	-0,302	-0,349	-0,287	0,311	**1**	0,352	-0,818	-0,088	0,069	-0,002	-0,092	-0,009	-0,029
Intermediate	-0,080	0,101	0,011	-0,220	0,088	-0,146	0,090	-0,090	0,113	0,105	0,149	0,114	0,014	0,024	0,120	0,055	0,010	-0,104	0,082	0,019	0,170	0,106	0,131	0,116	0,052	0,013	0,024	0,052	0,050	0,024	-0,098	0,091	0,032	-0,043	0,060	-0,025	0,352	**1**	-0,826	-0,072	0,117	-0,049	0,040	-0,004	-0,029
Rural	0,157	0,008	-0,086	0,466	-0,163	0,191	-0,146	0,153	-0,274	-0,224	-0,174	-0,149	-0,092	-0,132	-0,340	-0,124	-0,126	0,215	-0,004	-0,129	-0,223	0,049	-0,102	-0,020	-0,227	-0,016	0,152	0,076	0,114	0,169	0,283	0,069	0,162	0,236	0,136	-0,172	-0,818	-0,826	**1**	0,097	-0,113	0,031	0,031	0,008	0,036
LIS	0,070	0,257	0,115	0,018	0,193	0,056	-0,196	-0,066	0,196	0,072	0,064	0,117	0,129	0,135	0,104	0,268	0,170	0,013	0,065	-0,008	-0,020	-0,015	0,204	0,263	0,105	0,098	0,057	0,250	0,076	0,107	0,046	-0,029	0,135	0,084	0,095	-0,109	-0,088	-0,072	0,097	**1**	0,029	-0,618	-0,066	0,007	-0,035
NED	0,078	-0,017	0,080	-0,179	-0,157	-0,035	0,177	0,089	-0,201	0,053	0,087	0,040	-0,002	0,018	0,074	-0,019	0,046	0,040	0,049	-0,009	0,005	0,072	0,135	0,012	0,037	0,013	-0,012	-0,041	-0,022	-0,037	-0,006	-0,051	-0,056	-0,065	-0,020	0,039	0,069	0,117	-0,113	0,029	**1**	-0,804	0,246	0,042	0,077
NIS	-0,103	-0,140	-0,131	0,130	0,008	-0,006	-0,023	-0,031	0,041	-0,084	-0,107	-0,102	-0,076	-0,094	-0,120	-0,144	-0,137	-0,039	-0,077	0,012	0,008	-0,048	-0,227	-0,166	-0,091	-0,068	-0,024	-0,116	-0,028	-0,035	-0,023	0,058	-0,036	0,001	-0,041	0,034	-0,002	-0,049	0,031	-0,618	-0,804	**1**	-0,155	-0,037	-0,040
Rec_DL	0,058	0,179	-0,095	-0,089	-0,080	-0,130	0,141	0,032	-0,089	0,042	0,187	0,236	0,022	0,154	0,194	0,130	-0,017	0,173	0,027	0,148	-0,286	-0,029	0,303	0,258	-0,079	-0,095	0,191	0,273	0,200	0,223	0,303	0,088	0,214	0,121	0,170	-0,230	-0,092	0,040	0,031	-0,066	0,246	-0,155	**1**	0,472	0,385
Ret_Tra_4	0,064	0,030	-0,140	-0,092	-0,014	-0,080	0,117	-0,056	0,054	0,130	0,150	0,185	0,012	0,131	0,116	0,003	-0,043	0,070	0,033	0,065	-0,162	-0,013	0,172	0,148	-0,052	-0,112	0,121	0,104	0,165	0,121	0,179	0,057	0,117	-0,002	0,101	-0,123	-0,009	-0,004	0,008	0,007	0,042	-0,037	0,472	**1**	0,701
Ret_Tra_8	0,121	-0,017	-0,152	-0,039	-0,041	-0,045	0,067	0,012	-0,045	0,053	0,132	0,169	-0,059	0,054	0,053	-0,065	0,005	0,023	0,117	0,001	-0,085	-0,028	0,140	0,090	0,004	-0,161	0,043	-0,014	0,089	0,025	0,115	-0,003	0,022	-0,134	0,050	-0,025	-0,029	-0,029	0,036	-0,035	0,077	-0,040	0,385	0,701	**1**

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations from 1990-1993 - Recovery of development

Summary of the variables selection Rec_DL:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya 's PC
1	NAT	NAT	IN	0,008	0,202	0,191	117,950	-3107,774	-3062,959	0,823
2	NAT / Shock	Shock	IN	0,008	0,281	0,268	48,094	-3171,379	-3117,600	0,746
3	GFCF_PC / NAT / Shock	GFCF_PC	IN	0,008	0,290	0,277	41,130	-3178,082	-3119,821	0,739
4	GDP_PC / GFCF_PC / NAT / Shock	GDP_PC	IN	0,007	0,304	0,290	30,379	-3188,664	-3125,922	0,727
5	GDP_PC / GFCF_PC / ML_barg / NAT / Shock	ML_barg	IN	0,007	0,311	0,296	25,501	-3193,553	-3126,330	0,721

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations from 1990-1993 - Recovery of development

Goodness of fit statistics (Rec_DL):

Observations	653
Sum of weights	653
DF	638
R^2	0,311
Adjusted R^2	0,296
MSE	0,007
RMSE	0,086
MAPE	5153,952
DW	1,615
Cp	25,501
AIC	-3193,553
SBC	-3126,330
PC	0,721
Press	4,915
Q^2	0,278

Analysis of variance (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	14	2,117	0,151	20,583	**<0,0001**
Error	638	4,688	0,007		
Corrected	652	6,806			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations from 1990-1993 - Recovery of development

Type I Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	1,000	0,012	0,012	1,616	0,204
GFCF_PC	1,000	0,245	0,245	33,301	0,000
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,000	0,000	**0,032**	0,858
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	9,000	1,393	0,155	21,069	0,000
Urb_1	0,000	0,000			
Shock	2,000	0,467	0,234	31,797	0,000

Type II Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GV	0,000	0,000			
Const_GV	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	1,000	0,091	0,091	12,348	0,000
GFCF_PC	1,000	0,126	0,126	17,139	0,000
PROD	0,000	0,000			
RnD_GDF	0,000	0,000			
RnD_EMI	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,050	0,050	6,767	0,010
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	9,000	1,447	0,161	21,873	0,000
Urb_1	0,000	0,000			
Shock	2,000	0,467	0,234	31,797	0,000

Type III Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GV	0,000	0,000			
Const_GV	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	1,000	0,091	0,091	12,348	0,000
GFCF_PC	1,000	0,126	0,126	17,139	0,000
PROD	0,000	0,000			
RnD_GDF	0,000	0,000			
RnD_EMI	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,050	0,050	6,767	0,010
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	9,000	1,447	0,161	21,873	0,000
Urb_1	0,000	0,000			
Shock	2,000	0,467	0,234	31,797	0,000

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations from 1990-1993 - Recovery of development

Model parameters (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,280	0,063	-4,452	**<0,0001**	-0,403	-0,156
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	-0,018	0,006	-3,211	**0,001**	-0,029	-0,007
GFCF_PC	0,027	0,008	3,233	**0,001**	0,011	0,043
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,038	0,018	2,085	**0,037**	0,002	0,074
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
BE	-0,021	0,024	-0,873	0,383	-0,068	0,026
DE	0,109	0,019	5,842	**<0,0001**	0,073	0,146
ES	0,092	0,019	4,800	**<0,0001**	0,054	0,129
FI	-0,187	0,026	-7,194	**<0,0001**	-0,238	-0,136
FR	0,132	0,019	7,110	**<0,0001**	0,096	0,169
IT	-0,024	0,020	-1,224	0,222	-0,063	0,015
NL	0,022	0,023	0,986	0,325	-0,022	0,067
PT	-0,041	0,022	-1,908	0,057	-0,084	0,001
SE	-0,135	0,030	-4,449	**<0,0001**	-0,195	-0,075
UK	0,053	0,037	1,432	0,153	-0,020	0,126
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	-0,052	0,012	-4,167	**<0,0001**	-0,076	-0,027
NED	0,042	0,009	4,623	**<0,0001**	0,024	0,060
NIS	0,009	0,016	0,577	0,564	-0,022	0,041

Standardized coefficients (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	-0,137	0,043	-3,211	**0,001**	-0,220	-0,053
GFCF_PC	0,190	0,059	3,233	**0,001**	0,075	0,306
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,378	0,181	2,085	**0,037**	0,022	0,734
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
BE	-0,099	0,114	-0,873	0,383	-0,322	0,124
DE	0,774	0,133	5,842	**<0,0001**	0,514	1,035
ES	0,447	0,093	4,800	**<0,0001**	0,264	0,630
FI	-0,734	0,102	-7,194	**<0,0001**	-0,935	-0,534
FR	0,732	0,103	7,110	**<0,0001**	0,529	0,934
IT	-0,138	0,113	-1,224	0,222	-0,360	0,084
NL	0,088	0,090	0,986	0,325	-0,088	0,265
PT	-0,184	0,097	-1,908	0,057	-0,374	0,005
SE	-0,568	0,128	-4,449	**<0,0001**	-0,818	-0,317
UK	0,207	0,145	1,432	0,153	-0,077	0,492
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	-0,192	0,046	-4,167	**<0,0001**	-0,282	-0,101
NED	0,208	0,045	4,623	**<0,0001**	0,119	0,296
NIS	0,019	0,034	0,577	0,564	-0,047	0,086

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations from 1990-1993 - Growth trajectory retentione (4 year recovery period)

Summary of the variables selection Ret_Tra_4:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya 's PC
1	NAT	NAT	IN	0,000	0,127	0,115	36,536	-4957,406	-4912,591	0,900
2	GFCF_PC / NAT	GFCF_PC	IN	0,000	0,137	0,124	30,792	-4963,003	-4913,706	0,892
3	Pop_age / GFCF_PC / NAT	Pop_age	IN	0,000	0,143	0,128	28,304	-4965,447	-4911,668	0,889
4	Pop_age / GFCF_PC / Clu / NAT	Clu	IN	0,000	0,149	0,133	25,541	-4968,196	-4909,935	0,885

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations from 1990-1993 - Growth trajectory retentione (4 year recovery period)

Goodness of fit statistics (Ret_Tra_4):

Observations	653
Sum of weights	653
DF	640
R^2	0,149
Adjusted R^2	0,133
MSE	0,000
RMSE	0,022
MAPE	249,892
DW	1,426
Cp	25,541
AIC	-4968,196
SBC	-4909,935
PC	0,885
Press	0,322
Q^2	0,119

Analysis of variance (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	12	0,055	0,005	9,360	**<0,0001**
Error	640	0,311	0,000		
Corrected	652	0,366			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations from 1990-1993 - Growth trajectory retentione (4 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,002	0,002	3,124	0,078
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	1,000	0,008	0,008	16,133	0,000
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,006	0,006	12,527	0,000
NAT	9,000	0,039	0,004	8,948	0,000
Urb_1	0,000	0,000			
Shock	0,000	0,000			

Type II Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,002	0,002	4,803	0,029
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GV	0,000	0,000			
Const_GV	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	1,000	0,004	0,004	7,292	0,007
PROD	0,000	0,000			
RnD_GDF	0,000	0,000			
RnD_EMI	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,002	0,002	4,671	0,031
NAT	9,000	0,039	0,004	8,948	0,000
Urb_1	0,000	0,000			
Shock	0,000	0,000			

Type III Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,002	0,002	4,803	0,029
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GV	0,000	0,000			
Const_GV	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	1,000	0,004	0,004	7,292	0,007
PROD	0,000	0,000			
RnD_GDF	0,000	0,000			
RnD_EMI	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,002	0,002	4,671	0,031
NAT	9,000	0,039	0,004	8,948	0,000
Urb_1	0,000	0,000			
Shock	0,000	0,000			

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations from 1990-1993 - Growth trajectory retentione (4 year recovery period)

Model parameters (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,016	0,004	-4,682	**<0,0001**	-0,023	-0,010
Pop_age	0,007	0,003	2,109	**0,035**	0,000	0,014
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,004	0,002	2,101	**0,036**	0,000	0,008
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	-0,001	0,000	-2,582	**0,010**	-0,002	0,000
BE	0,008	0,002	3,105	**0,002**	0,003	0,012
DE	0,002	0,002	1,160	0,247	-0,002	0,006
ES	0,017	0,004	4,679	**<0,0001**	0,010	0,024
FI	-0,002	0,003	-0,791	0,429	-0,008	0,004
FR	0,011	0,002	6,096	**<0,0001**	0,008	0,015
IT	-0,003	0,003	-1,146	0,252	-0,009	0,002
NL	-0,001	0,006	-0,147	0,883	-0,012	0,010
PT	-0,024	0,006	-3,760	**0,000**	-0,036	-0,011
SE	-0,005	0,007	-0,757	0,450	-0,018	0,008
UK	-0,003	0,003	-1,000	0,318	-0,009	0,003
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,087	0,041	2,109	**0,035**	0,006	0,168
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,128	0,061	2,101	**0,036**	0,008	0,247
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	-0,089	0,035	-2,582	**0,010**	-0,157	-0,021
BE	0,156	0,050	3,105	**0,002**	0,057	0,254
DE	0,071	0,061	1,160	0,247	-0,049	0,191
ES	0,359	0,077	4,679	**<0,0001**	0,208	0,510
FI	-0,041	0,052	-0,791	0,429	-0,143	0,061
FR	0,274	0,045	6,096	**<0,0001**	0,185	0,362
IT	-0,084	0,073	-1,146	0,252	-0,228	0,060
NL	-0,014	0,097	-0,147	0,883	-0,206	0,177
PT	-0,457	0,122	-3,760	**0,000**	-0,695	-0,218
SE	-0,089	0,118	-0,757	0,450	-0,320	0,142
UK	-0,052	0,052	-1,000	0,318	-0,153	0,050
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations from 1990-1993 - Growth trajectory retentione (8 year recovery period)

Summary of the variables selection Ret_Tra_8:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya 's PC
1	NAT	NAT	IN	0,000	0,195	0,184	66,860	-5353,541	-5308,756	0,830
2	Clu / NAT	Clu	IN	0,000	0,219	0,207	47,849	-5371,443	-5322,179	0,807
3	Pop_age / Clu / NAT	Pop_age	IN	0,000	0,246	0,233	27,239	-5391,561	-5337,818	0,783

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations from 1990-1993 - Growth trajectory retentione (8 year recovery period)

Goodness of fit statistics (Ret_Tra_8):

Observations	651
Sum of weig	651
DF	639
R^2	0,246
Adjusted R^2	0,233
MSE	0,000
RMSE	0,016
MAPE	290,987
DW	1,453
Cp	27,239
AIC	-5391,561
SBC	-5337,818
PC	0,783
Press	0,166
Q^2	0,212

Analysis of variance (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	11	0,052	0,005	18,906	**<0,0001**
Error	639	0,159	0,000		
Corrected	650	0,210			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations from 1990-1993 - Growth trajectory retentione (8 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,003	0,003	12,427	0,000
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,005	0,005	20,441	0,000
NAT	9,000	0,044	0,005	19,455	0,000
Urb_1	0,000	0,000			
Shock	0,000	0,000			

Type II Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,005	0,005	22,083	0,000
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GV	0,000	0,000			
Const_GV	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDF	0,000	0,000			
RnD_EMI	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,006	0,006	22,394	0,000
NAT	9,000	0,044	0,005	19,455	0,000
Urb_1	0,000	0,000			
Shock	0,000	0,000			

Type III Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,005	0,005	22,083	0,000
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GV	0,000	0,000			
Const_GV	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDF	0,000	0,000			
RnD_EMI	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,006	0,006	22,394	0,000
NAT	9,000	0,044	0,005	19,455	0,000
Urb_1	0,000	0,000			
Shock	0,000	0,000			

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations from 1990-1993 - Growth trajectory retentione (8 year recovery period)

Model parameters (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,018	0,003	-6,774	**<0,0001**	-0,023	-0,013
Pop_age	0,011	0,002	4,589	**<0,0001**	0,006	0,015
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	-0,002	0,000	-5,705	**<0,0001**	-0,002	-0,001
BE	0,005	0,003	1,822	0,069	0,000	0,011
DE	-0,002	0,002	-1,340	0,181	-0,006	0,001
ES	0,007	0,003	2,677	**0,008**	0,002	0,012
FI	0,010	0,002	6,199	**<0,0001**	0,007	0,013
FR	0,006	0,002	3,332	**0,001**	0,002	0,010
IT	-0,008	0,002	-3,562	**0,000**	-0,012	-0,003
NL	0,003	0,009	0,365	0,715	-0,015	0,022
PT	-0,036	0,005	-6,953	**<0,0001**	-0,046	-0,026
SE	0,015	0,004	4,229	**<0,0001**	0,008	0,022
UK	-0,001	0,002	-0,238	0,812	-0,005	0,004
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,176	0,038	4,589	**<0,0001**	0,100	0,251
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	-0,184	0,032	-5,705	**<0,0001**	-0,247	-0,121
BE	0,144	0,079	1,822	0,069	-0,011	0,300
DE	-0,091	0,068	-1,340	0,181	-0,225	0,042
ES	0,196	0,073	2,677	**0,008**	0,052	0,340
FI	0,219	0,035	6,199	**<0,0001**	0,150	0,289
FR	0,189	0,057	3,332	**0,001**	0,078	0,300
IT	-0,251	0,070	-3,562	**0,000**	-0,389	-0,113
NL	0,076	0,209	0,365	0,715	-0,334	0,486
PT	-0,914	0,131	-6,953	**<0,0001**	-1,172	-0,656
SE	0,359	0,085	4,229	**<0,0001**	0,192	0,525
UK	-0,012	0,051	-0,238	0,812	-0,112	0,087
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

III.b.i.3. Observations from 2000-2003

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations from 2000-2003

Settings:
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Model selection: Stepwise
Probability for entry: 0,05 / Probability for removal: 0,1
Covariances: Corrections = Newey West (adjusted)(Lag = 1)
Use least squares means: Yes
Explanation of the variable codes can be found in table 28

Summary statistics (Quantitative data):

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Rec_DL	421	0	421	-0,490	0,509	-0,088	0,100
Ret_Tra_4	421	0	421	-0,125	0,068	-0,019	0,029
Ret_Tra_8	421	13	408	-0,097	0,031	-0,019	0,018
Pop_age	421	0	421	0,367	2,309	1,084	0,291
Mig_net	421	0	421	-23,086	52,407	2,261	5,901
Pop_work	421	0	421	0,265	0,667	0,484	0,038
Agri_GVA	421	0	421	0,000	0,149	0,022	0,021
Manu_GVA	421	0	421	0,043	0,720	0,234	0,095
Const_GVA	421	0	421	0,014	0,182	0,073	0,027
Serv_GVA	421	0	421	0,190	0,782	0,435	0,081
Pub_GVA	421	0	421	0,066	0,545	0,236	0,063
HHI	421	0	421	0,182	0,543	0,231	0,033
GDP_PC	421	0	421	-1,144	4,722	-0,033	0,817
GFCF_PC	421	0	421	-1,746	2,618	0,026	0,822
PROD	421	0	421	-2,654	2,771	0,272	1,044
RnD_GDP	421	0	421	0,000	12,190	2,005	1,520
RnD_EMP	421	0	421	0,000	4,382	1,472	0,922
MM_Ac	421	0	421	24,795	192,930	108,173	34,775
Avg_bus	421	0	421	1,349	18,605	10,460	5,356
Gov_debt	421	0	421	-7,800	6,700	-2,781	1,911
Cur_blc	421	0	421	-10,800	8,200	1,023	2,916
Gov_close	421	0	421	0,370	31,490	6,906	5,366
Lab_comp	421	0	421	410,956	226177,24	31092,84	28963,28
Union	421	0	421	7,906	78,714	26,778	16,434
ML_barg	421	0	421	1,000	4,750	2,709	0,739
SHDI	421	0	421	0,767	0,932	0,869	0,031
SC_Org	421	0	421	0,038	0,286	0,141	0,039
EoC	421	0	421	46,900	100,000	73,601	12,751
Clu	421	0	421	0,000	82,000	3,108	4,558

Number of removed observations: 27

Summary statistics (Qualitative data):

Variable	Categories	Counts	Frequencies	%
NAT	AT	6	6	1,425
	BE	3	3	0,713
	DE	250	250	59,382
	DK	10	10	2,375
	EL	1	1	0,238
	ES	9	9	2,138
	FI	15	15	3,563
	FR	46	46	10,926
	IE	2	2	0,475
	IT	9	9	2,138
	NL	34	34	8,076
	PT	19	19	4,513
	SE	13	13	3,088
	UK	4	4	0,950
Urb_1	Urban	95	95	22,565
	Intermedia	185	185	43,943
	Rural	141	141	33,492
Shock	LIS	43	43	10,214
	NED	312	312	74,109
	NIS	66	66	15,677

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations from 2000-2003

Correlation matrix:

	Pop_age	Mig_net	Pop_work	Agri_GVA	Manu_GVA	Const_GVA	Serv_GVA	Pub_GVA	HHI	GDP_PC	GFCF_PC	PROD	RnD_GDP	RnD_EMP	MM_Ac	Avg_bus	Gov_debt	Cur_blc	Gov_close	Lab_comp	Union	ML_barg	SHDI	SC_Org	EoC	Clu	AT	BE	DE	DK	EL	ES	FI	FR	IE	IT	NL	PT	SE	UK	Urban	Intermediate	Rural	LIS	NED	NIS	Rec_DL	Ret_Tra_4	Ret_Tra_8
Pop_age	**1**	-0,163	-0,012	0,088	-0,048	0,117	-0,177	0,217	-0,061	-0,127	-0,361	-0,354	-0,082	-0,155	-0,202	0,163	-0,253	-0,243	-0,138	-0,144	-0,105	-0,339	-0,138	-0,109	0,149	-0,198	0,004	-0,014	0,265	-0,097	0,036	0,015	-0,073	-0,067	-0,048	0,079	-0,317	0,167	-0,023	-0,026	-0,235	-0,107	0,189	-0,123	-0,120	0,139	0,167	0,131	0,279
Mig_net	-0,163	**1**	-0,074	-0,017	-0,072	0,018	0,182	-0,125	0,060	0,100	0,145	0,099	0,091	0,060	-0,017	-0,086	-0,044	-0,090	-0,037	0,006	-0,080	-0,054	-0,017	-0,047	-0,064	-0,033	-0,046	-0,037	-0,103	-0,014	-0,064	0,140	-0,100	0,083	-0,058	-0,070	-0,068	-0,010	-0,042	0,069	0,013	0,024	-0,021	-0,095	-0,084	0,101	-0,112	-0,189	-0,132
Pop_work	-0,012	-0,074	**1**	-0,177	0,016	0,045	0,124	-0,142	-0,007	0,101	0,368	0,024	0,166	0,199	0,056	0,077	0,202	-0,044	0,215	0,041	0,250	0,160	0,198	0,217	0,184	-0,026	-0,122	-0,196	0,013	0,100	-0,162	-0,278	0,009	-0,387	-0,147	-0,394	0,188	0,154	0,001	0,152	0,090	0,036	-0,069	0,207	0,243	-0,262	-0,136	-0,070	-0,033
Agri_GVA	0,088	-0,017	-0,177	**1**	-0,227	0,408	-0,246	0,141	-0,496	-0,396	-0,236	-0,400	-0,255	-0,303	-0,549	-0,451	0,169	-0,230	-0,018	-0,281	0,083	0,129	-0,552	-0,319	-0,379	-0,019	0,033	-0,049	-0,418	-0,075	0,057	0,080	0,066	0,083	-0,064	0,145	0,007	0,171	-0,020	0,083	-0,478	-0,303	0,437	-0,304	-0,420	0,428	-0,090	-0,038	-0,167
Manu_GVA	-0,048	-0,072	0,016	-0,227	**1**	-0,232	-0,587	-0,580	0,276	0,118	0,005	0,028	0,185	0,139	0,112	0,350	-0,070	0,052	0,014	-0,068	0,059	-0,149	0,226	0,176	0,268	0,029	0,021	0,029	0,260	-0,027	-0,007	-0,152	-0,005	-0,173	0,026	-0,030	-0,142	-0,036	0,011	0,000	-0,014	0,089	-0,047	0,053	-0,057	0,014	-0,107	-0,019	0,071
Const_GVA	0,117	0,018	0,045	0,408	-0,232	**1**	-0,284	0,140	-0,511	-0,578	-0,174	-0,497	-0,255	-0,333	-0,482	-0,265	0,073	-0,358	-0,100	-0,224	-0,075	-0,043	-0,491	-0,233	-0,167	-0,069	0,191	-0,022	-0,153	-0,086	-0,022	0,197	-0,046	0,074	0,000	0,009	-0,082	0,212	0,030	-0,009	-0,410	-0,160	0,313	0,021	-0,236	0,151	-0,010	0,022	-0,036
Serv_GVA	-0,177	0,182	0,124	-0,246	-0,587	-0,284	**1**	-0,185	0,077	0,405	0,328	0,472	0,104	0,209	0,469	0,005	-0,092	0,157	-0,063	0,415	-0,135	0,125	0,288	0,071	-0,064	-0,090	-0,070	-0,034	-0,015	0,012	-0,010	-0,033	-0,056	0,079	-0,016	-0,032	0,219	-0,129	-0,068	0,000	0,463	0,089	-0,297	0,008	0,268	-0,187	-0,012	-0,107	-0,121
Pub_GVA	0,217	-0,125	-0,142	0,141	-0,580	0,140	-0,185	**1**	-0,125	-0,310	-0,270	-0,292	-0,214	-0,229	-0,373	-0,266	0,134	-0,047	0,109	-0,234	0,088	0,041	-0,309	-0,146	-0,122	0,102	-0,036	0,025	-0,165	0,088	0,014	0,159	0,077	0,100	0,003	0,032	-0,033	0,070	0,065	-0,025	-0,229	-0,076	0,167	0,004	-0,012	0,006	0,212	0,167	0,117
HHI	-0,061	0,060	-0,007	-0,496	0,276	-0,511	0,077	-0,125	**1**	0,631	0,141	0,266	0,232	0,248	0,315	0,256	-0,055	0,035	-0,046	0,187	-0,026	-0,059	0,224	0,188	0,197	0,122	-0,043	0,085	0,208	0,020	0,017	0,131	-0,006	-0,136	0,025	-0,045	-0,023	-0,067	-0,032	-0,044	0,343	0,148	-0,271	0,110	-0,083	0,005	-0,073	-0,102	0,009
GDP_PC	-0,127	0,100	0,101	-0,396	0,118	-0,578	0,405	-0,310	0,631	**1**	0,393	0,487	0,267	0,357	0,464	0,155	0,004	0,219	0,063	0,367	0,023	0,047	0,391	0,218	0,083	0,029	-0,040	-0,009	0,059	0,048	-0,012	-0,056	0,000	-0,011	0,009	-0,040	0,118	-0,162	0,036	-0,011	0,449	0,088	-0,289	0,021	0,062	-0,052	-0,072	-0,139	-0,075
GFCF_PC	-0,361	0,145	0,368	-0,236	0,005	-0,174	0,328	-0,270	0,141	0,393	**1**	0,684	0,552	0,690	0,310	0,053	0,248	0,402	0,308	0,441	0,228	0,151	0,483	0,390	0,121	0,112	0,072	0,019	0,046	0,207	-0,012	-0,113	0,083	0,019	0,093	-0,084	0,154	-0,304	0,117	-0,018	0,189	0,016	-0,109	0,069	0,128	-0,119	-0,125	-0,071	-0,069
PROD	-0,354	0,099	0,024	-0,400	0,028	-0,497	0,472	-0,292	0,266	0,487	0,684	**1**	0,485	0,629	0,671	0,287	-0,023	0,556	0,120	0,583	-0,011	0,033	0,741	0,438	0,227	0,001	-0,056	0,009	0,185	0,081	-0,047	-0,146	-0,021	0,065	-0,016	-0,081	0,176	-0,502	0,011	-0,007	0,411	0,126	-0,293	0,026	0,255	-0,187	0,030	0,035	0,101
RnD_GDP	-0,082	0,091	0,166	-0,255	0,185	-0,255	0,104	-0,214	0,232	0,267	0,552	0,485	**1**	0,850	0,299	0,319	0,010	0,259	0,156	0,307	0,104	-0,083	0,419	0,336	0,255	-0,033	0,022	0,000	0,218	0,073	0,028	-0,097	0,084	-0,051	0,019	-0,065	-0,047	-0,160	0,088	-0,054	0,180	0,070	-0,137	0,064	0,151	-0,133	0,014	0,019	0,050
RnD_EMP	-0,155	0,060	0,199	-0,303	0,139	-0,333	0,209	-0,229	0,248	0,357	0,690	0,629	0,850	**1**	0,346	0,253	0,074	0,311	0,261	0,477	0,171	-0,041	0,485	0,346	0,219	-0,025	0,023	0,008	0,145	0,171	0,054	-0,076	0,152	-0,003	0,044	-0,058	-0,054	-0,160	0,086	-0,068	0,222	0,065	-0,156	0,059	0,191	-0,158	0,000	0,003	0,013
MM_Ac	-0,202	-0,017	0,056	-0,549	0,112	-0,482	0,469	-0,373	0,315	0,464	0,310	0,671	0,299	0,346	**1**	0,517	-0,387	0,223	-0,244	0,527	-0,327	-0,124	0,645	0,295	0,277	-0,157	0,000	0,070	0,473	-0,045	0,014	-0,192	-0,231	-0,057	-0,023	-0,109	0,198	-0,295	-0,148	-0,060	0,592	0,198	-0,432	0,144	0,276	-0,256	0,064	0,086	0,232
Avg_bus	0,163	-0,086	0,077	-0,451	0,350	-0,265	0,005	-0,266	0,256	0,155	0,053	0,287	0,319	0,253	0,517	**1**	-0,394	0,094	-0,182	0,139	-0,183	-0,488	0,640	0,494	0,793	-0,090	-0,032	-0,039	0,891	-0,069	-0,003	-0,135	-0,167	-0,430	-0,016	-0,148	-0,249	-0,244	-0,156	-0,033	0,214	0,230	-0,254	0,218	0,218	-0,250	0,132	0,248	0,504
Gov_debt	-0,253	-0,044	0,202	0,169	-0,070	0,073	-0,092	0,134	-0,055	0,004	0,248	-0,023	0,010	0,074	-0,387	-0,394	**1**	0,418	0,676	-0,262	0,818	0,463	-0,058	0,289	0,030	0,260	-0,015	-0,031	-0,482	0,153	-0,170	0,068	0,548	-0,229	-0,036	-0,079	0,070	-0,162	0,277	0,126	-0,070	-0,052	0,069	0,104	-0,065	-0,004	-0,104	-0,108	-0,274
Cur_blc	-0,243	-0,090	-0,044	-0,230	0,052	-0,358	0,157	-0,047	0,035	0,219	0,402	0,556	0,259	0,311	0,223	0,094	0,418	**1**	0,507	0,043	0,424	0,274	0,613	0,651	0,259	0,054	0,053	0,129	0,056	0,161	0,041	-0,165	0,449	0,093	0,080	0,021	0,157	-0,631	0,247	-0,108	0,105	0,096	-0,114	-0,033	0,266	-0,167	0,036	0,040	0,060
Gov_close	-0,138	-0,037	0,215	-0,018	0,014	-0,100	-0,063	0,109	-0,046	0,063	0,308	0,120	0,156	0,261	-0,244	-0,182	0,676	0,507	**1**	-0,136	0,849	0,067	0,178	0,345	0,177	0,095	0,087	0,023	-0,238	0,634	0,031	-0,065	0,417	-0,038	0,006	-0,019	-0,148	-0,114	0,415	-0,064	-0,086	-0,036	0,067	0,035	0,139	-0,111	-0,004	-0,048	-0,077
Lab_comp	-0,144	0,006	0,041	-0,281	-0,068	-0,224	0,415	-0,234	0,187	0,367	0,441	0,583	0,307	0,477	0,527	0,139	-0,262	0,043	-0,136	**1**	-0,252	-0,103	0,330	-0,013	-0,036	-0,151	-0,014	0,005	0,121	-0,021	0,046	-0,045	-0,079	0,220	0,028	0,036	0,005	-0,057	-0,067	-0,069	0,357	0,016	-0,197	0,012	0,128	-0,093	0,035	0,032	0,083
Union	-0,105	-0,080	0,250	0,083	0,059	-0,075	-0,135	0,088	-0,026	0,023	0,228	-0,011	0,104	0,171	-0,327	-0,183	0,818	0,424	0,849	-0,252	**1**	0,235	0,101	0,362	0,211	0,194	0,044	0,087	-0,256	0,357	-0,007	-0,079	0,472	-0,376	0,009	0,045	-0,092	-0,043	0,482	0,013	-0,070	-0,011	0,043	0,032	0,048	-0,048	-0,059	-0,033	-0,106
ML_barg	-0,339	-0,054	0,160	0,129	-0,149	-0,043	0,125	0,041	-0,059	0,047	0,151	0,033	-0,083	-0,041	-0,124	-0,488	0,463	0,274	0,067	-0,103	0,235	**1**	-0,143	0,087	-0,499	0,197	0,132	0,274	-0,482	0,073	0,204	0,116	0,526	0,029	0,295	0,132	0,750	0,139	0,066	-0,227	0,093	-0,044	-0,022	0,000	0,106	-0,072	-0,242	-0,223	-0,420
SHDI	-0,138	-0,017	0,198	-0,552	0,226	-0,491	0,288	-0,309	0,224	0,391	0,483	0,741	0,419	0,485	0,645	0,640	-0,058	0,613	0,178	0,330	0,101	-0,143	**1**	0,694	0,618	0,002	-0,116	-0,010	0,538	0,069	-0,012	-0,219	-0,020	-0,201	0,014	-0,202	0,051	-0,539	0,136	-0,031	0,365	0,223	-0,329	0,174	0,424	-0,371	0,097	0,152	0,319
SC_Org	-0,109	-0,047	0,217	-0,319	0,176	-0,233	0,071	-0,146	0,188	0,218	0,390	0,438	0,336	0,346	0,295	0,494	0,289	0,651	0,345	-0,013	0,362	0,087	0,694	**1**	0,586	0,047	0,147	0,112	0,472	0,142	0,164	0,057	0,402	-0,311	0,119	-0,101	0,137	-0,387	0,275	-0,233	0,141	0,204	-0,200	0,223	0,303	-0,311	-0,001	0,108	0,221
EoC	0,149	-0,064	0,184	-0,379	0,268	-0,167	-0,064	-0,122	0,197	0,083	0,121	0,227	0,255	0,219	0,277	0,793	0,030	0,259	0,177	-0,036	0,211	-0,499	0,618	0,586	**1**	0,074	-0,163	-0,228	0,719	-0,042	-0,227	-0,158	-0,075	-0,591	-0,122	-0,326	-0,457	-0,447	-0,051	0,203	0,097	0,211	-0,181	0,263	0,203	-0,261	0,161	0,279	0,466
Clu	-0,198	-0,033	-0,026	-0,019	0,029	-0,060	-0,090	0,102	0,122	0,029	0,112	0,001	-0,033	-0,025	-0,157	-0,090	0,260	0,054	0,095	-0,151	0,194	0,197	0,002	0,047	0,074	**1**	0,018	0,011	-0,129	0,062	0,002	0,127	0,057	-0,103	0,342	-0,057	0,055	-0,028	0,134	-0,012	-0,016	-0,016	0,018	0,090	0,060	-0,082	-0,140	0,088	-0,118
AT	0,004	-0,046	-0,122	0,033	0,021	0,191	-0,070	-0,036	-0,043	-0,040	0,072	-0,056	0,022	0,023	0,000	-0,032	-0,015	0,053	0,087	-0,014	0,044	0,132	-0,116	0,147	-0,163	0,018	**1**	0,479	0,085	0,337	0,569	0,350	0,289	0,178	0,518	0,350	0,204	0,262	0,305	-0,639	-0,079	-0,057	0,076	-0,119	-0,086	0,114	-0,006	0,023	0,021
BE	-0,014	-0,037	-0,196	-0,049	0,029	-0,022	-0,034	0,025	0,085	-0,009	0,019	0,009	0,000	0,008	0,070	-0,039	-0,031	0,129	0,023	0,005	0,087	0,274	-0,010	0,112	-0,228	0,011	0,479	**1**	0,165	0,407	0,676	0,422	0,352	0,229	0,617	0,422	0,257	0,322	0,371	-0,758	-0,028	0,002	0,013	0,034	0,039	-0,043	-0,116	-0,019	0,019
DE	0,265	-0,103	0,013	-0,418	0,260	-0,153	-0,015	-0,165	0,208	0,059	-0,046	0,185	0,218	0,145	0,473	0,891	-0,482	0,056	-0,238	0,121	-0,256	-0,482	0,538	0,472	0,719	-0,129	0,085	0,165	**1**	0,013	0,246	0,029	-0,053	-0,289	0,201	0,029	-0,215	-0,096	-0,029	-0,303	0,143	0,235	-0,220	0,261	0,244	-0,288	0,162	0,281	0,544
DK	-0,097	-0,014	0,100	-0,075	-0,027	-0,086	0,012	0,088	0,020	0,048	0,207	0,081	0,073	0,171	-0,045	-0,069	0,153	0,161	0,634	-0,021	0,357	0,073	0,069	0,142	-0,042	0,062	0,337	0,407	0,013	**1**	0,486	0,293	0,238	0,135	0,441	0,293	0,160	0,214	0,253	-0,546	-0,006	0,006	0,000	0,060	0,166	-0,142	-0,095	-0,106	-0,063
EL	0,036	-0,064	-0,162	0,057	-0,007	-0,022	-0,010	0,014	0,017	-0,012	-0,012	-0,047	0,028	0,054	0,014	-0,003	-0,170	0,041	0,031	0,046	-0,007	0,204	-0,012	0,164	-0,227	0,002	0,569	0,676	0,246	0,486	**1**	0,503	0,423	0,285	0,730	0,503	0,315	0,388	0,444	-0,894	-0,010	0,008	0,000	0,122	0,139	-0,152	-0,053	0,019	
ES	0,015	0,140	-0,278	0,080	-0,152	0,197	-0,033	0,159	0,131	-0,056	-0,113	-0,146	-0,097	-0,076	-0,192	-0,135	0,068	-0,165	-0,065	-0,045	-0,079	0,116	-0,219	0,057	-0,158	0,127	0,350	0,422	0,029	0,293	0,503	**1**	0,249	0,144	0,457	0,305	0,169	0,224	0,264	-0,565	-0,008	0,038	-0,019	0,088	-0,071	0,008	-0,042	-0,110	-0,194
FI	-0,073	-0,100	0,009	0,066	-0,005	-0,046	-0,056	0,077	-0,006	0,000	0,083	-0,021	0,084	0,152	-0,231	-0,167	0,548	0,449	0,417	-0,079	0,472	0,526	-0,020	0,402	-0,075	0,057	0,289	0,352	-0,053	0,238	0,423	0,249	**1**	0,099	0,383	0,249	0,124	0,176	0,212	-0,477	-0,088	-0,054	0,079	0,080	0,114	-0,115	-0,078	-0,061	-0,148
FR	-0,067	0,083	-0,387	0,083	-0,173	0,074	0,079	0,100	-0,136	-0,011	0,019	0,065	-0,051	-0,003	-0,057	-0,430	-0,229	0,093	-0,038	0,220	-0,376	0,029	-0,201	-0,311	-0,591	-0,103	0,178	0,229	-0,289	0,135	0,285	0,144	0,099	**1**	0,254	0,144	0,025	0,078	0,112	-0,327	-0,169	-0,201	0,213	-0,138	-0,034	0,087	0,028	-0,066	-0,139
IE	-0,048	-0,058	-0,147	-0,064	0,026	0,000	-0,016	0,003	0,025	0,009	0,093	-0,016	0,019	0,044	-0,023	-0,016	-0,036	0,080	0,006	0,028	0,009	0,295	0,014	0,119	-0,122	0,342	0,518	0,617	0,201	0,441	0,730	0,457	0,383	0,254	**1**	0,457	0,283	0,351	0,403	-0,817	-0,033	-0,018	0,028	0,074	0,165	-0,147	-0,106	0,033	-0,055
IT	0,079	-0,070	-0,394	0,145	-0,030	0,009	-0,032	0,032	-0,045	-0,040	-0,084	-0,081	-0,065	-0,058	-0,109	-0,148	-0,079	0,021	-0,019	0,036	0,045	0,132	-0,202	-0,101	-0,326	-0,057	0,350	0,422	0,029	0,293	0,503	0,305	0,249	0,144	0,457	**1**	0,169	0,224	0,264	-0,565	-0,027	0,007	0,009	-0,180	-0,162	0,194	-0,040	-0,140	-0,119
NL	-0,317	-0,068	0,188	0,007	-0,142	-0,082	0,219	-0,033	-0,023	0,118	0,154	0,176	-0,047	-0,054	0,198	-0,249	0,070	0,157	-0,148	0,005	-0,092	0,750	0,051	0,137	-0,457	0,055	0,204	0,257	-0,215	0,160	0,315	0,169	0,124	0,025	0,283	0,169	**1**	0,103	0,137	-0,359	0,278	0,101	-0,208	0,026	0,169	-0,128	-0,192	-0,186	-0,278
PT	0,167	-0,010	0,154	0,171	-0,036	0,212	-0,129	0,070	-0,067	-0,162	-0,304	-0,502	-0,160	-0,160	-0,295	-0,244	-0,162	-0,631	-0,114	-0,057	-0,043	0,139	-0,539	-0,387	-0,447	-0,028	0,262	0,322	-0,096	0,214	0,388	0,224	0,176	0,078	0,351	0,224	0,103	**1**	0,189	-0,439	-0,116	-0,113	0,130	-0,044	0,003	0,018	-0,089	-0,077	-0,140
SE	-0,023	-0,042	0,001	-0,020	0,011	0,030	-0,068	0,065	-0,032	0,036	0,117	0,011	0,088	0,086	-0,148	-0,156	0,277	0,247	0,415	-0,067	0,482	0,066	0,136	0,275	-0,051	0,134	0,305	0,371	-0,029	0,253	0,444	0,264	0,212	0,112	0,403	0,264	0,137	0,189	**1**	-0,501	0,000	0,042	-0,026	0,059	0,171	-0,144	0,066	0,052	-0,023
UK	-0,026	0,069	0,152	0,083	0,000	-0,009	0,000	-0,025	-0,044	-0,011	-0,018	-0,007	-0,054	-0,068	-0,060	-0,033	0,126	-0,108	-0,064	-0,069	0,013	-0,227	-0,031	-0,233	0,203	-0,012	-0,639	-0,758	-0,303	-0,546	-0,894	-0,565	-0,477	-0,327	-0,817	-0,565	-0,359	-0,439	-0,501	**1**	-0,019	-0,040	0,034	-0,086	-0,175	0,160	0,040	0,006	-0,013
Urban	-0,235	0,013	0,090	-0,478	-0,014	-0,410	0,463	-0,229	0,343	0,449	0,189	0,411	0,180	0,222	0,592	0,214	-0,070	0,105	-0,086	0,357	-0,070	0,093	0,365	0,141	0,097	-0,016	-0,079	-0,028	0,143	-0,006	-0,010	-0,008	-0,088	-0,169	-0,033	-0,027	0,278	-0,116	0,000	-0,019	**1**	0,535	-0,853	0,136	0,202	-0,201	0,019	-0,036	-0,073
Intermediate	-0,107	0,024	0,036	-0,303	0,089	-0,160	0,089	-0,076	0,148	0,088	0,016	0,126	0,070	0,065	0,198	0,230	-0,052	0,096	-0,036	0,016	-0,011	-0,044	0,223	0,204	0,211	-0,016	-0,057	0,002	0,235	0,006	0,008	0,038	-0,054	-0,201	-0,018	0,007	0,101	-0,113	0,042	-0,040	0,535	**1**	-0,897	0,115	0,161	-0,164	0,021	0,033	0,036
Rural	0,189	-0,021	-0,069	0,437	-0,047	0,313	-0,297	0,167	-0,271	-0,289	-0,109	-0,293	-0,137	-0,156	-0,432	-0,254	0,069	-0,114	0,067	-0,197	0,043	-0,022	-0,329	-0,200	-0,181	0,018	0,076	0,013	-0,220	0,000	0,000	-0,019	0,079	0,213	0,028	0,009	-0,208	0,130	-0,026	0,034	-0,853	-0,897	**1**	-0,142	-0,205	0,206	-0,023	-0,002	0,016
LIS	-0,123	-0,095	0,207	-0,304	0,053	0,021	0,008	0,004	0,110	0,021	0,069	0,026	0,064	0,059	0,144	0,218	0,104	-0,033	0,035	0,012	0,032	0,000	0,174	0,223	0,263	0,090	-0,119	0,034	0,261	0,060	0,122	0,088	0,080	-0,138	0,074	-0,180	0,026	-0,044	0,059	-0,086	0,136	0,115	-0,142	**1**	0,500	-0,806	0,086	0,050	0,070
NED	-0,120	-0,084	0,243	-0,420	-0,057	-0,236	0,268	-0,012	-0,083	0,062	0,128	0,255	0,151	0,191	0,276	0,218	-0,065	0,266	0,139	0,128	0,048	0,106	0,424	0,303	0,203	0,060	-0,086	0,039	0,244	0,166	0,139	-0,071	0,114	-0,034	0,165	-0,162	0,169	0,003	0,171	-0,175	0,202	0,161	-0,205	0,500	**1**	-0,916	0,130	0,070	0,095
NIS	0,139	0,101	-0,262	0,428	0,014	0,151	-0,187	0,006	0,005	-0,052	-0,119	-0,187	-0,133	-0,158	-0,256	-0,250	-0,004	-0,167	-0,111	-0,093	-0,048	-0,072	-0,371	-0,311	-0,261	-0,082	0,114	-0,043	-0,288	-0,142	-0,152	0,008	-0,115	0,087	-0,147	0,194	-0,128	0,018	-0,144	0,160	-0,201	-0,164	0,206	-0,806	-0,916	**1**	-0,129	-0,071	-0,098
Rec_DL	0,167	-0,112	-0,136	-0,090	-0,107	-0,010	-0,012	0,212	-0,073	-0,072	-0,125	0,030	0,014	0,000	0,064	0,132	-0,104	0,036	-0,004	0,035	-0,059	-0,242	0,097	-0,001	0,161	-0,140	-0,006	-0,116	0,162	-0,095	-0,053	-0,042	-0,078	0,028	-0,106	-0,040	-0,192	-0,089	0,066	0,040	0,019	0,021	-0,023	0,086	0,130	-0,129	**1**	0,565	0,458
Ret_Tra_4	0,131	-0,189	-0,070	-0,038	-0,019	0,022	-0,107	0,167	-0,102	-0,139	-0,071	0,035	0,019	0,003	0,086	0,248	-0,108	0,040	-0,048	0,032	-0,033	-0,223	0,152	0,108	0,279	0,088	0,023	-0,019	0,281	-0,106	0,019	-0,110	-0,061	-0,066	0,033	-0,140	-0,186	-0,077	0,052	0,006	-0,036	0,033	-0,002	0,050	0,070	-0,071	0,565	**1**	0,667
Ret_Tra_8	0,279	-0,132	-0,033	-0,167	0,071	-0,036	-0,121	0,117	0,009	-0,075	-0,069	0,101	0,050	0,013	0,232	0,504	-0,274	0,060	-0,077	0,083	-0,106	-0,420	0,319	0,221	0,466	-0,118	0,021	0,019	0,544	-0,063		-0,194	-0,148	-0,139	-0,055	-0,119	-0,278	-0,140	-0,023	-0,013	-0,073	0,036	0,016	0,070	0,095	-0,098	0,458	0,667	**1**

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations from 2000-2003 - Recovery of development level

Summary of the variables selection Rec_DL:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya 's PC
1	ML_barg	ML_barg	IN	0,009	0,058	0,056	68,844	-1958,823	-1950,738	0,951
2	Pub_GVA / ML_barg	Pub_GVA	IN	0,009	0,108	0,103	45,461	-1979,414	-1967,286	0,905
3	Pub_GVA / ML_barg / NAT	NAT	IN	0,009	0,175	0,145	36,616	-1986,543	-1921,860	0,890
2	Pub_GVA / NAT	ML_barg	OUT	0,009	0,175	0,147	34,616	-1988,543	-1927,903	0,886
3	Pub_GVA / SC_Org / NAT	SC_Org	IN	0,008	0,193	0,163	27,307	-1995,853	-1931,171	0,871
4	Pub_GVA / SHDI / SC_Org / NAT	SHDI	IN	0,008	0,208	0,176	21,787	-2001,527	-1932,802	0,859
5	Pop_work / Pub_GVA / SHDI / SC_Org / NAT	Pop_work	IN	0,008	0,218	0,185	18,677	-2004,823	-1932,056	0,852
6	Pop_work / Pub_GVA / SHDI / SC_Org / Clu / NAT	Clu	IN	0,008	0,227	0,192	15,805	-2007,935	-1931,125	0,846
7	Pop_work / Pub_GVA / SHDI / SC_Org / Clu / NAT / Shock	Shock	IN	0,008	0,240	0,202	12,989	-2011,193	-1926,297	0,840

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods Observations from 2000-2003 - Recovery of development level

Goodness of fit statistics (Rec_DL):

Observations	421
Sum of weights	421
DF	400
R^2	0,240
Adjusted R^2	0,202
MSE	0,008
RMSE	0,090
MAPE	204,833
DW	2,154
Cp	12,989
AIC	-2011,193
SBC	-1926,297
PC	0,840
Press	4,295
Q^2	-0,017

Analysis of variance (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	20	1,014	0,051	6,324	**<0,0001**
Error	400	3,208	0,008		
Corrected	420	4,223			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations from 2000-2003 - Recovery of development level

Type I Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,078	0,078	9,732	0,002
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,160	0,160	19,891	0,000
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	1,000	0,154	0,154	19,218	0,000
SC_Org	1,000	0,047	0,047	5,812	0,016
EoC	0,000	0,000			
Clu	1,000	0,116	0,116	14,520	0,000
NAT	13,000	0,387	0,030	3,710	0,000
Urb_1	0,000	0,000			
Shock	2,000	0,065	0,033	4,078	0,018

Type II Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,059	0,059	7,389	0,007
Agri_GVA	0,000	0,000			
Manu_GV	0,000	0,000			
Const_GV	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,227	0,227	28,328	0,000
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDF	0,000	0,000			
RnD_EMI	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	1,000	0,056	0,056	7,014	0,008
SC_Org	1,000	0,077	0,077	9,642	0,002
EoC	0,000	0,000			
Clu	1,000	0,046	0,046	5,755	0,017
NAT	13,000	0,282	0,022	2,704	0,001
Urb_1	0,000	0,000			
Shock	2,000	0,065	0,033	4,078	0,018

Type III Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,059	0,059	7,389	0,007
Agri_GVA	0,000	0,000			
Manu_GV	0,000	0,000			
Const_GV	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,227	0,227	28,328	0,000
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDF	0,000	0,000			
RnD_EMI	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	1,000	0,056	0,056	7,014	0,008
SC_Org	1,000	0,077	0,077	9,642	0,002
EoC	0,000	0,000			
Clu	1,000	0,046	0,046	5,755	0,017
NAT	13,000	0,282	0,022	2,704	0,001
Urb_1	0,000	0,000			
Shock	2,000	0,065	0,033	4,078	0,018

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations from 2000-2003 - Recovery of development level

Model parameters (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,651	0,307	-2,121	**0,035**	-1,255	-0,048
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	-0,474	0,197	-2,406	**0,017**	-0,861	-0,087
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,422	0,089	4,740	**<0,0001**	0,247	0,597
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,899	0,368	2,440	**0,015**	0,175	1,623
SC_Org	-0,862	0,274	-3,153	**0,002**	-1,400	-0,325
EoC	0,000	0,000				
Clu	-0,003	0,001	-3,681	**0,000**	-0,005	-0,001
AT	0,146	0,049	2,974	**0,003**	0,049	0,242
BE	-0,185	0,150	-1,235	0,218	-0,480	0,110
DE	0,061	0,087	0,704	0,482	-0,109	0,231
DK	-0,008	0,085	-0,095	0,925	-0,175	0,159
EL	-0,091	0,042	-2,164	**0,031**	-0,173	-0,008
ES	0,019	0,064	0,304	0,761	-0,106	0,145
FI	0,021	0,199	0,104	0,917	-0,370	0,412
FR	0,007	0,054	0,130	0,897	-0,100	0,114
IE	-0,137	0,206	-0,666	0,506	-0,543	0,268
IT	-0,016	0,036	-0,436	0,663	-0,086	0,055
NL	-0,048	0,182	-0,267	0,790	-0,406	0,309
PT	0,008	0,052	0,158	0,875	-0,094	0,110
SE	0,118	0,074	1,593	0,112	-0,028	0,265
UK	0,105	0,263	0,400	0,690	-0,412	0,623
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,016	0,016	0,984	0,325	-0,016	0,049
NED	0,011	0,014	0,805	0,421	-0,016	0,038
NIS	-0,027	0,015	-1,864	0,063	-0,056	0,001

Standardized coefficients (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	-0,181	0,075	-2,406	**0,017**	-0,329	-0,033
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,267	0,056	4,740	**<0,0001**	0,156	0,378
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,277	0,113	2,440	**0,015**	0,054	0,500
SC_Org	-0,336	0,107	-3,153	**0,002**	-0,545	-0,126
EoC	0,000	0,000				
Clu	-0,139	0,038	-3,681	**0,000**	-0,213	-0,065
AT	0,224	0,075	2,974	**0,003**	0,076	0,372
BE	-0,238	0,193	-1,235	0,218	-0,618	0,141
DE	0,311	0,442	0,704	0,482	-0,558	1,180
DK	-0,015	0,154	-0,095	0,925	-0,317	0,288
EL	-0,099	0,046	-2,164	**0,031**	-0,188	-0,009
ES	0,034	0,112	0,304	0,761	-0,186	0,254
FI	0,043	0,419	0,104	0,917	-0,780	0,866
FR	0,023	0,179	0,130	0,897	-0,328	0,374
IE	-0,164	0,246	-0,666	0,506	-0,647	0,320
IT	-0,027	0,063	-0,436	0,663	-0,151	0,096
NL	-0,141	0,530	-0,267	0,790	-1,183	0,900
PT	0,019	0,120	0,158	0,875	-0,217	0,255
SE	0,236	0,148	1,593	0,112	-0,055	0,528
UK	0,102	0,255	0,400	0,690	-0,399	0,603
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,082	0,083	0,984	0,325	-0,082	0,245
NED	0,082	0,102	0,805	0,421	-0,118	0,283
NIS	-0,099	0,053	-1,864	0,063	-0,203	0,005

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations from 2000-2003 - Growth trajectory retention (4 year recovery period)

Summary of the variables selection Ret_Tra_4:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya 's PC
1	NAT	NAT	IN	0,001	0,156	0,129	57,413	-3012,499	-2955,902	0,902
2	Pub_GVA / NAT	Pub_GVA	IN	0,001	0,216	0,189	27,364	-3041,574	-2980,934	0,841
3	Mig_net / Pub_GVA / NAT	Mig_net	IN	0,001	0,231	0,202	21,831	-3047,223	-2982,541	0,830
4	Mig_net / Pub_GVA / HHI / NAT	HHI	IN	0,001	0,243	0,213	17,217	-3052,056	-2983,331	0,821
5	Mig_net / Pub_GVA / HHI / PROD / NAT	PROD	IN	0,001	0,256	0,225	12,297	-3057,327	-2984,559	0,811
6	Mig_net / Pop_work / Pub_GVA / HHI / PROD / NAT	Pop_work	IN	0,001	0,268	0,235	7,723	-3062,351	-2985,541	0,801

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations from 2000-2003 - Growth trajectory retention (4 year recovery period)

Goodness of fit statistics (Ret_Tra_4):

Observations	421
Sum of weights	421
DF	402
R^2	0,268
Adjusted R^2	0,235
MSE	0,001
RMSE	0,026
MAPE	205,623
DW	2,060
Cp	7,723
AIC	-3062,351
SBC	-2985,541
PC	0,801
Press	0,312
Q^2	0,143

Analysis of variance (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	18	0,098	0,005	8,186	**<0,0001**
Error	402	0,267	0,001		
Corrected	420	0,364			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations from 2000-2003 - Growth trajectory retention (4 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	1,000	0,013	0,013	19,564	0,000
Pop_work	1,000	0,003	0,003	3,918	0,048
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,006	0,006	9,788	0,002
HHI	1,000	0,002	0,002	3,141	0,077
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,005	0,005	7,868	0,005
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	13,000	0,068	0,005	7,929	0,000
Urb_1	0,000	0,000			
Shock	0,000	0,000			

Type II Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	1,000	0,007	0,007	9,965	0,002
Pop_work	1,000	0,004	0,004	6,763	0,010
Agri_GVA	0,000	0,000			
Manu_GV	0,000	0,000			
Const_GV	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,016	0,016	23,650	0,000
HHI	1,000	0,007	0,007	11,154	0,001
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,005	0,005	7,318	0,007
RnD_GDF	0,000	0,000			
RnD_EMI	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	13,000	0,068	0,005	7,929	0,000
Urb_1	0,000	0,000			
Shock	0,000	0,000			

Type III Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	1,000	0,007	0,007	9,965	0,002
Pop_work	1,000	0,004	0,004	6,763	0,010
Agri_GVA	0,000	0,000			
Manu_GV	0,000	0,000			
Const_GV	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,016	0,016	23,650	0,000
HHI	1,000	0,007	0,007	11,154	0,001
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,005	0,005	7,318	0,007
RnD_GDF	0,000	0,000			
RnD_EMI	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	13,000	0,068	0,005	7,929	0,000
Urb_1	0,000	0,000			
Shock	0,000	0,000			

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations from 2000-2003 - Growth trajectory retention (4 year recovery period)

Model parameters (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,046	0,030	1,539	0,125	-0,013	0,106
Pop_age	0,000	0,000				
Mig_net	-0,001	0,000	-2,987	**0,003**	-0,001	0,000
Pop_work	-0,126	0,053	-2,373	**0,018**	-0,231	-0,022
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,108	0,022	4,965	**<0,0001**	0,065	0,150
HHI	-0,139	0,066	-2,113	**0,035**	-0,268	-0,010
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,005	0,002	2,364	**0,019**	0,001	0,009
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	0,014	0,008	1,685	0,093	-0,002	0,029
BE	-0,007	0,009	-0,825	0,410	-0,025	0,010
DE	0,011	0,003	3,310	**0,001**	0,004	0,017
DK	-0,020	0,006	-3,280	**0,001**	-0,031	-0,008
EL	0,039	0,005	8,389	**<0,0001**	0,030	0,049
ES	-0,022	0,009	-2,535	**0,012**	-0,039	-0,005
FI	-0,009	0,009	-1,020	0,308	-0,027	0,009
FR	-0,011	0,004	-2,714	**0,007**	-0,020	-0,003
IE	0,033	0,028	1,154	0,249	-0,023	0,088
IT	-0,044	0,009	-4,716	**<0,0001**	-0,062	-0,025
NL	-0,016	0,004	-3,530	**0,000**	-0,025	-0,007
PT	0,006	0,008	0,806	0,420	-0,009	0,021
SE	0,011	0,007	1,731	0,084	-0,002	0,024
UK	0,015	0,014	1,077	0,282	-0,013	0,043
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	-0,145	0,048	-2,987	**0,003**	-0,240	-0,049
Pop_work	-0,164	0,069	-2,373	**0,018**	-0,300	-0,028
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,232	0,047	4,965	**<0,0001**	0,140	0,324
HHI	-0,157	0,074	-2,113	**0,035**	-0,304	-0,011
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,169	0,071	2,364	**0,019**	0,028	0,309
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	0,071	0,042	1,685	0,093	-0,012	0,154
BE	-0,033	0,039	-0,825	0,410	-0,110	0,045
DE	0,190	0,058	3,310	**0,001**	0,077	0,303
DK	-0,121	0,037	-3,280	**0,001**	-0,194	-0,049
EL	0,145	0,017	8,389	**<0,0001**	0,111	0,179
ES	-0,132	0,052	-2,535	**0,012**	-0,235	-0,030
FI	-0,067	0,065	-1,020	0,308	-0,195	0,062
FR	-0,127	0,047	-2,714	**0,007**	-0,220	-0,035
IE	0,132	0,114	1,154	0,249	-0,093	0,357
IT	-0,260	0,055	-4,716	**<0,0001**	-0,368	-0,151
NL	-0,157	0,045	-3,530	**0,000**	-0,245	-0,070
PT	0,049	0,061	0,806	0,420	-0,070	0,168
SE	0,077	0,045	1,731	0,084	-0,011	0,165
UK	0,050	0,047	1,077	0,282	-0,042	0,143
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations from 2000-2003 - Growth trajectory retention (8 year recovery period)

Summary of the variables selection Ret_Tra_8:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya 's PC
1	NAT	NAT	IN	0,000	0,390	0,372	84,802	-3442,194	-3390,047	0,650
2	Pub_GVA / NAT	Pub_GVA	IN	0,000	0,453	0,435	38,969	-3484,302	-3428,145	0,586
3	Agri_GVA / Pub_GVA / NAT	Agri_GVA	IN	0,000	0,463	0,444	33,265	-3489,875	-3429,706	0,578
4	Agri_GVA / Pub_GVA / Lab_comp / NAT	Lab_comp	IN	0,000	0,473	0,453	27,748	-3495,401	-3431,221	0,570
5	Agri_GVA / Serv_GVA / Pub_GVA / Lab_comp / NAT	Serv_GVA	IN	0,000	0,479	0,458	24,594	-3498,642	-3430,451	0,566
6	Agri_GVA / Serv_GVA / Pub_GVA / RnD_GDP / Lab_comp / NAT	RnD_GDP	IN	0,000	0,485	0,463	22,124	-3501,244	-3429,041	0,562

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations from 2000-2003 - Growth trajectory retention (8 year recovery period)

Goodness of fit statistics (Ret_Tra_8):

Observations	408
Sum of weights	408
DF	390
R^2	0,485
Adjusted R^2	0,463
MSE	0,000
RMSE	0,013
MAPE	635,264
DW	1,956
Cp	22,124
AIC	-3501,244
SBC	-3429,041
PC	0,562
Press	0,078
Q^2	0,429

Analysis of variance (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	17	0,066	0,004	21,630	**<0,0001**
Error	390	0,070	0,000		
Corrected	407	0,136			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations from 2000-2003 - Growth trajectory retention (8 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	1,000	0,004	0,004	21,044	0,000
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	1,000	0,004	0,004	21,769	0,000
Pub_GVA	1,000	0,002	0,002	10,276	0,001
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	1,000	0,000	0,000	1,230	0,268
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	1,000	0,002	0,002	11,855	0,001
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	12,000	0,054	0,005	25,128	0,000
Urb_1	0,000	0,000			
Shock	0,000	0,000			

Type II Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	1,000	0,002	0,002	8,391	0,004
Manu_GV	0,000	0,000			
Const_GV	0,000	0,000			
Serv_GVA	1,000	0,001	0,001	5,477	0,020
Pub_GVA	1,000	0,007	0,007	41,742	0,000
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDF	1,000	0,001	0,001	4,423	0,036
RnD_EMI	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	1,000	0,003	0,003	14,303	0,000
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	12,000	0,054	0,005	25,128	0,000
Urb_1	0,000	0,000			
Shock	0,000	0,000			

Type III Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	1,000	0,002	0,002	8,391	0,004
Manu_GV	0,000	0,000			
Const_GV	0,000	0,000			
Serv_GVA	1,000	0,001	0,001	5,477	0,020
Pub_GVA	1,000	0,007	0,007	41,742	0,000
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDF	1,000	0,001	0,001	4,423	0,036
RnD_EMI	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	1,000	0,003	0,003	14,303	0,000
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	12,000	0,054	0,005	25,128	0,000
Urb_1	0,000	0,000			
Shock	0,000	0,000			

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations from 2000-2003 - Growth trajectory retention (8 year recovery period)

Model parameters (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,043	0,007	-5,781	**<0,0001**	-0,057	-0,028
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	0,117	0,044	2,649	**0,008**	0,030	0,204
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	-0,023	0,015	-1,568	0,118	-0,052	0,006
Pub_GVA	0,074	0,013	5,911	**<0,0001**	0,049	0,099
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	-0,001	0,001	-1,771	0,077	-0,002	0,000
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000	4,206	**<0,0001**	0,000	0,000
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	0,016	0,005	2,927	**0,004**	0,005	0,027
BE	0,012	0,005	2,275	**0,023**	0,002	0,023
DE	0,023	0,002	11,457	**<0,0001**	0,019	0,027
DK	0,003	0,003	1,070	0,285	-0,002	0,008
EL	0,000	0,000				
ES	-0,028	0,007	-4,261	**<0,0001**	-0,041	-0,015
FI	-0,006	0,006	-1,135	0,257	-0,018	0,005
FR	0,001	0,002	0,433	0,665	-0,003	0,005
IE	-0,027	0,002	-14,718	**<0,0001**	-0,031	-0,024
IT	-0,012	0,005	-2,610	**0,009**	-0,022	-0,003
NL	-0,004	0,002	-1,722	0,086	-0,009	0,001
PT	-0,006	0,003	-1,857	0,064	-0,013	0,000
SE	0,009	0,003	3,115	**0,002**	0,003	0,015
UK	0,011	0,007	1,453	0,147	-0,004	0,025
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	0,131	0,049	2,649	**0,008**	0,034	0,228
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	-0,101	0,064	-1,568	0,118	-0,228	0,026
Pub_GVA	0,257	0,043	5,911	**<0,0001**	0,172	0,343
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	-0,087	0,049	-1,771	0,077	-0,184	0,010
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,172	0,041	4,206	**<0,0001**	0,092	0,253
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	0,131	0,045	2,927	**0,004**	0,043	0,219
BE	0,080	0,035	2,275	**0,023**	0,011	0,150
DE	0,635	0,055	11,457	**<0,0001**	0,526	0,744
DK	0,029	0,027	1,070	0,285	-0,024	0,082
EL	0,000	0,000				
ES	-0,266	0,062	-4,261	**<0,0001**	-0,389	-0,143
FI	-0,074	0,065	-1,135	0,257	-0,202	0,054
FR	0,017	0,039	0,433	0,665	-0,060	0,094
IE	-0,165	0,011	-14,718	**<0,0001**	-0,187	-0,143
IT	-0,120	0,046	-2,610	**0,009**	-0,210	-0,030
NL	-0,066	0,038	-1,722	0,086	-0,142	0,009
PT	-0,080	0,043	-1,857	0,064	-0,164	0,005
SE	0,100	0,032	3,115	**0,002**	0,037	0,162
UK	0,057	0,039	1,453	0,147	-0,020	0,134
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

III.b.i.4. Observations from 2008-2009

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations from 2008-2009

Settings:
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Model selection: Stepwise
Probability for entry: 0,05 / Probability for removal: 0,1
Covariances: Corrections = Newey West (adjusted)(Lag = 1)
Use least squares means: Yes
Explanation of the variable codes can be found in table 28

Summary statistics (Quantitative data):

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Rec_DL	694	0	694	-0,400	0,257	-0,069	0,069
Ret_Tra_4	694	0	694	-0,094	0,088	-0,006	0,017
Ret_Tra_8	694	345	349	-0,035	0,047	-0,001	0,013
Pop_age	694	0	694	0,477	2,946	1,302	0,435
Mig_net	694	0	694	-9,504	25,623	2,084	4,451
Pop_work	694	0	694	0,320	0,566	0,491	0,041
Agri_GVA	694	0	694	0,000	0,129	0,018	0,018
Manu_GVA	694	0	694	0,034	0,551	0,200	0,079
Const_GVA	694	0	694	0,011	0,145	0,065	0,021
Serv_GVA	694	0	694	0,250	0,764	0,469	0,076
Pub_GVA	694	0	694	0,073	0,457	0,248	0,060
HHI	694	0	694	0,189	0,358	0,233	0,023
GDP_PC	694	0	694	-0,931	4,259	-0,019	0,632
GFCF_PC	694	0	694	-1,538	2,552	-0,033	0,760
PROD	694	0	694	-2,508	2,976	0,234	0,829
RnD_GDP	694	0	694	0,160	10,969	2,118	1,475
RnD_EMP	694	0	694	0,223	4,938	1,633	0,849
MM_Ac	694	0	694	30,395	192,930	112,199	29,253
Avg_bus	694	0	694	1,998	18,605	9,512	4,870
Gov_debt	694	0	694	-10,200	1,900	-4,424	1,807
Cur_blc	694	0	694	-14,500	7,800	1,621	4,465
Gov_close	694	0	694	0,370	31,490	5,857	3,982
Lab_comp	694	0	694	2511,918	271583,242	34135,820	34338,639
Union	694	0	694	7,794	68,923	24,612	13,145
ML_barg	694	0	694	1,000	4,750	2,275	0,708
SHDI	694	0	694	0,799	0,958	0,893	0,027
SC_Org	694	0	694	0,038	0,213	0,117	0,046
EoC	694	0	694	46,900	100,000	75,921	16,896
Clu	694	0	694	0,360	27,600	2,775	2,813

Number of removed observations: 47

Summary statistics (Qualitative data):

Variable	Categories	Counts	Frequencies	%
NAT	AT	30	30	4,323
	BE	38	38	5,476
	DE	295	295	42,507
	DK	10	10	1,441
	EL	1	1	0,144
	ES	2	2	0,288
	FI	4	4	0,576
	FR	85	85	12,248
	IT	56	56	8,069
	NL	21	21	3,026
	PT	10	10	1,441
	SE	10	10	1,441
	UK	132	132	19,020
Urb_1	Urban	236	236	34,006
	Intermedia	290	290	41,787
	Rural	168	168	24,207
Shock	LIS	9	9	1,297
	NED	645	645	92,939
	NIS	40	40	5,764

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations from 2008-2009

Correlation matrix:

	Pop_age	Mig_net	Pop_work	Agri_GVA	Manu_GVA	Const_GVA	Serv_GVA	Pub_GVA	HHI	GDP_PC	GFCF_PC	PROD	RnD_GDP	RnD_EMP	MM_Ac	Avg_bus	Gov_debt	Cur_blc	Gov_close	Lab_comp	Union	ML_barg	SHDI	SC_Org	EoC	Clu	AT	BE	DE	DK	EL	ES	FI	FR	IT	NL	PT	SE	UK	Urban	Intermediate	Rural	LIS	NED	NIS	Rec_DL	Ret_Tra_4	Ret_Tra_8
Pop_age	**1**	-0,248	0,161	0,102	0,128	-0,142	-0,260	0,181	-0,031	-0,078	-0,238	-0,248	-0,018	-0,079	-0,119	0,341	0,351	0,434	-0,022	-0,086	-0,141	0,175	0,173	0,352	-0,005	-0,127	0,290	0,243	0,564	0,324	0,369	0,364	0,366	0,129	0,385	0,267	0,362	0,340	-0,377	-0,212	0,046	0,096	0,024	-0,014	0,000	0,178	0,035	0,060
Mig_net	-0,248	**1**	-0,132	-0,141	-0,289	0,013	0,319	0,014	0,084	0,177	0,136	0,113	-0,028	0,011	0,076	-0,289	-0,132	-0,311	-0,056	-0,104	0,327	0,011	-0,112	-0,222	-0,057	0,009	-0,186	0,034	-0,313	-0,168	-0,180	-0,147	-0,181	-0,143	-0,093	-0,173	-0,189	-0,142	0,180	0,162	0,103	-0,159	0,120	0,147	-0,145	-0,048	0,012	0,093
Pop_work	0,161	-0,132	**1**	-0,254	0,189	-0,085	0,064	-0,224	0,172	0,218	0,276	0,095	0,270	0,241	0,169	0,493	0,399	0,335	0,134	0,020	-0,115	-0,241	0,533	0,371	0,539	0,139	-0,080	-0,255	0,194	-0,097	-0,136	-0,122	-0,136	-0,320	-0,377	-0,055	-0,087	-0,094	0,133	0,060	0,104	-0,100	-0,086	-0,049	0,066	0,145	0,180	0,184
Agri_GVA	0,102	-0,141	-0,254	**1**	-0,074	0,354	-0,339	0,102	-0,535	-0,360	-0,085	-0,158	-0,161	-0,213	-0,495	-0,330	-0,166	-0,014	0,068	-0,126	-0,034	0,264	-0,363	0,001	-0,410	-0,126	0,247	0,192	0,036	0,243	0,265	0,258	0,283	0,331	0,335	0,289	0,273	0,261	-0,266	-0,554	-0,249	0,480	0,095	0,021	-0,049	0,025	-0,010	-0,081
Manu_GV	0,128	-0,289	0,189	-0,074	**1**	-0,107	-0,609	-0,486	-0,102	-0,023	0,009	-0,012	0,145	0,080	0,042	0,327	0,321	0,284	0,069	-0,037	-0,034	0,085	0,209	0,278	0,047	0,063	0,211	0,125	0,302	0,172	0,192	0,184	0,198	0,041	0,147	0,145	0,201	0,204	-0,199	-0,124	0,018	0,062	-0,441	-0,459	0,479	-0,014	-0,026	-0,050
Const_GV	-0,142	0,013	-0,085	0,354	-0,107	**1**	-0,207	-0,052	-0,598	-0,499	-0,076	-0,278	-0,156	-0,178	-0,406	-0,395	-0,304	-0,299	-0,008	-0,150	0,049	-0,064	-0,380	-0,241	-0,130	-0,030	-0,012	-0,094	-0,318	-0,136	-0,132	-0,112	-0,120	0,023	-0,089	-0,112	-0,099	-0,108	0,129	-0,295	-0,190	0,291	0,077	0,073	-0,078	-0,072	-0,042	-0,130
Serv_GVA	-0,260	0,319	0,064	-0,339	-0,609	-0,207	**1**	-0,293	0,419	0,484	0,256	0,314	0,095	0,207	0,420	-0,044	-0,134	-0,195	-0,135	0,286	0,003	-0,161	0,176	-0,162	0,118	0,026	-0,218	-0,198	-0,221	-0,227	-0,232	-0,223	-0,251	-0,196	-0,176	-0,193	-0,250	-0,254	0,241	0,461	0,137	-0,357	0,193	0,256	-0,247	-0,052	0,030	0,084
Pub_GVA	0,181	0,014	-0,224	0,102	-0,486	-0,052	-0,293	**1**	-0,028	-0,302	-0,284	-0,237	-0,208	-0,243	-0,298	-0,138	-0,096	-0,018	0,062	-0,224	0,034	0,036	-0,256	-0,076	-0,043	-0,068	-0,071	0,061	-0,018	0,036	0,008	0,002	0,016	0,087	-0,040	0,006	0,005	0,012	-0,009	-0,152	-0,057	0,125	0,282	0,249	-0,275	0,102	0,014	0,026
HHI	-0,031	0,084	0,172	-0,535	-0,102	-0,598	0,419	-0,028	**1**	0,549	0,166	0,227	0,151	0,216	0,346	0,251	0,196	0,087	-0,045	0,200	-0,012	-0,058	0,305	0,110	0,211	0,062	-0,076	-0,042	0,098	-0,050	-0,044	-0,047	-0,071	-0,151	-0,114	-0,072	-0,071	-0,069	0,059	0,325	0,127	-0,269	-0,204	-0,218	0,225	-0,072	-0,021	0,130
GDP_PC	-0,078	0,177	0,218	-0,360	-0,023	-0,499	0,484	-0,302	0,549	**1**	0,429	0,413	0,207	0,303	0,414	0,150	0,142	0,173	0,106	0,295	-0,009	0,040	0,372	0,206	0,034	0,079	0,098	0,029	0,100	0,086	0,073	0,073	0,070	0,016	0,040	0,095	0,036	0,085	-0,074	0,283	0,080	-0,216	-0,051	-0,022	0,034	-0,022	-0,035	0,055
GFCF_PC	-0,238	0,136	0,276	-0,085	0,009	-0,076	0,256	-0,284	0,166	0,429	**1**	0,729	0,488	0,653	0,276	-0,002	0,109	0,229	0,327	0,436	0,118	0,208	0,422	0,361	-0,125	0,137	0,267	0,197	0,082	0,246	0,197	0,195	0,201	0,179	0,103	0,233	0,126	0,229	-0,200	0,003	0,005	-0,005	-0,010	0,029	-0,016	0,082	0,050	0,100
PROD	-0,248	0,113	0,095	-0,158	-0,012	-0,278	0,314	-0,237	0,227	0,413	0,729	**1**	0,371	0,490	0,570	0,142	0,190	0,397	0,224	0,485	-0,003	0,294	0,576	0,427	-0,117	0,085	0,231	0,302	0,236	0,302	0,265	0,262	0,268	0,256	0,117	0,339	0,147	0,270	-0,273	0,144	0,039	-0,109	-0,037	0,040	-0,013	0,137	0,029	0,096
RnD_GDP	-0,018	-0,028	0,270	-0,161	0,145	-0,156	0,095	-0,208	0,151	0,207	0,488	0,371	**1**	0,783	0,231	0,299	0,218	0,229	0,177	0,226	-0,052	-0,056	0,385	0,259	0,165	0,342	0,052	-0,013	0,159	0,069	0,040	0,035	0,055	0,016	-0,075	0,012	0,021	0,061	-0,045	0,055	0,012	-0,040	-0,090	-0,052	0,069	0,045	0,067	0,050
RnD_EMP	-0,079	0,011	0,241	-0,213	0,080	-0,178	0,207	-0,243	0,216	0,303	0,653	0,490	0,783	**1**	0,263	0,211	0,152	0,150	0,248	0,431	0,013	-0,032	0,418	0,222	0,080	0,025	0,086	0,002	0,104	0,115	0,058	0,053	0,073	0,051	-0,002	0,012	0,045	0,070	-0,063	0,097	0,014	-0,066	-0,109	-0,079	0,095	0,025	0,051	0,085
MM_Ac	-0,119	0,076	0,169	-0,495	0,042	-0,406	0,420	-0,298	0,346	0,414	0,276	0,570	0,231	0,263	**1**	0,384	0,198	0,314	-0,177	0,388	-0,124	0,091	0,567	0,247	0,147	0,026	0,019	0,152	0,264	0,040	0,064	0,065	0,037	-0,038	-0,046	0,104	-0,001	0,025	-0,073	0,482	0,137	-0,368	-0,043	0,051	-0,018	0,137	0,092	0,093
Avg_bus	0,341	-0,289	0,493	-0,330	0,327	-0,395	-0,044	-0,138	0,251	0,150	-0,002	0,142	0,299	0,211	0,384	**1**	0,625	0,622	-0,062	0,036	-0,285	-0,198	0,712	0,523	0,609	0,048	-0,011	-0,078	0,589	0,024	0,039	0,036	0,029	-0,248	-0,156	-0,018	-0,001	0,007	-0,045	0,137	0,115	-0,152	-0,153	-0,105	0,129	0,228	0,099	0,163
Gov_debt	0,351	-0,132	0,399	-0,166	0,321	-0,304	-0,134	-0,096	0,196	0,142	0,109	0,190	0,218	0,152	0,198	0,625	**1**	0,705	0,361	-0,054	0,186	0,036	0,604	0,622	0,395	0,101	0,142	0,125	0,542	0,237	0,205	0,216	0,228	-0,174	0,117	0,168	0,126	0,327	-0,218	0,051	0,154	-0,125	-0,181	-0,252	0,239	0,153	0,093	0,143
Cur_blc	0,434	-0,311	0,335	-0,014	0,284	-0,299	-0,195	-0,018	0,087	0,173	0,229	0,397	0,229	0,150	0,314	0,622	0,705	**1**	0,323	0,074	-0,210	0,386	0,666	0,878	0,045	0,013	0,561	0,451	0,863	0,610	0,615	0,606	0,616	0,337	0,360	0,620	0,499	0,643	-0,632	-0,154	0,092	0,034	-0,120	-0,074	0,095	0,329	0,083	0,143
Gov_close	-0,022	-0,056	0,134	0,068	0,069	-0,008	-0,135	0,062	-0,045	0,106	0,327	0,224	0,177	0,248	-0,177	-0,062	0,361	0,323	**1**	-0,038	0,462	0,174	0,117	0,377	-0,064	0,146	0,344	0,206	0,142	0,506	0,293	0,290	0,341	0,219	0,178	0,229	0,258	0,408	-0,300	-0,185	-0,055	0,143	-0,030	-0,012	0,019	0,028	-0,026	0,005
Lab_comp	-0,086	-0,104	0,020	-0,126	-0,037	-0,150	0,286	-0,224	0,200	0,295	0,436	0,485	0,226	0,431	0,388	0,036	-0,054	0,074	-0,038	**1**	-0,234	0,072	0,287	0,062	-0,171	-0,186	0,082	0,061	0,129	0,140	0,156	0,154	0,148	0,252	0,188	0,143	0,139	0,135	-0,160	0,187	0,001	-0,111	-0,031	-0,028	0,031	0,029	0,045	0,091
Union	-0,141	0,327	-0,115	-0,034	-0,034	0,049	0,003	0,034	-0,012	-0,009	0,118	-0,003	-0,052	0,013	-0,124	-0,285	0,186	-0,210	0,462	-0,234	**1**	0,163	-0,158	-0,104	-0,029	0,205	-0,042	0,191	-0,296	0,031	-0,087	-0,092	-0,039	-0,344	0,052	-0,108	-0,070	0,021	0,089	0,056	0,020	-0,045	0,010	0,024	-0,020	-0,166	-0,056	-0,078
ML_barg	0,175	0,011	-0,241	0,264	0,085	-0,064	-0,161	0,036	-0,058	0,040	0,208	0,294	-0,056	-0,032	0,091	-0,198	0,036	0,386	0,174	0,072	0,163	**1**	-0,043	0,482	-0,800	-0,063	0,775	0,945	0,539	0,831	0,881	0,866	0,859	0,688	0,754	0,896	0,852	0,834	-0,874	-0,305	-0,002	0,181	-0,066	-0,089	0,085	0,172	0,030	0,061
SHDI	0,173	-0,112	0,533	-0,363	0,209	-0,380	0,176	-0,256	0,305	0,372	0,422	0,576	0,385	0,418	0,567	0,712	0,604	0,666	0,117	0,287	-0,158	-0,043	**1**	0,607	0,424	0,085	0,039	0,038	0,491	0,125	0,103	0,093	0,106	-0,100	-0,079	0,125	-0,010	0,108	-0,113	0,186	0,144	-0,199	-0,132	-0,051	0,084	0,239	0,105	0,166
SC_Org	0,352	-0,222	0,371	0,001	0,278	-0,241	-0,162	-0,076	0,110	0,206	0,361	0,427	0,259	0,222	0,247	0,523	0,622	0,878	0,377	0,062	-0,104	0,482	0,607	**1**	-0,048	0,051	0,607	0,520	0,809	0,649	0,662	0,657	0,678	0,377	0,361	0,645	0,571	0,676	-0,666	-0,218	0,077	0,081	-0,129	-0,103	0,118	0,322	0,098	0,158
EoC	-0,005	-0,057	0,539	-0,410	0,047	-0,130	0,118	-0,043	0,211	0,034	-0,125	-0,117	0,165	0,080	0,147	0,609	0,395	0,045	-0,064	-0,171	-0,029	-0,800	0,424	-0,048	**1**	0,168	-0,629	-0,703	-0,161	-0,642	-0,693	-0,686	-0,675	-0,786	-0,765	-0,697	-0,704	-0,648	0,691	0,328	0,092	-0,250	-0,016	0,041	-0,022	-0,040	0,030	0,033
Clu	-0,127	0,009	0,139	-0,126	0,063	-0,030	0,026	-0,068	0,062	0,079	0,137	0,085	0,342	0,025	0,026	0,048	0,101	0,013	0,146	-0,186	0,205	-0,063	0,085	0,051	0,168	**1**	-0,054	-0,070	-0,118	-0,098	-0,131	-0,136	-0,122	-0,191	-0,203	-0,087	-0,134	-0,084	0,134	0,067	-0,013	-0,031	-0,027	0,009	0,004	-0,072	-0,042	-0,083
AT	0,290	-0,186	-0,080	0,247	0,211	-0,012	-0,218	-0,071	-0,076	0,098	0,267	0,231	0,052	0,086	0,019	-0,011	0,142	0,561	0,344	0,082	-0,042	0,775	0,039	0,607	-0,629	-0,054	**1**	0,777	0,653	0,857	0,894	0,889	0,881	0,706	0,743	0,820	0,857	0,857	-0,898	-0,401	-0,075	0,283	-0,114	-0,132	0,133	0,201	-0,034	0,023
BE	0,243	0,034	-0,255	0,192	0,125	-0,094	-0,198	0,061	-0,042	0,029	0,197	0,302	-0,013	0,002	0,152	-0,078	0,125	0,451	0,206	0,061	0,191	0,945	0,038	0,520	-0,703	-0,070	0,777	**1**	0,623	0,839	0,876	0,871	0,862	0,685	0,724	0,802	0,839	0,839	-0,880	-0,327	-0,017	0,203	-0,072	-0,083	0,083	0,233	-0,008	0,049
DE	0,564	-0,313	0,194	0,036	0,302	-0,318	-0,221	-0,018	0,098	0,100	0,082	0,236	0,159	0,104	0,264	0,589	0,542	0,863	0,142	0,129	-0,296	0,539	0,491	0,809	-0,161	-0,118	0,653	0,623	**1**	0,742	0,794	0,787	0,776	0,496	0,567	0,690	0,742	0,742	-0,799	-0,236	0,083	0,088	-0,138	-0,138	0,145	0,378	0,107	0,191
DK	0,324	-0,168	-0,097	0,243	0,172	-0,136	-0,227	0,036	-0,050	0,086	0,246	0,302	0,069	0,115	0,040	0,024	0,237	0,610	0,506	0,140	0,031	0,831	0,125	0,649	-0,642	-0,098	0,857	0,839	0,742	**1**	0,954	0,949	0,941	0,771	0,806	0,881	0,917	0,917	-0,958	-0,375	-0,015	0,230	-0,085	-0,106	0,104	0,273	0,065	0,127
EL	0,369	-0,180	-0,136	0,265	0,192	-0,132	-0,232	0,008	-0,044	0,073	0,197	0,265	0,040	0,058	0,064	0,039	0,205	0,615	0,293	0,156	-0,087	0,881	0,103	0,662	-0,693	-0,131	0,894	0,876	0,794	0,954	**1**	0,986	0,978	0,809	0,844	0,918	0,954	0,954	-0,995	-0,382	-0,004	0,227	-0,095	-0,121	0,118	0,261	0,036	
ES	0,364	-0,147	-0,122	0,258	0,184	-0,112	-0,223	0,002	-0,047	0,073	0,195	0,262	0,035	0,053	0,065	0,036	0,216	0,606	0,290	0,154	-0,092	0,866	0,093	0,657	-0,686	-0,136	0,889	0,871	0,787	0,949	0,986	**1**	0,973	0,805	0,839	0,913	0,949	0,949	-0,991	-0,375	-0,005	0,224	-0,094	-0,119	0,117	0,278	0,051	
FI	0,366	-0,181	-0,136	0,283	0,198	-0,120	-0,251	0,016	-0,071	0,070	0,201	0,268	0,055	0,073	0,037	0,029	0,228	0,616	0,341	0,148	-0,039	0,859	0,106	0,678	-0,675	-0,122	0,881	0,862	0,776	0,941	0,978	0,973	**1**	0,796	0,830	0,905	0,941	0,941	-0,982	-0,385	-0,011	0,234	-0,092	-0,116	0,113	0,259	0,026	0,083
FR	0,129	-0,143	-0,320	0,331	0,041	0,023	-0,196	0,087	-0,151	0,016	0,179	0,256	0,016	0,051	-0,038	-0,248	-0,174	0,337	0,219	0,252	-0,344	0,688	-0,100	0,377	-0,786	-0,191	0,706	0,685	0,496	0,771	0,809	0,805	0,796	**1**	0,647	0,732	0,771	0,771	-0,814	-0,406	-0,107	0,305	-0,021	-0,049	0,041	0,200	-0,039	0,004
IT	0,385	-0,093	-0,377	0,335	0,147	-0,089	-0,176	-0,040	-0,114	0,040	0,103	0,117	-0,075	-0,002	-0,046	-0,156	0,117	0,360	0,178	0,188	0,052	0,754	-0,079	0,361	-0,765	-0,203	0,743	0,724	0,567	0,806	0,844	0,839	0,830	0,647	**1**	0,769	0,806	0,806	-0,848	-0,305	0,019	0,168	-0,048	-0,105	0,090	0,171	0,049	0,087
NL	0,267	-0,173	-0,055	0,289	0,145	-0,112	-0,193	0,006	-0,072	0,095	0,233	0,339	0,012	0,012	0,104	-0,018	0,168	0,620	0,229	0,143	-0,108	0,896	0,125	0,645	-0,697	-0,087	0,820	0,802	0,690	0,881	0,918	0,913	0,905	0,732	0,769	**1**	0,881	0,881	-0,922	-0,307	0,023	0,167	-0,074	-0,091	0,090	0,243	0,100	0,124
PT	0,362	-0,189	-0,087	0,273	0,201	-0,099	-0,250	0,005	-0,071	0,036	0,126	0,147	0,021	0,045	-0,001	-0,001	0,126	0,499	0,258	0,139	-0,070	0,852	-0,010	0,571	-0,704	-0,134	0,857	0,839	0,742	0,917	0,954	0,949	0,941	0,771	0,806	0,881	**1**	0,917	-0,958	-0,384	-0,020	0,238	-0,112	-0,157	0,149	0,258	0,068	0,142
SE	0,340	-0,142	-0,094	0,261	0,204	-0,108	-0,254	0,012	-0,069	0,085	0,229	0,270	0,061	0,070	0,025	0,007	0,327	0,643	0,408	0,135	0,021	0,834	0,108	0,676	-0,648	-0,084	0,857	0,839	0,742	0,917	0,954	0,949	0,941	0,771	0,806	0,881	0,917	**1**	-0,958	-0,366	0,002	0,214	-0,098	-0,121	0,119	0,233	0,020	0,093
UK	-0,377	0,180	0,133	-0,266	-0,199	0,129	0,241	-0,009	0,059	-0,074	-0,200	-0,273	-0,045	-0,063	-0,073	-0,045	-0,218	-0,632	-0,300	-0,160	0,089	-0,874	-0,113	-0,666	0,691	0,134	-0,898	-0,880	-0,799	-0,958	-0,995	-0,991	-0,982	-0,814	-0,848	-0,922	-0,958	-0,958	**1**	0,384	0,008	-0,231	0,097	0,123	-0,120	-0,280	-0,042	-0,108
Urban	-0,212	0,162	0,060	-0,554	-0,124	-0,295	0,461	-0,152	0,325	0,283	0,003	0,144	0,055	0,097	0,482	0,137	0,051	-0,154	-0,185	0,187	0,056	-0,305	0,186	-0,218	0,328	0,067	-0,401	-0,327	-0,236	-0,375	-0,382	-0,375	-0,385	-0,406	-0,305	-0,307	-0,384	-0,366	0,384	**1**	0,375	-0,820	0,029	0,067	-0,057	-0,149	0,035	-0,032
Intermedia	0,046	0,103	0,104	-0,249	0,018	-0,190	0,137	-0,057	0,127	0,080	0,005	0,039	0,012	0,014	0,137	0,115	0,154	0,092	-0,055	0,001	0,020	-0,002	0,144	0,077	0,092	-0,013	-0,075	-0,017	0,083	-0,015	-0,004	-0,005	-0,011	-0,107	0,019	0,023	-0,020	0,002	0,008	0,375	**1**	-0,838	-0,018	-0,024	0,023	0,014	0,068	0,094
Rural	0,096	-0,159	-0,100	0,480	0,062	0,291	-0,357	0,125	-0,269	-0,216	-0,005	-0,109	-0,040	-0,066	-0,368	-0,152	-0,125	0,034	0,143	-0,111	-0,045	0,181	-0,199	0,081	-0,250	-0,031	0,283	0,203	0,088	0,230	0,227	0,224	0,234	0,305	0,168	0,167	0,238	0,214	-0,231	-0,820	-0,838	**1**	-0,006	-0,024	0,019	0,079	-0,062	-0,041
LIS	0,024	0,120	-0,086	0,095	-0,441	0,077	0,193	0,282	-0,204	-0,051	-0,010	-0,037	-0,090	-0,109	-0,043	-0,153	-0,181	-0,120	-0,030	-0,031	0,010	-0,066	-0,132	-0,129	-0,016	-0,027	-0,114	-0,072	-0,138	-0,085	-0,095	-0,094	-0,092	-0,021	-0,048	-0,074	-0,112	-0,098	0,097	0,029	-0,018	-0,006	**1**	0,774	-0,902	0,017	0,013	0,039
NED	-0,014	0,147	-0,049	0,021	-0,459	0,073	0,256	0,249	-0,218	-0,022	0,029	0,040	-0,052	-0,079	0,051	-0,105	-0,252	-0,074	-0,012	-0,028	0,024	-0,089	-0,051	-0,103	0,041	0,009	-0,132	-0,083	-0,138	-0,106	-0,121	-0,119	-0,116	-0,049	-0,105	-0,091	-0,157	-0,121	0,123	0,067	-0,024	-0,024	0,774	**1**	-0,971	0,062	0,011	0,025
NIS	0,000	-0,145	0,066	-0,049	0,479	-0,078	-0,247	-0,275	0,225	0,034	-0,016	-0,013	0,069	0,095	-0,018	0,129	0,239	0,095	0,019	0,031	-0,020	0,085	0,084	0,118	-0,022	0,004	0,133	0,083	0,145	0,104	0,118	0,117	0,113	0,041	0,090	0,090	0,149	0,119	-0,120	-0,057	0,023	0,019	-0,902	-0,971	**1**	-0,048	-0,012	-0,030
Rec_DL	0,178	-0,048	0,145	0,025	-0,014	-0,072	-0,052	0,102	-0,072	-0,022	0,082	0,137	0,045	0,025	0,137	0,228	0,153	0,329	0,028	0,029	-0,166	0,172	0,239	0,322	-0,040	-0,072	0,201	0,233	0,378	0,273	0,261	0,278	0,259	0,200	0,171	0,243	0,258	0,233	-0,280	-0,149	0,014	0,079	0,017	0,062	-0,048	**1**	0,579	0,651
Ret_Tra_4	0,035	0,012	0,180	-0,010	-0,026	-0,042	0,030	0,014	-0,021	-0,035	0,050	0,029	0,067	0,051	0,092	0,099	0,093	0,083	-0,026	0,045	-0,056	0,030	0,105	0,098	0,030	-0,042	-0,034	-0,008	0,107	0,065	0,036	0,051	0,026	-0,039	0,049	0,100	0,068	0,020	-0,042	0,035	0,068	-0,062	0,013	0,011	-0,012	0,579	**1**	0,765
Ret_Tra_8	0,060	0,093	0,184	-0,081	-0,050	-0,130	0,084	0,026	0,130	0,055	0,100	0,096	0,050	0,085	0,093	0,163	0,143	0,143	0,005	0,091	-0,078	0,061	0,166	0,158	0,033	-0,083	0,023	0,049	0,191	0,127			0,083	0,004	0,087	0,124	0,142	0,093	-0,108	-0,032	0,094	-0,041	0,039	0,025	-0,030	0,651	0,765	**1**

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations from 2008-2009 - Recovery of development level

Summary of the variables selection Rec_DL:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya 's PC
1	NAT	NAT	IN	0,004	0,198	0,184	75,971	-3833,354	-3774,302	0,833
2	Manu_GVA / NAT	Manu_GVA	IN	0,004	0,213	0,198	64,349	-3844,178	-3780,583	0,820
3	Manu_GVA / SC_Org / NAT	SC_Org	IN	0,004	0,229	0,214	50,903	-3857,013	-3788,876	0,805
4	Manu_GVA / HHI / SC_Org / NAT	HHI	IN	0,004	0,248	0,231	35,993	-3871,626	-3798,946	0,788
5	Pop_work / Manu_GVA / HHI / SC_Org / NAT	Pop_work	IN	0,004	0,259	0,241	27,858	-3879,776	-3802,554	0,779
6	Pop_age / Pop_work / Manu_GVA / HHI / SC_Org / NAT	Pop_age	IN	0,004	0,266	0,248	22,484	-3885,257	-3803,493	0,773
7	Pop_age / Pop_work / Manu_GVA / Pub_GVA / HHI / SC_Org / NAT	Pub_GVA	IN	0,004	0,279	0,260	12,478	-3895,611	-3809,304	0,761

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations from 2008-2009 - Recovery of development level

Goodness of fit statistics (Rec_DL):

Observatic	694
Sum of we	694
DF	675
R^2	0,279
Adjusted F	0,260
MSE	0,004
RMSE	0,060
MAPE	158,933
DW	1,813
Cp	12,478
AIC	-3895,611
SBC	-3809,304
PC	0,761
Press	2,591
Q^2	0,221

Analysis of variance (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	18	0,930	0,052	14,543	**<0,0001**
Error	675	2,398	0,004		
Corrected	693	3,327			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations from 2008-2009 - Recovery of development level

Type I Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,106	0,106	29,816	0,000
Mig_net	0,000	0,000			
Pop_work	1,000	0,046	0,046	12,972	0,000
Agri_GVA	0,000	0,000			
Manu_GV	1,000	0,011	0,011	3,170	0,075
Const_GV	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,026	0,026	7,191	0,008
HHI	1,000	0,029	0,029	8,162	0,004
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	1,000	0,257	0,257	72,395	0,000
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	12,000	0,455	0,038	10,672	0,000
Urb_1	0,000	0,000			
Shock	0,000	0,000			

Type II Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,053	0,053	14,841	0,000
Mig_net	0,000	0,000			
Pop_work	1,000	0,079	0,079	22,238	0,000
Agri_GVA	0,000	0,000			
Manu_GV	1,000	0,032	0,032	8,973	0,003
Const_GV	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,043	0,043	12,123	0,001
HHI	1,000	0,073	0,073	20,634	0,000
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	1,000	0,042	0,042	11,697	0,001
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	12,000	0,455	0,038	10,672	0,000
Urb_1	0,000	0,000			
Shock	0,000	0,000			

Type III Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,053	0,053	14,841	0,000
Mig_net	0,000	0,000			
Pop_work	1,000	0,079	0,079	22,238	0,000
Agri_GVA	0,000	0,000			
Manu_GV	1,000	0,032	0,032	8,973	0,003
Const_GV	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,043	0,043	12,123	0,001
HHI	1,000	0,073	0,073	20,634	0,000
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	1,000	0,042	0,042	11,697	0,001
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	12,000	0,455	0,038	10,672	0,000
Urb_1	0,000	0,000			
Shock	0,000	0,000			

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations from 2008-2009 - Recovery of development level

Model parameters (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,283	0,062	-4,583	**<0,0001**	-0,404	-0,162
Pop_age	-0,030	0,009	-3,491	**0,001**	-0,048	-0,013
Mig_net	0,000	0,000				
Pop_work	0,490	0,115	4,252	**<0,0001**	0,264	0,717
Agri_GVA	0,000	0,000				
Manu_GV	-0,109	0,041	-2,683	**0,007**	-0,190	-0,029
Const_GV	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,180	0,055	3,304	**0,001**	0,073	0,288
HHI	-0,485	0,116	-4,185	**<0,0001**	-0,713	-0,257
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,473	0,154	3,071	**0,002**	0,170	0,775
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	0,009	0,010	0,913	0,362	-0,011	0,030
BE	0,065	0,012	5,611	**<0,0001**	0,042	0,088
DE	0,064	0,009	7,276	**<0,0001**	0,047	0,081
DK	0,013	0,018	0,727	0,467	-0,023	0,050
EL	-0,257	0,013	-19,684	**<0,0001**	-0,283	-0,232
ES	0,040	0,048	0,827	0,408	-0,055	0,134
FI	-0,071	0,042	-1,695	0,090	-0,153	0,011
FR	0,057	0,010	5,961	**<0,0001**	0,038	0,076
IT	0,090	0,015	5,975	**<0,0001**	0,060	0,120
NL	-0,013	0,015	-0,919	0,358	-0,042	0,015
PT	0,052	0,032	1,644	0,101	-0,010	0,114
SE	-0,069	0,021	-3,304	**0,001**	-0,109	-0,028
UK	0,020	0,014	1,411	0,159	-0,008	0,047
Urban	0,000	0,000				
Intermedia	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	-0,191	0,055	-3,491	**0,001**	-0,299	-0,084
Mig_net	0,000	0,000				
Pop_work	0,292	0,069	4,252	**<0,0001**	0,157	0,427
Agri_GVA	0,000	0,000				
Manu_GV	-0,125	0,046	-2,683	**0,007**	-0,216	-0,033
Const_GV	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,156	0,047	3,304	**0,001**	0,063	0,248
HHI	-0,162	0,039	-4,185	**<0,0001**	-0,238	-0,086
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,312	0,102	3,071	**0,002**	0,112	0,511
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	0,062	0,068	0,913	0,362	-0,072	0,196
BE	0,449	0,080	5,611	**<0,0001**	0,292	0,606
DE	0,689	0,095	7,276	**<0,0001**	0,503	0,875
DK	0,081	0,111	0,727	0,467	-0,138	0,299
EL	-1,469	0,075	-19,684	**<0,0001**	-1,615	-1,322
ES	0,228	0,276	0,827	0,408	-0,314	0,771
FI	-0,412	0,243	-1,695	0,090	-0,889	0,065
FR	0,456	0,076	5,961	**<0,0001**	0,306	0,606
IT	0,662	0,111	5,975	**<0,0001**	0,445	0,880
NL	-0,086	0,093	-0,919	0,358	-0,269	0,098
PT	0,314	0,191	1,644	0,101	-0,061	0,688
SE	-0,413	0,125	-3,304	**0,001**	-0,659	-0,168
UK	0,112	0,079	1,411	0,159	-0,044	0,268
Urban	0,000	0,000				
Intermedia	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations from 2008-2009 - Growth trajecotry retention (4 year recovery period)

Summary of the variables selection Ret_Tra_4:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya 's PC
1	NAT	NAT	IN	0,000	0,117	0,101	43,097	-5732,822	-5673,770	0,917
2	Pop_work / NAT	Pop_work	IN	0,000	0,129	0,113	34,882	-5740,864	-5677,270	0,907
3	Pop_work / SC_Org / NAT	SC_Org	IN	0,000	0,136	0,118	31,782	-5743,932	-5675,795	0,903
4	Pop_work / GDP_PC / SC_Org / NAT	GDP_PC	IN	0,000	0,143	0,124	27,899	-5747,825	-5675,145	0,898
5	Pop_age / Pop_work / GDP_PC / SC_Org / NAT	Pop_age	IN	0,000	0,151	0,131	23,398	-5752,395	-5675,173	0,892
6	Pop_age / Pop_work / Manu_GVA / GDP_PC / SC_Org / NAT	Manu_GVA	IN	0,000	0,159	0,138	18,846	-5757,082	-5675,317	0,886

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods Observations from 2008-2009 - Growth trajecotry retention (4 year recovery period)

Goodness of fit statistics (Ret_Tra_4):

Observatic	694
Sum of we	694
DF	676
R^2	0,159
Adjusted F	0,138
MSE	0,000
RMSE	0,016
MAPE	215,790
DW	1,810
Cp	18,846
AIC	-5757,082
SBC	-5675,317
PC	0,886
Press	0,172
Q^2	0,120

Analysis of variance (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	17	0,031	0,002	7,524	**<0,0001**
Error	676	0,164	0,000		
Corrected	693	0,196			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations from 2008-2009 - Growth trajecotry retention (4 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,000	0,000	0,965	0,326
Mig_net	0,000	0,000			
Pop_work	1,000	0,006	0,006	25,050	0,000
Agri_GVA	0,000	0,000			
Manu_GV	1,000	0,001	0,001	3,112	0,078
Const_GV	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	1,000	0,001	0,001	5,115	0,024
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	1,000	0,001	0,001	3,347	0,068
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	12,000	0,022	0,002	7,526	0,000
Urb_1	0,000	0,000			
Shock	0,000	0,000			

Type II Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,002	0,002	8,781	0,003
Mig_net	0,000	0,000			
Pop_work	1,000	0,004	0,004	15,159	0,000
Agri_GVA	0,000	0,000			
Manu_GV	1,000	0,002	0,002	6,544	0,011
Const_GV	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	1,000	0,003	0,003	10,397	0,001
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	1,000	0,001	0,001	5,704	0,017
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	12,000	0,022	0,002	7,526	0,000
Urb_1	0,000	0,000			
Shock	0,000	0,000			

Type III Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,002	0,002	8,781	0,003
Mig_net	0,000	0,000			
Pop_work	1,000	0,004	0,004	15,159	0,000
Agri_GVA	0,000	0,000			
Manu_GV	1,000	0,002	0,002	6,544	0,011
Const_GV	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	1,000	0,003	0,003	10,397	0,001
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	1,000	0,001	0,001	5,704	0,017
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	12,000	0,022	0,002	7,526	0,000
Urb_1	0,000	0,000			
Shock	0,000	0,000			

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations from 2008-2009 - Growth trajecotry retention (4 year recovery period)

Model parameters (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,058	0,013	-4,326	**<0,0001**	-0,085	-0,032
Pop_age	-0,006	0,002	-3,000	**0,003**	-0,010	-0,002
Mig_net	0,000	0,000				
Pop_work	0,103	0,032	3,249	**0,001**	0,041	0,165
Agri_GVA	0,000	0,000				
Manu_GV	-0,021	0,009	-2,451	**0,015**	-0,039	-0,004
Const_GV	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	-0,003	0,001	-2,756	**0,006**	-0,006	-0,001
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,086	0,042	2,038	**0,042**	0,003	0,170
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	-0,011	0,003	-4,494	**<0,0001**	-0,017	-0,006
BE	0,001	0,002	0,430	0,667	-0,004	0,006
DE	0,003	0,002	1,669	0,096	-0,001	0,007
DK	0,007	0,004	1,709	0,088	-0,001	0,016
EL	-0,028	0,002	-14,527	**<0,0001**	-0,032	-0,024
ES	0,013	0,003	4,678	**<0,0001**	0,007	0,018
FI	-0,021	0,011	-1,868	0,062	-0,042	0,001
FR	0,002	0,002	0,774	0,439	-0,003	0,006
IT	0,018	0,003	5,174	**<0,0001**	0,011	0,024
NL	0,010	0,003	3,130	**0,002**	0,004	0,016
PT	0,018	0,006	3,269	**0,001**	0,007	0,029
SE	-0,015	0,003	-4,780	**<0,0001**	-0,021	-0,009
UK	0,003	0,004	0,943	0,346	-0,004	0,011
Urban	0,000	0,000				
Intermedia	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	-0,149	0,050	-3,000	**0,003**	-0,246	-0,051
Mig_net	0,000	0,000				
Pop_work	0,253	0,078	3,249	**0,001**	0,100	0,405
Agri_GVA	0,000	0,000				
Manu_GV	-0,101	0,041	-2,451	**0,015**	-0,181	-0,020
Const_GV	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	-0,125	0,045	-2,756	**0,006**	-0,213	-0,036
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,235	0,115	2,038	**0,042**	0,009	0,461
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	-0,315	0,070	-4,494	**<0,0001**	-0,453	-0,177
BE	0,030	0,070	0,430	0,667	-0,107	0,167
DE	0,150	0,090	1,669	0,096	-0,027	0,327
DK	0,185	0,108	1,709	0,088	-0,027	0,397
EL	-0,656	0,045	-14,527	**<0,0001**	-0,745	-0,567
ES	0,302	0,065	4,678	**<0,0001**	0,175	0,429
FI	-0,496	0,266	-1,868	0,062	-1,018	0,025
FR	0,057	0,074	0,774	0,439	-0,088	0,202
IT	0,534	0,103	5,174	**<0,0001**	0,331	0,736
NL	0,251	0,080	3,130	**0,002**	0,094	0,408
PT	0,447	0,137	3,269	**0,001**	0,178	0,715
SE	-0,369	0,077	-4,780	**<0,0001**	-0,520	-0,217
UK	0,080	0,085	0,943	0,346	-0,087	0,246
Urban	0,000	0,000				
Intermedia	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations from 2008-2009 - Growth trajecotry retention (8 year recovery period)

Summary of the variables selection Ret_Tra_8:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya 's PC
1	NAT	NAT	IN	0,000	0,118	0,092	20,236	-3048,079	-3005,673	0,939
2	Mig_net / NAT	Mig_net	IN	0,000	0,147	0,119	10,959	-3057,601	-3011,340	0,914
3	Mig_net / SC_Org / NAT	SC_Org	IN	0,000	0,162	0,132	6,935	-3061,916	-3011,800	0,902

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations from 2008-2009 - Growth trajecotry retention (8 year recovery period)

Goodness of fit statistics (Ret_Tra_8):

Observations	349
Sum of weights	349
DF	336
R^2	0,162
Adjusted R^2	0,132
MSE	0,000
RMSE	0,012
MAPE	182,076
DW	1,546
Cp	6,935
AIC	-3061,916
SBC	-3011,800
PC	0,902
Press	0,053
Q^2	0,109

Analysis of variance (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	12	0,010	0,001	5,428	**<0,0001**
Error	336	0,050	0,000		
Corrected	348	0,060			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations from 2008-2009 - Growth trajecotry retention (8 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	1,000	0,001	0,001	3,468	0,063
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GV	0,000	0,000			
Const_GV	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDI	0,000	0,000			
RnD_EMI	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	1,000	0,002	0,002	13,568	0,000
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	10,000	0,007	0,001	4,810	0,000
Urb_1	0,000	0,000			
Shock	0,000	0,000			

Type II Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	1,000	0,001	0,001	9,989	0,002
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GV	0,000	0,000			
Const_GV	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDI	0,000	0,000			
RnD_EMI	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	1,000	0,001	0,001	6,135	0,014
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	10,000	0,007	0,001	4,810	0,000
Urb_1	0,000	0,000			
Shock	0,000	0,000			

Type III Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	1,000	0,001	0,001	9,989	0,002
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GV	0,000	0,000			
Const_GV	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDI	0,000	0,000			
RnD_EMI	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	1,000	0,001	0,001	6,135	0,014
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	10,000	0,007	0,001	4,810	0,000
Urb_1	0,000	0,000			
Shock	0,000	0,000			

Stepwise analysis of covariance on regional RGVA resilience performance of crisis periods
Observations from 2008-2009 - Growth trajecotry retention (8 year recovery period)

Model parameters (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,013	0,007	-1,925	0,055	-0,026	0,000
Pop_age	0,000	0,000				
Mig_net	0,001	0,000	2,643	**0,009**	0,000	0,001
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GV	0,000	0,000				
Const_GV	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,096	0,059	1,616	0,107	-0,021	0,213
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	-0,014	0,003	-4,486	**<0,0001**	-0,020	-0,008
BE	-0,009	0,004	-2,037	**0,042**	-0,017	0,000
DE	-0,001	0,003	-0,279	0,780	-0,007	0,005
DK	0,006	0,005	1,270	0,205	-0,004	0,016
EL	0,000	0,000				
ES	0,000	0,000				
FI	-0,024	0,013	-1,931	0,054	-0,049	0,000
FR	-0,003	0,003	-1,219	0,224	-0,009	0,002
IT	0,004	0,004	0,927	0,355	-0,004	0,011
NL	0,014	0,002	5,937	**<0,0001**	0,009	0,018
PT	0,033	0,009	3,814	**0,000**	0,016	0,051
SE	-0,011	0,005	-2,309	**0,022**	-0,021	-0,002
UK	0,002	0,004	0,439	0,661	-0,006	0,010
Urban	0,000	0,000				
Intermedia	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,184	0,069	2,643	**0,009**	0,047	0,320
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GV	0,000	0,000				
Const_GV	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,337	0,209	1,616	0,107	-0,073	0,748
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	-0,440	0,098	-4,486	**<0,0001**	-0,634	-0,247
BE	-0,284	0,139	-2,037	**0,042**	-0,558	-0,010
DE	-0,052	0,187	-0,279	0,780	-0,420	0,316
DK	0,192	0,151	1,270	0,205	-0,105	0,489
EL	0,000	0,000				
ES	0,000	0,000				
FI	-0,722	0,374	-1,931	0,054	-1,457	0,014
FR	-0,124	0,101	-1,219	0,224	-0,323	0,076
IT	0,123	0,133	0,927	0,355	-0,138	0,385
NL	0,396	0,067	5,937	**<0,0001**	0,265	0,528
PT	0,975	0,256	3,814	**0,000**	0,472	1,478
SE	-0,353	0,153	-2,309	**0,022**	-0,653	-0,052
UK	0,052	0,120	0,439	0,661	-0,183	0,288
Urban	0,000	0,000				
Intermedia	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

III.b.ii. Employment

III.b.ii.1. Observations between crisis periods

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations between crisis periods

Settings:
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Model selection: Stepwise
Probability for entry: 0,05 / Probability for removal: 0,1
Covariances: Corrections = Newey West (adjusted)(Lag = 1)
Use least squares means: Yes
Explanation of the variable codes can be found in table 28

Summary statistics (Quantitative data):

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Rec_DL	138	0	138	-0,411	0,899	-0,059	0,142
Ret_Tra_4	138	0	138	-0,108	0,073	-0,002	0,025
Ret_Tra_8	138	27	111	-0,062	0,032	-0,005	0,019
Pop_age	138	0	138	0,248	2,408	1,036	0,439
Mig_net	138	0	138	-18,814	25,100	2,788	6,665
Pop_work	138	0	138	0,334	0,635	0,440	0,055
Agri_EMP	138	0	138	0,000	0,485	0,108	0,088
Manu_EMP	138	0	138	0,040	0,446	0,190	0,091
Const_EMP	138	0	138	0,034	0,210	0,091	0,032
Serv_EMP	138	0	138	0,178	0,627	0,344	0,080
Pub_EMP	138	0	138	0,110	0,437	0,268	0,063
HHI	138	0	138	0,182	0,360	0,224	0,032
GDP_PC	138	0	138	-0,959	1,453	-0,246	0,473
GFCF_PC	138	0	138	-1,784	2,181	-0,196	0,768
PROD	138	0	138	-2,585	2,472	-0,258	1,002
RnD_GDP	138	0	138	0,073	7,417	1,244	1,089
RnD_EMP	138	0	138	0,000	3,542	1,004	0,677
MM_Ac	138	0	138	25,258	155,088	83,982	34,686
Avg_bus	138	0	138	1,349	18,605	7,350	5,235
Gov_debt	138	0	138	-11,200	2,600	-4,499	3,184
Cur_blc	138	0	138	-10,900	7,600	-1,211	2,928
Gov_close	138	0	138	0,370	19,180	4,408	2,295
Lab_comp	138	0	138	1088,920	70489,498	19262,656	14150,706
Union	138	0	138	10,654	70,376	28,736	8,751
ML_barg	138	0	138	1,000	4,750	2,630	0,791
SHDI	138	0	138	0,737	0,924	0,822	0,044
SC_Org	138	0	138	0,038	0,200	0,103	0,046
EoC	138	0	138	46,900	100,000	67,777	17,548
Clu	138	0	138	0,360	5,828	2,094	1,237

Number of removed observations: 24

Summary statistics (Qualitative data):

Variable	Categories	Counts	Frequencies	%
NAT	AT	4	4	2,899
	BE	1	1	0,725
	DE	43	43	31,159
	EL	14	14	10,145
	ES	13	13	9,420
	FI	1	1	0,725
	FR	6	6	4,348
	IT	34	34	24,638
	NL	2	2	1,449
	PT	6	6	4,348
	UK	14	14	10,145
Urb_1	Urban	24	24	17,391
	Intermedia	56	56	40,580
	Rural	58	58	42,029
Shock	LIS	78	78	56,522
	NED	36	36	26,087
	NIS	24	24	17,391

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations between crisis periods

Correlation matrix:

	Pop_age	Mig_net	Pop_work	Agri_EMP	Manu_EMP	Const_EMP	Serv_EMP	Pub_EMP	HHI	GDP_PC	GFCF_PC	PROD	RnD_GDP	RnD_EMP	MM_Ac	Avg_bus	Gov_debt	Cur_blc	Gov_close	Lab_comp	Union	ML_barg	SHDI	SC_Org	EoC	Clu	AT	BE	DE	EL	ES	FI	FR	IT	NL	PT	UK	Urban	Intermediate	Rural	LIS	NED	NIS	Rec_DL	Ret_Tra_4	Ret_Tra_8
Pop_age	**1**	-0,096	0,092	0,075	0,030	0,026	-0,152	0,031	-0,071	-0,077	-0,201	-0,188	-0,046	0,067	-0,085	-0,043	0,112	-0,023	-0,045	-0,006	-0,111	0,018	0,055	-0,021	-0,085	-0,043	0,087	0,100	0,060	0,039	0,155	0,107	0,095	0,049	0,102	0,243	-0,123	-0,238	-0,198	0,239	0,085	0,093	-0,111	-0,027	0,182	0,295
Mig_net	-0,096	**1**	0,163	-0,292	0,243	-0,161	0,194	-0,106	0,154	0,327	0,232	0,349	0,051	0,075	0,302	0,216	-0,022	0,011	-0,022	0,180	0,022	-0,117	0,320	0,149	0,213	0,194	-0,157	-0,116	0,071	-0,074	-0,125	-0,134	-0,157	-0,138	-0,145	-0,170	0,129	0,136	0,114	-0,137	0,102	0,439	-0,321	0,137	-0,113	-0,257
Pop_work	0,092	0,163	**1**	-0,334	0,151	0,094	0,261	-0,130	0,215	0,274	0,354	0,193	0,369	0,382	0,411	0,532	0,224	0,044	0,112	0,059	-0,069	-0,330	0,565	0,283	0,579	0,472	-0,321	-0,408	0,076	-0,285	-0,461	-0,385	-0,421	-0,613	-0,344	-0,263	0,413	0,039	-0,134	0,063	-0,033	0,071	-0,019	0,227	0,005	-0,092
Agri_EMP	0,075	-0,292	-0,334	**1**	-0,482	0,007	-0,500	-0,070	-0,264	-0,511	-0,456	-0,590	-0,421	-0,362	-0,721	-0,579	-0,224	-0,461	-0,297	-0,356	0,015	0,432	-0,649	-0,353	-0,566	-0,043	0,280	0,257	-0,250	0,403	0,313	0,249	0,294	0,177	0,199	0,403	-0,258	-0,479	-0,279	0,407	0,093	-0,193	0,048	0,008	0,144	0,078
Manu_EMP	0,030	0,243	0,151	-0,482	**1**	-0,075	-0,232	-0,437	0,160	0,330	0,265	0,318	0,225	0,138	0,476	0,428	0,005	0,338	0,247	0,256	0,008	-0,064	0,307	0,368	0,141	0,110	0,185	0,174	0,422	0,036	0,085	0,201	0,104	0,118	0,175	0,115	-0,211	0,182	0,241	-0,238	0,017	0,254	-0,157	-0,025	-0,065	-0,166
Const_EMP	0,026	-0,161	0,094	0,007	-0,075	**1**	-0,177	-0,185	-0,206	-0,348	0,025	-0,229	-0,199	-0,242	-0,184	0,153	0,111	-0,270	0,006	-0,158	-0,065	0,067	-0,100	0,110	0,081	0,054	0,101	0,105	0,183	0,080	0,155	0,084	0,065	-0,035	0,047	0,044	-0,104	-0,235	-0,053	0,149	-0,361	-0,311	0,422	-0,113	-0,063	-0,003
Serv_EMP	-0,152	0,194	0,261	-0,500	-0,232	-0,177	**1**	-0,143	0,383	0,462	0,233	0,326	0,288	0,300	0,359	0,073	0,169	0,130	-0,101	0,066	-0,092	-0,266	0,393	-0,018	0,343	0,106	-0,470	-0,500	-0,315	-0,332	-0,436	-0,513	-0,419	-0,384	-0,376	-0,573	0,523	0,398	0,059	-0,232	0,074	-0,016	-0,041	0,034	-0,053	0,051
Pub_EMP	0,031	-0,106	-0,130	-0,070	-0,437	-0,185	-0,143	**1**	-0,242	-0,171	-0,055	0,069	0,000	0,049	-0,041	0,021	0,034	0,128	0,182	0,125	0,117	-0,207	0,016	-0,072	0,110	-0,259	-0,113	-0,028	0,046	-0,234	-0,086	-0,031	-0,061	0,086	-0,078	-0,026	0,055	0,021	-0,006	-0,007	-0,063	0,082	-0,004	0,039	-0,008	0,060
HHI	-0,071	0,154	0,215	-0,264	0,160	-0,206	0,383	-0,242	**1**	0,566	0,048	0,199	0,128	0,180	0,244	0,108	-0,034	0,109	-0,170	-0,003	0,030	0,014	0,312	0,035	0,109	0,204	-0,241	-0,192	-0,054	0,056	-0,323	-0,218	-0,207	-0,183	-0,195	-0,257	0,213	0,173	0,009	-0,091	0,221	0,038	-0,171	-0,047	-0,175	-0,182
GDP_PC	-0,077	0,327	0,274	-0,511	0,330	-0,348	0,462	-0,171	0,566	**1**	0,435	0,527	0,251	0,214	0,501	0,177	-0,022	0,288	0,048	0,266	0,090	-0,282	0,362	0,073	0,276	0,048	-0,310	-0,314	-0,094	-0,267	-0,328	-0,303	-0,288	-0,139	-0,246	-0,394	0,314	0,323	0,083	-0,210	0,228	0,193	-0,264	0,085	-0,068	-0,033
GFCF_PC	-0,201	0,232	0,354	-0,456	0,265	0,025	0,233	-0,055	0,048	0,435	**1**	0,686	0,389	0,254	0,517	0,527	-0,019	0,361	0,468	0,202	0,075	-0,416	0,330	0,410	0,495	0,159	-0,062	-0,141	0,229	-0,375	-0,203	-0,145	-0,110	-0,152	-0,146	-0,347	0,162	0,098	0,093	-0,105	-0,140	0,130	0,019	0,130	-0,048	-0,040
PROD	-0,188	0,349	0,193	-0,590	0,318	-0,229	0,326	0,069	0,199	0,527	0,686	**1**	0,459	0,352	0,700	0,546	0,015	0,496	0,434	0,363	0,094	-0,420	0,411	0,437	0,499	0,120	-0,156	-0,136	0,261	-0,405	-0,267	-0,156	-0,112	-0,173	-0,082	-0,314	0,173	0,272	0,135	-0,217	-0,002	0,404	-0,231	0,105	-0,165	-0,067
RnD_GDP	-0,046	0,051	0,369	-0,421	0,225	-0,199	0,288	0,000	0,128	0,251	0,389	0,459	**1**	0,857	0,501	0,467	0,287	0,342	0,310	0,398	-0,068	-0,396	0,438	0,242	0,453	0,070	-0,260	-0,271	0,097	-0,384	-0,286	-0,214	-0,188	-0,290	-0,208	-0,245	0,266	0,248	0,042	-0,148	0,047	0,133	-0,109	0,001	-0,052	0,062
RnD_EMP	0,067	0,075	0,382	-0,362	0,138	-0,242	0,300	0,049	0,180	0,214	0,254	0,352	0,857	**1**	0,377	0,405	0,290	0,213	0,200	0,381	-0,092	-0,248	0,500	0,237	0,395	0,095	-0,236	-0,258	0,070	-0,223	-0,251	-0,183	-0,198	-0,335	-0,195	-0,246	0,245	0,222	0,020	-0,122	0,104	0,129	-0,145	-0,037	-0,072	0,008
MM_Ac	-0,085	0,302	0,411	-0,721	0,476	-0,184	0,359	-0,041	0,244	0,501	0,517	0,700	0,501	0,377	**1**	0,687	0,130	0,515	0,398	0,409	0,025	-0,439	0,563	0,504	0,545	0,096	-0,124	-0,109	0,405	-0,360	-0,316	-0,155	-0,155	-0,178	-0,042	-0,248	0,136	0,427	0,217	-0,344	-0,032	0,370	-0,191	-0,044	-0,194	-0,132
Avg_bus	-0,043	0,216	0,532	-0,579	0,428	0,153	0,073	0,021	0,108	0,177	0,527	0,546	0,467	0,405	0,687	**1**	0,095	0,288	0,412	0,238	-0,106	-0,439	0,519	0,717	0,752	0,284	-0,086	-0,087	0,657	-0,269	-0,197	-0,087	-0,162	-0,383	-0,086	-0,153	0,078	0,200	0,137	-0,183	-0,304	0,306	0,029	0,014	-0,200	-0,216
Gov_debt	0,112	-0,022	0,224	-0,224	0,005	0,111	0,169	0,034	-0,034	-0,022	-0,019	0,015	0,287	0,290	0,130	0,095	**1**	0,186	0,188	0,173	-0,245	-0,315	0,320	0,050	0,330	-0,109	-0,247	-0,278	-0,166	-0,379	-0,069	-0,227	-0,135	-0,315	-0,252	-0,277	0,291	0,079	-0,045	-0,011	0,105	-0,268	0,084	0,137	0,074	0,187
Cur_blc	-0,023	0,011	0,044	-0,461	0,338	-0,270	0,130	0,128	0,109	0,288	0,361	0,496	0,342	0,213	0,515	0,288	0,186	**1**	0,476	0,248	0,060	-0,294	0,368	0,297	0,191	0,016	0,023	0,087	0,210	-0,312	-0,086	0,070	0,058	0,156	0,139	-0,106	-0,037	0,230	0,140	-0,200	0,138	0,111	-0,157	0,133	0,075	0,255
Gov_close	-0,045	-0,022	0,112	-0,297	0,247	0,006	-0,101	0,182	-0,170	0,048	0,468	0,434	0,310	0,200	0,398	0,412	0,188	0,476	**1**	0,181	0,334	-0,293	0,277	0,481	0,293	0,062	0,313	0,143	0,375	-0,297	-0,077	0,291	0,199	0,096	0,122	0,050	-0,150	-0,032	-0,040	0,040	-0,083	0,142	-0,026	-0,077	-0,163	-0,005
Lab_comp	-0,006	0,180	0,059	-0,356	0,256	-0,158	0,066	0,125	-0,003	0,266	0,202	0,363	0,398	0,381	0,409	0,238	0,173	0,248	0,181	**1**	0,038	-0,254	0,407	0,026	0,107	-0,422	-0,049	0,015	0,180	-0,227	0,009	0,034	-0,038	0,255	0,042	-0,004	-0,046	0,261	0,171	-0,234	0,041	0,101	-0,086	-0,053	-0,072	0,006
Union	-0,111	0,022	-0,069	0,015	0,008	-0,065	-0,092	0,117	0,030	0,090	0,075	0,094	-0,068	-0,092	0,025	-0,106	-0,245	0,060	0,334	0,038	**1**	0,023	0,006	-0,244	-0,142	0,001	0,055	0,028	-0,128	-0,046	-0,354	0,066	-0,276	0,331	-0,071	-0,016	0,045	0,076	0,065	-0,077	0,098	0,108	-0,128	-0,240	-0,214	-0,193
ML_barg	0,018	-0,117	-0,330	0,432	-0,064	0,067	-0,266	-0,207	0,014	-0,282	-0,416	-0,420	-0,396	-0,248	-0,439	-0,439	-0,315	-0,294	-0,293	-0,254	0,023	**1**	-0,304	-0,001	-0,753	0,141	0,582	0,678	0,170	0,913	0,507	0,678	0,541	0,396	0,682	0,572	-0,676	-0,388	-0,097	0,251	-0,198	-0,154	0,222	-0,099	0,016	-0,186
SHDI	0,055	0,320	0,565	-0,649	0,307	-0,100	0,393	0,016	0,312	0,362	0,330	0,411	0,438	0,500	0,563	0,519	0,320	0,368	0,277	0,407	0,006	-0,304	**1**	0,301	0,494	0,132	-0,248	-0,262	0,170	-0,305	-0,356	-0,224	-0,350	-0,219	-0,209	-0,353	0,268	0,258	0,059	-0,163	0,070	0,068	-0,086	0,070	-0,216	-0,241
SC_Org	-0,021	0,149	0,283	-0,353	0,368	0,110	-0,018	-0,072	0,035	0,073	0,410	0,437	0,242	0,237	0,504	0,717	0,050	0,297	0,481	0,026	-0,244	-0,001	0,301	**1**	0,426	0,316	0,351	0,328	0,783	0,132	0,286	0,383	0,275	-0,201	0,358	0,140	-0,352	-0,057	0,059	-0,008	-0,336	0,219	0,100	0,064	-0,102	-0,208
EoC	-0,085	0,213	0,579	-0,566	0,141	0,081	0,343	0,110	0,109	0,276	0,495	0,499	0,453	0,395	0,545	0,752	0,330	0,191	0,293	0,107	-0,142	-0,753	0,494	0,426	**1**	0,190	-0,524	-0,607	0,107	-0,684	-0,410	-0,582	-0,593	-0,734	-0,598	-0,614	0,619	0,325	0,098	-0,220	-0,113	0,151	-0,011	0,166	-0,088	-0,032
Clu	-0,043	0,194	0,472	-0,043	0,110	0,054	0,106	-0,259	0,204	0,048	0,159	0,120	0,070	0,095	0,096	0,284	-0,109	0,016	0,062	-0,422	0,001	0,141	0,132	0,316	0,190	**1**	0,047	-0,039	0,147	0,143	-0,202	-0,021	-0,059	-0,466	0,014	0,098	0,056	-0,165	-0,212	0,212	-0,168	0,183	0,008	0,155	0,026	-0,064
AT	0,087	-0,157	-0,321	0,280	0,185	0,101	-0,470	-0,113	-0,241	-0,310	-0,062	-0,156	-0,260	-0,236	-0,124	-0,086	-0,247	0,023	0,313	-0,049	0,055	0,582	-0,248	0,351	-0,524	0,047	**1**	0,846	0,543	0,637	0,645	0,846	0,731	0,554	0,817	0,731	-0,881	-0,405	-0,093	0,257	-0,270	-0,035	0,202	-0,131	0,002	-0,068
BE	0,100	-0,116	-0,408	0,257	0,174	0,105	-0,500	-0,028	-0,192	-0,314	-0,141	-0,136	-0,271	-0,258	-0,109	-0,087	-0,278	0,087	0,143	0,015	0,028	0,678	-0,262	0,328	-0,607	-0,039	0,846	**1**	0,632	0,713	0,721	0,927	0,807	0,637	0,897	0,807	-0,963	-0,383	-0,030	0,207	-0,297	0,005	0,197	-0,142	0,011	-0,092
DE	0,060	0,071	0,076	-0,250	0,422	0,183	-0,315	0,046	-0,054	-0,094	0,229	0,261	0,097	0,070	0,405	0,657	-0,166	0,210	0,375	0,180	-0,128	0,170	0,170	0,783	0,107	0,147	0,543	0,632	**1**	0,371	0,384	0,632	0,497	0,205	0,599	0,497	-0,669	-0,128	0,110	-0,005	-0,426	0,282	0,125	-0,102	-0,147	-0,257
EL	0,039	-0,074	-0,285	0,403	0,036	0,080	-0,332	-0,234	0,056	-0,267	-0,375	-0,405	-0,384	-0,223	-0,360	-0,269	-0,379	-0,312	-0,297	-0,227	-0,046	0,913	-0,305	0,132	-0,684	0,143	0,637	0,713	0,371	**1**	0,509	0,713	0,599	0,394	0,684	0,599	-0,746	-0,374	-0,071	0,228	-0,189	-0,074	0,170	-0,105	0,002	-0,267
ES	0,155	-0,125	-0,461	0,313	0,085	0,155	-0,436	-0,086	-0,323	-0,328	-0,203	-0,267	-0,286	-0,251	-0,316	-0,197	-0,069	-0,086	-0,077	0,009	-0,354	0,507	-0,356	0,286	-0,410	-0,202	0,645	0,721	0,384	0,509	**1**	0,721	0,607	0,406	0,692	0,607	-0,754	-0,319	0,018	0,147	-0,227	-0,123	0,224	0,065	0,196	0,086
FI	0,107	-0,134	-0,385	0,249	0,201	0,084	-0,513	-0,031	-0,218	-0,303	-0,145	-0,156	-0,214	-0,183	-0,155	-0,087	-0,227	0,070	0,291	0,034	0,066	0,678	-0,224	0,383	-0,582	-0,021	0,846	0,927	0,632	0,713	0,721	**1**	0,807	0,637	0,897	0,807	-0,963	-0,383	-0,030	0,207	-0,237	0,040	0,137	-0,128	-0,002	-0,109
FR	0,095	-0,157	-0,421	0,294	0,104	0,065	-0,419	-0,061	-0,207	-0,288	-0,110	-0,112	-0,188	-0,198	-0,155	-0,162	-0,135	0,058	0,199	-0,038	-0,276	0,541	-0,350	0,275	-0,593	-0,059	0,731	0,807	0,497	0,599	0,607	0,807	**1**	0,511	0,778	0,693	-0,841	-0,421	-0,130	0,287	-0,122	0,020	0,071	-0,104	0,037	0,023
IT	0,049	-0,138	-0,613	0,177	0,118	-0,035	-0,384	0,086	-0,183	-0,139	-0,152	-0,173	-0,290	-0,335	-0,178	-0,383	-0,315	0,156	0,096	0,255	0,331	0,396	-0,219	-0,201	-0,734	-0,466	0,554	0,637	0,205	0,394	0,406	0,637	0,511	**1**	0,606	0,511	-0,673	-0,105	0,143	-0,036	0,053	-0,034	-0,016	-0,265	-0,063	-0,063
NL	0,102	-0,145	-0,344	0,199	0,175	0,047	-0,376	-0,078	-0,195	-0,246	-0,146	-0,082	-0,208	-0,195	-0,042	-0,086	-0,252	0,139	0,122	0,042	-0,071	0,682	-0,209	0,358	-0,598	0,014	0,817	0,897	0,599	0,684	0,692	0,897	0,778	0,606	**1**	0,778	-0,932	-0,300	0,020	0,136	-0,239	0,069	0,121	-0,113	0,028	-0,062
PT	0,243	-0,170	-0,263	0,403	0,115	0,044	-0,573	-0,026	-0,257	-0,394	-0,347	-0,314	-0,245	-0,246	-0,248	-0,153	-0,277	-0,106	0,050	-0,004	-0,016	0,572	-0,353	0,140	-0,614	0,098	0,731	0,807	0,497	0,599	0,607	0,807	0,693	0,511	0,778	**1**	-0,841	-0,421	-0,130	0,287	-0,223	0,138	0,071	-0,105	0,102	0,034
UK	-0,123	0,129	0,413	-0,258	-0,211	-0,104	0,523	0,055	0,213	0,314	0,162	0,173	0,266	0,245	0,136	0,078	0,291	-0,037	-0,150	-0,046	0,045	-0,676	0,268	-0,352	0,619	0,056	-0,881	-0,963	-0,669	-0,746	-0,754	-0,963	-0,841	-0,673	-0,932	-0,841	**1**	0,376	0,005	-0,189	0,267	-0,045	-0,154	0,145	-0,008	0,106
Urban	-0,238	0,136	0,039	-0,479	0,182	-0,235	0,398	0,021	0,173	0,323	0,098	0,272	0,248	0,222	0,427	0,200	0,079	0,230	-0,032	0,261	0,076	-0,388	0,258	-0,057	0,325	-0,165	-0,405	-0,383	-0,128	-0,374	-0,319	-0,383	-0,421	-0,105	-0,300	-0,421	0,376	**1**	0,628	-0,878	0,211	0,121	-0,212	-0,069	-0,084	0,009
Intermediate	-0,198	0,114	-0,134	-0,279	0,241	-0,053	0,059	-0,006	0,009	0,083	0,093	0,135	0,042	0,020	0,217	0,137	-0,045	0,140	-0,040	0,171	0,065	-0,097	0,059	0,059	0,098	-0,212	-0,093	-0,030	0,110	-0,071	0,018	-0,030	-0,130	0,143	0,020	-0,130	0,005	0,628	**1**	-0,923	0,008	0,124	-0,077	-0,130	-0,068	-0,040
Rural	0,239	-0,137	0,063	0,407	-0,238	0,149	-0,232	-0,007	-0,091	-0,210	-0,105	-0,217	-0,148	-0,122	-0,344	-0,183	-0,011	-0,200	0,040	-0,234	-0,077	0,251	-0,163	-0,008	-0,220	0,212	0,257	0,207	-0,005	0,228	0,147	0,207	0,287	-0,036	0,136	0,287	-0,189	-0,878	-0,923	**1**	-0,109	-0,136	0,152	0,114	0,083	0,020
LIS	0,085	0,102	-0,033	0,093	0,017	-0,361	0,074	-0,063	0,221	0,228	-0,140	-0,002	0,047	0,104	-0,032	-0,304	0,105	0,138	-0,083	0,041	0,098	-0,198	0,070	-0,336	-0,113	-0,168	-0,270	-0,297	-0,426	-0,189	-0,227	-0,237	-0,122	0,053	-0,239	-0,223	0,267	0,211	0,008	-0,109	**1**	0,280	-0,834	-0,011	-0,030	0,077
NED	0,093	0,439	0,071	-0,193	0,254	-0,311	-0,016	0,082	0,038	0,193	0,130	0,404	0,133	0,129	0,370	0,306	-0,268	0,111	0,142	0,101	0,108	-0,154	0,068	0,219	0,151	0,183	-0,035	0,005	0,282	-0,074	-0,123	0,040	0,020	-0,034	0,069	0,138	-0,045	0,121	0,124	-0,136	0,280	**1**	-0,763	0,009	-0,139	-0,214
NIS	-0,111	-0,321	-0,019	0,048	-0,157	0,422	-0,041	-0,004	-0,171	-0,264	0,019	-0,231	-0,109	-0,145	-0,191	0,029	0,084	-0,157	-0,026	-0,086	-0,128	0,222	-0,086	0,100	-0,011	0,008	0,202	0,197	0,125	0,170	0,224	0,137	0,071	-0,016	0,121	0,071	-0,154	-0,212	-0,077	0,152	-0,834	-0,763	**1**	0,002	0,100	0,074
Rec_DL	-0,027	0,137	0,227	0,008	-0,025	-0,113	0,034	0,039	-0,047	0,085	0,130	0,105	0,001	-0,037	-0,044	0,014	0,137	0,133	-0,077	-0,053	-0,240	-0,099	0,070	0,064	0,166	0,155	-0,131	-0,142	-0,102	-0,105	0,065	-0,128	-0,104	-0,265	-0,113	-0,105	0,145	-0,069	-0,130	0,114	-0,011	0,009	0,002	**1**	0,612	0,454
Ret_Tra_4	0,182	-0,113	0,005	0,144	-0,065	-0,063	-0,053	-0,008	-0,175	-0,068	-0,048	-0,165	-0,052	-0,072	-0,194	-0,200	0,074	0,075	-0,163	-0,072	-0,214	0,016	-0,216	-0,102	-0,088	0,026	0,002	0,011	-0,147	0,002	0,196	-0,002	0,037	-0,063	0,028	0,102	-0,008	-0,084	-0,068	0,083	-0,030	-0,139	0,100	0,612	**1**	0,767
Ret_Tra_8	0,295	-0,257	-0,092	0,078	-0,166	-0,003	0,051	0,060	-0,182	-0,033	-0,040	-0,067	0,062	0,008	-0,132	-0,216	0,187	0,255	-0,005	0,006	-0,193	-0,186	-0,241	-0,208	-0,032	-0,064	-0,068	-0,092	-0,257	-0,267	0,086	-0,109	0,023	-0,063	-0,062	0,034	0,106	0,009	-0,040	0,020	0,077	-0,214	0,074	0,454	0,767	**1**

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations between crisis periods - Recovery of development level

Summary of the variables selection Rec_DL:

	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	Union	Union	IN	0,019	0,058	0,051	42,103	-544,027	-538,173	0,970
2	Pop_work / Union	Pop_work	IN	0,018	0,102	0,089	35,758	-548,727	-539,945	0,938

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations between crisis periods - Recovery of development level

Goodness of fit statistics (Rec_DL):

Observations	138
Sum of weights	138
DF	135
R^2	0,102
Adjusted R^2	0,089
MSE	0,018
RMSE	0,135
MAPE	342,529
DW	1,788
Cp	35,758
AIC	-548,727
SBC	-539,945
PC	0,938
Press	2,740
Q^2	0,008

Analysis of variance (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	2	0,282	0,141	7,689	**0,001**
Error	135	2,478	0,018		
Corrected	137	2,760			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations between crisis periods - Recovery of development level

Type I Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,143	0,143	7,780	0,006
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,139	0,139	7,597	0,007
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	0,000	0,000			
Urb_1	0,000	0,000			
NORM_SH	0,000	0,000			

Type II Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,123	0,123	6,716	0,011
Agri_EMP	0,000	0,000			
Manu_EM	0,000	0,000			
Const_EM	0,000	0,000			
Serv_EMF	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDF	0,000	0,000			
RnD_EMF	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,139	0,139	7,597	0,007
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	0,000	0,000			
Urb_1	0,000	0,000			
NORM_SI	0,000	0,000			

Type III Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,123	0,123	6,716	0,011
Agri_EMP	0,000	0,000			
Manu_EM	0,000	0,000			
Const_EM	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMF	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,139	0,139	7,597	0,007
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	0,000	0,000			
Urb_1	0,000	0,000			
NORM_SI	0,000	0,000			

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations between crisis periods - Recovery of development level

Model parameters (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,193	0,193	-1,000	0,319	-0,575	0,189
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,544	0,433	1,256	0,211	-0,312	1,399
Agri_EMP	0,000	0,000				
Manu_EMP	0,000	0,000				
Const_EMP	0,000	0,000				
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	-0,004	0,001	-2,816	**0,006**	-0,006	-0,001
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	0,000	0,000				
BE	0,000	0,000				
DE	0,000	0,000				
EL	0,000	0,000				
ES	0,000	0,000				
FI	0,000	0,000				
FR	0,000	0,000				
IT	0,000	0,000				
NL	0,000	0,000				
PT	0,000	0,000				
UK	0,000	0,000				
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,212	0,169	1,256	0,211	-0,122	0,545
Agri_EMP	0,000	0,000				
Manu_EM	0,000	0,000				
Const_EM	0,000	0,000				
Serv_EMF	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDF	0,000	0,000				
RnD_EMF	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	-0,225	0,080	-2,816	**0,006**	-0,384	-0,067
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	0,000	0,000				
BE	0,000	0,000				
DE	0,000	0,000				
EL	0,000	0,000				
ES	0,000	0,000				
FI	0,000	0,000				
FR	0,000	0,000				
IT	0,000	0,000				
NL	0,000	0,000				
PT	0,000	0,000				
UK	0,000	0,000				
Urban	0,000	0,000				
Intermedia	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations between crisis periods - Growth trajectory retention (4 year recovery phase)

Summary of the variables selection Ret_Tra_4:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	SHDI	SHDI	IN	0,001	0,047	0,040	13,695	-1027,266	-1021,411	0,981
2	Union / SHDI	Union	IN	0,001	0,092	0,079	8,660	-1032,001	-1023,219	0,948
3	Cur_blc / Union / SHDI	Cur_blc	IN	0,001	0,124	0,105	5,685	-1034,970	-1023,261	0,928
4	Pop_age / Cur_blc / Union / SHDI	Pop_age	IN	0,001	0,156	0,131	2,743	-1038,090	-1023,454	0,907
5	Pop_age / Pop_work / Cur_blc / Union / SHDI	Pop_work	IN	0,001	0,184	0,153	0,427	-1040,723	-1023,159	0,890
6	Pop_age / Pop_work / Avg_bus / Cur_blc / Union / SHDI	Avg_bus	IN	0,000	0,232	0,197	-4,995	-1047,072	-1026,581	0,850

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations between crisis periods - Growth trajectory retention (4 year recovery phase)

Goodness of fit statistics (Ret_Tra_4):

Observations	138
Sum of weights	138
DF	131
R^2	0,232
Adjusted R^2	0,197
MSE	0,000
RMSE	0,022
MAPE	356,943
DW	1,836
Cp	-4,995
AIC	-1047,072
SBC	-1026,581
PC	0,850
Press	0,071
Q^2	0,131

Analysis of variance (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	6	0,019	0,003	6,588	**<0,0001**
Error	131	0,063	0,000		
Corrected	137	0,082			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations between crisis periods - Growth trajectory retention (4 year recovery phase)

Type I Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,003	0,003	5,643	0,019
Mig_net	0,000	0,000			
Pop_work	1,000	0,000	0,000	**0,024**	0,876
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	1,000	0,004	0,004	8,313	0,005
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,002	0,002	4,144	0,044
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,005	0,005	9,353	0,003
ML_barg	0,000	0,000			
SHDI	1,000	0,006	0,006	12,050	0,001
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	0,000	0,000			
Urb_1	0,000	0,000			
NORM_SH	0,000	0,000			

Type II Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,002	0,002	3,332	0,070
Mig_net	0,000	0,000			
Pop_work	1,000	0,005	0,005	9,593	0,002
Agri_EMP	0,000	0,000			
Manu_EM	0,000	0,000			
Const_EM	0,000	0,000			
Serv_EMF	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDF	0,000	0,000			
RnD_EMF	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	1,000	0,004	0,004	8,170	0,005
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,006	0,006	11,421	0,001
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,004	0,004	8,064	0,005
ML_barg	0,000	0,000			
SHDI	1,000	0,006	0,006	12,050	0,001
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	0,000	0,000			
Urb_1	0,000	0,000			
NORM_SI	0,000	0,000			

Type III Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,002	0,002	3,332	0,070
Mig_net	0,000	0,000			
Pop_work	1,000	0,005	0,005	9,593	0,002
Agri_EMP	0,000	0,000			
Manu_EM	0,000	0,000			
Const_EM	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMF	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	1,000	0,004	0,004	8,170	0,005
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,006	0,006	11,421	0,001
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,004	0,004	8,064	0,005
ML_barg	0,000	0,000			
SHDI	1,000	0,006	0,006	12,050	0,001
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	0,000	0,000			
Urb_1	0,000	0,000			
NORM_SI	0,000	0,000			

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations between crisis periods - Growth trajectory retention (4 year recovery phase)

Model parameters (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,124	0,055	2,259	**0,026**	0,015	0,233
Pop_age	0,008	0,005	1,728	0,086	-0,001	0,017
Mig_net	0,000	0,000				
Pop_work	0,141	0,047	3,024	**0,003**	0,049	0,234
Agri_EMP	0,000	0,000				
Manu_EMP	0,000	0,000				
Const_EMP	0,000	0,000				
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	-0,001	0,000	-3,137	**0,002**	-0,002	0,000
Gov_debt	0,000	0,000				
Cur_blc	0,002	0,001	3,077	**0,003**	0,001	0,004
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	-0,001	0,000	-2,303	**0,023**	-0,001	0,000
ML_barg	0,000	0,000				
SHDI	-0,201	0,070	-2,866	**0,005**	-0,340	-0,062
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	0,000	0,000				
BE	0,000	0,000				
DE	0,000	0,000				
EL	0,000	0,000				
ES	0,000	0,000				
FI	0,000	0,000				
FR	0,000	0,000				
IT	0,000	0,000				
NL	0,000	0,000				
PT	0,000	0,000				
UK	0,000	0,000				
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,142	0,082	1,728	0,086	-0,021	0,305
Mig_net	0,000	0,000				
Pop_work	0,319	0,106	3,024	**0,003**	0,110	0,528
Agri_EMP	0,000	0,000				
Manu_EM	0,000	0,000				
Const_EM	0,000	0,000				
Serv_EMF	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDF	0,000	0,000				
RnD_EMF	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	-0,283	0,090	-3,137	**0,002**	-0,461	-0,104
Gov_debt	0,000	0,000				
Cur_blc	0,292	0,095	3,077	**0,003**	0,104	0,480
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	-0,222	0,096	-2,303	**0,023**	-0,412	-0,031
ML_barg	0,000	0,000				
SHDI	-0,364	0,127	-2,866	**0,005**	-0,615	-0,113
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	0,000	0,000				
BE	0,000	0,000				
DE	0,000	0,000				
EL	0,000	0,000				
ES	0,000	0,000				
FI	0,000	0,000				
FR	0,000	0,000				
IT	0,000	0,000				
NL	0,000	0,000				
PT	0,000	0,000				
UK	0,000	0,000				
Urban	0,000	0,000				
Intermedia	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations between crisis periods - Growth trajectory retention (8 year recovery phase)

Summary of the variables selection Ret_Tra_8:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	NAT	NAT	IN	0,000	0,286	0,214	69,314	-894,921	-865,116	0,871
2	Cur_blc / NAT	Cur_blc	IN	0,000	0,370	0,300	52,685	-906,818	-874,303	0,783
3	Cur_blc / SHDI / NAT	SHDI	IN	0,000	0,419	0,348	43,668	-913,936	-878,712	0,735
4	Cur_blc / SHDI / NAT / Shock	Shock	IN	0,000	0,488	0,413	32,526	-923,834	-883,191	0,672
5	Cur_blc / ML_barg / SHDI / NAT / Shock	ML_barg	IN	0,000	0,533	0,459	24,570	-932,022	-888,670	0,625
6	HHI / Cur_blc / ML_barg / SHDI / NAT / Shock	HHI	IN	0,000	0,563	0,488	19,939	-937,366	-891,304	0,596
7	HHI / PROD / Cur_blc / ML_barg / SHDI / NAT / Shock	PROD	IN	0,000	0,589	0,514	16,038	-942,338	-893,566	0,570
8	Const_EMP / HHI / PROD / Cur_blc / ML_barg / SHDI / NAT / Shock	Const_EMI	IN	0,000	0,614	0,539	12,483	-947,327	-895,846	0,545

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations between crisis periods - Growth trajectory retention (8 year recovery phase)

Goodness of fit statistics (Ret_Tra_8):

Observations	111
Sum of weights	111
DF	92
R^2	0,614
Adjusted R^2	0,539
MSE	0,000
RMSE	0,013
MAPE	175,618
DW	2,297
Cp	12,483
AIC	-947,327
SBC	-895,846
PC	0,545
Press	0,022
Q^2	0,453

Analysis of variance (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	18	0,025	0,001	8,140	**<0,0001**
Error	92	0,015	0,000		
Corrected	110	0,040			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations between crisis periods - Growth trajectory retention (8 year recovery phase)

Type I Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	1,000	0,000	0,000	**0,002**	0,964
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	1,000	0,002	0,002	9,052	0,003
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,000	0,000	0,143	0,706
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,005	0,005	26,914	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,003	0,003	15,627	0,000
SHDI	1,000	0,004	0,004	25,920	0,000
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	10,000	0,008	0,001	4,962	0,000
Urb_1	0,000	0,000			
NORM_SH	2,000	0,003	0,002	9,625	0,000

Type II Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EM	0,000	0,000			
Const_EM	1,000	0,001	0,001	5,979	0,016
Serv_EMF	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	1,000	0,002	0,002	10,028	0,002
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,002	0,002	9,778	0,002
RnD_GDF	0,000	0,000			
RnD_EMF	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,009	0,009	51,695	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,003	0,003	16,392	0,000
SHDI	1,000	0,002	0,002	9,970	0,002
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	10,000	0,009	0,001	5,219	0,000
Urb_1	0,000	0,000			
NORM_SI	2,000	0,003	0,002	9,625	0,000

Type III Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EM	0,000	0,000			
Const_EM	1,000	0,001	0,001	5,979	0,016
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	1,000	0,002	0,002	10,028	0,002
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,002	0,002	9,778	0,002
RnD_GDP	0,000	0,000			
RnD_EMF	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,009	0,009	51,695	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,003	0,003	16,392	0,000
SHDI	1,000	0,002	0,002	9,970	0,002
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	10,000	0,009	0,001	5,219	0,000
Urb_1	0,000	0,000			
NORM_SI	2,000	0,003	0,002	9,625	0,000

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations between crisis periods - Growth trajectory retention (8 year recovery phase)

Model parameters (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,254	0,058	4,373	**<0,0001**	0,138	0,369
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_EMP	0,000	0,000				
Manu_EMP	0,000	0,000				
Const_EMP	0,128	0,067	1,898	0,061	-0,006	0,262
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	-0,203	0,082	-2,481	**0,015**	-0,366	-0,040
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,007	0,003	2,557	**0,012**	0,002	0,013
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,009	0,002	5,106	**<0,0001**	0,005	0,012
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	-0,033	0,010	-3,395	**0,001**	-0,052	-0,014
SHDI	-0,149	0,063	-2,368	**0,020**	-0,274	-0,024
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	-0,003	0,003	-0,797	0,427	-0,010	0,004
BE	-0,036	0,015	-2,424	**0,017**	-0,066	-0,007
DE	-0,024	0,009	-2,588	**0,011**	-0,042	-0,006
EL	0,061	0,014	4,203	**<0,0001**	0,032	0,089
ES	0,020	0,005	4,517	**<0,0001**	0,011	0,029
FI	0,001	0,010	0,067	0,947	-0,019	0,021
FR	0,002	0,004	0,387	0,700	-0,007	0,010
IT	-0,009	0,004	-2,399	**0,018**	-0,017	-0,002
NL	-0,010	0,013	-0,747	0,457	-0,035	0,016
PT	0,034	0,006	5,383	**<0,0001**	0,022	0,047
UK	-0,036	0,018	-1,964	0,053	-0,072	0,000
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	-0,006	0,004	-1,448	0,151	-0,013	0,002
NED	-0,007	0,005	-1,498	0,138	-0,016	0,002
NIS	0,012	0,004	3,408	**0,001**	0,005	0,020

Standardized coefficients (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_EMP	0,000	0,000				
Manu_EM	0,000	0,000				
Const_EM	0,221	0,116	1,898	0,061	-0,010	0,452
Serv_EMF	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	-0,305	0,123	-2,481	**0,015**	-0,549	-0,061
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,372	0,145	2,557	**0,012**	0,083	0,660
RnD_GDF	0,000	0,000				
RnD_EMF	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,990	0,194	5,106	**<0,0001**	0,605	1,374
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	-1,231	0,363	-3,395	**0,001**	-1,951	-0,511
SHDI	-0,334	0,141	-2,368	**0,020**	-0,614	-0,054
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	-0,050	0,063	-0,797	0,427	-0,176	0,075
BE	-0,581	0,240	-2,424	**0,017**	-1,057	-0,105
DE	-0,767	0,296	-2,588	**0,011**	-1,355	-0,178
EL	1,316	0,313	4,203	**<0,0001**	0,694	1,937
ES	0,486	0,108	4,517	**<0,0001**	0,272	0,699
FI	0,011	0,161	0,067	0,947	-0,309	0,330
FR	0,033	0,085	0,387	0,700	-0,135	0,201
IT	-0,260	0,108	-2,399	**0,018**	-0,474	-0,045
NL	-0,160	0,215	-0,747	0,457	-0,587	0,266
PT	0,608	0,113	5,383	**<0,0001**	0,384	0,833
UK	-0,539	0,275	-1,964	0,053	-1,085	0,006
Urban	0,000	0,000				
Intermedia	0,000	0,000				
Rural	0,000	0,000				
LIS	-0,228	0,158	-1,448	0,151	-0,542	0,085
NED	-0,246	0,165	-1,498	0,138	-0,573	0,080
NIS	0,255	0,075	3,408	**0,001**	0,106	0,404

III.b.ii.2. Observations from 1990-1993

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations from 1990-1993

Settings:
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Model selection: Stepwise
Probability for entry: 0,05 / Probability for removal: 0,1
Covariances: Corrections = Newey West (adjusted)(Lag = 1)
Use least squares means: Yes
Explanation of the variable codes can be found in table 28

Summary statistics (Quantitative data):

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Rec_DL	577	0	577	-0,453	0,260	-0,127	0,090
Ret_Tra_4	577	0	577	-0,182	0,139	-0,005	0,026
Ret_Tra_8	577	1	576	-0,058	0,058	-0,008	0,018
Pop_age	577	0	577	0,181	2,642	0,982	0,316
Mig_net	577	0	577	-12,213	54,935	5,091	6,512
Pop_work	577	0	577	0,330	0,633	0,450	0,049
Agri_EMP	577	0	577	0,000	0,585	0,057	0,075
Manu_EMP	577	0	577	0,022	0,590	0,237	0,104
Const_EMP	577	0	577	0,019	0,294	0,081	0,030
Serv_EMP	577	0	577	0,125	0,642	0,361	0,090
Pub_EMP	577	0	577	0,087	0,532	0,263	0,065
HHI	577	0	577	0,175	0,525	0,234	0,037
GDP_PC	577	0	577	-1,260	5,017	0,079	0,801
GFCF_PC	577	0	577	-1,835	2,395	0,015	0,755
PROD	577	0	577	-2,858	3,401	0,160	0,928
RnD_GDP	577	0	577	0,071	14,258	1,928	1,651
RnD_EMP	577	0	577	0,000	3,420	1,231	0,802
MM_Ac	577	0	577	24,795	192,930	106,579	34,580
Avg_bus	577	0	577	1,998	18,605	9,765	5,145
Gov_debt	577	0	577	-11,100	0,300	-4,179	2,777
Cur_blc	577	0	577	-5,200	5,100	-1,089	1,320
Gov_close	577	0	577	2,480	31,490	4,939	2,834
Lab_comp	577	0	577	430,021	88168,111	22518,810	17750,196
Union	577	0	577	9,341	82,671	35,166	10,379
ML_barg	577	0	577	1,625	4,875	2,856	1,018
SHDI	577	0	577	0,705	0,895	0,798	0,033
SC_Org	577	0	577	0,038	0,202	0,111	0,050
EoC	577	0	577	50,000	100,000	77,907	17,059
Clu	577	0	577	0,360	31,000	2,635	3,479

Number of removed observations: 125

Summary statistics (Qualitative data):

Variable	Categories	Counts	Frequencies	%
NAT	BE	5	5	0,867
	DE	240	240	41,594
	DK	1	1	0,173
	ES	53	53	9,185
	FI	1	1	0,173
	FR	10	10	1,733
	IT	94	94	16,291
	NL	5	5	0,867
	PT	19	19	3,293
	SE	12	12	2,080
	UK	137	137	23,744
Urb_1	Urban	230	230	39,861
	Intermedia	238	238	41,248
	Rural	109	109	18,891
Shock	LIS	82	82	14,211
	NED	408	408	70,711
	NIS	87	87	15,078

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations from 1990-1993

Correlation matrix:

	Pop_age	Mig_net	Pop_work	Agri_EMP	Manu_EMP	Const_EMP	Serv_EMP	Pub_EMP	HHI	GDP_PC	GFCF_PC	PROD	RnD_GDP	RnD_EMP	MM_Ac	Avg_bus	Gov_debt	Cur_blc	Gov_close	Lab_comp	Union	ML_barg	SHDI	SC_Org	EoC	Clu	BE	DE	DK	ES	FI	FR	IT	NL	PT	SE	UK	Urban	Intermediate	Rural	LIS	NED	NIS	Rec_DL	Ret_Tra_4	Ret_Tra_8
Pop_age	**1**	0,030	-0,060	-0,024	0,095	-0,294	-0,040	0,065	-0,038	0,251	0,158	0,241	-0,052	-0,079	0,072	-0,051	-0,314	0,349	0,075	0,139	0,076	0,369	0,261	0,052	-0,291	-0,123	0,204	0,142	0,215	0,070	0,211	0,216	0,384	0,197	0,160	0,199	-0,217	-0,150	-0,003	0,096	-0,025	0,120	-0,070	0,111	0,041	0,161
Mig_net	0,030	**1**	0,097	-0,217	0,270	-0,016	-0,143	0,025	0,126	0,143	0,411	0,483	0,137	0,274	0,282	0,477	0,259	-0,118	0,193	0,167	-0,033	-0,036	0,492	0,558	0,121	0,004	0,275	0,532	0,299	0,176	0,298	0,251	0,090	0,279	0,192	0,265	-0,299	-0,163	0,102	0,038	0,044	0,135	-0,116	0,037	-0,088	-0,187
Pop_work	-0,060	0,097	**1**	-0,217	0,105	-0,031	0,260	-0,260	0,102	0,165	0,424	0,038	0,372	0,351	0,267	0,284	0,450	-0,069	0,164	-0,041	0,363	-0,412	0,188	-0,004	0,528	0,136	-0,432	-0,182	-0,419	-0,519	-0,417	-0,452	-0,533	-0,417	-0,322	-0,360	0,432	0,035	-0,047	0,008	-0,018	0,154	-0,097	-0,221	-0,325	-0,357
Agri_EMP	-0,024	-0,217	-0,217	**1**	-0,280	0,156	-0,478	-0,124	-0,350	-0,402	-0,403	-0,503	-0,258	-0,345	-0,593	-0,437	-0,370	0,022	-0,157	-0,168	-0,252	0,275	-0,503	-0,184	-0,479	-0,144	0,240	-0,038	0,236	0,304	0,237	0,269	0,256	0,242	0,407	0,209	-0,241	-0,502	-0,231	0,462	-0,014	-0,446	0,314	0,056	0,187	0,252
Manu_EMP	0,095	0,270	0,105	-0,280	**1**	-0,329	-0,468	-0,477	0,367	0,223	0,189	0,285	0,112	0,212	0,405	0,447	0,094	0,044	0,097	0,306	0,026	0,042	0,392	0,313	0,010	-0,045	0,225	0,410	0,231	0,059	0,235	0,203	0,127	0,219	0,221	0,203	-0,240	0,032	0,050	-0,052	-0,028	-0,029	0,034	-0,052	-0,094	-0,205
Const_EMP	-0,294	-0,016	-0,031	0,156	-0,329	**1**	-0,045	-0,049	-0,287	-0,464	-0,178	-0,291	-0,069	-0,133	-0,362	-0,215	0,016	-0,257	-0,218	-0,261	-0,155	-0,156	-0,370	-0,186	0,089	-0,062	-0,190	-0,265	-0,200	0,009	-0,197	-0,201	-0,189	-0,198	-0,161	-0,198	0,197	-0,197	-0,072	0,169	0,081	-0,143	0,058	0,158	0,115	0,216
Serv_EMP	-0,040	-0,143	0,260	-0,478	-0,468	-0,045	**1**	-0,054	0,061	0,290	0,179	0,112	0,179	0,163	0,314	-0,008	0,190	-0,027	-0,123	-0,010	0,079	-0,343	0,072	-0,188	0,388	0,100	-0,447	-0,367	-0,447	-0,356	-0,454	-0,459	-0,376	-0,416	-0,527	-0,458	0,461	0,497	0,120	-0,388	-0,031	0,242	-0,151	-0,045	-0,089	-0,091
Pub_EMP	0,065	0,025	-0,260	-0,124	-0,477	-0,049	-0,054	**1**	-0,134	-0,077	0,001	0,105	-0,094	-0,102	-0,226	-0,097	0,010	0,059	0,294	-0,161	0,211	0,158	0,027	0,057	-0,036	0,128	0,064	0,015	0,064	0,040	0,064	0,088	0,103	0,032	-0,026	0,154	-0,063	-0,063	0,055	0,005	0,066	0,293	-0,236	0,007	0,005	0,063
HHI	-0,038	0,126	0,102	-0,350	0,367	-0,287	0,061	-0,134	**1**	0,442	0,170	0,265	0,121	0,234	0,332	0,261	0,137	-0,006	0,046	0,186	0,024	-0,079	0,210	0,172	0,111	0,104	0,036	0,163	0,049	-0,016	0,043	0,010	-0,026	0,060	0,000	0,015	-0,042	0,262	0,058	-0,201	0,067	-0,032	-0,012	-0,065	-0,034	-0,167
GDP_PC	0,251	0,143	0,165	-0,402	0,223	-0,464	0,290	-0,077	0,442	**1**	0,476	0,501	0,131	0,288	0,511	0,347	0,095	0,125	0,223	0,323	0,127	0,081	0,522	0,344	0,033	-0,017	0,200	0,345	0,209	0,043	0,203	0,169	0,144	0,197	0,103	0,197	-0,204	0,221	0,087	-0,194	-0,003	0,115	-0,078	-0,048	-0,113	-0,164
GFCF_PC	0,158	0,411	0,424	-0,403	0,189	-0,178	0,179	0,001	0,170	0,476	**1**	0,722	0,381	0,614	0,484	0,498	0,284	0,112	0,405	0,346	0,300	-0,008	0,706	0,491	0,208	-0,001	0,152	0,381	0,143	-0,088	0,140	0,117	0,035	0,132	-0,025	0,179	-0,138	-0,024	0,098	-0,047	0,058	0,204	-0,170	-0,039	-0,225	-0,269
PROD	0,241	0,483	0,038	-0,503	0,285	-0,291	0,112	0,105	0,265	0,501	0,722	**1**	0,243	0,509	0,617	0,537	0,249	0,101	0,422	0,543	0,164	0,079	0,811	0,613	0,094	-0,054	0,353	0,571	0,352	0,143	0,347	0,322	0,204	0,338	0,110	0,361	-0,347	0,120	0,113	-0,147	0,063	0,247	-0,202	0,087	-0,063	-0,159
RnD_GDP	-0,052	0,137	0,372	-0,258	0,112	-0,069	0,179	-0,094	0,121	0,131	0,381	0,243	**1**	0,723	0,330	0,329	0,331	-0,044	0,147	0,108	0,177	-0,259	0,260	0,118	0,338	0,402	-0,187	0,011	-0,181	-0,254	-0,182	-0,174	-0,267	-0,179	-0,209	-0,141	0,184	0,122	0,009	-0,082	0,035	0,143	-0,116	-0,126	-0,149	-0,244
RnD_EMP	-0,079	0,274	0,351	-0,345	0,212	-0,133	0,163	-0,102	0,234	0,288	0,614	0,509	0,723	**1**	0,518	0,550	0,432	-0,061	0,135	0,308	0,089	-0,328	0,478	0,315	0,400	0,053	-0,087	0,207	-0,087	-0,199	-0,092	-0,092	-0,264	-0,091	-0,157	-0,093	0,091	0,141	0,008	-0,093	0,029	0,169	-0,131	-0,120	-0,160	-0,299
MM_Ac	0,072	0,282	0,267	-0,593	0,405	-0,362	0,314	-0,226	0,332	0,511	0,484	0,617	0,330	0,518	**1**	0,625	0,330	0,163	0,124	0,469	0,145	-0,213	0,693	0,339	0,330	0,052	0,021	0,352	0,008	-0,229	0,004	-0,029	-0,109	0,021	-0,101	-0,040	-0,005	0,412	0,058	-0,295	0,001	0,260	-0,180	-0,054	-0,152	-0,347
Avg_bus	-0,051	0,477	0,284	-0,437	0,447	-0,215	-0,008	-0,097	0,261	0,347	0,498	0,537	0,329	0,550	0,625	**1**	0,628	-0,130	0,157	0,208	0,004	-0,433	0,711	0,608	0,535	0,102	0,060	0,595	0,080	-0,122	0,079	0,027	-0,254	0,064	-0,011	0,030	-0,082	0,069	0,023	-0,058	0,028	0,297	-0,218	-0,147	-0,289	-0,454
Gov_debt	-0,314	0,259	0,450	-0,370	0,094	0,016	0,190	0,010	0,137	0,095	0,284	0,249	0,331	0,432	0,330	0,628	**1**	-0,450	0,292	-0,145	0,096	-0,711	0,359	0,411	0,797	0,234	-0,312	0,117	-0,290	-0,254	-0,288	-0,268	-0,731	-0,277	-0,330	-0,201	0,296	0,129	-0,024	-0,066	0,050	0,253	-0,200	-0,220	-0,225	-0,342
Cur_blc	0,349	-0,118	-0,069	0,022	0,044	-0,257	-0,027	0,059	-0,006	0,125	0,112	0,101	-0,044	-0,061	0,163	-0,130	-0,450	**1**	0,056	0,127	0,277	0,478	0,188	-0,174	-0,394	-0,065	0,218	0,031	0,142	-0,189	0,123	0,150	0,374	0,183	0,161	0,105	-0,136	-0,048	-0,013	0,038	-0,051	0,032	0,004	0,150	-0,034	0,032
Gov_close	0,075	0,193	0,164	-0,157	0,097	-0,218	-0,123	0,294	0,046	0,223	0,405	0,422	0,147	0,135	0,124	0,157	0,292	0,056	**1**	0,081	0,664	0,281	0,406	0,454	-0,026	0,105	0,291	0,316	0,341	0,090	0,323	0,300	0,167	0,286	0,225	0,527	-0,305	-0,046	0,095	-0,031	0,038	0,101	-0,089	-0,064	-0,017	-0,040
Lab_comp	0,139	0,167	-0,041	-0,168	0,306	-0,261	-0,010	-0,161	0,186	0,323	0,346	0,543	0,108	0,308	0,469	0,208	-0,145	0,127	0,081	**1**	-0,073	0,242	0,379	0,206	-0,222	-0,202	0,334	0,385	0,356	0,219	0,355	0,341	0,366	0,341	0,275	0,305	-0,360	0,151	0,024	-0,110	-0,048	0,007	0,019	0,122	0,028	-0,049
Union	0,076	-0,033	0,363	-0,252	0,026	-0,155	0,079	0,211	0,024	0,127	0,300	0,164	0,177	0,089	0,145	0,004	0,096	0,277	0,664	-0,073	**1**	0,174	0,189	-0,084	0,201	0,131	-0,200	-0,202	-0,229	-0,480	-0,228	-0,324	-0,085	-0,258	-0,246	-0,020	0,246	0,160	0,125	-0,179	-0,028	0,177	-0,108	-0,222	-0,147	-0,132
ML_barg	0,369	-0,036	-0,412	0,275	0,042	-0,156	-0,343	0,158	-0,079	0,081	-0,008	0,079	-0,259	-0,328	-0,213	-0,433	-0,711	0,478	0,281	0,242	0,174	**1**	-0,006	0,067	-0,872	-0,171	0,689	0,284	0,669	0,521	0,679	0,624	0,895	0,653	0,649	0,704	-0,675	-0,193	0,113	0,050	-0,101	-0,194	0,185	0,210	0,267	0,316
SHDI	0,261	0,492	0,188	-0,503	0,392	-0,370	0,072	0,027	0,210	0,522	0,706	0,811	0,260	0,478	0,693	0,711	0,359	0,188	0,406	0,379	0,189	-0,006	**1**	0,692	0,198	0,054	0,328	0,635	0,316	0,050	0,313	0,275	0,111	0,322	0,104	0,317	-0,315	0,045	0,126	-0,108	0,038	0,320	-0,240	-0,061	-0,231	-0,345
SC_Org	0,052	0,558	-0,004	-0,184	0,313	-0,186	-0,188	0,057	0,172	0,344	0,491	0,613	0,118	0,315	0,339	0,608	0,411	-0,174	0,454	0,206	-0,084	0,067	0,692	**1**	0,004	0,048	0,614	0,838	0,632	0,519	0,636	0,581	0,222	0,626	0,471	0,641	-0,633	-0,170	0,100	0,043	0,084	0,125	-0,128	0,056	-0,022	-0,147
EoC	-0,291	0,121	0,528	-0,479	0,010	0,089	0,388	-0,036	0,111	0,033	0,208	0,094	0,338	0,400	0,330	0,535	0,797	-0,394	-0,026	-0,222	0,201	-0,872	0,198	0,004	**1**	0,215	-0,724	-0,266	-0,718	-0,643	-0,719	-0,733	-0,895	-0,725	-0,757	-0,671	0,723	0,283	-0,009	-0,172	-0,005	0,325	-0,222	-0,305	-0,330	-0,392
Clu	-0,123	0,004	0,136	-0,144	-0,045	-0,062	0,100	0,128	0,104	-0,017	-0,001	-0,054	0,402	0,053	0,052	0,102	0,234	-0,065	0,105	-0,202	0,131	-0,171	0,054	0,048	0,215	**1**	-0,134	-0,070	-0,141	-0,125	-0,142	-0,148	-0,225	-0,127	-0,139	-0,092	0,145	0,071	-0,011	-0,038	0,022	0,121	-0,094	-0,121	-0,108	-0,170
BE	0,204	0,275	-0,432	0,240	0,225	-0,190	-0,447	0,064	0,036	0,200	0,152	0,353	-0,187	-0,087	0,021	0,060	-0,312	0,218	0,291	0,334	-0,200	0,689	0,328	0,614	-0,724	-0,134	**1**	0,802	0,973	0,835	0,973	0,936	0,797	0,955	0,906	0,928	-0,978	-0,301	0,077	0,140	0,021	-0,189	0,120	0,264	0,224	0,159
DE	0,142	0,532	-0,182	-0,038	0,410	-0,265	-0,367	0,015	0,163	0,345	0,381	0,571	0,011	0,207	0,352	0,595	0,117	0,031	0,316	0,385	-0,202	0,284	0,635	0,838	-0,266	-0,070	0,802	**1**	0,827	0,602	0,827	0,773	0,506	0,802	0,727	0,762	-0,834	-0,225	0,068	0,099	0,028	0,029	-0,034	0,129	0,021	-0,134
DK	0,215	0,299	-0,419	0,236	0,231	-0,200	-0,447	0,064	0,049	0,209	0,143	0,352	-0,181	-0,087	0,008	0,080	-0,290	0,142	0,341	0,356	-0,229	0,669	0,316	0,632	-0,718	-0,141	0,973	0,827	**1**	0,854	0,991	0,953	0,817	0,973	0,924	0,946	-0,995	-0,299	0,073	0,141	0,006	-0,177	0,119	0,257	0,228	0,159
ES	0,070	0,176	-0,519	0,304	0,059	0,009	-0,356	0,040	-0,016	0,043	-0,088	0,143	-0,254	-0,199	-0,229	-0,122	-0,254	-0,189	0,090	0,219	-0,480	0,521	0,050	0,519	-0,643	-0,125	0,835	0,602	0,854	**1**	0,854	0,815	0,650	0,835	0,783	0,807	-0,859	-0,243	0,092	0,095	-0,039	-0,233	0,180	0,271	0,322	0,287
FI	0,211	0,298	-0,417	0,237	0,235	-0,197	-0,454	0,064	0,043	0,203	0,140	0,347	-0,182	-0,092	0,004	0,079	-0,288	0,123	0,323	0,355	-0,228	0,679	0,313	0,636	-0,719	-0,142	0,973	0,827	0,991	0,854	**1**	0,953	0,817	0,973	0,924	0,946	-0,995	-0,299	0,073	0,141	0,014	-0,166	0,107	0,254	0,232	0,164
FR	0,216	0,251	-0,452	0,269	0,203	-0,201	-0,459	0,088	0,010	0,169	0,117	0,322	-0,174	-0,092	-0,029	0,027	-0,268	0,150	0,300	0,341	-0,324	0,624	0,275	0,581	-0,733	-0,148	0,936	0,773	0,953	0,815	0,953	**1**	0,774	0,936	0,886	0,909	-0,958	-0,349	0,007	0,214	0,084	-0,187	0,087	0,280	0,227	0,184
IT	0,384	0,090	-0,533	0,256	0,127	-0,189	-0,376	0,103	-0,026	0,144	0,035	0,204	-0,267	-0,264	-0,109	-0,254	-0,731	0,374	0,167	0,366	-0,085	0,895	0,111	0,222	-0,895	-0,225	0,797	0,506	0,817	0,650	0,817	0,774	**1**	0,797	0,740	0,766	-0,822	-0,236	0,099	0,085	-0,022	-0,179	0,135	0,261	0,253	0,269
NL	0,197	0,279	-0,417	0,242	0,219	-0,198	-0,416	0,032	0,060	0,197	0,132	0,338	-0,179	-0,091	0,021	0,064	-0,277	0,183	0,286	0,341	-0,258	0,653	0,322	0,626	-0,725	-0,127	0,955	0,802	0,973	0,835	0,973	0,936	0,797	**1**	0,906	0,928	-0,978	-0,290	0,066	0,140	0,050	-0,178	0,098	0,255	0,224	0,160
PT	0,160	0,192	-0,322	0,407	0,221	-0,161	-0,527	-0,026	0,000	0,103	-0,025	0,110	-0,209	-0,157	-0,101	-0,011	-0,330	0,161	0,225	0,275	-0,246	0,649	0,104	0,471	-0,757	-0,139	0,906	0,727	0,924	0,783	0,924	0,886	0,740	0,906	**1**	0,879	-0,929	-0,341	0,012	0,206	-0,020	-0,247	0,180	0,254	0,248	0,177
SE	0,199	0,265	-0,360	0,209	0,203	-0,198	-0,458	0,154	0,015	0,197	0,179	0,361	-0,141	-0,093	-0,040	0,030	-0,201	0,105	0,527	0,305	-0,020	0,704	0,317	0,641	-0,671	-0,092	0,928	0,762	0,946	0,807	0,946	0,909	0,766	0,928	0,879	**1**	-0,951	-0,285	0,106	0,112	0,020	-0,135	0,083	0,210	0,227	0,173
UK	-0,217	-0,299	0,432	-0,241	-0,240	0,197	0,461	-0,063	-0,042	-0,204	-0,138	-0,347	0,184	0,091	-0,005	-0,082	0,296	-0,136	-0,305	-0,360	0,246	-0,675	-0,315	-0,633	0,723	0,145	-0,978	-0,834	-0,995	-0,859	-0,995	-0,958	-0,822	-0,978	-0,929	-0,951	**1**	0,305	-0,075	-0,144	-0,014	0,169	-0,110	-0,258	-0,230	-0,160
Urban	-0,150	-0,163	0,035	-0,502	0,032	-0,197	0,497	-0,063	0,262	0,221	-0,024	0,120	0,122	0,141	0,412	0,069	0,129	-0,048	-0,046	0,151	0,160	-0,193	0,045	-0,170	0,283	0,071	-0,301	-0,225	-0,299	-0,243	-0,299	-0,349	-0,236	-0,290	-0,341	-0,285	0,305	**1**	0,259	-0,792	-0,113	0,161	-0,054	-0,089	-0,021	-0,087
Intermediate	-0,003	0,102	-0,047	-0,231	0,050	-0,072	0,120	0,055	0,058	0,087	0,098	0,113	0,009	0,008	0,058	0,023	-0,024	-0,013	0,095	0,024	0,125	0,113	0,126	0,100	-0,009	-0,011	0,077	0,068	0,073	0,092	0,073	0,007	0,099	0,066	0,012	0,106	-0,075	0,259	**1**	-0,795	-0,030	0,130	-0,075	-0,013	0,024	-0,040
Rural	0,096	0,038	0,008	0,462	-0,052	0,169	-0,388	0,005	-0,201	-0,194	-0,047	-0,147	-0,082	-0,093	-0,295	-0,058	-0,066	0,038	-0,031	-0,110	-0,179	0,050	-0,108	0,043	-0,172	-0,038	0,140	0,099	0,141	0,095	0,141	0,214	0,085	0,140	0,206	0,112	-0,144	-0,792	-0,795	**1**	0,090	-0,183	0,081	0,064	-0,002	0,080
LIS	-0,025	0,044	-0,018	-0,014	-0,028	0,081	-0,031	0,066	0,067	-0,003	0,058	0,063	0,035	0,029	0,001	0,028	0,050	-0,051	0,038	-0,048	-0,028	-0,101	0,038	0,084	-0,005	0,022	0,021	0,028	0,006	-0,039	0,014	0,084	-0,022	0,050	-0,020	0,020	-0,014	-0,113	-0,030	0,090	**1**	0,388	-0,772	0,047	0,024	-0,021
NED	0,120	0,135	0,154	-0,446	-0,029	-0,143	0,242	0,293	-0,032	0,115	0,204	0,247	0,143	0,169	0,260	0,297	0,253	0,032	0,101	0,007	0,177	-0,194	0,320	0,125	0,325	0,121	-0,189	0,029	-0,177	-0,233	-0,166	-0,187	-0,179	-0,178	-0,247	-0,135	0,169	0,161	0,130	-0,183	0,388	**1**	-0,886	-0,037	-0,147	-0,191
NIS	-0,070	-0,116	-0,097	0,314	0,034	0,058	-0,151	-0,236	-0,012	-0,078	-0,170	-0,202	-0,116	-0,131	-0,180	-0,218	-0,200	0,004	-0,089	0,019	-0,108	0,185	-0,240	-0,128	-0,222	-0,094	0,120	-0,034	0,119	0,180	0,107	0,087	0,135	0,098	0,180	0,083	-0,110	-0,054	-0,075	0,081	-0,772	-0,886	**1**	0,002	0,089	0,142
Rec_DL	0,111	0,037	-0,221	0,056	-0,052	0,158	-0,045	0,007	-0,065	-0,048	-0,039	0,087	-0,126	-0,120	-0,054	-0,147	-0,220	0,150	-0,064	0,122	-0,222	0,210	-0,061	0,056	-0,305	-0,121	0,264	0,129	0,257	0,271	0,254	0,280	0,261	0,255	0,254	0,210	-0,258	-0,089	-0,013	0,064	0,047	-0,037	0,002	**1**	0,537	0,591
Ret_Tra_4	0,041	-0,088	-0,325	0,187	-0,094	0,115	-0,089	0,005	-0,034	-0,113	-0,225	-0,063	-0,149	-0,160	-0,152	-0,289	-0,225	-0,034	-0,017	0,028	-0,147	0,267	-0,231	-0,022	-0,330	-0,108	0,224	0,021	0,228	0,322	0,232	0,227	0,253	0,224	0,248	0,227	-0,230	-0,021	0,024	-0,002	0,024	-0,147	0,089	0,537	**1**	0,753
Ret_Tra_8	0,161	-0,187	-0,357	0,252	-0,205	0,216	-0,091	0,063	-0,167	-0,164	-0,269	-0,159	-0,244	-0,299	-0,347	-0,454	-0,342	0,032	-0,040	-0,049	-0,132	0,316	-0,345	-0,147	-0,392	-0,170	0,159	-0,134	0,159	0,287	0,164	0,184	0,269	0,160	0,177	0,173	-0,160	-0,087	-0,040	0,080	-0,021	-0,191	0,142	0,591	0,753	**1**

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations from 1990-1993 - Recovery of development level

Summary of the variables selection Rec_DL:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	EoC	EoC	IN	0,007	0,093	0,091	134,431	-2833,037	-2824,321	0,913
2	Const_EMP / EoC	Const_EMI	IN	0,007	0,127	0,124	109,463	-2853,463	-2840,389	0,882
3	Const_EMP / PROD / EoC	PROD	IN	0,007	0,160	0,156	86,076	-2873,402	-2855,971	0,852
4	Const_EMP / PROD / Union / EoC	Union	IN	0,007	0,183	0,177	70,084	-2887,471	-2865,682	0,831
5	Const_EMP / PROD / Union / EoC / NAT	NAT	IN	0,006	0,230	0,212	51,305	-2903,782	-2842,772	0,808
6	Const_EMP / PROD / Cur_blc / Union / EoC / NAT	Cur_blc	IN	0,006	0,250	0,231	38,040	-2916,644	-2851,277	0,790
7	Const_EMP / PROD / Cur_blc / Union / SHDI / EoC / NAT	SHDI	IN	0,006	0,260	0,240	31,921	-2922,708	-2852,983	0,782
8	Agri_EMP / Const_EMP / PROD / Cur_blc / Union / SHDI / EoC / NAT	Agri_EMP	IN	0,006	0,273	0,252	23,941	-2930,776	-2856,693	0,771
9	Agri_EMP / Const_EMP / PROD / Cur_blc / Union / ML_barg / SHDI / EoC / NAT	ML_barg	IN	0,006	0,279	0,257	21,175	-2933,647	-2855,206	0,767
10	Agri_EMP / Const_EMP / PROD / RnD_EMP / Cur_blc / Union / ML_barg / SHDI / EoC / NAT	RnD_EMP	IN	0,006	0,285	0,262	18,809	-2936,146	-2853,347	0,764

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations from 1990-1993 - Recovery of development level

Goodness of fit statistics (Rec_DL):

Observations	577
Sum of weig	577
DF	558
R^2	0,285
Adjusted R^2	0,262
MSE	0,006
RMSE	0,077
MAPE	159,693
DW	1,506
Cp	18,809
AIC	-2936,146
SBC	-2853,347
PC	0,764
Press	3,561
Q^2	0,235

Analysis of variance (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	18	1,326	0,074	12,339	**<0,0001**
Error	558	3,331	0,006		
Corrected	576	4,657			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations from 1990-1993 - Recovery of development level

Type I Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	1,000	0,015	0,015	2,482	0,116
Manu_EMP	0,000	0,000			
Const_EMP	1,000	0,106	0,106	17,797	0,000
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,145	0,145	24,248	0,000
RnD_GDP	0,000	0,000			
RnD_EMP	1,000	0,154	0,154	25,855	0,000
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,124	0,124	20,772	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,307	0,307	51,486	0,000
ML_barg	1,000	0,068	0,068	11,366	0,001
SHDI	1,000	0,121	0,121	20,214	0,000
SC_Org	0,000	0,000			
EoC	1,000	0,044	0,044	7,423	0,007
Clu	0,000	0,000			
NAT	9,000	0,242	0,027	4,495	0,000
Urb_1	0,000	0,000			
NORM_SH	0,000	0,000			

Type II Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	1,000	0,058	0,058	9,788	0,002
Manu_EM	0,000	0,000			
Const_EM	1,000	0,111	0,111	18,606	0,000
Serv_EMF	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,177	0,177	29,612	0,000
RnD_GDF	0,000	0,000			
RnD_EMF	1,000	0,026	0,026	4,368	0,037
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,125	0,125	20,978	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,103	0,103	17,254	0,000
ML_barg	1,000	0,028	0,028	4,675	0,031
SHDI	1,000	0,053	0,053	8,922	0,003
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	9,000	0,242	0,027	4,495	0,000
Urb_1	0,000	0,000			
NORM_SI	0,000	0,000			

Type III Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	1,000	0,058	0,058	9,788	0,002
Manu_EM	0,000	0,000			
Const_EM	1,000	0,111	0,111	18,606	0,000
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,177	0,177	29,612	0,000
RnD_GDP	0,000	0,000			
RnD_EMF	1,000	0,026	0,026	4,368	0,037
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,125	0,125	20,978	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,103	0,103	17,254	0,000
ML_barg	1,000	0,028	0,028	4,675	0,031
SHDI	1,000	0,053	0,053	8,922	0,003
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	9,000	0,242	0,027	4,495	0,000
Urb_1	0,000	0,000			
NORM_SI	0,000	0,000			

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations from 1990-1993 - Recovery of development level

Model parameters (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	3,709	0,921	4,027	**<0,0001**	1,900	5,519
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_EMP	-0,195	0,079	-2,478	**0,014**	-0,349	-0,040
Manu_EMP	0,000	0,000				
Const_EMP	0,550	0,209	2,636	**0,009**	0,140	0,960
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,040	0,007	5,628	**<0,0001**	0,026	0,054
RnD_GDP	0,000	0,000				
RnD_EMP	-0,011	0,005	-2,137	**0,033**	-0,022	-0,001
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,027	0,012	2,218	**0,027**	0,003	0,051
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	-0,017	0,005	-3,459	**0,001**	-0,026	-0,007
ML_barg	-0,031	0,018	-1,742	0,082	-0,067	0,004
SHDI	-0,764	0,283	-2,702	**0,007**	-1,320	-0,209
SC_Org	0,000	0,000				
EoC	-0,035	0,009	-3,722	**0,000**	-0,053	-0,017
Clu	0,000	0,000				
BE	-0,276	0,079	-3,499	**0,001**	-0,432	-0,121
DE	0,294	0,084	3,484	**0,001**	0,128	0,459
DK	0,832	0,263	3,164	**0,002**	0,316	1,349
ES	-0,353	0,133	-2,648	**0,008**	-0,616	-0,091
FI	0,861	0,223	3,867	**0,000**	0,424	1,299
FR	-1,037	0,301	-3,446	**0,001**	-1,628	-0,446
IT	-0,657	0,183	-3,587	**0,000**	-1,017	-0,297
NL	-0,817	0,210	-3,898	**0,000**	-1,229	-0,406
PT	-0,759	0,238	-3,194	**0,001**	-1,226	-0,292
SE	0,000	0,000				
UK	0,957	0,274	3,495	**0,001**	0,419	1,494
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_EMP	-0,164	0,066	-2,478	**0,014**	-0,293	-0,034
Manu_EM	0,000	0,000				
Const_EM	0,182	0,069	2,636	**0,009**	0,046	0,317
Serv_EMF	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,416	0,074	5,628	**<0,0001**	0,271	0,561
RnD_GDF	0,000	0,000				
RnD_EMF	-0,101	0,047	-2,137	**0,033**	-0,194	-0,008
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,401	0,181	2,218	**0,027**	0,046	0,756
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	-1,929	0,558	-3,459	**0,001**	-3,025	-0,834
ML_barg	-0,355	0,204	-1,742	0,082	-0,756	0,045
SHDI	-0,279	0,103	-2,702	**0,007**	-0,482	-0,076
SC_Org	0,000	0,000				
EoC	-6,637	1,783	-3,722	**0,000**	-10,139	-3,134
Clu	0,000	0,000				
BE	-1,355	0,387	-3,499	**0,001**	-2,115	-0,594
DE	2,578	0,740	3,484	**0,001**	1,125	4,032
DK	3,969	1,254	3,164	**0,002**	1,505	6,432
ES	-2,184	0,825	-2,648	**0,008**	-3,804	-0,564
FI	4,108	1,062	3,867	**0,000**	2,021	6,195
FR	-5,244	1,522	-3,446	**0,001**	-8,232	-2,255
IT	-4,595	1,281	-3,587	**0,000**	-7,111	-2,079
NL	-4,005	1,028	-3,898	**0,000**	-6,024	-1,987
PT	-4,038	1,264	-3,194	**0,001**	-6,521	-1,555
SE	0,000	0,000				
UK	4,531	1,296	3,495	**0,001**	1,985	7,077
Urban	0,000	0,000				
Intermedia	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations from 1990-1993 - Growth trajectory retention (4 year recovery period)

Summary of the variables selection Ret_Tra_4:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	NAT	NAT	IN	0,001	0,170	0,155	75,605	-4280,865	-4232,929	0,862
2	Pop_work / NAT	Pop_work	IN	0,001	0,197	0,181	57,039	-4297,997	-4245,703	0,837
3	Pop_work / MM_Ac / NAT	MM_Ac	IN	0,001	0,220	0,203	41,725	-4312,610	-4255,958	0,816
4	Pop_work / MM_Ac / Union / NAT	Union	IN	0,001	0,232	0,214	34,489	-4319,672	-4258,662	0,806
5	Pop_work / MM_Ac / Union / NAT / Shock	Shock	IN	0,001	0,245	0,225	28,284	-4325,853	-4256,127	0,798
6	Pop_work / PROD / MM_Ac / Union / NAT / Shock	PROD	IN	0,001	0,254	0,232	24,057	-4330,154	-4256,071	0,792
7	Pop_work / PROD / MM_Ac / Union / SHDI / NAT / Shock	SHDI	IN	0,001	0,262	0,239	19,895	-4334,459	-4256,018	0,786
8	Pop_work / PROD / MM_Ac / Union / ML_barg / SHDI / NAT / Shock	ML_barg	IN	0,001	0,269	0,246	16,156	-4338,393	-4255,594	0,780
9	Pop_work / PROD / MM_Ac / Lab_comp / Union / ML_barg / SHDI / NAT / Shock	Lab_comp	IN	0,001	0,275	0,250	13,735	-4341,006	-4253,849	0,777

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations from 1990-1993 - Growth trajectory retention (4 year recovery period)

Goodness of fit statistics (Ret_Tra_4):

Observations	577
Sum of weights	577
DF	557
R^2	0,275
Adjusted R^2	0,250
MSE	0,001
RMSE	0,023
MAPE	227,849
DW	1,615
Cp	13,735
AIC	-4341,006
SBC	-4253,849
PC	0,777
Press	0,311
Q^2	0,226

Analysis of variance (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	19	0,110	0,006	11,126	**<0,0001**
Error	557	0,291	0,001		
Corrected '	576	0,401			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations from 1990-1993 - Growth trajectory retention (4 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,042	0,042	81,160	0,000
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,001	0,001	1,959	0,162
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,001	0,001	1,645	0,200
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	1,000	0,002	0,002	3,122	0,078
Union	1,000	0,000	0,000	0,195	0,659
ML_barg	1,000	0,010	0,010	18,791	0,000
SHDI	1,000	0,026	0,026	49,676	0,000
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	10,000	0,023	0,002	4,498	0,000
Urb_1	0,000	0,000			
NORM_SH	2,000	0,005	0,003	4,934	0,008

Type II Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,009	0,009	17,246	0,000
Agri_EMP	0,000	0,000			
Manu_EM	0,000	0,000			
Const_EM	0,000	0,000			
Serv_EMF	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,007	0,007	13,856	0,000
RnD_GDF	0,000	0,000			
RnD_EMF	0,000	0,000			
MM_Ac	1,000	0,011	0,011	20,964	0,000
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	1,000	0,002	0,002	4,471	0,035
Union	1,000	0,008	0,008	14,522	0,000
ML_barg	1,000	0,003	0,003	5,730	0,017
SHDI	1,000	0,003	0,003	6,696	0,010
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	10,000	0,028	0,003	5,296	0,000
Urb_1	0,000	0,000			
NORM_SI	2,000	0,005	0,003	4,934	0,008

Type III Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,009	0,009	17,246	0,000
Agri_EMP	0,000	0,000			
Manu_EM	0,000	0,000			
Const_EM	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,007	0,007	13,856	0,000
RnD_GDP	0,000	0,000			
RnD_EMF	0,000	0,000			
MM_Ac	1,000	0,011	0,011	20,964	0,000
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	1,000	0,002	0,002	4,471	0,035
Union	1,000	0,008	0,008	14,522	0,000
ML_barg	1,000	0,003	0,003	5,730	0,017
SHDI	1,000	0,003	0,003	6,696	0,010
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	10,000	0,028	0,003	5,296	0,000
Urb_1	0,000	0,000			
NORM_SI	2,000	0,005	0,003	4,934	0,008

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations from 1990-1993 - Growth trajectory retention (4 year recovery period)

Model parameters (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,378	0,087	4,358	**<0,0001**	0,208	0,549
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	-0,130	0,064	-2,030	**0,043**	-0,256	-0,004
Agri_EMP	0,000	0,000				
Manu_EMP	0,000	0,000				
Const_EMP	0,000	0,000				
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,008	0,002	3,439	**0,001**	0,004	0,013
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000	3,326	**0,001**	0,000	0,000
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000	-2,453	**0,014**	0,000	0,000
Union	-0,004	0,002	-2,921	**0,004**	-0,007	-0,001
ML_barg	0,010	0,004	2,476	**0,014**	0,002	0,018
SHDI	-0,218	0,101	-2,160	**0,031**	-0,416	-0,020
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
BE	0,015	0,016	0,927	0,354	-0,017	0,046
DE	-0,054	0,015	-3,641	**0,000**	-0,083	-0,025
DK	0,146	0,052	2,799	**0,005**	0,044	0,248
ES	-0,100	0,040	-2,536	**0,011**	-0,178	-0,023
FI	0,164	0,050	3,310	**0,001**	0,067	0,262
FR	-0,158	0,054	-2,928	**0,004**	-0,264	-0,052
IT	-0,037	0,012	-2,993	**0,003**	-0,062	-0,013
NL	-0,099	0,033	-3,028	**0,003**	-0,163	-0,035
PT	-0,031	0,021	-1,453	0,147	-0,073	0,011
SE	0,171	0,059	2,909	**0,004**	0,055	0,286
UK	-0,016	0,008	-1,963	0,050	-0,031	0,000
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,008	0,003	2,320	**0,021**	0,001	0,014
NED	-0,003	0,002	-1,730	0,084	-0,007	0,000
NIS	-0,004	0,003	-1,678	0,094	-0,010	0,001

Standardized coefficients (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	-0,241	0,119	-2,030	**0,043**	-0,475	-0,008
Agri_EMP	0,000	0,000				
Manu_EM	0,000	0,000				
Const_EM	0,000	0,000				
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,297	0,086	3,439	**0,001**	0,128	0,467
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,299	0,090	3,326	**0,001**	0,122	0,475
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	-0,114	0,046	-2,453	**0,014**	-0,205	-0,023
Union	-1,759	0,602	-2,921	**0,004**	-2,941	-0,576
ML_barg	0,379	0,153	2,476	**0,014**	0,078	0,680
SHDI	-0,271	0,125	-2,160	**0,031**	-0,517	-0,025
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
BE	0,246	0,266	0,927	0,354	-0,276	0,769
DE	-1,619	0,445	-3,641	**0,000**	-2,493	-0,746
DK	2,370	0,847	2,799	**0,005**	0,707	4,033
ES	-2,114	0,834	-2,536	**0,011**	-3,752	-0,477
FI	2,671	0,807	3,310	**0,001**	1,086	4,255
FR	-2,726	0,931	-2,928	**0,004**	-4,554	-0,897
IT	-0,891	0,298	-2,993	**0,003**	-1,475	-0,306
NL	-1,650	0,545	-3,028	**0,003**	-2,721	-0,580
PT	-0,564	0,388	-1,453	0,147	-1,326	0,198
SE	2,977	1,023	2,909	**0,004**	0,967	4,986
UK	-0,250	0,128	-1,963	0,050	-0,501	0,000
Urban	0,000	0,000				
Intermedia	0,000	0,000				
Rural	0,000	0,000				
LIS	0,156	0,067	2,320	**0,021**	0,024	0,288
NED	-0,089	0,052	-1,730	0,084	-0,191	0,012
NIS	-0,060	0,036	-1,678	0,094	-0,130	0,010

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations from 1990-1993 - Growth trajectory retention (8 year recovery period)

Summary of the variables selection Ret_Tra_8:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	NAT	NAT	IN	0,000	0,278	0,265	107,177	-4810,414	-4762,496	0,750
2	Union / NAT	Union	IN	0,000	0,304	0,291	84,762	-4830,086	-4777,813	0,725
3	Pop_work / Union / NAT	Pop_work	IN	0,000	0,325	0,310	68,169	-4845,155	-4788,526	0,706
4	Pop_age / Pop_work / Union / NAT	Pop_age	IN	0,000	0,348	0,332	49,292	-4862,944	-4801,959	0,685
5	Pop_age / Pop_work / Const_EMP / Union / NAT	Const_EMI	IN	0,000	0,367	0,351	33,550	-4878,313	-4812,971	0,667
6	Pop_age / Pop_work / Const_EMP / PROD / Union / NAT	PROD	IN	0,000	0,376	0,359	27,256	-4884,616	-4814,918	0,660
7	Pop_age / Pop_work / Const_EMP / PROD / Union / SHDI / NAT	SHDI	IN	0,000	0,387	0,370	18,986	-4893,065	-4819,012	0,650

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations from 1990-1993 - Growth trajectory retention (8 year recovery period)

Goodness of fit statistics (Ret_Tra_8):

Observations	576
Sum of weights	576
DF	559
R^2	0,387
Adjusted R^2	0,370
MSE	0,000
RMSE	0,014
MAPE	1430,773
DW	1,506
Cp	18,986
AIC	-4893,065
SBC	-4819,012
PC	0,650
Press	0,117
Q^2	0,353

Analysis of variance (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	16	0,070	0,004	22,079	**<0,0001**
Error	559	0,111	0,000		
Corrected	575	0,181			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations from 1990-1993 - Growth trajectory retention (8 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,005	0,005	23,631	0,000
Mig_net	0,000	0,000			
Pop_work	1,000	0,022	0,022	110,472	0,000
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	1,000	0,012	0,012	61,116	0,000
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,003	0,003	15,152	0,000
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,000	0,000	0,986	0,321
ML_barg	0,000	0,000			
SHDI	1,000	0,013	0,013	67,325	0,000
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	10,000	0,015	0,001	7,458	0,000
Urb_1	0,000	0,000			
NORM_SH	0,000	0,000			

Type II Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,006	0,006	31,040	0,000
Mig_net	0,000	0,000			
Pop_work	1,000	0,003	0,003	16,949	0,000
Agri_EMP	0,000	0,000			
Manu_EM	0,000	0,000			
Const_EM	1,000	0,003	0,003	13,956	0,000
Serv_EMF	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,003	0,003	13,936	0,000
RnD_GDF	0,000	0,000			
RnD_EMF	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,002	0,002	11,969	0,001
ML_barg	0,000	0,000			
SHDI	1,000	0,002	0,002	10,234	0,001
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	10,000	0,015	0,001	7,458	0,000
Urb_1	0,000	0,000			
NORM_SI	0,000	0,000			

Type III Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,006	0,006	31,040	0,000
Mig_net	0,000	0,000			
Pop_work	1,000	0,003	0,003	16,949	0,000
Agri_EMP	0,000	0,000			
Manu_EM	0,000	0,000			
Const_EM	1,000	0,003	0,003	13,956	0,000
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,003	0,003	13,936	0,000
RnD_GDP	0,000	0,000			
RnD_EMF	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,002	0,002	11,969	0,001
ML_barg	0,000	0,000			
SHDI	1,000	0,002	0,002	10,234	0,001
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	10,000	0,015	0,001	7,458	0,000
Urb_1	0,000	0,000			
NORM_SI	0,000	0,000			

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations from 1990-1993 - Growth trajectory retention (8 year recovery period)

Model parameters (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,253	0,058	4,341	**<0,0001**	0,139	0,368
Pop_age	0,013	0,003	5,096	**<0,0001**	0,008	0,018
Mig_net	0,000	0,000				
Pop_work	-0,078	0,022	-3,491	**0,001**	-0,122	-0,034
Agri_EMP	0,000	0,000				
Manu_EMP	0,000	0,000				
Const_EMP	0,088	0,033	2,686	**0,007**	0,024	0,152
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,005	0,001	3,684	**0,000**	0,002	0,007
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	-0,002	0,001	-3,038	**0,002**	-0,004	-0,001
ML_barg	0,000	0,000				
SHDI	-0,161	0,058	-2,754	**0,006**	-0,275	-0,046
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
BE	0,022	0,011	2,093	**0,037**	0,001	0,043
DE	-0,039	0,008	-4,794	**<0,0001**	-0,055	-0,023
DK	0,078	0,025	3,123	**0,002**	0,029	0,128
ES	-0,066	0,022	-2,991	**0,003**	-0,109	-0,023
FI	0,105	0,026	4,046	**<0,0001**	0,054	0,157
FR	-0,085	0,028	-3,072	**0,002**	-0,140	-0,031
IT	-0,020	0,005	-4,112	**<0,0001**	-0,030	-0,011
NL	-0,045	0,016	-2,848	**0,005**	-0,076	-0,014
PT	-0,029	0,013	-2,160	**0,031**	-0,055	-0,003
SE	0,100	0,032	3,146	**0,002**	0,038	0,162
UK	-0,022	0,004	-5,486	**<0,0001**	-0,029	-0,014
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,231	0,045	5,096	**<0,0001**	0,142	0,320
Mig_net	0,000	0,000				
Pop_work	-0,214	0,061	-3,491	**0,001**	-0,335	-0,094
Agri_EMP	0,000	0,000				
Manu_EM	0,000	0,000				
Const_EM	0,147	0,055	2,686	**0,007**	0,039	0,254
Serv_EMF	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,236	0,064	3,684	**0,000**	0,110	0,362
RnD_GDF	0,000	0,000				
RnD_EMF	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	-1,445	0,476	-3,038	**0,002**	-2,380	-0,511
ML_barg	0,000	0,000				
SHDI	-0,297	0,108	-2,754	**0,006**	-0,509	-0,085
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
BE	0,551	0,263	2,093	**0,037**	0,034	1,068
DE	-1,747	0,364	-4,794	**<0,0001**	-2,462	-1,031
DK	1,897	0,607	3,123	**0,002**	0,704	3,090
ES	-2,069	0,692	-2,991	**0,003**	-3,428	-0,710
FI	2,548	0,630	4,046	**<0,0001**	1,311	3,784
FR	-2,185	0,712	-3,072	**0,002**	-3,583	-0,788
IT	-0,716	0,174	-4,112	**<0,0001**	-1,057	-0,374
NL	-1,118	0,393	-2,848	**0,005**	-1,889	-0,347
PT	-0,770	0,357	-2,160	**0,031**	-1,471	-0,070
SE	2,593	0,824	3,146	**0,002**	0,974	4,211
UK	-0,518	0,094	-5,486	**<0,0001**	-0,704	-0,333
Urban	0,000	0,000				
Intermedia	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

III.b.ii.3. Observations from 2000-2003

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations from 2000-2003

Settings:
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Model selection: Stepwise
Probability for entry: 0,05 / Probability for removal: 0,1
Covariances: Corrections = Newey West (adjusted)(Lag = 1)
Use least squares means: Yes
Explanation of the variable codes can be found in table 28

Summary statistics (Quantitative data):

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Rec_DL	157	0	157	-0,645	0,093	-0,134	0,111
Ret_Tra_4	157	0	157	-0,105	0,034	-0,016	0,023
Ret_Tra_8	157	9	148	-0,113	0,027	-0,018	0,020
Pop_age	157	0	157	0,368	2,378	1,093	0,331
Mig_net	157	0	157	-12,453	52,407	1,554	8,248
Pop_work	157	0	157	0,339	0,671	0,484	0,051
Agri_EMP	157	0	157	0,001	0,420	0,092	0,103
Manu_EMP	157	0	157	0,024	0,562	0,193	0,117
Const_EMP	157	0	157	0,018	0,198	0,092	0,040
Serv_EMP	157	0	157	0,161	0,648	0,360	0,097
Pub_EMP	157	0	157	0,124	0,576	0,264	0,064
HHI	157	0	157	0,187	0,543	0,235	0,048
GDP_PC	157	0	157	-1,142	4,710	-0,186	0,852
GFCF_PC	157	0	157	-1,966	2,093	-0,319	0,859
PROD	157	0	157	-2,698	2,771	-0,404	1,394
RnD_GDP	157	0	157	0,000	8,410	1,410	1,197
RnD_EMP	157	0	157	0,000	3,649	1,113	0,697
MM_Ac	157	0	157	25,258	192,930	91,917	40,132
Avg_bus	157	0	157	2,078	18,605	7,835	5,251
Gov_debt	157	0	157	-7,800	6,700	-3,098	1,620
Cur_blc	157	0	157	-10,400	7,500	-0,900	4,517
Gov_close	157	0	157	0,370	19,180	4,043	2,243
Lab_comp	157	0	157	610,461	226177,244	23844,062	24198,108
Union	157	0	157	8,356	74,629	24,523	6,330
ML_barg	157	0	157	1,000	4,750	3,077	0,938
SHDI	157	0	157	0,766	0,905	0,845	0,041
SC_Org	157	0	157	0,038	0,209	0,118	0,046
EoC	157	0	157	46,900	100,000	65,393	15,386
Clu	157	0	157	0,360	31,000	3,155	3,611

Number of removed observations: 20

Summary statistics (Qualitative data):

Variable	Categories	Counts	Frequencies	%
NAT	AT	1	1	0,637
	BE	1	1	0,637
	DE	60	60	38,217
	EL	22	22	14,013
	ES	9	9	5,732
	FI	1	1	0,637
	FR	1	1	0,637
	IT	8	8	5,096
	NL	33	33	21,019
	PT	18	18	11,465
	UK	3	3	1,911
Urb_1	Urban	36	36	22,930
	Intermedia	66	66	42,038
	Rural	55	55	35,032
Shock	LIS	55	55	35,032
	NED	37	37	23,567
	NIS	65	65	41,401

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations from 2000-2003

Correlation matrix:

	Pop_age	Mig_net	Pop_work	Agri_EMP	Manu_EMP	Const_EMP	Serv_EMP	Pub_EMP	HHI	GDP_PC	GFCF_PC	PROD	RnD_GDP	RnD_EMP	MM_Ac	Avg_bus	Gov_debt	Cur_blc	Gov_close	Lab_comp	Union	ML_barg	SHDI	SC_Org	EoC	Clu	AT	BE	DE	EL	ES	FI	FR	IT	NL	PT	UK	Urban	Intermediate	Rural	LIS	NED	NIS	Rec_DL	Ret_Tra_4	Ret_Tra_8
Pop_age	**1**	0,061	-0,093	0,340	0,058	0,232	-0,397	-0,195	-0,109	-0,214	-0,291	-0,422	-0,108	-0,135	-0,397	0,004	-0,138	-0,512	-0,103	-0,140	0,092	-0,337	-0,371	-0,345	-0,009	-0,277	0,018	0,037	0,125	0,201	0,021	0,026	0,034	0,059	-0,463	0,293	-0,054	-0,488	-0,315	0,449	-0,023	-0,264	0,154	0,093	0,187	0,201
Mig_net	0,061	**1**	-0,031	0,088	-0,127	0,072	0,136	-0,161	0,060	0,041	-0,064	-0,097	-0,119	-0,052	-0,114	-0,206	0,011	-0,192	-0,240	0,006	-0,120	-0,024	-0,152	-0,111	-0,080	-0,095	-0,043	-0,031	-0,169	0,094	0,301	-0,069	-0,056	-0,089	-0,087	0,011	0,039	-0,014	0,107	-0,058	-0,024	-0,059	0,046	-0,287	-0,345	-0,395
Pop_work	-0,093	-0,031	**1**	-0,280	0,071	0,167	0,221	-0,121	-0,129	0,096	0,477	0,226	0,186	0,063	0,346	0,210	0,195	0,203	0,279	0,159	-0,236	0,087	0,358	0,253	0,237	-0,181	-0,186	-0,215	0,096	-0,475	-0,387	-0,170	-0,183	-0,501	0,231	0,187	0,213	0,088	-0,012	-0,039	-0,197	0,175	0,023	-0,301	-0,160	0,041
Agri_EMP	0,340	0,088	-0,280	**1**	-0,374	-0,010	-0,364	-0,366	-0,301	-0,378	-0,678	-0,676	-0,457	-0,251	-0,712	-0,587	-0,350	-0,669	-0,566	-0,353	0,275	0,068	-0,740	-0,663	-0,585	-0,151	0,031	0,028	-0,439	0,643	0,033	0,067	0,000	0,076	-0,256	0,308	-0,041	-0,486	-0,346	0,467	-0,021	-0,146	0,090	0,028	-0,007	-0,233
Manu_EMP	0,058	-0,127	0,071	-0,374	**1**	-0,148	-0,479	-0,406	0,343	0,118	0,125	0,138	0,494	0,348	0,226	0,672	-0,084	0,160	0,464	0,102	0,047	-0,400	0,324	0,276	0,472	-0,169	0,129	0,141	0,557	-0,252	-0,105	0,089	0,027	0,012	-0,264	0,070	-0,092	-0,035	0,191	-0,098	0,171	-0,124	-0,035	0,112	0,175	0,371
Const_EMP	0,232	0,072	0,167	-0,010	-0,148	**1**	-0,333	0,165	-0,432	-0,540	-0,108	-0,486	-0,259	-0,409	-0,308	-0,012	0,331	-0,430	0,075	-0,190	-0,081	-0,327	-0,355	-0,158	0,180	-0,099	0,045	0,068	0,225	-0,114	0,221	0,050	0,003	0,010	-0,281	0,271	-0,090	-0,264	-0,022	0,152	-0,361	-0,401	0,427	-0,328	-0,084	-0,044
Serv_EMP	-0,397	0,136	0,221	-0,364	-0,479	-0,333	**1**	0,148	0,067	0,514	0,509	0,630	0,053	0,139	0,534	-0,159	0,075	0,526	-0,112	0,329	-0,207	0,506	0,466	0,307	-0,115	0,068	-0,189	-0,197	-0,308	-0,124	-0,147	-0,213	-0,056	-0,189	0,566	-0,406	0,196	0,545	0,121	-0,360	-0,049	0,368	-0,167	-0,035	-0,182	-0,171
Pub_EMP	-0,195	-0,161	-0,121	-0,366	-0,406	0,165	0,148	**1**	0,025	-0,051	0,154	0,183	-0,085	-0,187	0,113	-0,035	0,394	0,254	0,184	-0,001	-0,162	0,059	0,111	0,194	0,139	0,509	-0,027	-0,047	0,016	-0,314	0,223	0,021	0,035	0,135	0,210	-0,175	-0,008	0,182	0,037	-0,118	0,022	0,155	-0,096	0,010	0,021	-0,016
HHI	-0,109	0,060	-0,129	-0,301	0,343	-0,432	0,067	0,025	**1**	0,650	0,140	0,368	0,512	0,458	0,279	0,292	-0,140	0,212	0,089	0,204	-0,112	-0,069	0,270	0,208	0,169	0,278	0,029	0,022	0,160	-0,051	0,032	-0,019	0,060	-0,083	-0,013	-0,112	-0,013	0,220	0,152	-0,208	0,183	0,030	-0,124	-0,012	-0,012	0,088
GDP_PC	-0,214	0,041	0,096	-0,378	0,118	-0,540	0,514	-0,051	0,650	**1**	0,463	0,647	0,510	0,535	0,566	0,202	-0,049	0,462	0,156	0,536	-0,181	0,162	0,512	0,366	0,099	0,033	-0,015	-0,005	0,011	-0,209	-0,056	-0,052	0,141	-0,110	0,259	-0,205	0,044	0,420	0,134	-0,303	0,201	0,234	-0,243	0,021	-0,060	0,007
GFCF_PC	-0,291	-0,064	0,477	-0,678	0,125	-0,108	0,509	0,154	0,140	0,463	**1**	0,779	0,559	0,416	0,741	0,431	0,355	0,744	0,537	0,478	-0,099	0,166	0,787	0,733	0,431	-0,036	0,026	0,006	0,312	-0,474	-0,178	0,002	0,085	-0,134	0,406	-0,407	0,032	0,356	0,189	-0,302	-0,054	0,160	-0,053	-0,023	-0,004	0,171
PROD	-0,422	-0,097	0,226	-0,676	0,138	-0,486	0,630	0,183	0,368	0,647	0,779	**1**	0,527	0,529	0,799	0,372	0,183	0,865	0,365	0,501	-0,146	0,279	0,880	0,693	0,317	0,098	-0,116	-0,099	0,118	-0,437	-0,186	-0,121	-0,033	-0,133	0,487	-0,516	0,145	0,526	0,185	-0,390	0,163	0,375	-0,296	0,063	-0,010	0,120
RnD_GDP	-0,108	-0,119	0,186	-0,457	0,494	-0,259	0,053	-0,085	0,512	0,510	0,559	0,527	**1**	0,836	0,506	0,609	0,097	0,471	0,496	0,366	-0,043	-0,130	0,605	0,550	0,456	-0,107	0,037	0,017	0,443	-0,289	-0,125	0,093	0,087	-0,083	0,074	-0,231	-0,035	0,189	0,173	-0,205	0,047	0,017	-0,037	0,092	0,117	0,208
RnD_EMP	-0,135	-0,052	0,063	-0,251	0,348	-0,409	0,139	-0,187	0,458	0,535	0,416	0,529	0,836	**1**	0,462	0,425	-0,109	0,368	0,279	0,492	-0,035	-0,041	0,547	0,414	0,224	-0,177	0,060	0,038	0,258	-0,046	-0,083	0,123	0,177	-0,070	0,083	-0,210	-0,067	0,172	0,076	-0,137	0,068	0,023	-0,052	0,110	0,058	0,099
MM_Ac	-0,397	-0,114	0,346	-0,712	0,226	-0,308	0,534	0,113	0,279	0,566	0,741	0,799	0,506	0,462	**1**	0,498	0,100	0,731	0,422	0,594	-0,255	0,163	0,845	0,628	0,385	-0,031	0,007	0,050	0,337	-0,451	-0,188	-0,042	0,105	-0,119	0,423	-0,311	-0,010	0,630	0,234	-0,474	0,059	0,252	-0,169	0,010	-0,039	0,104
Avg_bus	0,004	-0,206	0,210	-0,587	0,672	-0,012	-0,159	-0,035	0,292	0,202	0,431	0,372	0,609	0,425	0,498	**1**	0,125	0,367	0,640	0,216	-0,116	-0,497	0,627	0,608	0,854	-0,105	0,011	-0,021	0,862	-0,384	-0,161	-0,019	-0,020	-0,174	-0,225	-0,275	-0,005	0,041	0,130	-0,101	0,043	-0,223	0,093	0,144	0,295	0,492
Gov_debt	-0,138	0,011	0,195	-0,350	-0,084	0,331	0,075	0,394	-0,140	-0,049	0,355	0,183	0,097	-0,109	0,100	0,125	**1**	0,247	0,558	0,033	0,214	-0,200	0,185	0,339	0,487	0,142	-0,245	-0,243	0,037	-0,562	0,155	-0,032	-0,297	-0,170	-0,082	-0,337	0,320	0,062	0,081	-0,082	-0,060	-0,102	0,089	-0,077	0,055	0,018
Cur_blc	-0,512	-0,192	0,203	-0,669	0,160	-0,430	0,526	0,254	0,212	0,462	0,744	0,865	0,671	0,368	0,731	0,367	0,247	**1**	0,498	0,599	-0,014	0,000	0,846	0,789	0,674	0,122	0,063	0,075	0,177	-0,426	-0,132	0,111	0,058	0,048	0,643	-0,462	0,042	0,479	0,236	-0,396	0,172	0,470	-0,352	0,167	0,043	0,142
Gov_close	-0,103	-0,240	0,279	-0,566	0,464	0,075	-0,112	0,184	0,089	0,156	0,537	0,365	0,496	0,279	0,422	0,640	0,558	0,498	**1**	0,260	0,272	-0,359	0,525	0,565	0,664	-0,068	0,134	0,042	0,573	-0,591	-0,126	0,306	0,070	0,061	-0,078	-0,131	-0,041	0,074	0,073	-0,083	0,137	-0,032	-0,064	0,070	0,191	0,372
Lab_comp	-0,140	0,006	0,159	-0,353	0,102	-0,190	0,329	-0,001	0,204	0,536	0,478	0,501	0,366	0,492	0,594	0,216	0,033	0,299	0,260	**1**	-0,299	-0,043	0,432	0,214	0,160	-0,232	0,026	0,020	0,129	-0,290	0,061	0,019	0,373	0,020	0,091	-0,066	-0,043	0,405	0,063	-0,251	0,137	0,091	-0,129	-0,046	-0,115	-0,015
Union	0,092	-0,120	-0,236	0,275	0,047	-0,081	-0,207	-0,162	-0,112	-0,181	-0,099	-0,146	-0,043	-0,035	-0,255	-0,116	0,214	-0,014	0,272	-0,299	**1**	-0,083	-0,146	-0,120	-0,059	-0,153	-0,016	0,099	-0,098	0,225	-0,297	0,229	-0,192	0,221	-0,267	-0,196	0,104	-0,257	-0,174	0,241	0,012	-0,218	0,109	0,241	0,238	0,249
ML_barg	-0,337	-0,024	0,087	0,068	-0,400	-0,327	0,506	0,059	-0,069	0,162	0,166	0,279	-0,130	-0,041	0,163	-0,497	-0,200	0,400	-0,359	-0,043	-0,083	**1**	0,100	0,164	-0,656	0,178	0,247	0,296	-0,471	0,251	0,063	0,253	0,247	0,094	0,889	0,050	-0,310	0,310	0,052	-0,195	-0,029	0,569	-0,286	-0,038	-0,278	-0,351
SHDI	-0,371	-0,152	0,358	-0,740	0,324	-0,355	0,466	0,111	0,270	0,512	0,787	0,880	0,605	0,547	0,845	0,627	0,185	0,846	0,525	0,432	-0,146	0,100	**1**	0,806	0,541	-0,012	-0,078	-0,031	0,415	-0,466	-0,206	-0,050	-0,014	-0,184	0,382	-0,508	0,070	0,455	0,232	-0,381	0,070	0,224	-0,161	0,110	0,096	0,238
SC_Org	-0,345	-0,111	0,253	-0,663	0,276	-0,158	0,307	0,194	0,208	0,366	0,733	0,693	0,550	0,414	0,628	0,608	0,339	0,789	0,565	0,214	-0,120	0,164	0,806	**1**	0,526	0,152	0,184	0,173	0,510	-0,324	0,102	0,243	0,157	-0,151	0,437	-0,446	-0,189	0,270	0,274	-0,310	-0,008	0,147	-0,073	0,104	0,090	0,183
EoC	-0,009	-0,080	0,237	-0,585	0,472	0,180	-0,115	0,139	0,169	0,099	0,431	0,317	0,456	0,224	0,385	0,854	0,487	0,274	0,664	0,160	-0,059	-0,656	0,541	0,526	**1**	-0,042	-0,262	-0,295	0,710	-0,558	-0,111	-0,246	-0,303	-0,343	-0,402	-0,448	0,315	0,008	0,125	-0,081	-0,001	-0,317	0,170	0,078	0,307	0,419
Clu	-0,277	-0,095	-0,181	-0,151	-0,169	-0,099	0,068	0,509	0,278	0,033	-0,036	0,098	-0,107	-0,177	-0,031	-0,105	0,142	0,122	-0,068	-0,232	-0,153	0,178	-0,012	0,152	-0,042	**1**	0,035	0,021	-0,138	-0,055	0,271	0,030	-0,004	-0,121	0,199	-0,042	-0,023	0,098	0,080	-0,100	0,126	0,218	-0,190	-0,028	-0,096	-0,119
AT	0,018	-0,043	-0,186	0,031	0,129	0,045	-0,189	-0,027	0,029	-0,015	0,026	-0,116	0,037	0,060	0,007	0,011	-0,245	0,063	0,134	0,026	-0,016	0,247	-0,078	0,184	-0,262	0,035	**1**	0,748	0,287	0,341	0,450	0,748	0,748	0,467	0,308	0,362	-0,866	-0,013	0,052	-0,025	-0,006	0,033	-0,014	0,028	-0,102	-0,068
BE	0,037	-0,031	-0,215	0,028	0,141	0,068	-0,197	-0,047	0,022	-0,005	0,006	-0,099	0,017	0,038	0,050	-0,021	-0,243	0,075	0,042	0,020	0,099	0,296	-0,031	0,173	-0,295	0,021	0,748	**1**	0,287	0,341	0,450	0,748	0,748	0,467	0,308	0,362	-0,866	0,040	0,144	-0,109	-0,098	-0,018	0,067	0,018	-0,093	-0,077
DE	0,125	-0,169	0,096	-0,439	0,557	0,225	-0,308	0,016	0,160	0,011	0,312	0,118	0,443	0,258	0,337	0,862	0,037	0,177	0,573	0,129	-0,098	-0,471	0,415	0,510	0,710	-0,138	0,287	0,287	**1**	-0,126	0,037	0,287	0,287	0,055	-0,221	-0,085	-0,366	-0,034	0,154	-0,076	-0,132	-0,388	0,284	0,124	0,314	0,458
EL	0,201	0,094	-0,475	0,643	-0,252	-0,114	-0,124	-0,314	-0,051	-0,209	-0,474	-0,437	-0,289	-0,046	-0,451	-0,384	-0,562	-0,426	-0,591	-0,290	0,225	0,251	-0,466	-0,324	-0,558	-0,055	0,341	0,341	-0,126	**1**	0,139	0,341	0,341	0,153	-0,024	0,056	-0,411	-0,238	-0,102	0,188	-0,265	-0,290	0,311	0,223	0,103	-0,042
ES	0,021	0,301	-0,387	0,033	-0,105	0,221	-0,147	0,223	0,032	-0,056	-0,178	-0,186	-0,125	-0,083	-0,188	-0,161	0,155	-0,132	-0,126	0,061	-0,297	0,063	-0,206	0,102	-0,111	0,271	0,450	0,450	0,037	0,139	**1**	0,450	0,450	0,249	0,098	0,160	-0,529	0,022	0,148	-0,102	0,117	0,002	-0,070	-0,104	-0,223	-0,414
FI	0,026	-0,069	-0,170	0,067	0,089	0,050	-0,213	0,021	-0,019	-0,052	0,002	-0,121	0,093	0,123	-0,042	-0,019	-0,032	0,111	0,306	0,019	0,229	0,253	-0,050	0,243	-0,246	0,030	0,748	0,748	0,287	0,341	0,450	**1**	0,748	0,467	0,308	0,362	-0,866	-0,013	0,052	-0,025	-0,006	0,033	-0,014	0,069	-0,036	-0,033
FR	0,034	-0,056	-0,183	0,000	0,027	0,003	-0,056	0,035	0,060	0,141	0,085	-0,033	0,087	0,177	0,105	-0,020	-0,297	0,058	0,070	0,373	-0,192	0,247	-0,014	0,157	-0,303	-0,004	0,748	0,748	0,287	0,341	0,450	0,748	**1**	0,467	0,308	0,362	-0,866	0,094	0,098	-0,109	-0,098	-0,018	0,067	0,033	-0,071	0,049
IT	0,059	-0,089	-0,501	0,076	0,012	0,010	-0,189	0,135	-0,083	-0,110	-0,134	-0,133	-0,083	-0,070	-0,119	-0,174	-0,170	0,048	0,061	0,020	0,221	0,094	-0,184	-0,151	-0,343	-0,121	0,467	0,467	0,055	0,153	0,249	0,467	0,467	**1**	0,113	0,173	-0,548	0,020	0,046	-0,038	0,203	0,058	-0,151	0,109	0,020	0,016
NL	-0,463	-0,087	0,231	-0,256	-0,264	-0,281	0,566	0,210	-0,013	0,259	0,406	0,487	0,074	0,083	0,423	-0,225	-0,082	0,643	-0,078	0,091	-0,267	0,889	0,382	0,437	-0,402	0,199	0,308	0,308	-0,221	-0,024	0,098	0,308	0,308	0,113	**1**	0,006	-0,379	0,456	0,181	-0,350	-0,001	0,634	-0,336	-0,066	-0,266	-0,282
PT	0,293	0,011	0,187	0,308	0,070	0,271	-0,406	-0,175	-0,112	-0,205	-0,407	-0,516	-0,231	-0,210	-0,311	-0,275	-0,337	-0,492	-0,131	-0,066	-0,196	0,050	-0,508	-0,446	-0,448	-0,042	0,362	0,362	-0,085	0,056	0,160	0,362	0,362	0,173	0,006	**1**	-0,433	-0,172	-0,145	0,179	0,061	0,153	-0,118	-0,343	-0,345	-0,267
UK	-0,054	0,039	0,213	-0,041	-0,092	-0,090	0,196	-0,008	-0,013	0,044	0,032	0,145	-0,035	-0,067	-0,010	-0,005	0,320	-0,042	-0,041	-0,043	0,104	-0,310	0,070	-0,189	0,315	-0,023	-0,866	-0,866	-0,366	-0,411	-0,529	-0,866	-0,866	-0,548	-0,379	-0,433	**1**	-0,039	-0,117	0,093	0,064	-0,028	-0,023	-0,016	0,093	0,089
Urban	-0,488	-0,014	0,088	-0,486	-0,035	-0,264	0,545	0,182	0,220	0,420	0,356	0,526	0,189	0,172	0,630	0,041	0,062	0,479	0,074	0,405	-0,257	0,310	0,455	0,270	0,008	0,098	-0,013	0,040	-0,034	-0,238	0,022	-0,013	0,094	0,020	0,456	-0,172	-0,039	**1**	0,546	-0,859	0,105	0,341	-0,243	-0,022	-0,228	-0,171
Intermediate	-0,315	0,107	-0,012	-0,346	0,191	-0,022	0,121	0,037	0,152	0,134	0,189	0,185	0,173	0,076	0,234	0,130	0,081	0,236	0,073	0,063	-0,174	0,052	0,232	0,274	0,125	0,080	0,052	0,144	0,154	-0,102	0,148	0,052	0,098	0,046	0,181	-0,145	-0,117	0,546	**1**	-0,898	-0,053	0,018	0,021	0,085	-0,059	-0,072
Rural	0,449	-0,058	-0,039	0,467	-0,098	0,152	-0,360	-0,118	-0,208	-0,303	-0,302	-0,390	-0,205	-0,137	-0,474	-0,101	-0,082	-0,396	-0,083	-0,251	0,241	-0,195	-0,381	-0,310	-0,081	-0,100	-0,025	-0,109	-0,076	0,188	-0,102	-0,025	-0,109	-0,038	-0,350	0,179	0,093	-0,859	-0,898	**1**	-0,023	-0,190	0,115	-0,040	0,156	0,136
LIS	-0,023	-0,024	-0,197	-0,021	0,171	-0,361	-0,049	0,022	0,183	0,201	-0,054	0,163	0,047	0,068	0,059	0,043	-0,060	0,172	0,137	0,137	0,012	-0,029	0,070	-0,008	-0,001	0,126	-0,006	-0,098	-0,132	-0,265	0,117	-0,006	-0,098	0,203	-0,001	0,061	0,064	0,105	-0,053	-0,023	**1**	0,588	-0,903	0,057	-0,065	-0,063
NED	-0,264	-0,059	0,175	-0,146	-0,124	-0,401	0,368	0,155	0,030	0,234	0,160	0,375	0,017	0,023	0,252	-0,223	-0,102	0,470	-0,032	0,091	-0,218	0,569	0,224	0,147	-0,317	0,218	0,033	-0,018	-0,388	-0,290	0,002	0,033	-0,018	0,058	0,634	0,153	-0,028	0,341	0,018	-0,190	0,588	**1**	-0,879	-0,062	-0,283	-0,276
NIS	0,154	0,046	0,023	0,090	-0,035	0,427	-0,167	-0,096	-0,124	-0,243	-0,053	-0,296	-0,037	-0,052	-0,169	0,093	0,089	-0,352	-0,064	-0,129	0,109	-0,286	-0,161	-0,073	0,170	-0,190	-0,014	0,067	0,284	0,311	-0,070	-0,014	0,067	-0,151	-0,336	-0,118	-0,023	-0,243	0,021	0,115	-0,903	-0,879	**1**	0,000	0,189	0,185
Rec_DL	0,093	-0,287	-0,301	0,028	0,112	-0,328	-0,035	0,010	-0,012	0,021	-0,023	0,063	0,092	0,110	0,010	0,144	-0,077	0,167	0,070	-0,046	0,241	-0,038	0,110	0,104	0,078	-0,028	0,028	0,018	0,124	0,223	-0,104	0,069	0,033	0,109	-0,066	-0,343	-0,016	-0,022	0,085	-0,040	0,057	-0,062	0,000	**1**	0,648	0,495
Ret_Tra_4	0,187	-0,345	-0,160	-0,007	0,175	-0,084	-0,182	0,021	-0,012	-0,060	-0,004	-0,010	0,117	0,058	-0,039	0,295	0,055	0,043	0,191	-0,115	0,238	-0,278	0,096	0,090	0,307	-0,096	-0,102	-0,093	0,314	0,103	-0,223	-0,036	-0,071	0,020	-0,266	-0,345	0,093	-0,228	-0,059	0,156	-0,065	-0,283	0,189	0,648	**1**	0,716
Ret_Tra_8	0,201	-0,395	0,041	-0,233	0,371	-0,044	-0,171	-0,016	0,088	0,007	0,171	0,120	0,208	0,099	0,104	0,492	0,018	0,142	0,372	-0,015	0,249	-0,351	0,238	0,183	0,419	-0,119	-0,068	-0,077	0,458	-0,042	-0,414	-0,033	-0,049	0,016	-0,282	-0,267	0,089	-0,171	-0,072	0,136	-0,063	-0,276	0,185	0,495	0,716	**1**

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations from 2000-2003 - Recovery of development level

Summary of the variables selection Rec_DL:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R²	Adjusted R²	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	NAT	NAT	IN	0,010	0,241	0,189	54,826	-711,777	-678,158	0,873
2	Mig_net / NAT	Mig_net	IN	0,009	0,304	0,251	41,255	-723,214	-686,540	0,812
3	Mig_net / Const_EMP / NAT	Const_EMI	IN	0,009	0,359	0,306	29,341	-734,279	-694,548	0,757
4	Mig_net / Const_EMP / HHI / NAT	HHI	IN	0,008	0,390	0,334	23,721	-739,923	-697,136	0,730
5	Pop_age / Mig_net / Const_EMP / HHI / NAT	Pop_age	IN	0,008	0,410	0,352	20,664	-743,211	-697,367	0,715
6	Pop_age / Mig_net / Const_EMP / HHI / NAT / Urb_1	Urb_1	IN	0,008	0,438	0,374	17,537	-746,977	-695,021	0,698

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations from 2000-2003 - Recovery of development level

Goodness of fit statistics (Rec_DL):

Observations	157
Sum of weights	157
DF	140
R²	0,438
Adjusted R²	0,374
MSE	0,008
RMSE	0,088
MAPE	167,736
DW	1,823
Cp	17,537
AIC	-746,977
SBC	-695,021
PC	0,698
Press	1,353
Q²	0,300

Analysis of variance (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	16	0,847	0,053	6,828	**<0,0001**
Error	140	1,085	0,008		
Corrected	156	1,932			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations from 2000-2003 - Recovery of development level

Type I Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,017	0,017	2,165	0,143
Mig_net	1,000	0,166	0,166	21,378	0,000
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	1,000	0,227	0,227	29,329	0,000
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	1,000	0,039	0,039	5,023	0,027
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	10,000	0,343	0,034	4,425	0,000
Urb_1	2,000	0,055	0,028	3,550	0,031
NORM_SH	0,000	0,000			

Type II Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,056	0,056	7,200	0,008
Mig_net	1,000	0,128	0,128	16,553	0,000
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EM	0,000	0,000			
Const_EM	1,000	0,171	0,171	22,111	0,000
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	1,000	0,055	0,055	7,140	0,008
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	10,000	0,290	0,029	3,744	0,000
Urb_1	2,000	0,055	0,028	3,550	0,031
NORM_SI	0,000	0,000			

Type III Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,056	0,056	7,200	0,008
Mig_net	1,000	0,128	0,128	16,553	0,000
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EM	0,000	0,000			
Const_EM	1,000	0,171	0,171	22,111	0,000
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	1,000	0,055	0,055	7,140	0,008
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	10,000	0,290	0,029	3,744	0,000
Urb_1	2,000	0,055	0,028	3,550	0,031
NORM_SI	0,000	0,000			

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations from 2000-2003 - Recovery of development level

Model parameters (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,021	0,072	0,295	0,768	-0,121	0,164
Pop_age	0,075	0,028	2,705	**0,008**	0,020	0,129
Mig_net	-0,004	0,001	-3,023	**0,003**	-0,006	-0,001
Pop_work	0,000	0,000				
Agri_EMP	0,000	0,000				
Manu_EMP	0,000	0,000				
Const_EMP	-1,154	0,253	-4,555	**<0,0001**	-1,655	-0,653
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	-0,491	0,188	-2,612	**0,010**	-0,862	-0,119
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	0,034	0,014	2,389	**0,018**	0,006	0,062
BE	-0,018	0,011	-1,681	0,095	-0,039	0,003
DE	0,010	0,011	0,871	0,385	-0,012	0,031
EL	0,035	0,018	1,913	0,058	-0,001	0,071
ES	0,011	0,044	0,249	0,804	-0,076	0,098
FI	0,101	0,016	6,211	**<0,0001**	0,069	0,133
FR	-0,014	0,017	-0,792	0,429	-0,048	0,021
IT	0,013	0,019	0,683	0,496	-0,025	0,052
NL	-0,040	0,019	-2,107	**0,037**	-0,078	-0,002
PT	-0,113	0,026	-4,383	**<0,0001**	-0,164	-0,062
UK	-0,019	0,025	-0,768	0,444	-0,068	0,030
Urban	-0,007	0,013	-0,570	0,570	-0,032	0,018
Intermediate	0,026	0,010	2,590	**0,011**	0,006	0,046
Rural	-0,019	0,013	-1,516	0,132	-0,044	0,006
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,222	0,082	2,705	**0,008**	0,060	0,384
Mig_net	-0,289	0,096	-3,023	**0,003**	-0,479	-0,100
Pop_work	0,000	0,000				
Agri_EMP	0,000	0,000				
Manu_EM	0,000	0,000				
Const_EM	-0,416	0,091	-4,555	**<0,0001**	-0,597	-0,235
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	-0,210	0,080	-2,612	**0,010**	-0,368	-0,051
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	0,049	0,020	2,389	**0,018**	0,008	0,089
BE	-0,026	0,015	-1,681	0,095	-0,056	0,005
DE	0,045	0,052	0,871	0,385	-0,057	0,147
EL	0,120	0,063	1,913	0,058	-0,004	0,245
ES	0,027	0,109	0,249	0,804	-0,188	0,242
FI	0,145	0,023	6,211	**<0,0001**	0,099	0,191
FR	-0,020	0,025	-0,792	0,429	-0,069	0,030
IT	0,031	0,046	0,683	0,496	-0,060	0,123
NL	-0,160	0,076	-2,107	**0,037**	-0,310	-0,010
PT	-0,359	0,082	-4,383	**<0,0001**	-0,521	-0,197
UK	-0,024	0,031	-0,768	0,444	-0,084	0,037
Urban	-0,049	0,086	-0,570	0,570	-0,219	0,121
Intermedia	0,207	0,080	2,590	**0,011**	0,049	0,365
Rural	-0,082	0,054	-1,516	0,132	-0,189	0,025
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations from 2000-2003 - Retention of growth trajectory (4 year recovery period)

Summary of the variables selection Ret_Tra_4:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	NAT	NAT	IN	0,000	0,321	0,274	34,877	-1222,534	-1188,916	0,781
2	Mig_net / NAT	Mig_net	IN	0,000	0,396	0,350	18,193	-1238,827	-1202,152	0,704
3	Pop_age / Mig_net / NAT	Pop_age	IN	0,000	0,421	0,373	13,914	-1243,487	-1203,756	0,684
4	Pop_age / Mig_net / GFCF_PC / NAT	GFCF_PC	IN	0,000	0,441	0,390	10,974	-1246,932	-1204,144	0,669

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations from 2000-2003 - Retention of growth trajectory (4 year recovery period)

Goodness of fit statistics (Ret_Tra_4):

Observations	157
Sum of weights	157
DF	143
R^2	0,441
Adjusted R^2	0,390
MSE	0,000
RMSE	0,018
MAPE	165,243
DW	1,891
Cp	10,974
AIC	-1246,932
SBC	-1204,144
PC	0,669
Press	0,059
Q^2	0,288

Analysis of variance (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	13	0,037	0,003	8,661	**<0,0001**
Error	143	0,047	0,000		
Corrected	156	0,083			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations from 2000-2003 - Retention of growth trajectory (4 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,003	0,003	8,950	0,003
Mig_net	1,000	0,011	0,011	32,557	0,000
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	1,000	0,000	0,000	0,316	0,575
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	10,000	0,023	0,002	7,077	0,000
Urb_1	0,000	0,000			
NORM_SH	0,000	0,000			

Type II Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,003	0,003	8,865	0,003
Mig_net	1,000	0,004	0,004	12,516	0,001
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EM	0,000	0,000			
Const_EM	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	1,000	0,002	0,002	5,046	0,026
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	10,000	0,023	0,002	7,077	0,000
Urb_1	0,000	0,000			
NORM_SI	0,000	0,000			

Type III Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,003	0,003	8,865	0,003
Mig_net	1,000	0,004	0,004	12,516	0,001
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EM	0,000	0,000			
Const_EM	0,000	0,000			
Serv_EMF	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	1,000	0,002	0,002	5,046	0,026
PROD	0,000	0,000			
RnD_GDF	0,000	0,000			
RnD_EMF	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	10,000	0,023	0,002	7,077	0,000
Urb_1	0,000	0,000			
NORM_SI	0,000	0,000			

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations from 2000-2003 - Retention of growth trajectory (4 year recovery period)

Model parameters (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,032	0,007	-4,569	**<0,0001**	-0,046	-0,018
Pop_age	0,017	0,006	2,544	**0,012**	0,004	0,029
Mig_net	-0,001	0,000	-2,766	**0,006**	-0,001	0,000
Pop_work	0,000	0,000				
Agri_EMP	0,000	0,000				
Manu_EMP	0,000	0,000				
Const_EMP	0,000	0,000				
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	-0,008	0,003	-2,332	**0,021**	-0,015	-0,001
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	-0,004	0,004	-0,947	0,345	-0,012	0,004
BE	-0,003	0,003	-1,000	0,319	-0,008	0,003
DE	0,009	0,003	3,181	**0,002**	0,003	0,014
EL	-0,004	0,007	-0,545	0,587	-0,018	0,010
ES	-0,018	0,011	-1,741	0,084	-0,039	0,002
FI	0,025	0,003	8,194	**<0,0001**	0,019	0,031
FR	0,020	0,008	2,470	**0,015**	0,004	0,036
IT	-0,002	0,006	-0,324	0,747	-0,013	0,009
NL	-0,004	0,004	-0,928	0,355	-0,012	0,004
PT	-0,037	0,007	-5,471	**<0,0001**	-0,051	-0,024
UK	0,018	0,014	1,291	0,199	-0,010	0,045
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,236	0,093	2,544	**0,012**	0,053	0,420
Mig_net	-0,257	0,093	-2,766	**0,006**	-0,441	-0,073
Pop_work	0,000	0,000				
Agri_EMP	0,000	0,000				
Manu_EM	0,000	0,000				
Const_EM	0,000	0,000				
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	-0,300	0,128	-2,332	**0,021**	-0,554	-0,046
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMF	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	-0,027	0,029	-0,947	0,345	-0,083	0,029
BE	-0,018	0,018	-1,000	0,319	-0,054	0,018
DE	0,195	0,061	3,181	**0,002**	0,074	0,316
EL	-0,064	0,118	-0,545	0,587	-0,298	0,169
ES	-0,218	0,125	-1,741	0,084	-0,465	0,030
FI	0,173	0,021	8,194	**<0,0001**	0,131	0,215
FR	0,138	0,056	2,470	**0,015**	0,028	0,248
IT	-0,021	0,065	-0,324	0,747	-0,150	0,108
NL	-0,071	0,077	-0,928	0,355	-0,223	0,081
PT	-0,570	0,104	-5,471	**<0,0001**	-0,776	-0,364
UK	0,106	0,082	1,291	0,199	-0,056	0,269
Urban	0,000	0,000				
Intermedia	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations from 2000-2003 - Retention of growth trajectory (8 year recovery period)

Summary of the variables selection Ret_Tra_8:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	NAT	NAT	IN	0,000	0,479	0,441	44,415	-1236,743	-1203,774	0,605
2	Mig_net / NAT	Mig_net	IN	0,000	0,539	0,502	26,839	-1252,802	-1216,836	0,543
3	Mig_net / Agri_EMP / NAT	Agri_EMP	IN	0,000	0,558	0,519	22,521	-1257,135	-1218,171	0,527
4	Pop_age / Mig_net / Agri_EMP / NAT	Pop_age	IN	0,000	0,576	0,535	18,551	-1261,379	-1219,418	0,512

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations from 2000-2003 - Retention of growth trajectory (8 year recovery period)

Goodness of fit statistics (Ret_Tra_8):

Observations	148
Sum of weights	148
DF	134
R^2	0,576
Adjusted R^2	0,535
MSE	0,000
RMSE	0,013
MAPE	141,151
DW	1,928
Cp	18,551
AIC	-1261,379
SBC	-1219,418
PC	0,512
Press	0,031
Q^2	0,457

Analysis of variance (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	13	0,033	0,003	14,025	**<0,0001**
Error	134	0,024	0,000		
Corrected	147	0,058			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations from 2000-2003 - Retention of growth trajectory (8 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,002	0,002	12,794	0,000
Mig_net	1,000	0,009	0,009	51,008	0,000
Pop_work	0,000	0,000			
Agri_EMP	1,000	0,004	0,004	20,449	0,000
Manu_EMP	0,000	0,000			
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	10,000	0,018	0,002	9,808	0,000
Urb_1	0,000	0,000			
NORM_SH	0,000	0,000			

Type II Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,001	0,001	5,774	0,018
Mig_net	1,000	0,004	0,004	20,208	0,000
Pop_work	0,000	0,000			
Agri_EMP	1,000	0,001	0,001	6,815	0,010
Manu_EM	0,000	0,000			
Const_EM	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMF	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	10,000	0,018	0,002	9,808	0,000
Urb_1	0,000	0,000			
NORM_SI	0,000	0,000			

Type III Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,001	0,001	5,774	0,018
Mig_net	1,000	0,004	0,004	20,208	0,000
Pop_work	0,000	0,000			
Agri_EMP	1,000	0,001	0,001	6,815	0,010
Manu_EM	0,000	0,000			
Const_EM	0,000	0,000			
Serv_EMF	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDF	0,000	0,000			
RnD_EMF	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	10,000	0,018	0,002	9,808	0,000
Urb_1	0,000	0,000			
NORM_SI	0,000	0,000			

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations from 2000-2003 - Retention of growth trajectory (8 year recovery period)

Model parameters (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,021	0,005	-3,957	**0,000**	-0,032	-0,011
Pop_age	0,010	0,005	2,156	**0,033**	0,001	0,020
Mig_net	-0,001	0,000	-4,235	**<0,0001**	-0,001	0,000
Pop_work	0,000	0,000				
Agri_EMP	-0,057	0,029	-1,994	**0,048**	-0,113	0,000
Manu_EMP	0,000	0,000				
Const_EMP	0,000	0,000				
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	0,003	0,002	1,533	0,128	-0,001	0,007
BE	-0,002	0,002	-0,904	0,368	-0,005	0,002
DE	0,005	0,003	1,833	0,069	0,000	0,011
EL	0,009	0,006	1,577	0,117	-0,002	0,020
ES	-0,030	0,007	-4,354	**<0,0001**	-0,044	-0,017
FI	0,020	0,003	6,620	**<0,0001**	0,014	0,026
FR	0,004	0,003	1,240	0,217	-0,002	0,011
IT	0,005	0,004	1,157	0,249	-0,003	0,013
NL	-0,012	0,003	-3,697	**0,000**	-0,019	-0,006
PT	-0,014	0,004	-3,614	**0,000**	-0,022	-0,007
UK	0,012	0,015	0,822	0,413	-0,017	0,041
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,170	0,079	2,156	**0,033**	0,014	0,325
Mig_net	-0,274	0,065	-4,235	**<0,0001**	-0,402	-0,146
Pop_work	0,000	0,000				
Agri_EMP	-0,292	0,146	-1,994	**0,048**	-0,581	-0,002
Manu_EM	0,000	0,000				
Const_EM	0,000	0,000				
Serv_EMF	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDF	0,000	0,000				
RnD_EMF	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	0,026	0,017	1,533	0,128	-0,007	0,059
BE	-0,013	0,015	-0,904	0,368	-0,042	0,016
DE	0,147	0,080	1,833	0,069	-0,012	0,305
EL	0,171	0,108	1,577	0,117	-0,043	0,385
ES	-0,416	0,096	-4,354	**<0,0001**	-0,605	-0,227
FI	0,169	0,025	6,620	**<0,0001**	0,118	0,219
FR	0,034	0,027	1,240	0,217	-0,020	0,088
IT	0,058	0,050	1,157	0,249	-0,041	0,156
NL	-0,282	0,076	-3,697	**0,000**	-0,433	-0,131
PT	-0,241	0,067	-3,614	**0,000**	-0,373	-0,109
UK	0,086	0,105	0,822	0,413	-0,121	0,294
Urban	0,000	0,000				
Intermedia	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

III.b.ii.4. Observations from 2008-2009

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations from 2008-2009

Settings:
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Model selection: Stepwise
Probability for entry: 0,05 / Probability for removal: 0,1
Covariances: Corrections = Newey West (adjusted)(Lag = 1)
Use least squares means: Yes
Explanation of the variable codes can be found in table 28

Summary statistics (Quantitative data):

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Rec_DL	247	0	247	-0,391	0,053	-0,089	0,077
Ret_Tra_4	247	0	247	-0,065	0,035	-0,003	0,016
Ret_Tra_8	247	198	49	-0,027	0,030	0,003	0,012
Pop_age	247	0	247	0,461	2,515	1,226	0,399
Mig_net	247	0	247	-6,608	25,623	3,193	4,088
Pop_work	247	0	247	0,320	0,564	0,481	0,047
Agri_EMP	247	0	247	0,000	0,324	0,041	0,053
Manu_EMP	247	0	247	0,033	0,483	0,161	0,085
Const_EMP	247	0	247	0,033	0,184	0,079	0,021
Serv_EMP	247	0	247	0,200	0,656	0,411	0,081
Pub_EMP	247	0	247	0,167	0,527	0,309	0,063
HHI	247	0	247	0,186	0,341	0,234	0,025
GDP_PC	247	0	247	-0,949	3,490	-0,085	0,485
GFCF_PC	247	0	247	-1,566	2,328	-0,155	0,814
PROD	247	0	247	-2,439	2,834	-0,298	0,835
RnD_GDP	247	0	247	0,170	5,900	1,815	1,265
RnD_EMP	247	0	247	0,223	4,938	1,631	0,802
MM_Ac	247	0	247	26,283	174,165	93,796	31,698
Avg_bus	247	0	247	2,078	17,250	6,774	3,510
Gov_debt	247	0	247	-15,100	-0,700	-6,851	3,750
Cur_blc	247	0	247	-14,500	6,000	-1,964	4,465
Gov_close	247	0	247	0,370	31,490	7,141	7,646
Lab_comp	247	0	247	540,731	271583,242	30648,422	31652,577
Union	247	0	247	7,926	68,923	35,634	15,365
ML_barg	247	0	247	1,000	4,750	1,993	0,818
SHDI	247	0	247	0,792	0,930	0,880	0,027
SC_Org	247	0	247	0,037	0,286	0,090	0,053
EoC	247	0	247	46,900	100,000	76,867	21,244
Clu	247	0	247	0,360	31,000	3,026	4,107

Number of removed observations: 35

Summary statistics (Qualitative data):

Variable	Categories	Counts	Frequencies	%
NAT	AT	2	2	0,810
	DE	16	16	6,478
	DK	11	11	4,453
	EL	12	12	4,858
	ES	5	5	2,024
	FI	16	16	6,478
	FR	1	1	0,405
	IT	63	63	25,506
	PT	9	9	3,644
	SE	17	17	6,883
	UK	95	95	38,462
Urb_1	Urban	111	111	44,939
	Intermedia	90	90	36,437
	Rural	46	46	18,623
Shock	LIS	37	37	14,980
	NED	194	194	78,543
	NIS	16	16	6,478

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations from 2008-2009

Correlation matrix:

	Pop_age	Mig_net	Pop_work	Agri_EMP	Manu_EMP	Const_EMP	Serv_EMP	Pub_EMP	HHI	GDP_PC	GFCF_PC	PROD	RnD_GDP	RnD_EMP	MM_Ac	Avg_bus	Gov_debt	Cur_blc	Gov_close	Lab_comp	Union	ML_barg	SHDI	SC_Org	EoC	Clu	AT	DE	DK	EL	ES	FI	FR	IT	PT	SE	UK	Urban	Intermediate	Rural	LIS	NED	NIS	Rec_DL	Ret_Tra_4	Ret_Tra_8
Pop_age	**1**	-0,004	-0,320	0,394	0,251	0,077	-0,402	-0,180	-0,303	-0,111	-0,062	-0,077	-0,219	-0,138	-0,221	-0,383	0,228	-0,027	-0,137	0,111	-0,010	0,534	-0,213	0,029	-0,633	-0,216	0,516	0,459	0,388	0,486	0,480	0,399	0,502	0,630	0,514	0,426	-0,521	-0,395	-0,013	0,263	0,090	-0,133	0,048	-0,244	-0,266	-0,411
Mig_net	-0,004	**1**	0,091	-0,081	-0,277	0,141	0,340	-0,044	0,108	0,203	0,116	0,063	-0,064	-0,030	0,116	-0,207	-0,029	-0,213	-0,106	0,063	-0,043	-0,055	-0,002	-0,128	0,002	0,003	-0,130	-0,228	-0,117	-0,130	-0,032	-0,128	-0,125	0,016	-0,131	-0,099	0,114	0,091	0,176	-0,167	-0,153	0,137	-0,013	-0,114	-0,078	0,182
Pop_work	-0,320	0,091	**1**	-0,226	0,034	-0,210	0,171	-0,004	0,096	0,266	0,394	0,256	0,437	0,340	0,191	0,454	-0,067	0,196	0,274	-0,070	0,108	-0,376	0,498	0,241	0,543	0,208	-0,296	-0,199	-0,200	-0,348	-0,301	-0,237	-0,310	-0,557	-0,211	-0,178	0,315	0,029	-0,032	0,001	-0,171	0,057	0,062	0,336	0,268	0,487
Agri_EMP	0,394	-0,081	-0,226	**1**	-0,077	0,257	-0,489	-0,200	-0,256	-0,326	-0,232	-0,467	-0,236	-0,221	-0,649	-0,457	-0,078	-0,380	-0,054	-0,194	0,095	0,452	-0,588	-0,005	-0,438	-0,083	0,332	0,217	0,274	0,450	0,334	0,325	0,325	0,229	0,435	0,254	-0,336	-0,612	-0,265	0,559	0,094	-0,175	0,079	-0,390	-0,104	-0,275
Manu_EMP	0,251	-0,277	0,034	-0,077	**1**	-0,165	-0,569	-0,493	-0,081	0,057	0,142	0,228	0,142	0,120	0,166	0,190	0,408	0,413	0,058	0,317	0,000	0,373	0,196	0,329	-0,296	-0,127	0,462	0,609	0,353	0,355	0,376	0,390	0,434	0,394	0,404	0,387	-0,447	-0,126	0,145	-0,009	0,185	-0,464	0,248	0,172	0,001	-0,039
Const_EMP	0,077	0,141	-0,210	0,257	-0,165	**1**	-0,097	-0,202	-0,343	-0,389	-0,330	-0,406	-0,299	-0,360	-0,301	-0,323	-0,100	-0,401	-0,224	-0,120	-0,123	0,100	-0,497	-0,246	-0,183	-0,078	0,021	-0,081	-0,025	0,029	0,135	0,014	0,017	0,098	0,118	-0,025	-0,034	-0,166	0,059	0,071	-0,182	-0,139	0,220	-0,351	-0,116	-0,378
Serv_EMP	-0,402	0,340	0,171	-0,489	-0,569	-0,097	**1**	-0,075	0,320	0,374	0,020	0,091	0,014	0,065	0,536	0,220	-0,492	-0,289	-0,304	0,092	-0,362	-0,556	0,252	-0,452	0,412	-0,029	-0,583	-0,582	-0,507	-0,517	-0,544	-0,577	-0,551	-0,423	-0,595	-0,605	0,585	0,572	0,053	-0,402	-0,178	0,312	-0,134	0,031	0,138	0,154
Pub_EMP	-0,180	-0,044	-0,004	-0,200	-0,493	-0,202	-0,075	**1**	0,028	-0,152	0,090	0,107	0,090	0,062	-0,265	-0,044	0,183	0,273	0,434	-0,341	0,428	-0,202	0,074	0,226	0,299	0,305	-0,159	-0,227	-0,047	-0,204	-0,135	-0,062	-0,155	-0,213	-0,187	0,051	0,146	0,006	-0,058	0,032	-0,039	0,418	-0,302	0,176	-0,053	0,025
HHI	-0,303	0,108	0,096	-0,256	-0,081	-0,343	0,320	0,028	**1**	0,337	0,031	0,104	0,038	0,121	0,314	0,260	-0,230	-0,102	-0,145	0,107	-0,274	-0,106	0,194	-0,051	0,160	0,109	-0,125	-0,027	-0,111	-0,045	-0,119	-0,175	-0,112	-0,228	-0,150	-0,187	0,142	0,288	-0,049	-0,155	0,096	-0,079	0,002	0,216	0,259	0,264
GDP_PC	-0,111	0,203	0,266	-0,326	0,057	-0,389	0,374	-0,152	0,337	**1**	0,624	0,595	0,323	0,419	0,359	0,013	0,230	0,276	0,224	0,446	0,140	0,074	0,433	0,256	-0,048	0,121	0,138	0,117	0,166	0,059	0,101	0,138	0,189	0,114	0,061	0,139	-0,131	0,120	0,078	-0,126	-0,116	-0,050	0,111	0,152	0,007	0,185
GFCF_PC	-0,062	0,116	0,394	-0,232	0,142	-0,330	0,020	0,090	0,031	0,624	**1**	0,790	0,582	0,655	0,080	0,037	0,509	0,569	0,580	0,250	0,483	0,152	0,571	0,577	0,004	0,155	0,264	0,240	0,345	0,145	0,213	0,303	0,274	0,142	0,134	0,342	-0,255	-0,109	0,049	0,040	-0,021	-0,018	0,027	0,196	-0,096	0,246
PROD	-0,077	0,063	0,256	-0,467	0,228	-0,406	0,091	0,107	0,104	0,595	0,790	**1**	0,584	0,646	0,394	0,238	0,577	0,700	0,531	0,417	0,346	0,088	0,729	0,524	0,075	0,133	0,217	0,302	0,331	0,056	0,182	0,257	0,240	0,168	0,050	0,241	-0,219	0,094	0,100	-0,122	0,111	-0,031	-0,044	0,276	-0,111	0,294
RnD_GDP	-0,219	-0,064	0,437	-0,236	0,142	-0,299	0,014	0,090	0,038	0,323	0,582	0,584	**1**	0,775	0,228	0,295	0,336	0,510	0,467	0,060	0,339	-0,016	0,548	0,485	0,235	0,254	0,083	0,173	0,141	-0,024	0,035	0,188	0,076	-0,131	0,031	0,141	-0,070	0,083	-0,016	-0,043	0,081	0,012	-0,060	0,357	0,118	0,321
RnD_EMP	-0,138	-0,030	0,340	-0,221	0,120	-0,360	0,065	0,062	0,121	0,419	0,655	0,646	0,775	**1**	0,228	0,176	0,276	0,365	0,461	0,220	0,345	0,121	0,493	0,410	0,056	0,043	0,181	0,202	0,280	0,114	0,130	0,244	0,186	0,001	0,128	0,170	-0,170	0,090	-0,026	-0,042	-0,021	0,008	0,007	0,205	0,064	0,247
MM_Ac	-0,221	0,116	0,191	-0,649	0,166	-0,301	0,536	-0,265	0,314	0,359	0,080	0,394	0,228	0,228	**1**	0,539	-0,123	0,155	-0,267	0,466	-0,449	-0,347	0,535	-0,237	0,288	-0,101	-0,300	-0,104	-0,277	-0,351	-0,329	-0,388	-0,280	-0,158	-0,358	-0,352	0,306	0,617	0,107	-0,465	0,096	-0,015	-0,047	0,358	0,231	0,231
Avg_bus	-0,383	-0,207	0,454	-0,457	0,190	-0,323	0,220	-0,044	0,260	0,013	0,037	0,238	0,295	0,176	0,539	**1**	-0,175	0,298	-0,134	-0,009	-0,421	-0,599	0,607	-0,033	0,726	0,051	-0,509	-0,168	-0,461	-0,557	-0,528	-0,503	-0,527	-0,608	-0,536	-0,507	0,530	0,405	-0,022	-0,247	0,278	-0,006	-0,167	0,419	0,196	0,145
Gov_debt	0,228	-0,029	-0,067	-0,078	0,408	-0,100	-0,492	0,183	-0,230	0,230	0,509	0,577	0,336	0,276	-0,123	-0,175	**1**	0,781	0,663	0,194	0,602	0,554	0,202	0,744	-0,339	0,108	0,662	0,664	0,672	0,410	0,655	0,685	0,664	0,589	0,547	0,742	-0,675	-0,307	0,158	0,100	0,166	-0,228	0,075	0,134	-0,229	0,035
Cur_blc	-0,027	-0,213	0,196	-0,380	0,413	-0,401	-0,289	0,273	-0,102	0,276	0,569	0,700	0,510	0,365	0,155	0,298	0,781	**1**	0,670	0,083	0,496	0,102	0,660	0,718	0,127	0,154	0,300	0,432	0,350	0,067	0,208	0,328	0,290	0,175	0,133	0,445	-0,291	-0,069	0,118	-0,028	0,211	-0,032	-0,105	0,429	-0,088	0,179
Gov_close	-0,137	-0,106	0,274	-0,054	0,058	-0,224	-0,304	0,434	-0,145	0,224	0,580	0,531	0,467	0,461	-0,267	-0,134	0,663	0,670	**1**	-0,134	0,904	0,279	0,290	0,764	0,004	0,264	0,383	0,301	0,591	0,258	0,339	0,494	0,382	0,127	0,309	0,516	-0,389	-0,312	-0,004	0,204	-0,049	0,108	-0,055	0,151	-0,047	0,118
Lab_comp	0,111	0,063	-0,070	-0,194	0,317	-0,120	0,092	-0,341	0,107	0,446	0,250	0,417	0,060	0,220	0,466	-0,009	0,194	0,083	-0,134	**1**	-0,196	0,232	0,201	-0,032	-0,319	-0,240	0,242	0,280	0,202	0,180	0,238	0,159	0,315	0,374	0,205	0,145	-0,256	0,175	0,070	-0,156	0,001	-0,332	0,259	-0,010	-0,009	0,152
Union	-0,010	-0,043	0,108	0,095	0,000	-0,123	-0,362	0,428	-0,274	0,140	0,483	0,346	0,339	0,345	-0,449	-0,421	0,602	0,496	0,904	-0,196	**1**	0,384	0,077	0,710	-0,177	0,220	0,428	0,249	0,558	0,358	0,371	0,607	0,426	0,251	0,383	0,581	-0,447	-0,390	-0,025	0,267	-0,105	0,194	-0,087	0,041	-0,147	0,020
ML_barg	0,534	-0,055	-0,376	0,452	0,373	0,100	-0,556	-0,202	-0,106	0,074	0,152	0,088	-0,016	0,121	-0,347	-0,599	0,554	0,102	0,279	0,232	0,384	**1**	-0,328	0,422	-0,901	-0,078	0,944	0,845	0,878	0,941	0,927	0,878	0,952	0,848	0,926	0,840	-0,962	-0,449	0,065	0,250	0,126	-0,364	0,206	-0,296	-0,131	-0,136
SHDI	-0,213	-0,002	0,498	-0,588	0,196	-0,497	0,252	0,074	0,194	0,433	0,571	0,729	0,548	0,493	0,535	0,607	0,202	0,600	0,290	0,201	0,077	-0,328	**1**	0,349	0,494	0,052	-0,217	-0,009	-0,119	-0,286	-0,267	-0,138	-0,206	-0,284	-0,376	-0,152	0,222	0,251	0,061	-0,200	0,163	0,113	-0,189	0,393	0,004	0,356
SC_Org	0,029	-0,128	0,241	-0,005	0,329	-0,246	-0,452	0,226	-0,051	0,256	0,577	0,524	0,485	0,410	-0,237	-0,033	0,744	0,718	0,764	-0,032	0,710	0,422	0,349	**1**	-0,103	0,256	0,537	0,568	0,553	0,417	0,517	0,689	0,534	0,225	0,424	0,638	-0,538	-0,355	0,009	0,224	0,105	-0,125	0,033	0,173	-0,080	0,084
EoC	-0,633	0,002	0,543	-0,438	-0,296	-0,183	0,412	0,299	0,160	-0,048	0,004	0,075	0,235	0,056	0,288	0,726	-0,339	0,127	0,004	-0,319	-0,177	-0,901	0,494	-0,103	**1**	0,197	-0,844	-0,685	-0,737	-0,862	-0,819	-0,721	-0,859	-0,920	-0,850	-0,701	0,863	0,354	-0,080	-0,179	-0,013	0,306	-0,231	0,395	0,158	0,245
Clu	-0,216	0,003	0,208	-0,083	-0,127	-0,078	-0,029	0,305	0,109	0,121	0,155	0,133	0,254	0,043	-0,101	0,051	0,108	0,154	0,264	-0,240	0,220	-0,078	0,052	0,256	0,197	**1**	-0,036	-0,051	0,001	-0,059	-0,003	0,005	-0,046	-0,190	-0,044	0,083	0,042	-0,048	-0,006	0,035	-0,049	0,128	-0,069	0,222	0,132	0,222
AT	0,516	-0,130	-0,296	0,332	0,462	0,021	-0,583	-0,159	-0,125	0,138	0,264	0,217	0,083	0,181	-0,300	-0,509	0,662	0,300	0,383	0,242	0,428	0,944	-0,217	0,537	-0,844	-0,036	**1**	0,895	0,915	0,911	0,947	0,895	0,976	0,851	0,924	0,892	-0,984	-0,445	0,085	0,235	0,069	-0,392	0,263	-0,212	-0,123	
DE	0,459	-0,228	-0,199	0,217	0,609	-0,081	-0,582	-0,227	-0,027	0,117	0,240	0,302	0,173	0,202	-0,104	-0,168	0,664	0,432	0,301	0,280	0,249	0,845	-0,009	0,568	-0,685	-0,051	0,895	**1**	0,837	0,832	0,873	0,814	0,904	0,740	0,847	0,810	-0,912	-0,329	0,096	0,154	0,312	-0,429	0,143	-0,081	-0,052	-0,021
DK	0,388	-0,117	-0,200	0,274	0,353	-0,025	-0,507	-0,047	-0,111	0,166	0,345	0,331	0,141	0,280	-0,277	-0,461	0,672	0,350	0,591	0,202	0,558	0,878	-0,119	0,553	-0,737	0,001	0,915	0,837	**1**	0,853	0,893	0,837	0,923	0,772	0,869	0,833	-0,931	-0,430	0,070	0,235	0,082	-0,269	0,160	-0,210	-0,080	-0,027
EL	0,486	-0,130	-0,348	0,450	0,355	0,029	-0,517	-0,204	-0,045	0,059	0,145	0,056	-0,024	0,114	-0,351	-0,557	0,410	0,067	0,258	0,180	0,358	0,941	-0,286	0,417	-0,862	-0,059	0,911	0,832	0,853	**1**	0,888	0,832	0,919	0,765	0,864	0,828	-0,927	-0,418	0,037	0,247	0,142	-0,312	0,156	-0,348	-0,073	
ES	0,480	-0,032	-0,301	0,334	0,376	0,135	-0,544	-0,135	-0,119	0,101	0,213	0,182	0,035	0,130	-0,329	-0,528	0,655	0,208	0,339	0,238	0,371	0,927	-0,267	0,517	-0,819	-0,003	0,947	0,873	0,893	0,888	**1**	0,873	0,955	0,821	0,903	0,869	-0,963	-0,435	0,108	0,214	0,045	-0,392	0,278	-0,291	-0,118	
FI	0,399	-0,128	-0,237	0,325	0,390	0,014	-0,577	-0,062	-0,175	0,138	0,303	0,257	0,188	0,244	-0,388	-0,503	0,685	0,328	0,494	0,159	0,607	0,878	-0,138	0,689	-0,721	0,005	0,895	0,814	0,837	0,832	0,873	**1**	0,904	0,740	0,847	0,810	-0,912	-0,475	0,020	0,295	0,101	-0,263	0,143	-0,198	-0,230	-0,197
FR	0,502	-0,125	-0,310	0,325	0,434	0,017	-0,551	-0,155	-0,112	0,189	0,274	0,240	0,076	0,186	-0,280	-0,527	0,664	0,290	0,382	0,315	0,426	0,952	-0,206	0,534	-0,859	-0,046	0,976	0,904	0,923	0,919	0,955	0,904	**1**	0,862	0,933	0,901	-0,992	-0,427	0,088	0,221	0,090	-0,373	0,236	-0,219	-0,127	
IT	0,630	0,016	-0,557	0,229	0,394	0,098	-0,423	-0,213	-0,228	0,114	0,142	0,168	-0,131	0,001	-0,158	-0,608	0,589	0,175	0,127	0,374	0,251	0,848	-0,284	0,225	-0,920	-0,190	0,851	0,740	0,772	0,765	0,821	0,740	0,862	**1**	0,787	0,734	-0,870	-0,309	0,154	0,105	0,087	-0,283	0,168	-0,271	-0,253	-0,231
PT	0,514	-0,131	-0,211	0,435	0,404	0,118	-0,595	-0,187	-0,150	0,061	0,134	0,050	0,031	0,128	-0,358	-0,536	0,547	0,133	0,309	0,205	0,383	0,926	-0,376	0,424	-0,850	-0,044	0,924	0,847	0,869	0,864	0,903	0,847	0,933	0,787	**1**	0,844	-0,940	-0,454	0,044	0,266	0,037	-0,359	0,257	-0,200	-0,021	
SE	0,426	-0,099	-0,178	0,254	0,387	-0,025	-0,605	0,051	-0,187	0,139	0,342	0,241	0,141	0,170	-0,352	-0,507	0,742	0,445	0,516	0,145	0,581	0,840	-0,152	0,638	-0,701	0,083	0,892	0,810	0,833	0,828	0,869	0,810	0,901	0,734	0,844	**1**	-0,908	-0,428	0,121	0,201	0,054	-0,257	0,167	-0,075	-0,057	0,036
UK	-0,521	0,114	0,315	-0,336	-0,447	-0,034	0,585	0,146	0,142	-0,131	-0,255	-0,219	-0,070	-0,170	0,306	0,530	-0,675	-0,291	-0,389	-0,256	-0,447	-0,962	0,222	-0,538	0,863	0,042	-0,984	-0,912	-0,931	-0,927	-0,963	-0,912	-0,992	-0,870	-0,940	-0,908	**1**	0,441	-0,091	-0,229	-0,111	0,354	-0,208	0,227	0,128	0,082
Urban	-0,395	0,091	0,029	-0,612	-0,126	-0,166	0,572	0,006	0,288	0,120	-0,109	0,094	0,083	0,090	0,617	0,405	-0,307	-0,069	-0,312	0,175	-0,390	-0,449	0,251	-0,355	0,354	-0,048	-0,445	-0,329	-0,430	-0,418	-0,435	-0,475	-0,427	-0,309	-0,454	-0,428	0,441	**1**	0,261	-0,801	-0,006	0,178	-0,135	0,218	0,213	0,160
Intermedia	-0,013	0,176	-0,032	-0,265	0,145	0,059	0,053	-0,058	-0,049	0,078	0,049	0,100	-0,016	-0,026	0,107	-0,022	0,158	0,118	-0,004	0,070	-0,025	0,065	0,061	0,009	-0,080	-0,006	0,085	0,096	0,070	0,037	0,108	0,020	0,088	0,154	0,044	0,121	-0,091	0,261	**1**	-0,781	-0,071	-0,036	0,072	0,016	0,027	0,160
Rural	0,263	-0,167	0,001	0,559	-0,009	0,071	-0,402	0,032	-0,155	-0,126	0,040	-0,122	-0,043	-0,042	-0,465	-0,247	0,100	-0,028	0,204	-0,156	0,267	0,250	-0,200	0,224	-0,179	0,035	0,235	0,154	0,235	0,247	0,214	0,295	0,221	0,105	0,266	0,201	-0,229	-0,801	-0,781	**1**	0,048	-0,093	0,043	-0,151	-0,155	-0,219
LIS	0,090	-0,153	-0,171	0,094	0,185	-0,182	-0,178	-0,039	0,096	-0,116	-0,021	0,111	0,081	-0,021	0,096	0,278	0,166	0,211	-0,049	0,001	-0,105	0,126	0,163	0,105	-0,013	-0,049	0,069	0,312	0,082	0,142	0,045	0,101	0,090	0,087	0,037	0,054	-0,111	-0,006	-0,071	0,048	**1**	0,017	-0,627	0,051	-0,127	-0,140
NED	-0,133	0,137	0,057	-0,175	-0,464	-0,139	0,312	0,418	-0,079	-0,050	-0,018	-0,031	0,012	0,008	-0,015	-0,006	-0,228	-0,032	0,108	-0,332	0,194	-0,364	0,113	-0,125	0,306	0,128	-0,392	-0,429	-0,269	-0,312	-0,392	-0,263	-0,373	-0,283	-0,359	-0,257	0,354	0,178	-0,036	-0,093	0,017	**1**	-0,785	0,078	-0,039	-0,036
NIS	0,048	-0,013	0,062	0,079	0,248	0,220	-0,134	-0,302	0,002	0,111	0,027	-0,044	-0,060	0,007	-0,047	-0,167	0,075	-0,105	-0,055	0,259	-0,087	0,206	-0,189	0,033	-0,231	-0,069	0,263	0,143	0,160	0,156	0,278	0,143	0,236	0,168	0,257	0,167	-0,208	-0,135	0,072	0,043	-0,627	-0,785	**1**	-0,092	0,109	0,125
Rec_DL	-0,244	-0,114	0,336	-0,390	0,172	-0,351	0,031	0,176	0,216	0,152	0,196	0,276	0,357	0,205	0,358	0,419	0,134	0,429	0,151	-0,010	0,041	-0,296	0,393	0,173	0,395	0,222	-0,212	-0,081	-0,210	-0,348	-0,291	-0,198	-0,219	-0,271	-0,200	-0,075	0,227	0,218	0,016	-0,151	0,051	0,078	-0,092	**1**	0,393	0,639
Ret_Tra_4	-0,266	-0,078	0,268	-0,104	0,001	-0,116	0,138	-0,053	0,259	0,007	-0,096	-0,111	0,118	0,064	0,231	0,196	-0,229	-0,088	-0,047	-0,009	-0,147	-0,131	0,004	-0,080	0,158	0,132	-0,123	-0,052	-0,080	-0,073	-0,118	-0,230	-0,127	-0,253	-0,021	-0,057	0,128	0,213	0,027	-0,155	-0,127	-0,039	0,109	0,393	**1**	0,856
Ret_Tra_8	-0,411	0,182	0,487	-0,275	-0,039	-0,378	0,154	0,025	0,264	0,185	0,246	0,294	0,321	0,247	0,231	0,145	0,035	0,179	0,118	0,152	0,020	-0,136	0,356	0,084	0,245	0,222		-0,021	-0,027			-0,197		-0,231		0,036	0,082	0,160	0,160	-0,219	-0,140	-0,036	0,125	0,639	0,856	**1**

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations from 2008-2009 - Recovery of development level

Summary of the variables selection Rec_DL:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	NAT	NAT	IN	0,003	0,441	0,418	76,545	-1387,683	-1349,080	0,611
2	HHI / NAT	HHI	IN	0,003	0,505	0,482	43,884	-1415,843	-1373,730	0,545
3	HHI / MM_Ac / NAT	MM_Ac	IN	0,003	0,529	0,505	33,012	-1426,052	-1380,430	0,523
4	HHI / MM_Ac / Union / NAT	Union	IN	0,003	0,550	0,525	23,848	-1435,154	-1386,022	0,504
5	Serv_EMP / HHI / MM_Ac / Union / NAT	Serv_EMP	IN	0,003	0,569	0,543	15,617	-1443,786	-1391,145	0,487
6	Serv_EMP / HHI / MM_Ac / Union / Clu / NAT	Clu	IN	0,003	0,579	0,552	12,214	-1447,590	-1391,440	0,479

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations from 2008-2009 - Recovery of development level

Goodness of fit statistics (Rec_DL):

Observations	247
Sum of weights	247
DF	231
R^2	0,579
Adjusted R^2	0,552
MSE	0,003
RMSE	0,052
MAPE	155,149
DW	2,051
Cp	12,214
AIC	-1447,590
SBC	-1391,440
PC	0,479
Press	0,705
Q^2	0,520

Analysis of variance (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	15	0,850	0,057	21,177	**<0,0001**
Error	231	0,618	0,003		
Corrected '	246	1,468			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations from 2008-2009 - Recovery of development level

Type I Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EM	0,000	0,000			
Const_EM	0,000	0,000			
Serv_EMP	1,000	0,001	0,001	0,523	0,470
Pub_EMP	0,000	0,000			
HHI	1,000	0,070	0,070	26,005	0,000
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,202	0,202	75,549	0,000
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,070	0,070	26,166	0,000
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,060	0,060	22,317	0,000
NAT	10,000	0,447	0,045	16,710	0,000
Urb_1	0,000	0,000			
NORM_S	0,000	0,000			

Type II Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EM	0,000	0,000			
Const_EM	0,000	0,000			
Serv_EMP	1,000	0,027	0,027	10,234	0,002
Pub_EMP	0,000	0,000			
HHI	1,000	0,074	0,074	27,488	0,000
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,058	0,058	21,825	0,000
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,037	0,037	13,729	0,000
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,015	0,015	5,493	0,020
NAT	10,000	0,447	0,045	16,710	0,000
Urb_1	0,000	0,000			
NORM_SI	0,000	0,000			

Type III Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EM	0,000	0,000			
Const_EM	0,000	0,000			
Serv_EMP	1,000	0,027	0,027	10,234	0,002
Pub_EMP	0,000	0,000			
HHI	1,000	0,074	0,074	27,488	0,000
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,058	0,058	21,825	0,000
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,037	0,037	13,729	0,000
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,015	0,015	5,493	0,020
NAT	10,000	0,447	0,045	16,710	0,000
Urb_1	0,000	0,000			
NORM_SI	0,000	0,000			

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations from 2008-2009 - Recovery of development level

Model parameters (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-2,266	0,667	-3,399	**0,001**	-3,580	-0,952
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_EMP	0,000	0,000				
Manu_EM	0,000	0,000				
Const_EM	0,000	0,000				
Serv_EMP	-0,228	0,076	-2,980	**0,003**	-0,378	-0,077
Pub_EMP	0,000	0,000				
HHI	0,845	0,210	4,020	**<0,0001**	0,431	1,260
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,001	0,000	4,702	**<0,0001**	0,000	0,001
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,054	0,018	2,982	**0,003**	0,018	0,090
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,002	0,001	3,512	**0,001**	0,001	0,003
AT	0,406	0,127	3,208	**0,002**	0,157	0,656
DE	0,974	0,315	3,092	**0,002**	0,353	1,595
DK	-1,736	0,582	-2,982	**0,003**	-2,883	-0,589
EL	0,183	0,102	1,794	0,074	-0,018	0,383
ES	0,899	0,346	2,595	**0,010**	0,217	1,582
FI	-1,730	0,590	-2,931	**0,004**	-2,893	-0,567
FR	1,519	0,515	2,950	**0,004**	0,505	2,534
IT	0,094	0,035	2,728	**0,007**	0,026	0,162
PT	0,253	0,073	3,459	**0,001**	0,109	0,398
SE	-1,412	0,506	-2,791	**0,006**	-2,409	-0,415
UK	0,549	0,172	3,196	**0,002**	0,210	0,887
Urban	0,000	0,000				
Intermedia	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_EMP	0,000	0,000				
Manu_EM	0,000	0,000				
Const_EM	0,000	0,000				
Serv_EMP	-0,239	0,080	-2,980	**0,003**	-0,396	-0,081
Pub_EMP	0,000	0,000				
HHI	0,275	0,068	4,020	**<0,0001**	0,140	0,410
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,341	0,072	4,702	**<0,0001**	0,198	0,484
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	10,778	3,615	2,982	**0,003**	3,656	17,900
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,112	0,032	3,512	**0,001**	0,049	0,175
AT	2,641	0,823	3,208	**0,002**	1,019	4,263
DE	7,443	2,407	3,092	**0,002**	2,700	12,186
DK	-12,605	4,227	-2,982	**0,003**	-20,934	-4,276
EL	1,340	0,747	1,794	0,074	-0,131	2,811
ES	6,083	2,344	2,595	**0,010**	1,465	10,700
FI	-13,219	4,510	-2,931	**0,004**	-22,104	-4,334
FR	9,731	3,298	2,950	**0,004**	3,233	16,230
IT	0,964	0,353	2,728	**0,007**	0,268	1,660
PT	1,799	0,520	3,459	**0,001**	0,774	2,824
SE	-10,893	3,903	-2,791	**0,006**	-18,583	-3,204
UK	3,463	1,083	3,196	**0,002**	1,328	5,597
Urban	0,000	0,000				
Intermedia	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations from 2008-2009 - Growth trajecotry retention (4 year recovery period)

Summary of the variables selection Ret_Tra_4:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	NAT	NAT	IN	0,000	0,282	0,252	74,583	-2110,923	-2072,319	0,785
2	MM_Ac / NAT	MM_Ac	IN	0,000	0,364	0,334	42,422	-2138,827	-2096,714	0,701
3	Pop_age / MM_Ac / NAT	Pop_age	IN	0,000	0,387	0,356	34,773	-2145,973	-2100,351	0,681
4	Pop_age / MM_Ac / Gov_debt / NAT	Gov_debt	IN	0,000	0,413	0,380	25,897	-2154,706	-2105,575	0,657
5	Pop_age / MM_Ac / Gov_debt / Cur_blc / NAT	Cur_blc	IN	0,000	0,428	0,394	21,531	-2159,212	-2106,571	0,645
6	Pop_age / MM_Ac / Gov_debt / Cur_blc / SC_Org / NAT	SC_Org	IN	0,000	0,444	0,408	17,073	-2163,991	-2107,841	0,633
7	Pop_age / MM_Ac / Gov_debt / Cur_blc / ML_barg / SC_Org / NAT	ML_barg	IN	0,000	0,456	0,419	13,826	-2167,639	-2107,980	0,624

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations from 2008-2009 - Growth trajecotry retention (4 year recovery period)

Goodness of fit statistics (Ret_Tra_4):

Observations	247
Sum of weights	247
DF	230
R^2	0,456
Adjusted R^2	0,419
MSE	0,000
RMSE	0,012
MAPE	153,183
DW	2,076
Cp	13,826
AIC	-2167,639
SBC	-2107,980
PC	0,624
Press	0,037
Q^2	0,389

Analysis of variance (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	16	0,028	0,002	12,072	**<0,0001**
Error	230	0,033	0,000		
Corrected	246	0,061			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations from 2008-2009 - Growth trajecotry retention (4 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,004	0,004	29,939	0,000
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EM	0,000	0,000			
Const_EM	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,002	0,002	13,193	0,000
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,002	0,002	10,818	0,001
Cur_blc	1,000	0,000	0,000	0,126	0,723
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,003	0,003	19,766	0,000
SHDI	0,000	0,000			
SC_Org	1,000	0,000	0,000	1,904	0,169
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	10,000	0,017	0,002	11,741	0,000
Urb_1	0,000	0,000			
NORM_SI	0,000	0,000			

Type II Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,002	0,002	15,958	0,000
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EM	0,000	0,000			
Const_EM	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,002	0,002	12,638	0,000
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,002	0,002	16,292	0,000
Cur_blc	1,000	0,001	0,001	8,593	0,004
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,001	0,001	5,320	0,022
SHDI	0,000	0,000			
SC_Org	1,000	0,001	0,001	6,740	0,010
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	10,000	0,017	0,002	11,741	0,000
Urb_1	0,000	0,000			
NORM_SI	0,000	0,000			

Type III Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,002	0,002	15,958	0,000
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EM	0,000	0,000			
Const_EM	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,002	0,002	12,638	0,000
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,002	0,002	16,292	0,000
Cur_blc	1,000	0,001	0,001	8,593	0,004
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,001	0,001	5,320	0,022
SHDI	0,000	0,000			
SC_Org	1,000	0,001	0,001	6,740	0,010
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	10,000	0,017	0,002	11,741	0,000
Urb_1	0,000	0,000			
NORM_SI	0,000	0,000			

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations from 2008-2009 - Growth trajecotry retention (4 year recovery period)

Model parameters (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,074	0,014	-5,471	**<0,0001**	-0,101	-0,048
Pop_age	-0,011	0,003	-3,418	**0,001**	-0,018	-0,005
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_EMF	0,000	0,000				
Manu_EM	0,000	0,000				
Const_EM	0,000	0,000				
Serv_EMF	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDF	0,000	0,000				
RnD_EMF	0,000	0,000				
MM_Ac	0,000	0,000	4,177	**<0,0001**	0,000	0,000
Avg_bus	0,000	0,000				
Gov_debt	-0,018	0,001	-16,568	**<0,0001**	-0,020	-0,016
Cur_blc	-0,054	0,007	-7,773	**<0,0001**	-0,067	-0,040
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	-0,055	0,011	-4,912	**<0,0001**	-0,077	-0,033
SHDI	0,000	0,000				
SC_Org	0,130	0,041	3,176	**0,002**	0,049	0,211
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	0,239	0,030	7,933	**<0,0001**	0,180	0,298
DE	0,441	0,054	8,239	**<0,0001**	0,336	0,547
DK	0,328	0,039	8,467	**<0,0001**	0,252	0,405
EL	-0,632	0,070	-8,991	**<0,0001**	-0,771	-0,494
ES	-0,373	0,050	-7,447	**<0,0001**	-0,472	-0,275
FI	0,217	0,028	7,804	**<0,0001**	0,162	0,271
FR	0,014	0,008	1,883	0,061	-0,001	0,029
IT	0,007	0,003	2,234	**0,026**	0,001	0,013
PT	-0,483	0,061	-7,973	**<0,0001**	-0,602	-0,363
SE	0,500	0,057	8,776	**<0,0001**	0,388	0,612
UK	-0,258	0,033	-7,824	**<0,0001**	-0,324	-0,193
Urban	0,000	0,000				
Intermedia	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	-0,287	0,084	-3,418	**0,001**	-0,453	-0,122
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_EMP	0,000	0,000				
Manu_EM	0,000	0,000				
Const_EM	0,000	0,000				
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMF	0,000	0,000				
MM_Ac	0,259	0,062	4,177	**<0,0001**	0,137	0,381
Avg_bus	0,000	0,000				
Gov_debt	-4,340	0,262	-16,568	**<0,0001**	-4,856	-3,824
Cur_blc	-15,239	1,961	-7,773	**<0,0001**	-19,102	-11,376
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	-2,855	0,581	-4,912	**<0,0001**	-4,000	-1,710
SHDI	0,000	0,000				
SC_Org	0,439	0,138	3,176	**0,002**	0,167	0,711
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	7,611	0,959	7,933	**<0,0001**	5,720	9,501
DE	16,522	2,005	8,239	**<0,0001**	12,571	20,473
DK	11,681	1,380	8,467	**<0,0001**	8,963	14,399
EL	-22,733	2,528	-8,991	**<0,0001**	-27,715	-17,752
ES	-12,380	1,662	-7,447	**<0,0001**	-15,656	-9,105
FI	8,111	1,039	7,804	**<0,0001**	6,063	10,158
FR	0,447	0,238	1,883	0,061	-0,021	0,915
IT	0,356	0,159	2,234	**0,026**	0,042	0,670
PT	-16,798	2,107	-7,973	**<0,0001**	-20,949	-12,647
SE	18,907	2,154	8,776	**<0,0001**	14,662	23,152
UK	-7,993	1,022	-7,824	**<0,0001**	-10,006	-5,980
Urban	0,000	0,000				
Intermedia	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations from 2008-2009 - Growth trajecotry retention (8 year recovery period)

Summary of the variables selection Ret_Tra_8:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R²	Adjusted R²	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	Pop_work	Pop_work	IN	0,000	0,238	0,221	4,012	-439,762	-435,979	0,827
2	Pop_work / Const_EMP	Const_EMF	IN	0,000	0,304	0,273	1,766	-442,202	-436,527	0,787

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations from 2008-2009 - Growth trajecotry retention (8 year recovery period)

Goodness of fit statistics (Ret_Tra_8):

Observations	49
Sum of weights	49
DF	46
R²	0,304
Adjusted R²	0,273
MSE	0,000
RMSE	0,011
MAPE	108,311
DW	2,575
Cp	1,766
AIC	-442,202
SBC	-436,527
PC	0,787
Press	0,007
Q²	0,125

Analysis of variance (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	2	0,002	0,001	10,026	**0,000**
Error	46	0,005	0,000		
Corrected	48	0,007			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations from 2008-2009 - Growth trajecotry retention (8 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,002	0,002	15,689	0,000
Agri_EMP	0,000	0,000			
Manu_EM	0,000	0,000			
Const_EM	1,000	0,000	0,000	4,363	0,042
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	0,000	0,000			
Urb_1	0,000	0,000			
NORM_SI	0,000	0,000			

Type II Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,001	0,001	10,619	0,002
Agri_EMP	0,000	0,000			
Manu_EM	0,000	0,000			
Const_EM	1,000	0,000	0,000	4,363	0,042
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	0,000	0,000			
Urb_1	0,000	0,000			
NORM_SI	0,000	0,000			

Type III Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,001	0,001	10,619	0,002
Agri_EMP	0,000	0,000			
Manu_EM	0,000	0,000			
Const_EM	1,000	0,000	0,000	4,363	0,042
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	0,000	0,000			
Urb_1	0,000	0,000			
NORM_SI	0,000	0,000			

Stepwise analysis of covariance on regional Employment resilience performance of crisis periods
Observations from 2008-2009 - Growth trajecotry retention (8 year recovery period)

Model parameters (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,051	0,079	-0,643	0,523	-0,210	0,108
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,136	0,140	0,968	0,338	-0,146	0,418
Agri_EMP	0,000	0,000				
Manu_EM	0,000	0,000				
Const_EM	-0,183	0,225	-0,812	0,421	-0,636	0,271
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	0,000	0,000				
DE	0,000	0,000				
DK	0,000	0,000				
EL	0,000	0,000				
ES	0,000	0,000				
FI	0,000	0,000				
FR	0,000	0,000				
IT	0,000	0,000				
PT	0,000	0,000				
SE	0,000	0,000				
UK	0,000	0,000				
Urban	0,000	0,000				
Intermedia	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,416	0,430	0,968	0,338	-0,449	1,281
Agri_EMP	0,000	0,000				
Manu_EM	0,000	0,000				
Const_EM	-0,267	0,329	-0,812	0,421	-0,928	0,395
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	0,000	0,000				
DE	0,000	0,000				
DK	0,000	0,000				
EL	0,000	0,000				
ES	0,000	0,000				
FI	0,000	0,000				
FR	0,000	0,000				
IT	0,000	0,000				
PT	0,000	0,000				
SE	0,000	0,000				
UK	0,000	0,000				
Urban	0,000	0,000				
Intermedia	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

III.c. Analysis of the effect of resilience capabilities on regional resilience performance by shock type

III.c.i. RGVA

III.c.i.1. National economic downturns

Stepwise analysis of covariance on regional RGVA resilience performance by shock type
National economic downturns (NED)

Settings:
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Model selection: Stepwise
Probability for entry: 0,05 / Probability for removal: 0,1
Covariances: Corrections = Newey West (adjusted)(Lag = 1)
Use least squares means: Yes
Explanation of the variable codes can be found in table 28

Summary statistics (Quantitative data):

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Rec_DL	1564	0	1564	-0,590	0,278	-0,069	0,088
Ret_Tra_4	1564	0	1564	-0,095	0,088	-0,010	0,022
Ret_Tra_8	1564	342	1222	-0,097	0,049	-0,011	0,018
Pop_age	1564	0	1564	0,367	2,946	1,131	0,392
Mig_net	1564	0	1564	-27,218	54,935	2,937	5,706
Pop_work	1564	0	1564	0,265	0,633	0,472	0,047
Agri_GVA	1564	0	1564	0,000	0,177	0,020	0,021
Manu_GV	1564	0	1564	0,034	0,711	0,213	0,080
Const_GV	1564	0	1564	0,011	0,192	0,074	0,026
Serv_GVA	1564	0	1564	0,186	0,782	0,456	0,079
Pub_GVA	1564	0	1564	0,063	0,479	0,236	0,061
HHI	1564	0	1564	0,176	0,530	0,229	0,024
GDP_PC	1564	0	1564	-1,199	5,176	0,015	0,720
GFCF_PC	1564	0	1564	-1,759	2,618	0,036	0,772
PROD	1564	0	1564	-2,654	3,003	0,290	0,929
RnD_GDP	1564	0	1564	0,110	14,868	1,996	1,522
RnD_EMP	1564	0	1564	0,000	4,938	1,445	0,854
MM_Ac	1564	0	1564	25,258	192,930	110,910	32,059
Avg_bus	1564	0	1564	1,349	18,605	9,448	5,108
Gov_debt	1564	0	1564	-10,200	6,600	-4,242	2,445
Cur_blc	1564	0	1564	-14,500	10,200	0,441	3,624
Gov_close	1564	0	1564	0,370	31,490	5,817	4,148
Lab_comp	1564	0	1564	1066,192	271583,242	29500,559	30123,271
Union	1564	0	1564	7,926	84,677	28,532	14,809
ML_barg	1564	0	1564	1,000	4,875	2,615	0,918
SHDI	1564	0	1564	0,713	0,958	0,853	0,052
SC_Org	1564	0	1564	0,038	0,215	0,119	0,046
EoC	1564	0	1564	46,900	100,000	74,867	16,653
Clu	1564	0	1564	0,000	82,000	2,712	3,128

Number of removed observations: 138

Summary statistics (Qualitative data):

Variable	Categories	Counts	Frequencies	%
NAT	AT	26	26	1,662
	BE	72	72	4,604
	DE	680	680	43,478
	DK	20	20	1,279
	EL	12	12	0,767
	ES	41	41	2,621
	FI	17	17	1,087
	FR	188	188	12,020
	IE	2	2	0,128
	IT	132	132	8,440
	NL	55	55	3,517
	PT	37	37	2,366
	SE	34	34	2,174
	UK	248	248	15,857
CRISIS	1: 90-93	557	557	35,614
	2: 00-03	312	312	19,949
	3: 08-09	645	645	41,240
	4:BTW	50	50	3,197
Urb_1	Urban	522	522	33,376
	Intermedia	666	666	42,583
	Rural	376	376	24,041

Stepwise analysis of covariance on regional RGVA resilience performance by shock type
National economic downturns (NED)

Correlation matrix:

	Pop_age	Mig_net	Pop_work	Agri_GVA	Manu_GVA	Const_GVA	Serv_GVA	Pub_GVA	HHI	GDP_PC	GFCF_PC	PROD	RnD_GDP	RnD_EMP	MM_Ac	Avg_bus	Gov_debt	Cur_blc	Gov_close	Lab_comp	Union	ML_barg	SHDI	SC_Org	EoC	Cla	AT	BE	DE	DK	EL	ES	FI	FR	IE	IT	NL	PT	SE	UK	1: 90-93	2: 00-03	3: 08-09	4:BTW	Urban	Intermediate	Rural	Rec_DL	Ret_Tra_4	Ret_Tra_8
Pop_age	**1**	-0,166	0,197	0,055	-0,016	-0,244	-0,028	0,142	0,024	-0,019	-0,206	-0,158	-0,021	-0,015	-0,092	0,202	-0,026	0,315	-0,024	-0,029	-0,151	-0,033	0,351	0,181	-0,013	-0,083	0,220	0,151	0,359	0,203	0,249	0,168	0,216	0,059	0,231	0,286	0,135	0,211	0,201	-0,237	-0,290	-0,078	0,315	0,024	-0,200	-0,025	0,133	0,095	0,112	0,260
Mig_net	-0,166	**1**	-0,098	-0,034	0,004	0,046	0,055	-0,084	0,047	0,077	0,152	0,140	-0,002	-0,001	0,087	0,066	0,041	-0,186	-0,011	-0,094	0,133	0,016	-0,066	0,123	0,040	0,021	0,015	0,085	0,071	0,030	0,026	0,056	0,020	-0,022	0,032	0,009	0,005	0,006	0,034	-0,033	0,116	-0,089	-0,107	0,052	0,008	0,125	-0,082	0,109	0,008	-0,033
Pop_work	0,197	-0,098	**1**	-0,208	0,033	-0,135	0,065	0,000	0,117	0,125	0,275	0,014	0,289	0,320	0,155	0,317	0,439	0,280	0,183	0,101	0,004	-0,324	0,502	0,220	0,448	0,169	-0,173	-0,289	0,035	-0,166	-0,227	-0,284	-0,191	-0,348	-0,219	-0,375	-0,102	-0,145	-0,161	0,219	-0,363	0,189	0,320	-0,096	0,074	0,041	-0,069	-0,058	-0,043	-0,015
Agri_GVA	0,055	-0,034	-0,208	**1**	-0,095	0,276	-0,278	0,028	-0,482	-0,369	-0,214	-0,284	-0,225	-0,292	-0,560	-0,346	-0,193	-0,074	-0,020	-0,183	0,000	0,261	-0,276	-0,099	-0,360	-0,069	0,184	0,150	-0,046	0,179	0,244	0,255	0,209	0,204	0,197	0,253	0,191	0,242	0,190	-0,197	0,063	-0,092	-0,110	0,098	-0,522	-0,230	0,449	-0,083	-0,045	-0,063
Manu_GVA	-0,016	0,004	0,033	-0,095	**1**	-0,058	-0,610	-0,468	0,003	0,020	0,014	-0,009	0,062	0,010	0,067	0,326	0,202	0,008	0,019	-0,091	0,123	0,008	-0,063	0,182	0,163	0,074	0,055	0,004	0,210	0,041	0,057	0,027	0,058	-0,103	0,057	0,030	0,006	0,056	0,054	-0,053	0,096	0,064	-0,229	0,064	-0,042	0,038	0,001	-0,010	-0,052	-0,076
Const_GVA	-0,244	0,046	-0,135	0,276	-0,058	**1**	-0,288	-0,068	-0,540	-0,411	-0,112	-0,319	-0,095	-0,231	-0,361	-0,281	-0,033	-0,324	-0,098	-0,190	0,057	-0,007	-0,507	-0,267	-0,015	-0,061	-0,171	-0,201	-0,307	-0,216	-0,219	-0,089	-0,199	-0,069	-0,204	-0,144	-0,204	-0,130	-0,169	0,204	0,362	-0,071	-0,225	-0,053	-0,188	-0,108	0,177	-0,034	-0,036	-0,072
Serv_GVA	-0,028	0,055	0,065	-0,278	-0,610	-0,288	**1**	-0,280	0,335	0,418	0,250	0,348	0,102	0,206	0,385	-0,075	-0,234	0,016	-0,066	0,353	-0,133	0,037	0,251	-0,033	-0,104	-0,029	0,020	0,024	-0,044	0,013	0,006	0,004	-0,005	0,049	0,011	0,091	0,056	-0,033	-0,020	-0,014	-0,096	-0,010	0,194	-0,072	0,372	0,112	-0,288	-0,002	0,046	0,036
Pub_GVA	0,142	-0,084	0,000	0,028	-0,468	-0,068	-0,280	**1**	-0,045	-0,270	-0,224	-0,208	-0,098	-0,083	-0,244	-0,095	0,118	0,132	0,109	-0,195	-0,013	-0,145	0,067	-0,051	0,050	-0,011	-0,089	-0,003	-0,073	-0,039	-0,074	-0,090	-0,057	0,032	-0,070	-0,183	-0,059	-0,059	-0,039	0,069	-0,176	-0,010	0,183	-0,002	-0,171	-0,071	0,144	0,058	0,038	0,107
HHI	0,024	0,047	0,117	-0,482	0,003	-0,540	0,335	-0,045	**1**	0,501	0,164	0,240	0,117	0,210	0,332	0,222	0,059	0,025	-0,039	0,200	-0,011	-0,096	0,200	0,103	0,145	0,032	-0,032	-0,017	0,102	-0,021	0,003	-0,050	-0,041	-0,110	-0,029	-0,066	-0,030	-0,053	-0,049	0,028	-0,113	-0,045	0,039	0,084	0,307	0,085	-0,232	-0,066	-0,024	-0,030
GDP_PC	-0,019	0,077	0,125	-0,369	0,020	-0,411	0,418	-0,270	0,501	**1**	0,442	0,444	0,178	0,286	0,438	0,192	0,071	0,080	0,096	0,301	0,035	0,049	0,179	0,231	0,036	0,046	0,112	0,059	0,162	0,111	0,090	0,061	0,098	0,046	0,105	0,090	0,121	0,036	0,110	-0,106	0,033	-0,019	-0,044	0,022	0,305	0,091	-0,236	0,009	-0,007	-0,033
GFCF_PC	-0,206	0,152	0,275	-0,214	0,014	-0,112	0,250	-0,224	0,164	0,442	**1**	0,704	0,454	0,626	0,352	0,133	0,171	0,182	0,306	0,403	0,187	0,089	0,222	0,348	0,043	0,140	0,134	0,101	0,102	0,146	0,066	0,015	0,108	0,087	0,106	0,038	0,137	-0,020	0,141	-0,100	0,060	0,039	-0,049	-0,032	0,101	0,065	-0,099	0,099	0,041	0,003
PROD	-0,158	0,140	0,014	-0,284	-0,009	-0,319	0,348	-0,208	0,240	0,444	0,704	**1**	0,325	0,505	0,604	0,260	0,050	0,336	0,223	0,505	0,013	0,156	0,378	0,480	-0,035	0,035	0,280	0,315	0,346	0,314	0,251	0,217	0,286	0,261	0,299	0,179	0,334	0,102	0,294	-0,303	-0,022	0,078	-0,031	-0,009	0,188	0,089	-0,166	0,212	0,095	0,105
RnD_GDP	-0,021	-0,002	0,289	-0,225	0,062	-0,095	0,102	-0,098	0,117	0,178	0,454	0,325	**1**	0,754	0,265	0,261	0,235	0,177	0,165	0,225	0,012	-0,166	0,227	0,193	0,218	0,282	-0,046	-0,086	0,077	-0,034	-0,077	-0,098	-0,039	-0,040	-0,058	-0,147	-0,070	-0,097	-0,020	0,056	-0,007	0,089	0,093	-0,125	0,117	0,020	-0,081	0,046	0,051	0,012
RnD_EMP	-0,015	-0,001	0,320	-0,292	0,010	-0,231	0,206	-0,083	0,210	0,286	0,626	0,505	0,754	**1**	0,356	0,284	0,239	0,223	0,241	0,441	-0,007	-0,209	0,416	0,264	0,186	0,055	0,025	-0,029	0,124	0,054	-0,012	-0,056	0,030	0,017	0,004	-0,105	-0,019	-0,052	0,014	-0,005	-0,145	0,111	0,188	-0,108	0,145	0,009	-0,090	0,073	0,083	0,079
MM_Ac	-0,092	0,087	0,155	-0,560	0,067	-0,361	0,385	-0,244	0,332	0,438	0,352	0,604	0,265	0,356	**1**	0,453	0,109	0,249	-0,134	0,428	-0,128	-0,082	0,370	0,273	0,204	-0,015	0,031	0,118	0,304	0,021	0,001	-0,047	-0,004	-0,028	0,040	-0,063	0,090	-0,060	-0,022	-0,048	-0,021	0,067	0,071	-0,083	0,484	0,133	-0,367	0,181	0,095	0,117
Avg_bus	0,202	0,066	0,317	-0,346	0,326	-0,281	-0,075	-0,095	0,222	0,192	0,133	0,260	0,261	0,284	0,453	**1**	0,429	0,311	-0,041	0,081	-0,136	-0,362	0,408	0,540	0,634	0,048	0,012	-0,069	0,624	0,017	0,006	-0,036	0,008	-0,247	-0,032	-0,170	-0,035	-0,036	-0,020	-0,036	-0,126	0,121	-0,016	0,030	0,143	0,122	-0,160	0,209	0,080	0,166
Gov_debt	-0,026	0,041	0,439	-0,193	0,202	-0,033	-0,234	0,118	0,059	0,071	0,171	0,050	0,235	0,239	0,109	0,429	**1**	0,297	0,383	-0,100	0,279	-0,288	0,179	0,420	0,553	0,212	-0,142	-0,205	0,158	-0,082	-0,145	-0,131	-0,046	-0,287	-0,124	-0,382	-0,082	-0,150	-0,006	0,131	-0,042	0,280	-0,063	-0,098	0,110	0,063	-0,104	-0,024	-0,086	-0,094
Cur_blc	0,315	-0,186	0,280	-0,074	0,008	-0,324	0,016	0,132	0,025	0,080	0,182	0,336	0,177	0,223	0,249	0,311	0,297	**1**	0,349	0,119	-0,106	0,184	0,566	0,627	-0,042	0,066	0,479	0,450	0,560	0,488	0,425	0,366	0,505	0,328	0,486	0,235	0,499	0,359	0,486	-0,489	-0,270	0,188	0,274	-0,129	-0,133	0,038	0,054	0,226	0,075	0,148
Gov_close	-0,024	-0,011	0,183	-0,020	0,019	-0,098	-0,066	0,109	-0,039	0,096	0,306	0,223	0,165	0,241	-0,134	-0,041	0,383	0,349	**1**	-0,022	0,520	0,111	0,207	0,387	0,006	0,148	0,274	0,176	0,119	0,444	0,218	0,175	0,333	0,185	0,248	0,135	0,176	0,190	0,419	-0,254	-0,104	0,190	0,027	-0,063	-0,130	-0,001	0,077	0,018	-0,058	-0,043
Lab_comp	-0,029	-0,094	0,101	-0,183	-0,091	-0,190	0,353	-0,195	0,200	0,301	0,403	0,505	0,225	0,441	0,428	0,081	-0,100	0,119	-0,022	**1**	-0,271	-0,016	0,305	0,090	-0,142	-0,153	0,145	0,085	0,167	0,160	0,156	0,137	0,156	0,260	0,176	0,180	0,161	0,137	0,135	-0,179	-0,121	0,084	0,131	-0,064	0,214	-0,006	-0,122	0,078	0,052	0,055
Union	-0,151	0,133	0,004	0,000	0,123	0,057	-0,133	-0,013	-0,011	0,035	0,187	0,013	0,012	-0,007	-0,128	-0,136	0,279	-0,106	0,520	-0,271	**1**	0,302	-0,220	0,002	0,122	0,203	-0,118	0,079	-0,232	-0,029	-0,122	-0,161	-0,040	-0,398	-0,127	0,004	-0,157	-0,120	0,057	0,130	0,231	-0,042	-0,196	0,005	0,073	0,071	-0,087	-0,173	-0,106	-0,144
ML_barg	-0,033	0,016	-0,324	0,261	0,008	-0,007	0,037	-0,145	-0,096	0,049	0,089	0,156	-0,166	-0,209	-0,082	-0,362	-0,288	0,184	0,111	-0,016	0,302	**1**	-0,256	0,178	-0,716	0,000	0,574	0,699	0,210	0,582	0,609	0,575	0,642	0,422	0,629	0,705	0,676	0,608	0,605	-0,624	0,260	0,082	-0,284	-0,028	-0,162	0,039	0,070	-0,036	-0,104	-0,219
SHDI	0,351	-0,066	0,502	-0,276	-0,063	-0,507	0,251	0,067	0,200	0,179	0,222	0,378	0,227	0,416	0,370	0,408	0,179	0,566	0,207	0,305	-0,220	-0,256	**1**	0,469	0,183	0,109	0,193	0,152	0,387	0,204	0,173	0,065	0,185	0,067	0,188	0,008	0,215	0,065	0,184	-0,188	-0,707	0,222	0,593	-0,069	0,034	0,048	-0,050	0,106	0,109	0,226
SC_Org	0,181	0,123	0,220	-0,099	0,182	-0,267	-0,033	-0,051	0,103	0,231	0,348	0,480	0,193	0,264	0,273	0,540	0,420	0,627	0,387	0,090	0,002	0,178	0,469	**1**	0,066	0,084	0,582	0,479	0,785	0,595	0,574	0,550	0,632	0,316	0,603	0,273	0,584	0,456	0,623	-0,610	-0,194	0,243	-0,081	0,054	-0,135	0,115	0,008	0,243	0,054	0,083
EoC	-0,013	0,040	0,448	-0,360	0,163	-0,015	-0,104	0,050	0,145	0,036	0,043	-0,035	0,218	0,186	0,204	0,634	0,553	-0,042	0,006	-0,142	0,122	-0,716	0,183	0,066	**1**	0,151	-0,623	-0,664	-0,077	-0,608	-0,666	-0,669	-0,623	-0,752	-0,649	-0,737	-0,663	-0,678	-0,587	0,655	-0,033	0,005	0,070	-0,033	0,289	0,099	-0,231	0,003	0,048	0,165
Cla	-0,083	0,021	0,169	-0,069	0,074	-0,061	-0,029	-0,011	0,032	0,046	0,140	0,035	0,282	0,055	-0,015	0,048	0,212	0,066	0,148	-0,153	0,203	0,000	0,109	0,084	0,151	**1**	-0,046	-0,029	-0,061	-0,048	-0,071	-0,098	-0,058	-0,138	-0,034	-0,154	-0,033	-0,080	-0,008	0,077	-0,069	0,074	0,023	-0,014	0,011	-0,018	0,005	-0,124	-0,001	-0,121
AT	0,220	0,015	-0,173	0,184	0,055	-0,171	0,020	-0,089	-0,032	0,112	0,134	0,280	-0,046	0,025	0,031	0,012	-0,142	0,479	0,274	0,145	-0,118	0,574	0,193	0,582	-0,623	-0,046	**1**	0,827	0,699	0,904	0,920	0,868	0,910	0,738	0,941	0,772	0,848	0,874	0,879	-0,946	-0,137	0,134	-0,061	0,066	-0,335	-0,022	0,210	0,190	0,012	-0,015
BE	0,151	0,085	-0,289	0,150	0,004	-0,201	0,024	-0,003	-0,017	0,059	0,101	0,315	-0,086	-0,029	0,118	-0,069	-0,205	0,450	0,176	0,085	0,079	0,699	0,152	0,479	-0,664	-0,029	0,827	**1**	0,602	0,838	0,853	0,802	0,843	0,669	0,875	0,704	0,782	0,808	0,813	-0,879	-0,068	0,095	-0,072	0,047	-0,288	0,001	0,168	0,182	0,027	0,000
DE	0,359	0,071	0,035	-0,046	0,210	-0,307	-0,044	-0,073	0,102	0,162	0,102	0,346	0,077	0,124	0,304	0,624	0,158	0,560	0,119	0,167	-0,232	0,210	0,387	0,785	-0,077	-0,061	0,699	0,602	**1**	0,714	0,735	0,664	0,722	0,447	0,764	0,511	0,634	0,672	0,679	-0,770	-0,187	0,181	-0,105	0,107	-0,190	0,092	0,054	0,311	0,088	0,123
DK	0,203	0,030	-0,166	0,179	0,041	-0,216	0,013	-0,039	-0,021	0,111	0,146	0,314	-0,034	0,054	0,021	0,017	-0,082	0,488	0,444	0,160	-0,029	0,582	0,204	0,595	-0,608	-0,048	0,904	0,838	0,714	**1**	0,931	0,879	0,921	0,750	0,952	0,783	0,859	0,885	0,890	-0,957	-0,134	0,176	-0,103	0,068	-0,322	0,001	0,189	0,193	0,015	-0,025
EL	0,249	0,026	-0,227	0,244	0,057	-0,219	0,006	-0,074	0,003	0,090	0,066	0,251	-0,077	-0,012	0,001	0,006	-0,145	0,425	0,218	0,156	-0,122	0,609	0,173	0,574	-0,666	-0,071	0,920	0,853	0,735	0,931	**1**	0,895	0,936	0,766	0,968	0,798	0,874	0,901	0,906	-0,973	-0,163	0,107	-0,158	0,178	-0,341	-0,013	0,208	0,142	0,019	
ES	0,168	0,056	-0,284	0,255	0,027	-0,089	0,004	-0,090	-0,050	0,061	0,015	0,217	-0,098	-0,056	-0,047	-0,036	-0,131	0,366	0,175	0,137	-0,161	0,575	0,065	0,550	-0,609	-0,098	0,868	0,802	0,664	0,879	0,895	**1**	0,885	0,713	0,916	0,746	0,823	0,850	0,854	-0,921	-0,032	0,120	-0,144	0,059	-0,278	0,022	0,149	0,200	0,058	0,015
FI	0,216	0,020	-0,191	0,209	0,058	-0,199	-0,005	-0,057	-0,041	0,098	0,108	0,286	-0,039	0,030	-0,004	0,008	-0,046	0,505	0,333	0,156	-0,040	0,642	0,185	0,632	-0,623	-0,058	0,910	0,843	0,722	0,921	0,936	0,885	**1**	0,756	0,958	0,788	0,865	0,891	0,896	-0,963	-0,129	0,187	-0,119	0,070	-0,328	0,000	0,193	0,186	0,001	-0,053
FR	0,059	-0,022	-0,348	0,204	-0,103	-0,069	0,049	0,032	-0,110	0,046	0,087	0,261	-0,040	0,017	-0,028	-0,247	-0,287	0,328	0,185	0,260	-0,398	0,422	0,067	0,316	-0,752	-0,138	0,738	0,669	0,447	0,750	0,766	0,713	0,756	**1**	0,788	0,607	0,691	0,719	0,724	-0,793	-0,054	0,113	-0,058	0,013	-0,361	-0,105	0,277	0,221	0,029	-0,011
IE	0,231	0,032	-0,219	0,197	0,057	-0,204	0,011	-0,070	-0,029	0,105	0,106	0,299	-0,058	0,004	0,040	0,032	-0,124	0,486	0,248	0,176	-0,127	0,629	0,188	0,603	-0,649	-0,034	0,941	0,875	0,764	0,952	0,968	0,916	0,958	0,788	**1**	0,820	0,896	0,923	0,928	-0,995	-0,122	0,167	-0,119	0,078	-0,331	0,004	0,192	0,206	0,031	-0,021
IT	0,286	0,009	-0,375	0,253	0,030	-0,144	0,091	-0,183	-0,066	0,090	0,038	0,179	-0,147	-0,105	-0,063	-0,170	-0,382	0,235	0,135	0,180	0,004	0,705	0,008	0,273	-0,737	-0,154	0,772	0,704	0,511	0,783	0,798	0,746	0,788	0,607	0,820	**1**	0,726	0,753	0,758	-0,825	0,006	0,057	-0,088	0,028	-0,248	0,047	0,116	0,120	0,024	-0,022
NL	0,135	0,005	-0,102	0,191	0,006	-0,204	0,056	-0,059	-0,030	0,121	0,137	0,334	-0,070	-0,019	0,090	-0,035	-0,082	0,499	0,176	0,161	-0,157	0,676	0,215	0,584	-0,663	-0,033	0,848	0,782	0,634	0,859	0,874	0,823	0,865	0,691	0,896	0,726	**1**	0,829	0,834	-0,901	-0,161	0,209	-0,107	0,070	-0,229	0,032	0,115	0,143	-0,008	-0,115
PT	0,211	0,006	-0,145	0,242	0,056	-0,130	-0,033	-0,059	-0,053	0,036	-0,020	0,102	-0,097	-0,052	-0,060	-0,036	-0,150	0,359	0,190	0,137	-0,120	0,608	0,065	0,456	-0,678	-0,080	0,874	0,808	0,672	0,885	0,901	0,850	0,891	0,719	0,923	0,753	0,829	**1**	0,861	-0,927	-0,100	0,159	-0,135	0,078	-0,339	-0,030	0,217	0,156	-0,031	-0,124
SE	0,201	0,034	-0,161	0,190	0,054	-0,169	-0,020	-0,039	-0,049	0,110	0,141	0,294	-0,020	0,014	-0,022	-0,020	-0,006	0,486	0,419	0,135	0,057	0,605	0,184	0,623	-0,587	-0,008	0,879	0,813	0,679	0,890	0,906	0,854	0,896	0,724	0,928	0,758	0,834	0,861	**1**	-0,932	-0,107	0,172	-0,118	0,062	-0,303	0,031	0,158	0,171	0,018	-0,012
UK	-0,237	-0,033	0,219	-0,197	-0,053	0,204	-0,014	0,069	0,028	-0,106	-0,100	-0,303	0,056	-0,005	-0,048	-0,036	0,131	-0,489	-0,254	-0,179	0,130	-0,624	-0,188	-0,610	0,655	0,077	-0,946	-0,879	-0,770	-0,957	-0,973	-0,921	-0,963	-0,793	-0,995	-0,825	-0,901	-0,927	-0,932	**1**	0,120	-0,161	0,117	-0,079	0,328	-0,009	-0,187	-0,216	-0,029	0,013
1: 90-93	-0,290	0,116	-0,363	0,063	0,096	0,362	-0,096	-0,176	-0,113	0,033	0,060	-0,022	-0,007	-0,145	-0,021	-0,126	-0,042	-0,270	-0,104	-0,121	0,231	0,260	-0,707	-0,194	-0,033	-0,069	-0,137	-0,068	-0,187	-0,134	-0,163	-0,032	-0,129	-0,054	-0,122	0,006	-0,161	-0,100	-0,107	0,120	**1**	-0,093	-0,314	-0,452	0,086	0,032	-0,070	0,074	0,005	-0,044
2: 00-03	-0,078	-0,089	0,189	-0,092	0,064	-0,071	-0,010	-0,045	-0,019	0,039	0,078	0,089	0,111	0,067	0,121	0,280	0,188	0,190	0,084	-0,042	0,082	0,222	0,243	0,005	0,074	0,134	0,095	0,181	0,176	0,107	0,120	0,187	0,113	0,167	0,057	0,209	0,159	0,172	-0,161	-0,093	**1**	-0,129	-0,470	-0,048	0,003	0,027	-0,034	-0,158	-0,194
3: 08-09	0,315	-0,107	0,320	-0,110	-0,229	-0,225	0,194	0,183	0,039	-0,044	-0,049	-0,031	0,093	0,188	0,071	-0,016	-0,063	0,274	0,027	0,131	-0,196	-0,284	0,593	-0,081	0,070	0,023	-0,061	-0,072	-0,105	-0,103	-0,158	-0,144	-0,119	-0,058	-0,119	-0,088	-0,107	-0,135	-0,118	0,117	-0,314	-0,129	**1**	-0,458	0,041	-0,008	-0,019	0,034	0,138	0,319
4:BTW	0,024	0,052	-0,096	0,098	0,064	-0,053	-0,072	-0,002	0,084	0,022	-0,032	-0,009	-0,125	-0,108	-0,083	0,030	-0,098	-0,129	-0,063	-0,064	0,005	-0,028	-0,069	0,054	-0,033	-0,014	0,066	0,047	0,107	0,068	0,178	0,059	0,070	0,013	0,078	0,028	0,070	0,078	0,062	-0,079	-0,452	-0,470	-0,458	**1**	-0,066	-0,020	0,051	-0,060	-0,010	-0,053
Urban	-0,200	0,008	0,074	-0,522	-0,042	-0,188	0,372	-0,171	0,307	0,305	0,101	0,188	0,117	0,145	0,484	0,143	0,110	-0,133	-0,130	0,214	0,073	-0,162	0,034	-0,135	0,289	0,011	-0,335	-0,288	-0,190	-0,322	-0,341	-0,278	-0,328	-0,361	-0,331	-0,248	-0,229	-0,339	-0,303	0,328	0,086	-0,048	0,041	-0,066	**1**	0,373	-0,818	-0,087	-0,001	-0,047
Intermediate	-0,025	0,125	0,041	-0,230	0,038	-0,108	0,112	-0,071	0,085	0,091	0,065	0,089	0,020	0,009	0,133	0,122	0,063	0,038	-0,001	-0,006	0,071	0,039	0,048	0,115	0,099	-0,018	-0,022	0,001	0,092	0,001	-0,013	0,022	0,000	-0,105	0,004	0,047	0,032	-0,030	0,031	-0,009	0,032	0,003	-0,008	-0,020	0,373	**1**	-0,839	0,027	0,016	0,007
Rural	0,133	-0,082	-0,069	0,449	0,001	0,177	-0,288	0,144	-0,232	-0,236	-0,099	-0,166	-0,081	-0,090	-0,367	-0,160	-0,104	0,054	0,077	-0,122	-0,087	0,070	-0,050	0,008	-0,231	0,005	0,210	0,168	0,054	0,189	0,208	0,149	0,193	0,277	0,192	0,116	0,115	0,217	0,158	-0,187	-0,070	0,027	-0,019	0,051	-0,818	-0,839	**1**	0,034	-0,009	0,024
Rec_DL	0,095	0,109	-0,058	-0,083	-0,010	-0,034	-0,002	0,058	-0,066	0,009	0,099	0,212	0,046	0,073	0,181	0,209	-0,024	0,226	0,018	0,078	-0,173	-0,036	0,106	0,243	0,003	-0,124	0,190	0,182	0,311	0,193	0,142	0,200	0,186	0,221	0,206	0,120	0,143	0,156	0,171	-0,216	0,074	-0,034	0,034	-0,060	-0,087	0,027	0,034	**1**	0,509	0,464
Ret_Tra_4	0,112	0,008	-0,043	-0,045	-0,052	-0,036	0,046	0,038	-0,024	-0,007	0,041	0,095	0,051	0,083	0,095	0,080	-0,086	0,075	-0,058	0,052	-0,106	-0,104	0,109	0,054	0,048	-0,001	0,012	0,027	0,088	0,015	0,019	0,058	0,001	0,029	0,031	0,024	-0,008	-0,031	0,018	-0,029	0,005	-0,158	0,138	-0,010	-0,001	0,016	-0,009	0,509	**1**	0,709
Ret_Tra_8	0,260	-0,033	-0,015	-0,063	-0,076	-0,072	0,036	0,107	-0,030	-0,033	0,003	0,105	0,012	0,079	0,117	0,166	-0,094	0,148	-0,043	0,055	-0,144	-0,219	0,226	0,083	0,165	-0,121	-0,015	0,000	0,123	-0,025		0,015	-0,053	-0,011	-0,021	-0,022	-0,115	-0,124	-0,012	0,013	-0,044	-0,194	0,319	-0,053	-0,047	0,007	0,024	0,464	0,709	**1**

Stepwise analysis of covariance on regional RGVA resilience performance by shock type
National economic downturns (NED) - Recovery of development level

Summary of the variables selection Rec_DL:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	NAT	NAT	IN	0,006	0,224	0,217	144,289	-7985,955	-7910,985	0,790
2	NAT / CRISIS	CRISIS	IN	0,006	0,241	0,233	111,887	-8016,113	-7925,078	0,775
3	ML_barg / NAT / CRISIS	ML_barg	IN	0,006	0,252	0,244	90,982	-8036,086	-7939,696	0,765
4	Gov_debt / ML_barg / NAT / CRISIS	Gov_debt	IN	0,006	0,258	0,249	80,852	-8045,848	-7944,103	0,761
5	GDP_PC / Gov_debt / ML_barg / NAT / CRISIS	GDP_PC	IN	0,006	0,262	0,253	72,786	-8053,677	-7946,577	0,757
6	GDP_PC / Gov_debt / ML_barg / SHDI / NAT / CRISIS	SHDI	IN	0,006	0,269	0,260	59,553	-8066,668	-7954,213	0,751
7	Pub_GVA / GDP_PC / Gov_debt / ML_barg / SHDI / NAT / CRISIS	Pub_GVA	IN	0,006	0,274	0,264	50,988	-8075,151	-7957,341	0,747
8	Mig_net / Pub_GVA / GDP_PC / Gov_debt / ML_barg / SHDI / NAT / CRISIS	Mig_net	IN	0,006	0,277	0,267	46,927	-8079,196	-7956,031	0,745
9	Mig_net / Pub_GVA / GDP_PC / Gov_debt / Cur_blc / ML_barg / SHDI / NAT / CRISIS	Cur_blc	IN	0,006	0,280	0,269	42,867	-8083,265	-7954,745	0,743

Stepwise analysis of covariance on regional RGVA resilience performance by shock type
National economic downturns (NED) - Recovery of development level

Goodness of fit statistics (Rec_DL):

Observations	1564
Sum of weights	1564
DF	1540
R^2	0,280
Adjusted R^2	0,269
MSE	0,006
RMSE	0,075
MAPE	1661,322
DW	1,694
Cp	42,867
AIC	-8083,265
SBC	-7954,745
PC	0,743
Press	9,023
Q^2	0,247

Analysis of variance (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	23	3,354	0,146	26,000	**<0,0001**
Error	1540	8,636	0,006		
Corrected Total	1563	11,990			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance by shock type
National economic downturns (NED) - Recovery of development level

Type I Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	1,000	0,142	0,142	25,329	0,000
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,054	0,054	9,691	0,002
HHI	0,000	0,000			
GDP_PC	1,000	0,004	0,004	0,789	0,374
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,019	0,019	3,339	0,068
Cur_blc	1,000	0,851	0,851	151,708	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,211	0,211	37,558	0,000
SHDI	1,000	0,150	0,150	26,811	0,000
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	13,000	1,545	0,119	21,194	0,000
CRISIS	3,000	0,377	0,126	22,418	0,000
Urb_1	0,000	0,000			

Type II Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	1,000	0,055	0,055	9,767	0,002
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GV	0,000	0,000			
Const_GV	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,057	0,057	10,186	0,001
HHI	0,000	0,000			
GDP_PC	1,000	0,068	0,068	12,155	0,001
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMF	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,051	0,051	9,031	0,003
Cur_blc	1,000	0,034	0,034	5,987	0,015
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,138	0,138	24,526	0,000
SHDI	1,000	0,089	0,089	15,856	0,000
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	13,000	1,313	0,101	18,014	0,000
CRISIS	3,000	0,377	0,126	22,418	0,000
Urb_1	0,000	0,000			

Type III Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	1,000	0,055	0,055	9,767	0,002
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GV	0,000	0,000			
Const_GV	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,057	0,057	10,186	0,001
HHI	0,000	0,000			
GDP_PC	1,000	0,068	0,068	12,155	0,001
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDF	0,000	0,000			
RnD_EMF	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,051	0,051	9,031	0,003
Cur_blc	1,000	0,034	0,034	5,987	0,015
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,138	0,138	24,526	0,000
SHDI	1,000	0,089	0,089	15,856	0,000
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	13,000	1,313	0,101	18,014	0,000
CRISIS	3,000	0,377	0,126	22,418	0,000
Urb_1	0,000	0,000			

Stepwise analysis of covariance on regional RGVA resilience performance by shock type
National economic downturns (NED) - Recovery of development level

Model parameters (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,484	0,123	-3,921	**<0,0001**	-0,725	-0,242
Pop_age	0,000	0,000				
Mig_net	0,001	0,000	2,840	**0,005**	0,000	0,002
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,117	0,041	2,845	**0,004**	0,036	0,198
HHI	0,000	0,000				
GDP_PC	-0,011	0,003	-3,277	**0,001**	-0,017	-0,004
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	-0,005	0,002	-2,582	**0,010**	-0,008	-0,001
Cur_blc	0,002	0,001	2,339	**0,019**	0,000	0,004
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	-0,034	0,008	-4,133	**<0,0001**	-0,051	-0,018
SHDI	0,508	0,135	3,757	**0,000**	0,243	0,773
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	0,017	0,013	1,247	0,213	-0,010	0,043
BE	0,046	0,013	3,704	**0,000**	0,022	0,071
DE	0,040	0,010	4,148	**<0,0001**	0,021	0,059
DK	0,003	0,015	0,173	0,863	-0,027	0,032
EL	-0,248	0,037	-6,697	**<0,0001**	-0,320	-0,175
ES	0,036	0,017	2,148	**0,032**	0,003	0,069
FI	0,055	0,033	1,663	0,096	-0,010	0,120
FR	0,042	0,012	3,538	**0,000**	0,019	0,065
IE	-0,056	0,061	-0,922	0,357	-0,176	0,063
IT	0,038	0,012	3,184	**0,001**	0,015	0,061
NL	0,041	0,014	2,890	**0,004**	0,013	0,069
PT	0,025	0,017	1,493	0,136	-0,008	0,057
SE	0,014	0,020	0,710	0,478	-0,025	0,053
UK	-0,052	0,019	-2,828	**0,005**	-0,089	-0,016
1: 90-93	0,050	0,008	6,589	**<0,0001**	0,035	0,066
2: 00-03	-0,032	0,006	-5,336	**<0,0001**	-0,044	-0,020
3: 08-09	-0,036	0,007	-5,240	**<0,0001**	-0,050	-0,023
4:BTW	0,018	0,010	1,755	0,079	-0,002	0,038
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				

Standardized coefficients (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,075	0,026	2,840	**0,005**	0,023	0,127
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GV	0,000	0,000				
Const_GV	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,081	0,029	2,845	**0,004**	0,025	0,138
HHI	0,000	0,000				
GDP_PC	-0,087	0,027	-3,277	**0,001**	-0,140	-0,035
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	-0,132	0,051	-2,582	**0,010**	-0,231	-0,032
Cur_blc	0,101	0,043	2,339	**0,019**	0,016	0,186
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	-0,362	0,087	-4,133	**<0,0001**	-0,533	-0,190
SHDI	0,299	0,079	3,757	**0,000**	0,143	0,455
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	0,075	0,060	1,247	0,213	-0,043	0,193
BE	0,232	0,063	3,704	**0,000**	0,109	0,355
DE	0,329	0,079	4,148	**<0,0001**	0,173	0,485
DK	0,012	0,067	0,173	0,863	-0,120	0,143
EL	-1,072	0,160	-6,697	**<0,0001**	-1,386	-0,758
ES	0,169	0,079	2,148	**0,032**	0,015	0,323
FI	0,241	0,145	1,663	0,096	-0,043	0,525
FR	0,253	0,071	3,538	**0,000**	0,113	0,393
IE	-0,236	0,256	-0,922	0,357	-0,738	0,266
IT	0,212	0,066	3,184	**0,001**	0,081	0,342
NL	0,197	0,068	2,890	**0,004**	0,063	0,331
PT	0,114	0,077	1,493	0,136	-0,036	0,265
SE	0,065	0,091	0,710	0,478	-0,114	0,244
UK	-0,219	0,077	-2,828	**0,005**	-0,371	-0,067
1: 90-93	0,307	0,047	6,589	**<0,0001**	0,215	0,398
2: 00-03	-0,164	0,031	-5,336	**<0,0001**	-0,225	-0,104
3: 08-09	-0,228	0,044	-5,240	**<0,0001**	-0,313	-0,143
4:BTW	0,036	0,020	1,755	0,079	-0,004	0,076
Urban	0,000	0,000				
Intermedia	0,000	0,000				
Rural	0,000	0,000				

Stepwise analysis of covariance on regional RGVA resilience performance by shock type
National economic downturns (NED) - Growth trajectory retention (4 year recovery period)

Summary of the variables selection Ret_Tra_4:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	NAT	NAT	IN	0,000	0,057	0,049	161,200	-11973,10	-11898,12	0,960
2	NAT / CRISIS	CRISIS	IN	0,000	0,097	0,088	95,649	-12034,46	-11943,43	0,923
3	ML_barg / NAT / CRISIS	ML_barg	IN	0,000	0,109	0,099	75,421	-12053,99	-11957,60	0,911
4	Gov_debt / ML_barg / NAT / CRISIS	Gov_debt	IN	0,000	0,126	0,116	47,134	-12081,82	-11980,07	0,895
5	Gov_debt / Cur_blc / ML_barg / NAT / CRISIS	Cur_blc	IN	0,000	0,130	0,120	41,304	-12087,62	-11980,52	0,892
6	RnD_EMP / Gov_debt / Cur_blc / ML_barg / NAT / CRISIS	RnD_EMP	IN	0,000	0,134	0,123	36,246	-12092,69	-11980,24	0,889
7	HHI / RnD_EMP / Gov_debt / Cur_blc / ML_barg / NAT / CRISIS	HHI	IN	0,000	0,138	0,126	31,280	-12097,70	-11979,89	0,886
8	Agri_GVA / HHI / RnD_EMP / Gov_debt / Cur_blc / ML_barg / NAT / CRISIS	Agri_GVA	IN	0,000	0,141	0,129	28,047	-12100,98	-11977,82	0,885
9	Agri_GVA / Pub_GVA / HHI / RnD_EMP / Gov_debt / Cur_blc / ML_barg / NAT / CRISIS	Pub_GVA	IN	0,000	0,144	0,131	25,459	-12103,63	-11975,11	0,883

Stepwise analysis of covariance on regional RGVA resilience performance by shock type
National economic downturns (NED) - Growth trajectory retention (4 year recovery period)

Goodness of fit statistics (Ret_Tra_4):

Observations	1564
Sum of weights	1564
DF	1540
R^2	0,144
Adjusted R^2	0,131
MSE	0,000
RMSE	0,021
MAPE	228,109
DW	1,626
Cp	25,459
AIC	-12103,63
SBC	-11975,11
PC	0,883
Press	0,705
Q^2	0,086

Analysis of variance (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	23	0,111	0,005	11,234	**<0,0001**
Error	1540	0,661	0,000		
Corrected	1563	0,771			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance by shock type
National economic downturns (NED) - Growth trajectory retention (4 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	1,000	0,002	0,002	3,562	0,059
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,001	0,001	2,807	0,094
HHI	1,000	0,002	0,002	4,600	0,032
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	1,000	0,005	0,005	11,856	0,001
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,012	0,012	27,563	0,000
Cur_blc	1,000	0,005	0,005	11,945	0,001
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,016	0,016	36,859	0,000
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	13,000	0,041	0,003	7,400	0,000
CRISIS	3,000	0,027	0,009	21,001	0,000
Urb_1	0,000	0,000			

Type II Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	1,000	0,003	0,003	5,847	0,016
Manu_GV	0,000	0,000			
Const_GV	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,002	0,002	4,584	0,032
HHI	1,000	0,005	0,005	11,901	0,001
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	1,000	0,004	0,004	9,905	0,002
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,017	0,017	40,470	0,000
Cur_blc	1,000	0,003	0,003	7,320	0,007
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,018	0,018	41,021	0,000
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	13,000	0,048	0,004	8,602	0,000
CRISIS	3,000	0,027	0,009	21,001	0,000
Urb_1	0,000	0,000			

Type III Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	1,000	0,003	0,003	5,847	0,016
Manu_GV	0,000	0,000			
Const_GV	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,002	0,002	4,584	0,032
HHI	1,000	0,005	0,005	11,901	0,001
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	1,000	0,004	0,004	9,905	0,002
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,017	0,017	40,470	0,000
Cur_blc	1,000	0,003	0,003	7,320	0,007
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,018	0,018	41,021	0,000
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	13,000	0,048	0,004	8,602	0,000
CRISIS	3,000	0,027	0,009	21,001	0,000
Urb_1	0,000	0,000			

Stepwise analysis of covariance on regional RGVA resilience performance by shock type
National economic downturns (NED) - Growth trajectory retention (4 year recovery period)

Model parameters (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,030	0,010	3,034	**0,002**	0,011	0,050
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	-0,082	0,042	-1,970	**0,049**	-0,164	0,000
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,021	0,010	1,970	**0,049**	0,000	0,041
HHI	-0,091	0,030	-2,995	**0,003**	-0,151	-0,032
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,002	0,001	2,891	**0,004**	0,001	0,004
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	-0,003	0,001	-5,103	**<0,0001**	-0,004	-0,002
Cur_blc	0,001	0,000	2,709	**0,007**	0,000	0,001
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	-0,012	0,002	-5,750	**<0,0001**	-0,016	-0,008
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	-0,021	0,004	-5,254	**<0,0001**	-0,029	-0,013
BE	0,002	0,003	0,687	0,492	-0,004	0,009
DE	-0,005	0,003	-1,587	0,113	-0,010	0,001
DK	-0,011	0,006	-2,024	**0,043**	-0,022	0,000
EL	0,002	0,010	0,205	0,837	-0,017	0,021
ES	0,005	0,004	1,220	0,223	-0,003	0,014
FI	0,009	0,011	0,851	0,395	-0,012	0,031
FR	-0,014	0,004	-3,928	**<0,0001**	-0,021	-0,007
IE	0,059	0,028	2,099	**0,036**	0,004	0,113
IT	-0,002	0,003	-0,480	0,631	-0,008	0,005
NL	0,008	0,004	1,975	**0,048**	0,000	0,016
PT	-0,018	0,005	-3,239	**0,001**	-0,028	-0,007
SE	0,008	0,005	1,577	0,115	-0,002	0,018
UK	-0,024	0,005	-4,485	**<0,0001**	-0,034	-0,013
1: 90-93	0,008	0,002	4,571	**<0,0001**	0,005	0,012
2: 00-03	-0,006	0,002	-3,546	**0,000**	-0,009	-0,003
3: 08-09	0,001	0,001	0,835	0,404	-0,002	0,004
4:BTW	-0,004	0,004	-1,030	0,303	-0,011	0,003
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				

Standardized coefficients (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	-0,077	0,039	-1,970	**0,049**	-0,154	0,000
Manu_GV	0,000	0,000				
Const_GV	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,056	0,029	1,970	**0,049**	0,000	0,113
HHI	-0,099	0,033	-2,995	**0,003**	-0,164	-0,034
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDF	0,000	0,000				
RnD_EMF	0,087	0,030	2,891	**0,004**	0,028	0,145
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	-0,290	0,057	-5,103	**<0,0001**	-0,402	-0,179
Cur_blc	0,112	0,041	2,709	**0,007**	0,031	0,194
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	-0,500	0,087	-5,750	**<0,0001**	-0,671	-0,330
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	-0,372	0,071	-5,254	**<0,0001**	-0,511	-0,233
BE	0,045	0,066	0,687	0,492	-0,084	0,175
DE	-0,151	0,095	-1,587	0,113	-0,337	0,036
DK	-0,195	0,096	-2,024	**0,043**	-0,385	-0,006
EL	0,035	0,169	0,205	0,837	-0,296	0,366
ES	0,101	0,083	1,220	0,223	-0,061	0,264
FI	0,162	0,191	0,851	0,395	-0,212	0,536
FR	-0,338	0,086	-3,928	**<0,0001**	-0,506	-0,169
IE	0,969	0,462	2,099	**0,036**	0,063	1,875
IT	-0,036	0,074	-0,480	0,631	-0,181	0,110
NL	0,156	0,079	1,975	**0,048**	0,001	0,310
PT	-0,322	0,100	-3,239	**0,001**	-0,518	-0,127
SE	0,145	0,092	1,577	0,115	-0,035	0,324
UK	-0,388	0,086	-4,485	**<0,0001**	-0,557	-0,218
1: 90-93	0,203	0,044	4,571	**<0,0001**	0,116	0,291
2: 00-03	-0,122	0,034	-3,546	**0,000**	-0,190	-0,055
3: 08-09	0,030	0,036	0,835	0,404	-0,041	0,101
4:BTW	-0,029	0,029	-1,030	0,303	-0,085	0,027
Urban	0,000	0,000				
Intermedia	0,000	0,000				
Rural	0,000	0,000				

Stepwise analysis of covariance on regional RGVA resilience performance by shock type
National economic downturns (NED) - Growth trajectory retention (8 year recovery period)

Summary of the variables selection Ret_Tra_8:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	NAT	NAT	IN	0,000	0,197	0,189	260,798	-10.110,0	-10.043,6	0,820
2	NAT / CRISIS	CRISIS	IN	0,000	0,286	0,278	104,528	-10.248,3	-10.166,5	0,733
3	Union / NAT / CRISIS	Union	IN	0,000	0,306	0,296	71,824	-10.279,5	-10.192,6	0,714
4	Union / Clu / NAT / CRISIS	Clu	IN	0,000	0,317	0,307	53,066	-10.297,8	-10.205,8	0,703
5	HHI / Union / Clu / NAT / CRISIS	HHI	IN	0,000	0,323	0,313	43,564	-10.307,2	-10.210,1	0,698
6	HHI / Cur_blc / Union / Clu / NAT / CRISIS	Cur_blc	IN	0,000	0,327	0,316	38,807	-10.311,9	-10.209,8	0,695
7	Pop_age / HHI / Cur_blc / Union / Clu / NAT / CRISIS	Pop_age	IN	0,000	0,331	0,320	33,741	-10.317,0	-10.209,7	0,692
8	Pop_age / Pub_GVA / HHI / Cur_blc / Union / Clu / NAT / CRISIS	Pub_GVA	IN	0,000	0,333	0,322	31,310	-10.319,5	-10.207,1	0,691
9	Pop_age / Pub_GVA / HHI / GFCF_PC / Cur_blc / Union / Clu / NAT / CRISIS	GFCF_PC	IN	0,000	0,336	0,324	28,703	-10.322,2	-10.204,7	0,690

Stepwise analysis of covariance on regional RGVA resilience performance by shock type
National economic downturns (NED) - Growth trajectory retention (8 year recovery period)

Goodness of fit statistics (Ret_Tra_8):

Observations	1222
Sum of weights	1222
DF	1199
R^2	0,336
Adjusted R^2	0,324
MSE	0,000
RMSE	0,015
MAPE	492,867
DW	1,563
Cp	28,703
AIC	-10322,15
SBC	-10204,66
PC	0,690
Press	0,263
Q^2	0,307

Analysis of variance (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	22	0,128	0,006	27,570	**<0,0001**
Error	1199	0,253	0,000		
Corrected	1221	0,380			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance by shock type
National economic downturns (NED) - Growth trajectory retention (8 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,026	0,026	121,819	0,000
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,002	0,002	8,899	0,003
HHI	1,000	0,000	0,000	2,226	0,136
GDP_PC	0,000	0,000			
GFCF_PC	1,000	0,002	0,002	9,698	0,002
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,000	0,000	1,147	0,284
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,005	0,005	25,325	0,000
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,004	0,004	16,620	0,000
NAT	12,000	0,070	0,006	27,599	0,000
CRISIS	3,000	0,019	0,006	29,875	0,000
Urb_1	0,000	0,000			

Type II Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,001	0,001	6,019	0,014
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GV	0,000	0,000			
Const_GV	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,001	0,001	6,553	0,011
HHI	1,000	0,003	0,003	13,581	0,000
GDP_PC	0,000	0,000			
GFCF_PC	1,000	0,001	0,001	4,585	0,032
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,002	0,002	10,459	0,001
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,008	0,008	39,543	0,000
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,004	0,004	19,321	0,000
NAT	12,000	0,058	0,005	22,755	0,000
CRISIS	3,000	0,019	0,006	29,875	0,000
Urb_1	0,000	0,000			

Type III Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,001	0,001	6,019	0,014
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GV	0,000	0,000			
Const_GV	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,001	0,001	6,553	0,011
HHI	1,000	0,003	0,003	13,581	0,000
GDP_PC	0,000	0,000			
GFCF_PC	1,000	0,001	0,001	4,585	0,032
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,002	0,002	10,459	0,001
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,008	0,008	39,543	0,000
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,004	0,004	19,321	0,000
NAT	12,000	0,058	0,005	22,755	0,000
CRISIS	3,000	0,019	0,006	29,875	0,000
Urb_1	0,000	0,000			

Stepwise analysis of covariance on regional RGVA resilience performance by shock type
National economic downturns (NED) - Growth trajectory retention (8 year recovery period)

Model parameters (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,042	0,013	3,192	**0,001**	0,016	0,068
Pop_age	0,004	0,002	2,118	**0,034**	0,000	0,007
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,020	0,010	1,953	0,051	0,000	0,041
HHI	-0,071	0,038	-1,898	0,058	-0,145	0,002
GDP_PC	0,000	0,000				
GFCF_PC	0,001	0,001	1,828	0,068	0,000	0,003
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	-0,001	0,000	-2,480	**0,013**	-0,001	0,000
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	-0,001	0,000	-5,477	**<0,0001**	-0,002	-0,001
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	-0,001	0,000	-3,318	**0,001**	-0,002	0,000
AT	-0,008	0,002	-3,706	**0,000**	-0,011	-0,004
BE	0,031	0,005	6,220	**<0,0001**	0,021	0,041
DE	-0,005	0,003	-1,668	0,096	-0,011	0,001
DK	0,054	0,011	5,094	**<0,0001**	0,033	0,074
EL	0,000	0,000				
ES	-0,020	0,008	-2,697	**0,007**	-0,035	-0,006
FI	0,040	0,011	3,713	**0,000**	0,019	0,061
FR	-0,035	0,008	-4,466	**<0,0001**	-0,050	-0,019
IE	-0,044	0,002	-20,675	**<0,0001**	-0,048	-0,040
IT	-0,003	0,003	-0,912	0,362	-0,008	0,003
NL	-0,029	0,005	-6,418	**<0,0001**	-0,038	-0,020
PT	-0,043	0,006	-6,705	**<0,0001**	-0,055	-0,030
SE	0,065	0,010	6,265	**<0,0001**	0,044	0,085
UK	-0,002	0,003	-0,682	0,496	-0,008	0,004
1: 90-93	0,007	0,002	4,500	**<0,0001**	0,004	0,010
2: 00-03	-0,006	0,001	-4,521	**<0,0001**	-0,009	-0,003
3: 08-09	0,003	0,002	2,183	**0,029**	0,000	0,007
4:BTW	-0,004	0,003	-1,525	0,128	-0,010	0,001
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				

Standardized coefficients (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,079	0,037	2,118	**0,034**	0,006	0,153
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GV	0,000	0,000				
Const_GV	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,070	0,036	1,953	0,051	0,000	0,139
HHI	-0,092	0,048	-1,898	0,058	-0,186	0,003
GDP_PC	0,000	0,000				
GFCF_PC	0,063	0,034	1,828	0,068	-0,005	0,130
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	-0,154	0,062	-2,480	**0,013**	-0,276	-0,032
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	-1,137	0,208	-5,477	**<0,0001**	-1,544	-0,730
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	-0,119	0,036	-3,318	**0,001**	-0,190	-0,049
AT	-0,154	0,041	-3,706	**0,000**	-0,235	-0,072
BE	0,736	0,118	6,220	**<0,0001**	0,504	0,968
DE	-0,212	0,127	-1,668	0,096	-0,461	0,037
DK	1,126	0,221	5,094	**<0,0001**	0,692	1,559
EL	0,000	0,000				
ES	-0,469	0,174	-2,697	**0,007**	-0,810	-0,128
FI	0,851	0,229	3,713	**0,000**	0,401	1,300
FR	-0,975	0,218	-4,466	**<0,0001**	-1,403	-0,547
IE	-0,875	0,042	-20,675	**<0,0001**	-0,958	-0,792
IT	-0,069	0,075	-0,912	0,362	-0,216	0,079
NL	-0,648	0,101	-6,418	**<0,0001**	-0,846	-0,450
PT	-0,942	0,140	-6,705	**<0,0001**	-1,218	-0,666
SE	1,441	0,230	6,265	**<0,0001**	0,990	1,892
UK	-0,040	0,058	-0,682	0,496	-0,154	0,075
1: 90-93	0,215	0,048	4,500	**<0,0001**	0,122	0,309
2: 00-03	-0,167	0,037	-4,521	**<0,0001**	-0,239	-0,094
3: 08-09	0,096	0,044	2,183	**0,029**	0,010	0,183
4:BTW	-0,040	0,027	-1,525	0,128	-0,093	0,012
Urban	0,000	0,000				
Intermedia	0,000	0,000				
Rural	0,000	0,000				

III.c.i.2. National industry shocks

Stepwise analysis of covariance on regional RGVA resilience performance by shock type
National industry shock (NIS)

Settings:
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Model selection: Stepwise
Probability for entry: 0,05 / Probability for removal: 0,1
Covariances: Corrections = Newey West (adjusted)(Lag = 1)
Use least squares means: Yes
Explanation of the variable codes can be found in table 28

Summary statistics (Quantitative data):

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Rec_DL	172	0	172	-0,490	0,190	-0,112	0,124
Ret_Tra_4	172	0	172	-0,125	0,083	-0,014	0,030
Ret_Tra_8	172	32	140	-0,091	0,035	-0,015	0,020
Pop_age	172	0	172	0,372	2,309	1,131	0,380
Mig_net	172	0	172	-16,787	52,407	2,443	7,101
Pop_work	172	0	172	0,343	0,667	0,461	0,056
Agri_GVA	172	0	172	0,000	0,130	0,037	0,030
Manu_GVA	172	0	172	0,045	0,720	0,254	0,127
Const_GVA	172	0	172	0,014	0,182	0,081	0,032
Serv_GVA	172	0	172	0,190	0,740	0,405	0,078
Pub_GVA	172	0	172	0,062	0,567	0,222	0,074
HHI	172	0	172	0,182	0,543	0,234	0,044
GDP_PC	172	0	172	-1,144	4,370	-0,149	0,643
GFCF_PC	172	0	172	-1,759	2,356	-0,143	0,751
PROD	172	0	172	-2,636	2,059	-0,110	0,902
RnD_GDP	172	0	172	0,140	8,234	1,701	1,338
RnD_EMP	172	0	172	0,000	3,649	1,263	0,844
MM_Ac	172	0	172	26,640	164,988	91,475	32,955
Avg_bus	172	0	172	2,252	18,605	8,147	5,247
Gov_debt	172	0	172	-11,100	4,000	-3,433	2,837
Cur_blc	172	0	172	-13,900	8,200	0,090	4,420
Gov_close	172	0	172	0,370	20,220	5,221	2,636
Lab_comp	172	0	172	410,956	134579,341	26360,627	21966,073
Union	172	0	172	7,906	78,406	26,768	12,382
ML_barg	172	0	172	1,000	4,750	2,560	0,660
SHDI	172	0	172	0,712	0,931	0,840	0,058
SC_Org	172	0	172	0,038	0,286	0,111	0,048
EoC	172	0	172	46,900	100,000	69,901	16,534
Clu	172	0	172	0,360	8,282	2,279	1,441

Number of removed observations: 25

Summary statistics (Qualitative data):

Variable	Categories	Counts	Frequencies	%
NAT	AT	12	12	6,977
	BE	6	6	3,488
	DE	57	57	33,140
	EL	3	3	1,744
	ES	14	14	8,140
	FI	2	2	1,163
	FR	19	19	11,047
	IT	25	25	14,535
	NL	3	3	1,744
	PT	12	12	6,977
	SE	1	1	0,581
	UK	18	18	10,465
CRISIS	1: 90-93	31	31	18,023
	2: 00-03	66	66	38,372
	3: 08-09	40	40	23,256
	4:BTW	35	35	20,349
Urb_1	Urban	33	33	19,186
	Intermedia	66	66	38,372
	Rural	73	73	42,442

Stepwise analysis of covariance on regional RGVA resilience performance by shock type
National industry shock (NIS)

Correlation matrix:

	Pop_age	Mig_net	Pop_work	Agri_GVA	Manu_GVA	Const_GVA	Serv_GVA	Pub_GVA	HHI	GDP_PC	GFCF_PC	PROD	RnD_GDP	RnD_EMP	MM_Ac	Avg_bus	Gov_debt	Cur_blc	Gov_close	Lab_comp	Union	ML_barg	SHDI	SC_Org	EoC	Clu	AT	BE	DE	EL	ES	FI	FR	IT	NL	PT	SE	UK	1: 90-93	2: 00-03	3: 08-09	4:BTW	Urban	Intermediate	Rural	Rec_DL	Ret_Tra_4	Ret_Tra_8
Pop_age	**1**	-0,061	0,309	0,006	0,066	-0,106	-0,180	0,119	0,040	0,012	-0,144	-0,148	0,102	0,141	-0,062	0,062	0,148	0,069	0,021	0,123	-0,190	0,043	0,346	0,038	-0,080	0,093	0,151	0,100	0,203	0,206	0,059	0,146	0,130	0,077	0,090	0,248	0,173	-0,179	-0,222	0,075	0,171	-0,019	-0,292	-0,176	0,254	-0,036	-0,121	-0,083
Mig_net	-0,061	**1**	0,031	0,007	-0,133	0,135	0,182	-0,023	-0,011	0,103	0,258	0,150	-0,041	-0,007	-0,020	-0,039	0,142	-0,142	-0,022	0,030	0,047	-0,066	0,047	0,088	0,062	0,056	-0,107	-0,075	-0,138	-0,104	-0,011	-0,103	-0,048	-0,122	-0,063	-0,166	-0,102	0,119	-0,266	-0,045	-0,297	0,245	-0,050	-0,147	0,114	-0,112	-0,135	0,032
Pop_work	0,309	0,031	**1**	-0,410	0,309	-0,265	-0,185	-0,056	0,295	0,191	0,305	0,111	0,384	0,381	0,298	0,503	0,353	0,206	0,249	0,102	0,029	-0,276	0,587	0,311	0,482	0,485	-0,100	-0,222	0,181	-0,216	-0,398	-0,173	-0,288	-0,474	-0,166	-0,072	-0,193	0,226	-0,196	0,034	0,295	-0,061	-0,132	-0,156	0,161	0,135	0,147	0,259
Agri_GVA	0,006	0,007	-0,410	**1**	-0,616	0,535	0,094	0,321	-0,644	-0,413	-0,273	-0,383	-0,396	-0,449	-0,578	-0,562	-0,095	-0,366	-0,201	-0,303	-0,113	0,123	-0,461	-0,297	-0,436	-0,039	0,114	0,090	-0,283	0,159	0,305	0,125	0,211	0,121	0,195	0,275	0,128	-0,139	-0,112	-0,016	-0,401	0,215	-0,383	-0,212	0,322	-0,105	-0,145	-0,351
Manu_GVA	0,066	-0,133	0,309	-0,616	**1**	-0,568	-0,542	-0,656	0,589	0,497	0,280	0,330	0,485	0,500	0,502	0,559	0,123	0,284	0,079	0,318	0,006	-0,116	0,379	0,283	0,314	0,128	0,003	-0,019	0,346	-0,019	-0,137	-0,033	-0,170	-0,053	-0,034	-0,046	0,004	0,001	0,143	0,078	0,438	-0,270	0,295	0,293	-0,327	-0,047	0,020	0,152
Const_GVA	-0,106	0,135	-0,265	0,535	-0,568	**1**	-0,024	0,350	-0,598	-0,551	-0,116	-0,431	-0,355	-0,380	-0,570	-0,417	-0,068	-0,400	-0,069	-0,325	-0,012	-0,021	-0,477	-0,208	-0,127	-0,086	0,133	-0,094	-0,345	-0,047	0,193	-0,068	0,002	-0,099	-0,108	0,030	-0,072	0,067	-0,125	-0,124	-0,416	0,276	-0,358	-0,267	0,343	0,023	0,063	-0,036
Serv_GVA	-0,180	0,182	-0,185	0,094	-0,542	-0,024	**1**	-0,146	-0,220	-0,029	0,024	0,158	-0,176	-0,140	0,101	-0,250	-0,251	0,067	0,048	0,063	0,132	0,298	0,013	-0,004	-0,288	-0,062	0,088	0,272	-0,052	0,163	0,130	0,201	0,169	0,306	0,219	0,000	0,166	-0,174	0,051	-0,052	-0,076	0,036	0,121	-0,021	-0,049	-0,017	0,010	-0,024
Pub_GVA	0,119	-0,023	-0,056	0,321	-0,656	0,350	-0,146	**1**	-0,261	-0,417	-0,347	-0,391	-0,333	-0,366	-0,488	-0,290	0,120	-0,237	-0,074	-0,348	-0,098	-0,153	-0,271	-0,271	-0,005	-0,102	-0,201	-0,250	-0,275	-0,184	-0,109	-0,176	0,028	-0,237	-0,204	-0,047	-0,202	0,210	-0,200	-0,018	-0,331	0,221	-0,324	-0,281	0,334	0,132	-0,013	-0,063
HHI	0,040	-0,011	0,295	-0,644	0,589	-0,598	-0,220	-0,261	**1**	0,739	0,262	0,381	0,527	0,505	0,417	0,452	0,075	0,236	0,070	0,256	0,127	-0,039	0,302	0,257	0,334	0,094	-0,156	-0,047	0,234	-0,108	-0,191	-0,069	-0,217	-0,102	-0,119	-0,160	-0,104	0,101	0,154	0,094	0,295	-0,224	0,323	0,235	-0,306	-0,174	-0,092	0,198
GDP_PC	0,012	0,103	0,191	-0,413	0,497	-0,551	-0,029	-0,417	0,739	**1**	0,442	0,597	0,490	0,470	0,500	0,378	0,085	0,339	0,188	0,330	0,034	-0,037	0,381	0,333	0,205	0,148	-0,026	0,041	0,240	-0,007	-0,106	0,046	-0,029	0,002	0,063	-0,155	0,032	-0,020	0,062	0,100	0,217	-0,159	0,258	0,200	-0,251	-0,188	-0,155	0,067
GFCF_PC	-0,144	0,258	0,305	-0,273	0,280	-0,116	0,024	-0,347	0,262	0,442	**1**	0,684	0,434	0,418	0,407	0,274	0,228	0,317	0,329	0,249	0,153	-0,126	0,354	0,383	0,337	0,315	-0,022	-0,084	-0,015	-0,218	-0,250	-0,144	-0,142	-0,206	-0,140	-0,444	-0,174	0,200	-0,118	-0,096	-0,034	0,103	0,032	-0,002	-0,015	-0,032	0,001	0,225
PROD	-0,148	0,150	0,111	-0,383	0,330	-0,431	0,158	-0,391	0,381	0,597	0,684	**1**	0,440	0,431	0,678	0,464	0,190	0,636	0,312	0,411	-0,030	-0,085	0,525	0,491	0,329	0,177	-0,055	0,090	0,292	-0,112	-0,170	0,001	0,079	-0,056	0,026	-0,394	-0,009	0,019	0,035	0,007	0,170	-0,087	0,242	0,181	-0,232	0,078	0,036	0,158
RnD_GDP	0,102	-0,041	0,384	-0,396	0,485	-0,355	-0,176	-0,333	0,527	0,490	0,434	0,440	**1**	0,893	0,429	0,476	0,152	0,347	0,146	0,357	-0,103	-0,201	0,486	0,269	0,358	0,237	-0,038	-0,091	0,206	-0,141	-0,212	-0,122	-0,109	-0,232	-0,093	-0,186	-0,107	0,111	0,022	0,012	0,303	-0,138	0,108	0,092	-0,110	0,063	0,014	0,141
RnD_EMP	0,141	-0,007	0,381	-0,449	0,500	-0,380	-0,140	-0,366	0,505	0,470	0,418	0,431	0,893	**1**	0,450	0,438	0,187	0,271	0,109	0,412	-0,101	-0,102	0,570	0,288	0,286	0,205	0,018	-0,016	0,221	-0,019	-0,133	-0,055	-0,077	-0,176	-0,045	-0,151	-0,047	0,043	-0,033	-0,003	0,377	-0,141	0,188	0,164	-0,194	0,043	0,038	0,164
MM_Ac	-0,062	-0,020	0,298	-0,578	0,502	-0,570	0,101	-0,488	0,417	0,500	0,407	0,678	0,429	0,450	**1**	0,579	0,065	0,548	0,185	0,396	0,034	0,003	0,554	0,433	0,274	0,157	0,056	0,179	0,416	-0,004	-0,222	0,022	-0,010	-0,008	0,135	-0,183	0,047	-0,064	0,111	0,043	0,316	-0,192	0,399	0,219	-0,335	0,155	0,202	0,213
Avg_bus	0,062	-0,039	0,503	-0,562	0,559	-0,417	-0,250	-0,290	0,452	0,378	0,274	0,464	0,476	0,438	0,579	**1**	0,306	0,521	0,169	0,218	-0,151	-0,364	0,652	0,602	0,728	0,232	-0,061	-0,097	0,676	-0,095	-0,188	-0,065	-0,263	-0,289	-0,065	-0,183	-0,052	0,043	-0,121	-0,051	0,293	-0,050	0,179	0,212	-0,219	0,198	0,243	0,311
Gov_debt	0,148	0,142	0,353	-0,095	0,123	-0,068	-0,251	0,120	0,075	0,085	0,228	0,190	0,152	0,187	0,065	0,306	**1**	0,291	0,279	-0,114	-0,005	-0,233	0,411	0,364	0,497	0,228	-0,126	-0,178	0,024	-0,269	-0,093	-0,144	-0,207	-0,467	-0,211	-0,308	-0,194	0,237	-0,364	0,064	0,036	0,095	-0,097	-0,042	0,075	0,167	0,026	0,106
Cur_blc	0,069	-0,142	0,206	-0,366	0,284	-0,400	0,067	-0,237	0,236	0,339	0,317	0,636	0,347	0,271	0,548	0,521	0,291	**1**	0,571	0,191	-0,099	-0,009	0,614	0,655	0,285	0,281	0,235	0,246	0,521	0,062	0,012	0,273	0,218	0,057	0,253	-0,135	0,260	-0,237	0,022	0,090	0,387	-0,208	0,083	0,122	-0,116	0,173	0,004	0,035
Gov_close	0,021	-0,022	0,249	-0,201	0,079	-0,069	0,048	-0,074	0,070	0,188	0,329	0,312	0,146	0,109	0,185	0,169	0,279	0,571	**1**	-0,005	0,307	0,140	0,305	0,578	0,094	0,464	0,453	0,169	0,225	0,120	-0,028	0,410	0,226	0,066	0,184	0,035	0,334	-0,238	-0,027	0,134	0,212	-0,138	-0,165	-0,100	0,144	0,185	0,019	0,125
Lab_comp	0,123	0,030	0,102	-0,303	0,318	-0,325	0,063	-0,348	0,256	0,330	0,249	0,411	0,357	0,412	0,396	0,218	-0,114	0,191	-0,005	**1**	-0,189	-0,004	0,334	0,076	-0,056	-0,288	0,047	0,100	0,291	0,127	0,073	0,152	0,165	0,303	0,172	0,071	0,180	-0,200	0,109	0,078	0,322	-0,210	0,212	0,128	-0,185	0,107	0,046	0,110
Union	-0,190	0,047	0,029	-0,113	0,006	-0,012	0,132	-0,098	0,127	0,034	0,153	-0,030	-0,103	-0,101	0,034	-0,151	-0,005	-0,099	0,307	-0,189	**1**	0,302	-0,229	-0,048	0,002	0,273	-0,055	0,051	-0,302	-0,185	-0,313	-0,044	-0,483	0,098	-0,194	-0,095	-0,135	0,198	0,157	-0,088	-0,106	0,024	0,134	0,017	-0,078	-0,129	-0,018	0,044
ML_barg	0,043	-0,066	-0,276	0,123	-0,116	-0,021	0,298	-0,153	-0,039	-0,037	-0,126	-0,085	-0,201	-0,102	0,003	-0,364	-0,233	-0,009	0,140	-0,004	0,302	**1**	-0,150	0,145	-0,658	0,097	0,485	0,784	0,175	0,653	0,523	0,699	0,449	0,522	0,591	0,578	0,623	-0,648	0,132	0,074	0,039	-0,101	-0,008	0,118	-0,067	-0,122	-0,088	-0,075
SHDI	0,346	0,047	0,587	-0,461	0,379	-0,477	0,013	-0,271	0,302	0,381	0,354	0,525	0,486	0,570	0,554	0,652	0,411	0,614	0,305	0,334	-0,229	-0,150	**1**	0,603	0,370	0,327	0,105	0,155	0,558	0,135	-0,077	0,144	0,062	-0,115	0,151	-0,113	0,155	-0,144	-0,352	0,053	0,416	-0,060	0,026	0,117	-0,084	0,172	0,126	0,207
SC_Org	0,038	0,088	0,311	-0,297	0,283	-0,208	-0,004	-0,271	0,257	0,333	0,383	0,491	0,269	0,288	0,433	0,602	0,364	0,655	0,578	0,076	-0,048	0,145	0,603	**1**	0,304	0,434	0,408	0,377	0,694	0,337	0,294	0,487	0,187	0,000	0,423	0,070	0,443	-0,419	-0,230	0,019	0,201	-0,002	-0,008	0,153	-0,089	0,139	0,143	0,244
EoC	-0,080	0,062	0,482	-0,436	0,314	-0,127	-0,288	-0,005	0,334	0,205	0,337	0,329	0,358	0,286	0,274	0,728	0,497	0,285	0,094	-0,056	0,002	-0,658	0,370	0,304	**1**	0,177	-0,470	-0,599	0,081	-0,637	-0,456	-0,571	-0,654	-0,713	-0,609	-0,661	-0,594	0,624	-0,170	-0,215	-0,005	0,167	0,160	0,068	-0,122	0,168	0,231	0,344
Clu	0,093	0,056	0,485	-0,039	0,128	-0,086	-0,062	-0,102	0,094	0,148	0,315	0,177	0,237	0,205	0,157	0,232	0,228	0,281	0,464	-0,288	0,273	0,097	0,327	0,434	0,177	**1**	0,181	0,095	0,102	0,047	-0,170	0,107	-0,100	-0,304	0,114	0,086	0,090	-0,015	-0,098	-0,005	0,145	-0,019	-0,131	-0,125	0,142	-0,036	0,055	0,051
AT	0,151	-0,107	-0,100	0,114	0,003	0,133	0,088	-0,201	-0,156	-0,026	-0,022	-0,055	-0,038	0,018	0,056	-0,061	-0,126	0,235	0,453	0,047	-0,055	0,485	0,105	0,408	-0,470	0,181	**1**	0,669	0,436	0,722	0,579	0,743	0,543	0,512	0,722	0,597	0,766	-0,793	-0,071	0,170	0,194	-0,131	-0,231	-0,019	0,128	0,044	-0,037	-0,082
BE	0,100	-0,075	-0,222	0,090	-0,019	-0,094	0,272	-0,250	-0,047	0,041	-0,084	0,090	-0,091	-0,016	0,179	-0,097	-0,178	0,246	0,169	0,100	0,051	0,784	0,155	0,377	-0,599	0,095	0,669	**1**	0,529	0,794	0,652	0,815	0,617	0,588	0,794	0,669	0,839	-0,867	-0,007	0,152	0,176	-0,140	-0,059	0,150	-0,061	-0,038	-0,051	-0,069
DE	0,203	-0,138	0,181	-0,283	0,346	-0,345	-0,052	-0,275	0,234	0,240	-0,015	0,292	0,206	0,221	0,416	0,676	0,024	0,521	0,225	0,291	-0,302	0,175	0,558	0,694	0,081	0,102	0,436	0,529	**1**	0,593	0,412	0,618	0,359	0,309	0,593	0,436	0,646	-0,676	-0,138	0,075	0,325	-0,115	0,026	0,246	-0,162	0,172	0,149	0,162
EL	0,206	-0,104	-0,216	0,159	-0,019	-0,047	0,163	-0,184	-0,108	-0,007	-0,218	-0,112	-0,141	-0,019	-0,004	-0,095	-0,269	0,062	0,120	0,127	-0,185	0,653	0,135	0,337	-0,637	0,047	0,722	0,794	0,593	**1**	0,704	0,870	0,670	0,642	0,848	0,722	0,894	-0,922	-0,121	0,085	0,116	-0,040	-0,149	0,103	0,013	-0,098	-0,043	
ES	0,059	-0,011	-0,398	0,305	-0,137	0,193	0,130	-0,109	-0,191	-0,106	-0,250	-0,170	-0,212	-0,133	-0,222	-0,188	-0,093	0,012	-0,028	0,073	-0,313	0,523	-0,077	0,294	-0,456	-0,170	0,579	0,652	0,412	0,704	**1**	0,725	0,525	0,492	0,704	0,579	0,749	-0,775	-0,155	0,013	-0,018	0,061	-0,089	0,178	-0,063	0,010	-0,064	-0,066
FI	0,146	-0,103	-0,173	0,125	-0,033	-0,068	0,201	-0,176	-0,069	0,046	-0,144	0,001	-0,122	-0,055	0,022	-0,065	-0,144	0,273	0,410	0,152	-0,044	0,699	0,144	0,487	-0,571	0,107	0,743	0,815	0,618	0,870	0,725	**1**	0,691	0,663	0,870	0,743	0,917	-0,945	-0,068	0,164	0,174	-0,121	-0,135	0,125	-0,008	0,043	-0,057	-0,063
FR	0,130	-0,048	-0,288	0,211	-0,170	0,002	0,169	0,028	-0,217	-0,029	-0,142	0,079	-0,109	-0,077	-0,010	-0,263	-0,207	0,218	0,226	0,165	-0,483	0,449	0,062	0,187	-0,654	-0,100	0,543	0,617	0,359	0,670	0,525	0,691	**1**	0,452	0,670	0,543	0,715	-0,741	-0,061	0,300	0,151	-0,224	-0,247	-0,069	0,167	0,076	-0,118	-0,176
IT	0,077	-0,122	-0,474	0,121	-0,053	-0,099	0,306	-0,237	-0,102	0,002	-0,206	-0,056	-0,232	-0,176	-0,008	-0,289	-0,467	0,057	0,066	0,303	0,098	0,522	-0,115	0,000	-0,713	-0,304	0,512	0,588	0,309	0,642	0,492	0,663	0,452	**1**	0,642	0,512	0,687	-0,714	0,154	0,153	0,138	-0,186	0,041	0,160	-0,117	-0,039	-0,160	-0,201
NL	0,090	-0,063	-0,166	0,195	-0,034	-0,108	0,219	-0,204	-0,119	0,063	-0,140	0,026	-0,093	-0,045	0,135	-0,065	-0,211	0,253	0,184	0,172	-0,194	0,591	0,151	0,423	-0,609	0,114	0,722	0,794	0,593	0,848	0,704	0,870	0,670	0,642	**1**	0,722	0,894	-0,922	-0,065	0,178	0,168	-0,126	-0,057	0,141	-0,057	0,007	-0,059	-0,118
PT	0,248	-0,166	-0,072	0,275	-0,046	0,030	0,000	-0,047	-0,160	-0,155	-0,444	-0,394	-0,186	-0,151	-0,183	-0,183	-0,308	-0,135	0,035	0,071	-0,095	0,578	-0,113	0,070	-0,661	0,086	0,597	0,669	0,436	0,722	0,579	0,743	0,543	0,512	0,722	**1**	0,766	-0,793	0,042	0,208	0,215	-0,201	-0,212	0,012	0,100	-0,023	-0,060	-0,165
SE	0,173	-0,102	-0,193	0,128	0,004	-0,072	0,166	-0,202	-0,104	0,032	-0,174	-0,009	-0,107	-0,047	0,047	-0,052	-0,194	0,260	0,334	0,180	-0,135	0,623	0,155	0,443	-0,594	0,090	0,766	0,839	0,646	0,894	0,749	0,917	0,715	0,687	0,894	0,766	**1**	-0,971	-0,041	0,174	0,236	-0,161	-0,145	0,108	0,008	0,026	-0,056	-0,081
UK	-0,179	0,119	0,226	-0,139	0,001	0,067	-0,174	0,210	0,101	-0,020	0,200	0,019	0,111	0,043	-0,064	0,043	0,237	-0,237	-0,238	-0,200	0,198	-0,648	-0,144	-0,419	0,624	-0,015	-0,793	-0,867	-0,676	-0,922	-0,775	-0,945	-0,741	-0,714	-0,922	-0,793	-0,971	**1**	0,044	-0,185	-0,217	0,157	0,131	-0,133	0,014	-0,031	0,054	0,100
1: 90-93	-0,222	-0,266	-0,196	-0,112	0,143	-0,125	0,051	-0,200	0,154	0,062	-0,118	0,035	0,022	-0,033	0,111	-0,121	-0,364	0,022	-0,027	0,109	0,157	0,132	-0,352	-0,230	-0,170	-0,098	-0,071	-0,007	-0,138	-0,121	-0,155	-0,068	0,061	0,154	-0,065	0,042	-0,041	0,044	**1**	0,451	0,500	-0,797	0,176	0,019	-0,101	-0,093	-0,104	-0,161
2: 00-03	0,075	-0,045	0,034	-0,016	0,078	-0,124	-0,052	-0,018	0,094	0,100	-0,096	0,007	0,012	-0,003	0,043	-0,051	0,064	0,090	0,134	0,078	-0,088	0,074	0,053	0,019	-0,215	-0,005	0,170	0,152	0,075	0,085	0,013	0,164	0,300	0,153	0,178	0,208	0,174	-0,185	0,451	**1**	0,404	-0,801	-0,123	-0,102	0,124	-0,038	-0,255	-0,359
3: 08-09	0,171	-0,297	0,295	-0,401	0,438	-0,416	-0,076	-0,331	0,295	0,217	-0,034	0,170	0,303	0,377	0,316	0,293	0,036	0,387	0,212	0,322	-0,106	0,039	0,416	0,201	-0,005	0,145	0,194	0,176	0,325	0,116	-0,018	0,174	0,151	0,138	0,168	0,215	0,236	-0,217	0,500	0,404	**1**	-0,788	0,108	0,120	-0,127	0,066	-0,010	0,044
4:BTW	-0,019	0,245	-0,061	0,215	-0,270	0,276	0,036	0,221	-0,224	-0,159	0,103	-0,087	-0,138	-0,141	-0,192	-0,050	0,095	-0,208	-0,138	-0,210	0,024	-0,101	-0,060	-0,002	0,167	-0,019	-0,131	-0,140	-0,115	-0,040	0,061	-0,121	-0,224	-0,186	-0,126	-0,201	-0,161	0,157	-0,797	-0,801	-0,788	**1**	-0,055	-0,009	0,033	0,026	0,162	0,224
Urban	-0,292	-0,050	-0,132	-0,383	0,295	-0,358	0,121	-0,324	0,323	0,258	0,032	0,242	0,108	0,188	0,399	0,179	-0,097	0,083	-0,165	0,212	0,134	-0,008	0,026	-0,008	0,160	-0,131	-0,231	-0,059	0,026	-0,149	-0,089	-0,135	-0,247	0,041	-0,057	-0,212	-0,145	0,131	0,176	-0,123	0,108	-0,055	**1**	0,616	-0,879	0,038	0,197	0,221
Intermediate	-0,176	-0,147	-0,156	-0,212	0,293	-0,267	-0,021	-0,281	0,235	0,200	-0,002	0,181	0,092	0,164	0,219	0,212	-0,042	0,122	-0,100	0,128	0,017	0,118	0,117	0,153	0,068	-0,125	-0,019	0,150	0,246	0,103	0,178	0,125	-0,069	0,160	0,141	0,012	0,108	-0,133	0,019	-0,102	0,120	-0,009	0,616	**1**	-0,917	0,042	0,136	0,204
Rural	0,254	0,114	0,161	0,322	-0,327	0,343	-0,049	0,334	-0,306	-0,251	-0,015	-0,232	-0,110	-0,194	-0,335	-0,219	0,075	-0,116	0,144	-0,185	-0,078	-0,067	-0,084	-0,089	-0,122	0,142	0,128	-0,061	-0,162	0,013	-0,063	-0,008	0,167	-0,117	-0,057	0,100	0,008	0,014	-0,101	0,124	-0,127	0,033	-0,879	-0,917	**1**	-0,045	-0,182	-0,237
Rec_DL	-0,036	-0,112	0,135	-0,105	-0,047	0,023	-0,017	0,132	-0,174	-0,188	-0,032	0,078	0,063	0,043	0,155	0,198	0,167	0,173	0,185	0,107	-0,129	-0,122	0,172	0,139	0,168	-0,036	0,044	-0,038	0,172	-0,098	0,010	0,043	0,076	-0,039	0,007	-0,023	0,026	-0,031	-0,093	-0,038	0,066	0,026	0,038	0,042	-0,045	**1**	0,599	0,473
Ret_Tra_4	-0,121	-0,135	0,147	-0,145	0,020	0,063	0,010	-0,013	-0,092	-0,155	0,001	0,036	0,014	0,038	0,202	0,243	0,026	0,004	0,019	0,046	-0,018	-0,088	0,126	0,143	0,231	0,055	-0,037	-0,051	0,149	-0,043	-0,064	-0,057	-0,118	-0,160	-0,059	-0,060	-0,056	0,054	-0,104	-0,255	-0,010	0,162	0,197	0,136	-0,182	0,599	**1**	0,665
Ret_Tra_8	-0,083	0,032	0,259	-0,351	0,152	-0,036	-0,024	-0,063	0,198	0,067	0,225	0,158	0,141	0,164	0,213	0,311	0,106	0,035	0,125	0,110	0,044	-0,075	0,207	0,244	0,344	0,051	-0,082	-0,069	0,162		-0,066	-0,063	-0,176	-0,201	-0,118	-0,165	-0,081	0,100	-0,161	-0,359	0,044	0,224	0,221	0,204	-0,237	0,473	0,665	**1**

Stepwise analysis of covariance on regional RGVA resilience performance by shock type
National industry shock (NIS) - Recovery of development level

Summary of the variables selection Rec_DL:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	NAT	NAT	IN	0,014	0,173	0,116	55,005	-726,62	-688,85	0,952
2	GDP_PC / NAT	GDP_PC	IN	0,012	0,257	0,201	36,320	-743,11	-702,19	0,865
3	GDP_PC / MM_Ac / NAT	MM_Ac	IN	0,012	0,291	0,233	29,901	-749,24	-705,17	0,834
4	GDP_PC / MM_Ac / Cur_blc / NAT	Cur_blc	IN	0,011	0,318	0,257	25,285	-753,91	-706,70	0,812
5	GDP_PC / MM_Ac / Cur_blc / SHDI / NAT	SHDI	IN	0,011	0,340	0,276	22,036	-757,39	-707,03	0,796
6	Mig_net / GDP_PC / MM_Ac / Cur_blc / SHDI / NAT	Mig_net	IN	0,011	0,361	0,295	18,855	-760,98	-707,47	0,780

Stepwise analysis of covariance on regional RGVA resilience performance by shock type
National industry shock (NIS) - Recovery of development level

Goodness of fit statistics (Rec_DL):

Observations	172
Sum of weights	172
DF	155
R^2	0,361
Adjusted R^2	0,295
MSE	0,011
RMSE	0,104
MAPE	212,086
DW	1,892
Cp	18,855
AIC	-760,982
SBC	-707,474
PC	0,780
Press	2,416
Q^2	0,087

Analysis of variance (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	16	0,954	0,060	5,464	**<0,0001**
Error	155	1,691	0,011		
Corrected	171	2,645			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance by shock type
National industry shock (NIS) - Recovery of development level

Type I Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	1,000	0,033	0,033	3,036	0,083
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	1,000	0,083	0,083	7,645	0,006
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,209	0,209	19,180	0,000
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,040	0,040	3,688	0,057
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	1,000	0,031	0,031	2,838	0,094
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	11,000	0,557	0,051	4,640	0,000
CRISIS	0,000	0,000			
Urb_1	0,000	0,000			

Type II Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	1,000	0,056	0,056	5,119	0,025
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GV	0,000	0,000			
Const_GV	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	1,000	0,292	0,292	26,774	0,000
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,068	0,068	6,267	0,013
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,145	0,145	13,320	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	1,000	0,078	0,078	7,115	0,008
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	11,000	0,557	0,051	4,640	0,000
CRISIS	0,000	0,000			
Urb_1	0,000	0,000			

Type III Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	1,000	0,056	0,056	5,119	0,025
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GV	0,000	0,000			
Const_GV	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	1,000	0,292	0,292	26,774	0,000
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,068	0,068	6,267	0,013
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,145	0,145	13,320	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	1,000	0,078	0,078	7,115	0,008
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	11,000	0,557	0,051	4,640	0,000
CRISIS	0,000	0,000			
Urb_1	0,000	0,000			

Stepwise analysis of covariance on regional RGVA resilience performance by shock type
National industry shock (NIS) - Recovery of development level

Model parameters (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,742	0,200	-3,710	**0,000**	-1,138	-0,347
Pop_age	0,000	0,000				
Mig_net	-0,003	0,002	-1,462	0,146	-0,007	0,001
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	-0,078	0,013	-6,155	**<0,0001**	-0,103	-0,053
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,001	0,000	2,495	**0,014**	0,000	0,002
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	-0,015	0,005	-3,221	**0,002**	-0,025	-0,006
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,604	0,239	2,533	**0,012**	0,133	1,076
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	0,048	0,022	2,131	**0,035**	0,003	0,092
BE	-0,065	0,048	-1,350	0,179	-0,161	0,030
DE	0,073	0,032	2,278	**0,024**	0,010	0,136
EL	-0,465	0,069	-6,726	**<0,0001**	-0,602	-0,328
ES	0,018	0,034	0,526	0,600	-0,050	0,086
FI	0,243	0,137	1,775	0,078	-0,027	0,513
FR	0,077	0,021	3,683	**0,000**	0,035	0,118
IT	0,003	0,028	0,109	0,914	-0,052	0,058
NL	0,019	0,095	0,205	0,838	-0,168	0,206
PT	-0,102	0,055	-1,844	0,067	-0,212	0,007
SE	0,162	0,048	3,353	**0,001**	0,066	0,257
UK	-0,010	0,034	-0,285	0,776	-0,076	0,057
1: 90-93	0,000	0,000				
2: 00-03	0,000	0,000				
3: 08-09	0,000	0,000				
4:BTW	0,000	0,000				
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				

Standardized coefficients (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	-0,164	0,112	-1,462	0,146	-0,384	0,057
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GV	0,000	0,000				
Const_GV	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	-0,402	0,065	-6,155	**<0,0001**	-0,530	-0,273
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMF	0,000	0,000				
MM_Ac	0,280	0,112	2,495	**0,014**	0,058	0,501
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	-0,548	0,170	-3,221	**0,002**	-0,884	-0,212
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,280	0,111	2,533	**0,012**	0,062	0,499
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	0,159	0,075	2,131	**0,035**	0,012	0,307
BE	-0,194	0,143	-1,350	0,179	-0,477	0,090
DE	0,365	0,160	2,278	**0,024**	0,049	0,682
EL	-1,269	0,189	-6,726	**<0,0001**	-1,641	-0,896
ES	0,062	0,119	0,526	0,600	-0,172	0,297
FI	0,643	0,362	1,775	0,078	-0,072	1,357
FR	0,286	0,078	3,683	**0,000**	0,133	0,440
IT	0,012	0,111	0,109	0,914	-0,208	0,232
NL	0,053	0,258	0,205	0,838	-0,458	0,563
PT	-0,343	0,186	-1,844	0,067	-0,711	0,024
SE	0,414	0,123	3,353	**0,001**	0,170	0,658
UK	-0,024	0,083	-0,285	0,776	-0,187	0,140
1: 90-93	0,000	0,000				
2: 00-03	0,000	0,000				
3: 08-09	0,000	0,000				
4:BTW	0,000	0,000				
Urban	0,000	0,000				
Intermedia	0,000	0,000				
Rural	0,000	0,000				

Stepwise analysis of covariance on regional RGVA resilience performance by shock type
National industry shock (NIS) - Growth trajectory retention (4 year recovery period)

Summary of the variables selection Ret_Tra_4:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	Avg_bus	Avg_bus	IN	0,001	0,059	0,054	30,653	-1216,488	-1210,193	0,963
2	GDP_PC / Avg_bus	GDP_PC	IN	0,001	0,131	0,120	17,588	-1228,052	-1218,610	0,900
3	GDP_PC / MM_Ac / Avg_bus	MM_Ac	IN	0,001	0,166	0,151	12,074	-1233,241	-1220,651	0,874
4	GDP_PC / MM_Ac / Avg_bus / Cur_blc	Cur_blc	IN	0,001	0,194	0,174	8,270	-1237,006	-1221,268	0,855
5	GDP_PC / MM_Ac / Avg_bus / Cur_blc / CRISIS	CRISIS	IN	0,001	0,236	0,204	5,256	-1240,361	-1215,181	0,838
6	GDP_PC / MM_Ac / Avg_bus / Cur_blc / Gov_close / CRISIS	Gov_close	IN	0,001	0,255	0,218	3,332	-1242,598	-1214,271	0,827

Stepwise analysis of covariance on regional RGVA resilience performance by shock type
National industry shock (NIS) - Growth trajectory retention (4 year recovery period)

Goodness of fit statistics (Ret_Tra_4):

Observations	172
Sum of weights	172
DF	163
R^2	0,255
Adjusted R^2	0,218
MSE	0,001
RMSE	0,026
MAPE	261,452
DW	2,108
Cp	3,332
AIC	-1242,598
SBC	-1214,271
PC	0,827
Press	0,128
Q^2	0,155

Analysis of variance (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	8	0,039	0,005	6,970	**<0,0001**
Error	163	0,113	0,001		
Corrected	171	0,151			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance by shock type
National industry shock (NIS) - Growth trajectory retention (4 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	1,000	0,004	0,004	5,275	0,023
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,016	0,016	22,878	0,000
Avg_bus	1,000	0,006	0,006	8,190	0,005
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,004	0,004	6,013	0,015
Gov_close	1,000	0,002	0,002	3,102	0,080
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	0,000	0,000			
CRISIS	3,000	0,007	0,002	3,434	0,018
Urb_1	0,000	0,000			

Type II Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GV	0,000	0,000			
Const_GV	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	1,000	0,013	0,013	19,304	0,000
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMF	0,000	0,000			
MM_Ac	1,000	0,009	0,009	12,806	0,000
Avg_bus	1,000	0,006	0,006	9,178	0,003
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,006	0,006	8,676	0,004
Gov_close	1,000	0,003	0,003	4,065	0,045
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	0,000	0,000			
CRISIS	3,000	0,007	0,002	3,434	0,018
Urb_1	0,000	0,000			

Type III Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GV	0,000	0,000			
Const_GV	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	1,000	0,013	0,013	19,304	0,000
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMF	0,000	0,000			
MM_Ac	1,000	0,009	0,009	12,806	0,000
Avg_bus	1,000	0,006	0,006	9,178	0,003
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,006	0,006	8,676	0,004
Gov_close	1,000	0,003	0,003	4,065	0,045
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	0,000	0,000			
CRISIS	3,000	0,007	0,002	3,434	0,018
Urb_1	0,000	0,000			

Stepwise analysis of covariance on regional RGVA resilience performance by shock type
National industry shock (NIS) - Growth trajectory retention (4 year recovery period)

Model parameters (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,066	0,012	-5,678	**<0,0001**	-0,089	-0,043
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	-0,016	0,005	-3,249	**0,001**	-0,026	-0,006
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000	3,423	**0,001**	0,000	0,000
Avg_bus	0,002	0,000	3,260	**0,001**	0,001	0,003
Gov_debt	0,000	0,000				
Cur_blc	-0,002	0,001	-3,358	**0,001**	-0,003	-0,001
Gov_close	0,002	0,001	2,367	**0,019**	0,000	0,004
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	0,000	0,000				
BE	0,000	0,000				
DE	0,000	0,000				
EL	0,000	0,000				
ES	0,000	0,000				
FI	0,000	0,000				
FR	0,000	0,000				
IT	0,000	0,000				
NL	0,000	0,000				
PT	0,000	0,000				
SE	0,000	0,000				
UK	0,000	0,000				
1: 90-93	0,000	0,005	0,078	0,938	-0,009	0,010
2: 00-03	-0,010	0,003	-2,885	**0,004**	-0,016	-0,003
3: 08-09	0,002	0,003	0,691	0,490	-0,004	0,009
4:BTW	0,007	0,003	1,993	**0,048**	0,000	0,014
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				

Standardized coefficients (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GV	0,000	0,000				
Const_GV	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	-0,349	0,107	-3,249	**0,001**	-0,561	-0,137
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDF	0,000	0,000				
RnD_EMF	0,000	0,000				
MM_Ac	0,346	0,101	3,423	**0,001**	0,146	0,546
Avg_bus	0,282	0,087	3,260	**0,001**	0,111	0,453
Gov_debt	0,000	0,000				
Cur_blc	-0,312	0,093	-3,358	**0,001**	-0,495	-0,128
Gov_close	0,173	0,073	2,367	**0,019**	0,029	0,316
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	0,000	0,000				
BE	0,000	0,000				
DE	0,000	0,000				
EL	0,000	0,000				
ES	0,000	0,000				
FI	0,000	0,000				
FR	0,000	0,000				
IT	0,000	0,000				
NL	0,000	0,000				
PT	0,000	0,000				
SE	0,000	0,000				
UK	0,000	0,000				
1: 90-93	0,008	0,101	0,078	0,938	-0,191	0,207
2: 00-03	-0,239	0,083	-2,885	**0,004**	-0,403	-0,076
3: 08-09	0,050	0,073	0,691	0,490	-0,093	0,193
4:BTW	0,094	0,047	1,993	**0,048**	0,001	0,187
Urban	0,000	0,000				
Intermedia	0,000	0,000				
Rural	0,000	0,000				

Stepwise analysis of covariance on regional RGVA resilience performance by shock type
National industry shock (NIS) - Growth trajectory retention (8 year recovery period)

Summary of the variables selection Ret_Tra_8:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R²	Adjusted R²	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	CRISIS	CRISIS	IN	0,000	0,184	0,166	40,157	-1119,576	-1107,809	0,864
2	Agri_GVA / CRISIS	Agri_GVA	IN	0,000	0,263	0,242	25,359	-1131,949	-1117,241	0,791
3	Agri_GVA / Const_GVA / CRISIS	Const_GVA	IN	0,000	0,286	0,260	22,512	-1134,386	-1116,737	0,777

Stepwise analysis of covariance on regional RGVA resilience performance by shock type
National industry shock (NIS) - Growth trajectory retention (8 year recovery period)

Goodness of fit statistics (Ret_Tra_8):

Observations	140
Sum of weights	140
DF	134
R²	0,286
Adjusted R²	0,260
MSE	0,000
RMSE	0,017
MAPE	226,672
DW	1,679
Cp	22,512
AIC	-1134,386
SBC	-1116,737
PC	0,777
Press	0,043
Q²	0,210

Analysis of variance (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	5	0,016	0,003	10,759	**<0,0001**
Error	134	0,039	0,000		
Corrected T	139	0,055			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance by shock type
National industry shock (NIS) - Growth trajectory retention (8 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	1,000	0,007	0,007	23,104	0,000
Manu_GVA	0,000	0,000			
Const_GVA	1,000	0,002	0,002	7,532	0,007
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	0,000	0,000			
CRISIS	3,000	0,007	0,002	7,719	0,000
Urb_1	0,000	0,000			

Type II Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	1,000	0,006	0,006	19,234	0,000
Manu_GV	0,000	0,000			
Const_GV	1,000	0,001	0,001	4,315	0,040
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMF	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	0,000	0,000			
CRISIS	3,000	0,007	0,002	7,719	0,000
Urb_1	0,000	0,000			

Type III Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	1,000	0,006	0,006	19,234	0,000
Manu_GV	0,000	0,000			
Const_GV	1,000	0,001	0,001	4,315	0,040
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMF	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	0,000	0,000			
CRISIS	3,000	0,007	0,002	7,719	0,000
Urb_1	0,000	0,000			

Stepwise analysis of covariance on regional RGVA resilience performance by shock type
National industry shock (NIS) - Growth trajectory retention (8 year recovery period)

Model parameters (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,013	0,005	-2,526	**0,013**	-0,023	-0,003
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	-0,254	0,083	-3,071	**0,003**	-0,417	-0,090
Manu_GVA	0,000	0,000				
Const_GVA	0,127	0,060	2,114	**0,036**	0,008	0,246
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	0,000	0,000				
BE	0,000	0,000				
DE	0,000	0,000				
EL	0,000	0,000				
ES	0,000	0,000				
FI	0,000	0,000				
FR	0,000	0,000				
IT	0,000	0,000				
NL	0,000	0,000				
PT	0,000	0,000				
SE	0,000	0,000				
UK	0,000	0,000				
1: 90-93	-0,004	0,004	-1,026	0,307	-0,012	0,004
2: 00-03	-0,009	0,003	-3,722	**0,000**	-0,014	-0,004
3: 08-09	0,007	0,003	1,979	**0,050**	0,000	0,013
4:BTW	0,007	0,003	2,119	**0,036**	0,000	0,013
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				

Standardized coefficients (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	-0,402	0,131	-3,071	**0,003**	-0,661	-0,143
Manu_GV	0,000	0,000				
Const_GV	0,197	0,093	2,114	**0,036**	0,013	0,380
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMF	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	0,000	0,000				
BE	0,000	0,000				
DE	0,000	0,000				
EL	0,000	0,000				
ES	0,000	0,000				
FI	0,000	0,000				
FR	0,000	0,000				
IT	0,000	0,000				
NL	0,000	0,000				
PT	0,000	0,000				
SE	0,000	0,000				
UK	0,000	0,000				
1: 90-93	-0,127	0,124	-1,026	0,307	-0,371	0,118
2: 00-03	-0,352	0,095	-3,722	**0,000**	-0,540	-0,165
3: 08-09	0,193	0,098	1,979	**0,050**	0,000	0,387
4:BTW	0,133	0,063	2,119	**0,036**	0,009	0,256
Urban	0,000	0,000				
Intermedia	0,000	0,000				
Rural	0,000	0,000				

III.c.i.3. Local industry shocks

Stepwise analysis of covariance on regional RGVA resilience performance by shock type
Local industry shock (LIS)

Settings:
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Model selection: Stepwise
Probability for entry: 0,05 / Probability for removal: 0,1
Covariances: Corrections = Newey West (adjusted)(Lag = 1)
Use least squares means: Yes
Explanation of the variable codes can be found in table 28

Summary statistics (Quantitative data):

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Rec_DL	166	0	166	-0,569	0,509	-0,116	0,136
Ret_Tra_4	166	0	166	-0,097	0,138	-0,010	0,031
Ret_Tra_8	166	22	144	-0,127	0,051	-0,015	0,026
Pop_age	166	0	166	0,192	2,691	1,031	0,325
Mig_net	166	0	166	-23,086	66,719	5,039	9,812
Pop_work	166	0	166	0,336	0,648	0,463	0,050
Agri_GVA	166	0	166	0,000	0,149	0,029	0,028
Manu_GVA	166	0	166	0,020	0,708	0,266	0,150
Const_GVA	166	0	166	0,021	0,352	0,093	0,057
Serv_GVA	166	0	166	0,176	0,712	0,384	0,091
Pub_GVA	166	0	166	0,071	0,568	0,228	0,103
HHI	166	0	166	0,178	0,525	0,252	0,054
GDP_PC	166	0	166	-1,110	4,722	-0,025	0,851
GFCF_PC	166	0	166	-1,746	1,988	0,020	0,591
PROD	166	0	166	-2,614	4,694	0,113	1,111
RnD_GDP	166	0	166	0,000	8,166	1,870	1,505
RnD_EMP	166	0	166	0,000	3,570	1,268	0,828
MM_Ac	166	0	166	24,795	192,930	98,010	37,656
Avg_bus	166	0	166	1,349	18,605	10,134	5,508
Gov_debt	166	0	166	-11,000	6,700	-2,825	2,131
Cur_blc	166	0	166	-12,100	9,100	-0,817	2,922
Gov_close	166	0	166	0,370	19,180	5,233	2,784
Lab_comp	166	0	166	324,327	134579,341	21725,610	19274,900
Union	166	0	166	7,794	80,777	29,596	11,984
ML_barg	166	0	166	1,000	4,875	2,596	0,589
SHDI	166	0	166	0,701	0,920	0,828	0,045
SC_Org	166	0	166	0,041	0,213	0,129	0,044
EoC	166	0	166	46,900	100,000	74,557	14,543
Clu	166	0	166	0,360	31,000	3,345	4,667

Number of removed observations: 59

Summary statistics (Qualitative data):

Variable	Categories	Counts	Frequencies	%
NAT	BE	2	2	1,205
	DE	89	89	53,614
	EL	2	2	1,205
	ES	16	16	9,639
	FI	5	5	3,012
	FR	7	7	4,217
	IT	15	15	9,036
	NL	11	11	6,627
	PT	5	5	3,012
	UK	14	14	8,434
CRISIS	1: 90-93	65	65	39,157
	2: 00-03	43	43	25,904
	3: 08-09	9	9	5,422
	4:BTW	49	49	29,518
Urb_1	Urban	38	38	22,892
	Intermedia	64	64	38,554
	Rural	64	64	38,554

Stepwise analysis of covariance on regional RGVA resilience performance by shock type
Local industry shock (LIS)

Correlation matrix:

	Pop_age	Mig_net	Pop_work	Agri_GVA	Manu_GVA	Const_GVA	Serv_GVA	Pub_GVA	HHI	GDP_PC	GFCF_PC	PROD	RnD_GDP	RnD_EMP	MM_Ac	Avg_bus	Gov_debt	Cur_blc	Gov_close	Lab_comp	Union	ML_barg	SHDI	SC_Org	EoC	Clu	BE	DE	EL	ES	FI	FR	IT	NL	PT	UK	1: 90-93	2: 00-03	3: 08-09	4:BTW	Urban	Intermediate	Rural	Rec_DL	Ret_Tra_4	Ret_Tra_8
Pop_age	**1**	-0,243	0,186	0,137	-0,092	-0,150	0,097	0,094	-0,205	-0,038	-0,116	-0,189	-0,063	-0,039	-0,029	-0,015	0,000	0,117	0,064	0,171	-0,045	-0,083	0,312	-0,128	-0,117	-0,336	0,052	0,109	0,089	-0,178	0,039	0,119	0,266	-0,026	0,084	-0,080	-0,054	0,056	0,199	-0,057	-0,112	-0,055	0,092	0,126	0,042	0,257
Mig_net	-0,243	**1**	0,069	-0,135	0,128	0,001	0,173	-0,303	0,074	0,157	0,236	0,134	0,179	0,199	0,234	0,283	0,011	-0,306	-0,072	0,205	0,068	0,021	-0,019	0,127	0,196	-0,172	0,025	0,199	0,028	0,066	-0,053	0,006	-0,061	-0,086	-0,048	-0,029	0,283	-0,040	0,074	-0,133	0,111	0,104	-0,121	-0,124	-0,115	-0,144
Pop_work	0,186	0,069	**1**	-0,310	0,255	-0,115	-0,134	-0,104	-0,026	0,189	0,435	0,065	0,288	0,301	0,269	0,430	0,335	0,080	0,170	0,214	0,064	-0,382	0,558	0,224	0,506	-0,240	-0,267	0,189	-0,231	-0,421	-0,171	-0,320	-0,429	-0,159	-0,186	0,245	-0,062	0,230	0,088	-0,092	0,085	0,104	-0,108	0,115	-0,103	-0,099
Agri_GVA	0,137	-0,135	-0,310	**1**	-0,360	0,187	0,160	0,002	-0,583	-0,388	-0,339	-0,276	-0,256	-0,301	-0,470	-0,387	-0,283	-0,111	-0,077	-0,268	0,026	0,255	-0,365	-0,292	-0,405	-0,088	0,056	-0,223	0,170	0,048	0,084	0,155	0,170	0,026	0,239	-0,068	0,119	-0,044	0,075	-0,058	-0,548	-0,369	0,511	-0,047	0,010	-0,015
Manu_GVA	-0,092	0,128	0,255	-0,360	**1**	-0,488	-0,514	-0,632	0,433	0,559	0,276	0,540	0,368	0,442	0,598	0,547	0,034	0,219	0,137	0,340	0,149	-0,082	0,428	0,433	0,276	-0,122	0,004	0,375	0,030	-0,226	0,031	-0,053	-0,112	0,199	0,000	-0,064	0,250	0,111	0,097	-0,187	0,392	0,112	-0,273	0,016	-0,092	-0,071
Const_GVA	-0,150	0,001	-0,115	0,187	-0,488	**1**	-0,022	0,122	-0,420	-0,439	-0,083	-0,418	-0,088	-0,268	-0,408	-0,224	-0,085	-0,329	-0,202	-0,270	-0,131	-0,001	-0,566	-0,284	-0,002	-0,168	-0,172	-0,232	-0,178	0,137	-0,167	-0,131	-0,092	-0,235	0,008	0,153	-0,034	-0,061	-0,105	0,071	-0,251	-0,125	0,207	-0,089	0,077	0,000
Serv_GVA	0,097	0,173	-0,134	0,160	-0,514	-0,022	**1**	-0,167	-0,340	-0,133	0,015	-0,200	-0,261	-0,186	-0,109	-0,248	-0,039	-0,140	-0,054	0,085	-0,152	0,064	-0,045	-0,159	-0,268	-0,143	0,167	-0,066	0,170	0,220	0,105	0,244	0,302	-0,036	0,065	-0,147	-0,169	-0,072	-0,054	0,122	-0,123	-0,024	0,079	-0,141	-0,039	0,027
Pub_GVA	0,094	-0,303	-0,104	0,002	-0,632	0,122	-0,167	**1**	0,065	-0,346	-0,276	-0,302	-0,186	-0,248	-0,418	-0,347	0,110	0,019	-0,018	-0,346	-0,017	-0,008	-0,167	-0,252	-0,053	0,423	-0,072	-0,297	-0,142	0,045	-0,069	-0,108	-0,099	-0,135	-0,128	0,157	-0,230	-0,052	-0,057	0,142	-0,171	0,031	0,071	0,164	0,123	0,081
HHI	-0,205	0,074	-0,026	-0,583	0,433	-0,420	-0,340	0,065	**1**	0,631	0,079	0,342	0,122	0,201	0,338	0,159	0,040	0,127	-0,087	0,104	-0,052	0,005	0,091	0,234	0,114	0,362	0,084	0,133	0,038	0,132	-0,001	-0,027	-0,070	0,140	-0,042	-0,065	0,030	-0,015	-0,044	0,006	0,503	0,273	-0,428	-0,029	-0,009	-0,122
GDP_PC	-0,038	0,157	0,189	-0,388	0,559	-0,439	-0,133	-0,346	0,631	**1**	0,352	0,524	0,257	0,346	0,535	0,298	-0,009	0,214	0,080	0,333	0,087	-0,047	0,299	0,291	0,126	-0,023	0,014	0,208	0,026	-0,108	0,035	-0,018	-0,004	0,158	-0,019	-0,057	0,117	0,007	0,022	-0,062	0,426	0,105	-0,287	0,065	-0,024	-0,031
GFCF_PC	-0,116	0,236	0,435	-0,339	0,276	-0,083	0,015	-0,276	0,079	0,352	**1**	0,483	0,485	0,479	0,437	0,398	0,166	0,193	0,179	0,368	0,182	-0,228	0,318	0,298	0,378	-0,220	-0,165	0,159	-0,222	-0,280	-0,119	-0,187	-0,107	-0,077	-0,348	0,155	0,029	-0,065	-0,111	0,046	0,152	0,079	-0,128	-0,021	-0,085	-0,153
PROD	-0,189	0,134	0,065	-0,276	0,540	-0,418	-0,200	-0,302	0,342	0,524	0,483	**1**	0,394	0,480	0,517	0,279	0,003	0,499	0,115	0,367	0,111	0,061	0,356	0,445	0,044	-0,029	0,112	0,200	0,029	-0,112	0,088	0,079	-0,015	0,412	-0,037	-0,116	0,157	-0,124	-0,061	-0,002	0,298	0,165	-0,256	0,053	-0,041	-0,060
RnD_GDP	-0,063	0,179	0,288	-0,256	0,368	-0,088	-0,261	-0,186	0,122	0,257	0,485	0,394	**1**	0,889	0,445	0,521	0,128	0,077	0,234	0,299	0,303	-0,143	0,204	0,297	0,454	-0,172	-0,193	0,193	-0,201	-0,345	-0,103	-0,224	-0,295	-0,175	-0,216	0,186	0,311	0,122	0,161	-0,238	0,194	0,060	-0,138	-0,006	-0,171	-0,119
RnD_EMP	-0,039	0,199	0,301	-0,301	0,442	-0,268	-0,186	-0,248	0,201	0,346	0,479	0,480	0,889	**1**	0,488	0,486	0,196	0,133	0,186	0,453	0,232	-0,137	0,389	0,302	0,370	-0,195	-0,139	0,188	-0,130	-0,329	-0,088	-0,184	-0,232	-0,117	-0,196	0,145	0,202	0,080	0,129	-0,162	0,252	0,113	-0,201	-0,071	-0,190	-0,159
MM_Ac	-0,029	0,234	0,269	-0,470	0,598	-0,408	-0,109	-0,418	0,338	0,535	0,437	0,517	0,445	0,488	**1**	0,683	0,013	0,169	0,104	0,528	0,160	-0,089	0,397	0,369	0,418	-0,142	0,066	0,519	-0,012	-0,318	-0,069	-0,040	-0,105	0,043	-0,099	-0,043	0,368	0,231	0,219	-0,325	0,505	0,141	-0,351	0,017	-0,186	-0,004
Avg_bus	-0,015	0,283	0,430	-0,387	0,547	-0,224	-0,248	-0,347	0,159	0,298	0,398	0,279	0,521	0,486	0,683	**1**	0,089	-0,025	0,166	0,383	0,143	-0,197	0,380	0,536	0,700	-0,179	0,007	0,726	-0,002	-0,221	-0,042	-0,116	-0,231	-0,108	-0,068	-0,057	0,451	0,347	0,281	-0,428	0,224	0,105	-0,181	0,046	-0,128	-0,044
Gov_debt	0,000	0,011	0,335	-0,283	0,034	-0,085	-0,039	0,110	0,040	-0,009	0,166	0,003	0,128	0,196	0,013	0,089	**1**	0,247	0,292	0,059	0,038	-0,171	0,372	0,210	0,311	0,049	-0,170	-0,038	-0,231	-0,072	0,007	-0,123	-0,286	-0,099	-0,258	0,166	-0,129	0,167	-0,016	-0,005	0,057	0,109	-0,096	0,088	-0,080	-0,135
Cur_blc	0,117	-0,306	0,080	-0,111	0,219	-0,329	-0,140	0,019	0,127	0,214	0,193	0,499	0,077	0,133	0,169	-0,025	0,247	**1**	0,376	0,025	0,187	0,218	0,405	0,377	-0,135	0,078	0,207	0,061	0,072	-0,099	0,298	0,139	0,114	0,452	0,033	-0,167	-0,229	-0,200	-0,241	0,256	-0,021	0,027	-0,005	0,131	0,052	0,117
Gov_close	0,064	-0,072	0,170	-0,077	0,137	-0,202	-0,054	-0,018	-0,087	0,080	0,179	0,115	0,234	0,186	0,104	0,166	0,292	0,376	**1**	0,102	0,682	0,194	0,233	0,488	0,152	-0,112	0,174	0,242	0,116	-0,093	0,621	0,191	0,077	0,045	0,096	-0,202	0,043	0,110	0,052	-0,079	-0,120	-0,118	0,134	0,154	0,128	0,232
Lab_comp	0,171	0,205	0,214	-0,268	0,340	-0,270	0,085	-0,346	0,104	0,333	0,368	0,367	0,299	0,453	0,528	0,383	0,059	0,025	0,102	**1**	0,029	-0,074	0,406	0,162	0,140	-0,257	0,084	0,343	0,093	-0,081	0,066	0,082	0,154	-0,001	0,050	-0,134	0,124	0,129	0,191	-0,165	0,333	0,176	-0,281	-0,093	-0,140	0,000
Union	-0,045	0,068	0,064	0,026	0,149	-0,131	-0,152	-0,017	-0,052	0,087	0,182	0,111	0,303	0,232	0,160	0,143	0,038	0,187	0,682	0,029	**1**	0,215	0,020	0,160	0,177	-0,139	0,001	0,007	-0,075	-0,337	0,278	-0,274	0,043	-0,152	-0,100	0,086	0,138	-0,076	-0,044	-0,018	-0,021	-0,120	0,083	0,075	0,058	0,102
ML_barg	-0,083	0,021	-0,382	0,255	-0,082	-0,001	0,064	-0,008	0,005	-0,047	-0,228	0,061	-0,143	-0,137	-0,089	-0,197	-0,171	0,218	0,194	-0,074	0,215	**1**	-0,291	0,267	-0,587	0,139	0,800	0,273	0,664	0,542	0,699	0,557	0,517	0,610	0,726	-0,710	0,212	0,036	0,083	-0,134	-0,249	-0,092	0,186	-0,094	0,076	0,043
SHDI	0,312	-0,019	0,558	-0,365	0,428	-0,566	-0,045	-0,167	0,091	0,299	0,318	0,356	0,204	0,389	0,397	0,380	0,372	0,405	0,233	0,406	0,020	-0,291	**1**	0,356	0,233	-0,159	0,000	0,293	0,023	-0,312	0,044	-0,056	-0,014	0,146	-0,162	-0,020	-0,235	0,199	0,071	0,004	0,196	0,233	-0,243	0,089	-0,147	-0,004
SC_Org	-0,128	0,127	0,224	-0,292	0,433	-0,284	-0,159	-0,252	0,234	0,291	0,298	0,445	0,297	0,302	0,369	0,536	0,210	0,377	0,488	0,162	0,160	0,267	0,356	**1**	0,215	0,054	0,431	0,684	0,421	0,306	0,586	0,319	0,066	0,517	0,275	-0,524	0,256	0,254	0,143	-0,261	0,051	0,180	-0,135	0,055	0,065	0,037
EoC	-0,117	0,196	0,506	-0,405	0,276	-0,002	-0,268	-0,053	0,114	0,126	0,378	0,044	0,454	0,370	0,418	0,700	0,311	-0,135	0,152	0,140	0,177	-0,587	0,233	0,215	**1**	-0,100	-0,540	0,193	-0,566	-0,438	-0,440	-0,595	-0,701	-0,604	-0,596	0,533	0,226	0,234	0,123	-0,234	0,282	0,090	-0,203	0,135	-0,053	-0,033
Clu	-0,336	-0,172	-0,240	-0,088	-0,122	-0,168	-0,143	0,423	0,362	-0,023	-0,220	-0,029	-0,172	-0,195	-0,142	-0,179	0,049	0,078	-0,112	-0,257	-0,139	0,139	-0,159	0,054	-0,100	**1**	0,061	-0,113	0,046	0,294	0,064	0,013	-0,064	0,179	0,068	-0,063	-0,092	-0,015	-0,108	0,079	0,098	0,099	-0,111	-0,089	-0,126	-0,213
BE	0,052	0,025	-0,267	0,056	0,004	-0,172	0,167	-0,072	0,084	0,014	-0,165	0,112	-0,193	-0,139	0,066	0,007	-0,170	0,207	0,174	0,084	0,001	0,800	0,000	0,431	-0,540	0,061	**1**	0,601	0,868	0,664	0,798	0,762	0,672	0,709	0,798	-0,932	0,101	0,176	0,115	-0,151	-0,205	0,000	0,108	-0,034	0,064	0,096
DE	0,109	0,199	0,189	-0,223	0,375	-0,232	-0,066	-0,297	0,133	0,208	0,159	0,200	0,193	0,188	0,519	0,726	-0,038	0,061	0,242	0,343	0,007	0,273	0,293	0,684	0,193	-0,113	0,601	**1**	0,601	0,288	0,505	0,454	0,303	0,370	0,505	-0,683	0,406	0,423	0,330	-0,453	0,046	0,117	-0,094	-0,004	-0,054	0,043
EL	0,089	0,028	-0,231	0,170	0,030	-0,178	0,170	-0,142	0,038	0,026	-0,222	0,029	-0,201	-0,130	-0,012	-0,002	-0,231	0,072	0,116	0,093	-0,075	0,664	0,023	0,421	-0,566	0,046	0,868	0,601	**1**	0,664	0,798	0,762	0,672	0,709	0,798	-0,932	0,101	0,176	0,115	-0,151	-0,179	0,045	0,067	-0,127	0,049	
ES	-0,178	0,066	-0,421	0,048	-0,226	0,137	0,220	0,045	0,132	-0,108	-0,280	-0,112	-0,345	-0,329	-0,318	-0,221	-0,072	-0,099	-0,093	-0,081	-0,337	0,542	-0,312	0,306	-0,438	0,294	0,664	0,288	0,664	**1**	0,599	0,565	0,475	0,513	0,599	-0,723	-0,021	0,078	-0,014	-0,018	-0,123	0,097	0,007	-0,099	0,105	-0,033
FI	0,039	-0,053	-0,171	0,084	0,031	-0,167	0,105	-0,069	-0,001	0,035	-0,119	0,088	-0,103	-0,088	-0,069	-0,042	0,007	0,298	0,621	0,066	0,278	0,699	0,044	0,586	-0,440	0,064	0,798	0,505	0,798	0,599	**1**	0,696	0,607	0,644	0,730	-0,860	0,041	0,138	0,061	-0,093	-0,221	-0,021	0,129	-0,003	0,130	0,153
FR	0,119	0,006	-0,320	0,155	-0,053	-0,131	0,244	-0,108	-0,027	-0,018	-0,187	0,079	-0,224	-0,184	-0,040	-0,116	-0,123	0,139	0,191	0,082	-0,274	0,557	-0,056	0,319	-0,595	0,013	0,762	0,454	0,762	0,565	0,696	**1**	0,573	0,610	0,696	-0,823	0,159	0,132	0,199	-0,184	-0,269	-0,097	0,200	-0,058	0,067	0,141
IT	0,266	-0,061	-0,429	0,170	-0,112	-0,092	0,302	-0,099	-0,070	-0,004	-0,107	-0,015	-0,295	-0,232	-0,105	-0,231	-0,286	0,114	0,077	0,154	0,043	0,517	-0,014	0,066	-0,701	-0,064	0,672	0,303	0,672	0,475	0,607	0,573	**1**	0,521	0,607	-0,731	-0,107	-0,077	-0,020	0,085	-0,166	0,016	0,077	-0,127	0,001	0,063
NL	-0,026	-0,086	-0,159	0,026	0,199	-0,235	-0,036	-0,135	0,140	0,158	-0,077	0,412	-0,175	-0,117	0,043	-0,108	-0,099	0,452	0,045	-0,001	-0,152	0,610	0,146	0,517	-0,604	0,179	0,709	0,370	0,709	0,513	0,644	0,610	0,521	**1**	0,644	-0,769	-0,013	-0,023	-0,050	0,030	-0,070	0,159	-0,059	-0,039	0,045	0,012
PT	0,084	-0,048	-0,186	0,239	0,000	0,008	0,065	-0,128	-0,042	-0,019	-0,348	-0,037	-0,216	-0,196	-0,099	-0,068	-0,258	0,033	0,096	0,050	-0,100	0,726	-0,162	0,275	-0,596	0,068	0,798	0,505	0,798	0,599	0,730	0,696	0,607	0,644	**1**	-0,860	0,172	0,186	0,195	-0,211	-0,244	-0,062	0,166	-0,102	0,011	0,012
UK	-0,080	-0,029	0,245	-0,068	-0,064	0,153	-0,147	0,157	-0,065	-0,057	0,155	-0,116	0,186	0,145	-0,043	-0,057	0,166	-0,167	-0,202	-0,134	0,086	-0,710	-0,020	-0,524	0,533	-0,063	-0,932	-0,683	-0,932	-0,723	-0,860	-0,823	-0,731	-0,769	-0,860	**1**	-0,141	-0,189	-0,146	0,184	0,175	-0,049	-0,062	0,078	-0,048	-0,070
1: 90-93	-0,054	0,283	-0,062	0,119	0,250	-0,034	-0,169	-0,230	0,030	0,117	0,029	0,157	0,311	0,202	0,368	0,451	-0,129	-0,229	0,043	0,124	0,138	0,212	-0,235	0,256	0,226	-0,092	0,101	0,406	0,101	-0,021	0,041	0,159	-0,107	-0,013	0,172	-0,141	**1**	0,488	0,717	-0,862	0,043	-0,083	0,028	-0,053	-0,096	-0,095
2: 00-03	0,056	-0,040	0,230	-0,044	0,111	-0,061	-0,072	-0,052	-0,015	0,007	-0,065	-0,124	0,122	0,080	0,231	0,347	0,167	-0,200	0,110	0,129	-0,076	0,036	0,199	0,254	0,234	-0,015	0,176	0,423	0,176	0,078	0,138	0,132	-0,077	-0,023	0,186	-0,189	0,488	**1**	0,714	-0,839	0,032	0,018	-0,028	0,071	-0,189	-0,124
3: 08-09	0,199	0,074	0,088	0,075	0,097	-0,105	-0,054	-0,057	-0,044	0,022	-0,111	-0,061	0,161	0,129	0,219	0,281	-0,016	-0,241	0,052	0,191	-0,044	0,083	0,071	0,143	0,123	-0,108	0,115	0,330	0,115	-0,014	0,061	0,199	-0,020	-0,050	0,195	-0,146	0,717	0,714	**1**	-0,910	0,025	0,000	-0,013	0,016	-0,112	-0,056
4:BTW	-0,057	-0,133	-0,092	-0,058	-0,187	0,071	0,122	0,142	0,006	-0,062	0,046	-0,002	-0,238	-0,162	-0,325	-0,428	-0,005	0,256	-0,079	-0,165	-0,018	-0,134	0,004	-0,261	-0,234	0,079	-0,151	-0,453	-0,151	-0,018	-0,093	-0,184	0,085	0,030	-0,211	0,184	-0,862	-0,839	-0,910	**1**	-0,040	0,030	0,003	-0,009	0,153	0,116
Urban	-0,112	0,111	0,085	-0,548	0,392	-0,251	-0,123	-0,171	0,503	0,426	0,152	0,298	0,194	0,252	0,505	0,224	0,057	-0,021	-0,120	0,333	-0,021	-0,249	0,196	0,051	0,282	0,098	-0,205	0,046	-0,179	-0,123	-0,221	-0,269	-0,166	-0,070	-0,244	0,175	0,043	0,032	0,025	-0,040	**1**	0,572	-0,870	0,020	-0,042	-0,031
Intermediate	-0,055	0,104	0,104	-0,369	0,112	-0,125	-0,024	0,031	0,273	0,105	0,079	0,165	0,060	0,113	0,141	0,105	0,109	0,027	-0,118	0,176	-0,120	-0,092	0,233	0,180	0,090	0,099	0,000	0,117	0,045	0,097	-0,021	-0,097	0,016	0,159	-0,062	-0,049	-0,083	0,018	0,000	0,030	0,572	**1**	-0,902	0,013	0,041	-0,052
Rural	0,092	-0,121	-0,108	0,511	-0,273	0,207	0,079	0,071	-0,428	-0,287	-0,128	-0,256	-0,138	-0,201	-0,351	-0,181	-0,096	-0,005	0,134	-0,281	0,083	0,186	-0,243	-0,135	-0,203	-0,111	0,108	-0,094	0,067	0,007	0,129	0,200	0,077	-0,059	0,166	-0,062	0,028	-0,028	-0,013	0,003	-0,870	-0,902	**1**	-0,018	-0,002	0,047
Rec_DL	0,126	-0,124	0,115	-0,047	0,016	-0,089	-0,141	0,164	-0,029	0,065	-0,021	0,053	-0,006	-0,071	0,017	0,046	0,088	0,131	0,154	-0,093	0,075	-0,094	0,089	0,055	0,135	-0,089	-0,034	-0,004	-0,127	-0,099	-0,003	-0,058	-0,127	-0,039	-0,102	0,078	-0,053	0,071	0,016	-0,009	0,020	0,013	-0,018	**1**	0,500	0,493
Ret_Tra_4	0,042	-0,115	-0,103	0,010	-0,092	0,077	-0,039	0,123	-0,009	-0,024	-0,085	-0,041	-0,171	-0,190	-0,186	-0,128	-0,080	0,052	0,128	-0,140	0,058	0,076	-0,147	0,065	-0,053	-0,126	0,064	-0,054	0,049	0,105	0,130	0,067	0,001	0,045	0,011	-0,048	-0,096	-0,189	-0,112	0,153	-0,042	0,041	-0,002	0,500	**1**	0,738
Ret_Tra_8	0,257	-0,144	-0,099	-0,015	-0,071	0,000	0,027	0,081	-0,122	-0,031	-0,153	-0,060	-0,119	-0,159	-0,004	-0,044	-0,135	0,117	0,232	0,000	0,102	0,043	-0,004	0,037	-0,033	-0,213	0,096	0,043		-0,033	0,153	0,141	0,063	0,012	0,012	-0,070	-0,095	-0,124	-0,056	0,116	-0,031	-0,052	0,047	0,493	0,738	**1**

Stepwise analysis of covariance on regional RGVA resilience performance by shock type
Local industry shock (LIS) - Recovery of development level

Summary of the variables selection Rec_DL:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	Pub_GVA	Pub_GVA	IN	0,018	0,027	0,021	19,441	-664,913	-658,689	0,997
2	Pub_GVA / Clu	Clu	IN	0,018	0,058	0,046	15,719	-668,232	-658,896	0,977
3	Manu_GVA / Pub_GVA / Clu	Manu_GVA	IN	0,017	0,095	0,079	10,676	-673,022	-660,574	0,949

Stepwise analysis of covariance on regional RGVA resilience performance by shock type
Local industry shock (LIS) - Recovery of development level

Goodness of fit statistics (Rec_DL):

Observations	166
Sum of weights	166
DF	162
R^2	0,095
Adjusted R^2	0,079
MSE	0,017
RMSE	0,130
MAPE	118,479
DW	1,780
Cp	10,676
AIC	-673,022
SBC	-660,574
PC	0,949
Press	2,913
Q^2	0,040

Analysis of variance (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	3	0,289	0,096	5,690	**0,001**
Error	162	2,744	0,017		
Corrected	165	3,033			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance by shock type
Local industry shock (LIS) - Recovery of development level

Type I Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	1,000	0,001	0,001	**0,045**	0,832
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,153	0,153	9,011	0,003
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,136	0,136	8,013	0,005
NAT	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000			

Type II Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	1,000	0,115	0,115	6,764	0,010
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,265	0,265	15,635	0,000
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,136	0,136	8,013	0,005
NAT	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000			

Type III Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	1,000	0,115	0,115	6,764	0,010
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,265	0,265	15,635	0,000
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,136	0,136	8,013	0,005
NAT	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000			

Stepwise analysis of covariance on regional RGVA resilience performance by shock type
Local industry shock (LIS) - Recovery of development level

Model parameters (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,283	0,055	-5,164	**<0,0001**	-0,391	-0,175
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GVA	0,232	0,104	2,233	**0,027**	0,027	0,437
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,564	0,164	3,437	**0,001**	0,240	0,888
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	-0,007	0,003	-2,318	**0,022**	-0,013	-0,001
BE	0,000	0,000				
DE	0,000	0,000				
EL	0,000	0,000				
ES	0,000	0,000				
FI	0,000	0,000				
FR	0,000	0,000				
IT	0,000	0,000				
NL	0,000	0,000				
PT	0,000	0,000				
UK	0,000	0,000				
1: 90-93	0,000	0,000				
2: 00-03	0,000	0,000				
3: 08-09	0,000	0,000				
4:BTW	0,000	0,000				
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				

Standardized coefficients (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GV	0,256	0,115	2,233	**0,027**	0,030	0,483
Const_GV	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,427	0,124	3,437	**0,001**	0,182	0,672
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	-0,239	0,103	-2,318	**0,022**	-0,442	-0,035
BE	0,000	0,000				
DE	0,000	0,000				
EL	0,000	0,000				
ES	0,000	0,000				
FI	0,000	0,000				
FR	0,000	0,000				
IT	0,000	0,000				
NL	0,000	0,000				
PT	0,000	0,000				
UK	0,000	0,000				
1: 90-93	0,000	0,000				
2: 00-03	0,000	0,000				
3: 08-09	0,000	0,000				
4:BTW	0,000	0,000				
Urban	0,000	0,000				
Intermedia	0,000	0,000				
Rural	0,000	0,000				

Stepwise analysis of covariance on regional RGVA resilience performance by shock type
Local industry shock (LIS) - Growth trajectory retention (4 year recovery period)

Summary of the variables selection Ret_Tra_4:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R²	Adjusted R²	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	RnD_EMP	RnD_EMP	IN	0,001	0,036	0,030	18,419	-1157,089	-1150,865	0,987
2	RnD_EMP / Clu	Clu	IN	0,001	0,064	0,052	15,229	-1159,934	-1150,598	0,971
3	Pub_GVA / RnD_EMP / Clu	Pub_GVA	IN	0,001	0,088	0,071	12,650	-1162,330	-1149,882	0,957
4	Pub_GVA / RnD_EMP / SC_Org / Clu	SC_Org	IN	0,001	0,127	0,106	7,330	-1167,607	-1152,047	0,927
5	Pub_GVA / RnD_EMP / SC_Org / Clu / CRISIS	CRISIS	IN	0,001	0,179	0,143	3,661	-1171,738	-1146,842	0,904
6	Pub_GVA / RnD_EMP / SHDI / SC_Org / Clu / CRISIS	SHDI	IN	0,001	0,200	0,159	1,757	-1174,009	-1146,001	0,892

Stepwise analysis of covariance on regional RGVA resilience performance by shock type
Local industry shock (LIS) - Growth trajectory retention (4 year recovery period)

Goodness of fit statistics (Ret_Tra_4):

Observations	166
Sum of weights	166
DF	157
R²	0,200
Adjusted R²	0,159
MSE	0,001
RMSE	0,028
MAPE	215,840
DW	1,780
Cp	1,757
AIC	-1174,009
SBC	-1146,001
PC	0,892
Press	0,146
Q²	0,078

Analysis of variance (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	8	0,032	0,004	4,904	**<0,0001**
Error	157	0,126	0,001		
Corrected	165	0,158			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance by shock type
Local industry shock (LIS) - Growth trajectory retention (4 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,002	0,002	2,954	0,088
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	1,000	0,004	0,004	5,332	0,022
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	1,000	0,001	0,001	1,054	0,306
SC_Org	1,000	0,005	0,005	5,759	0,018
EoC	0,000	0,000			
Clu	1,000	0,012	0,012	14,329	0,000
NAT	0,000	0,000			
CRISIS	3,000	0,008	0,003	3,269	0,023
Urb_1	0,000	0,000			

Type II Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GV	0,000	0,000			
Const_GV	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,005	0,005	6,496	0,012
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDF	0,000	0,000			
RnD_EMF	1,000	0,004	0,004	4,750	0,031
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	1,000	0,003	0,003	4,092	0,045
SC_Org	1,000	0,013	0,013	15,568	0,000
EoC	0,000	0,000			
Clu	1,000	0,011	0,011	14,237	0,000
NAT	0,000	0,000			
CRISIS	3,000	0,008	0,003	3,269	0,023
Urb_1	0,000	0,000			

Type III Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GV	0,000	0,000			
Const_GV	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,005	0,005	6,496	0,012
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMF	1,000	0,004	0,004	4,750	0,031
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	1,000	0,003	0,003	4,092	0,045
SC_Org	1,000	0,013	0,013	15,568	0,000
EoC	0,000	0,000			
Clu	1,000	0,011	0,011	14,237	0,000
NAT	0,000	0,000			
CRISIS	3,000	0,008	0,003	3,269	0,023
Urb_1	0,000	0,000			

Stepwise analysis of covariance on regional RGVA resilience performance by shock type
Local industry shock (LIS) - Growth trajectory retention (4 year recovery period)

Model parameters (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,081	0,067	1,214	0,227	-0,051	0,212
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,066	0,048	1,384	0,168	-0,028	0,161
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	-0,007	0,004	-1,801	0,074	-0,015	0,001
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	-0,145	0,077	-1,882	0,062	-0,297	0,007
SC_Org	0,244	0,066	3,687	**0,000**	0,113	0,374
EoC	0,000	0,000				
Clu	-0,002	0,001	-3,584	**0,000**	-0,003	-0,001
BE	0,000	0,000				
DE	0,000	0,000				
EL	0,000	0,000				
ES	0,000	0,000				
FI	0,000	0,000				
FR	0,000	0,000				
IT	0,000	0,000				
NL	0,000	0,000				
PT	0,000	0,000				
UK	0,000	0,000				
1: 90-93	-0,006	0,007	-0,916	0,361	-0,019	0,007
2: 00-03	-0,010	0,004	-2,165	**0,032**	-0,019	-0,001
3: 08-09	0,008	0,007	1,101	0,273	-0,006	0,022
4:BTW	0,008	0,004	1,864	0,064	0,000	0,016
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				

Standardized coefficients (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GV	0,000	0,000				
Const_GV	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,220	0,159	1,384	0,168	-0,094	0,534
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMF	-0,186	0,103	-1,801	0,074	-0,391	0,018
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	-0,212	0,113	-1,882	0,062	-0,435	0,010
SC_Org	0,350	0,095	3,687	**0,000**	0,162	0,537
EoC	0,000	0,000				
Clu	-0,312	0,087	-3,584	**0,000**	-0,484	-0,140
BE	0,000	0,000				
DE	0,000	0,000				
EL	0,000	0,000				
ES	0,000	0,000				
FI	0,000	0,000				
FR	0,000	0,000				
IT	0,000	0,000				
NL	0,000	0,000				
PT	0,000	0,000				
UK	0,000	0,000				
1: 90-93	-0,159	0,174	-0,916	0,361	-0,503	0,184
2: 00-03	-0,234	0,108	-2,165	**0,032**	-0,448	-0,021
3: 08-09	0,137	0,125	1,101	0,273	-0,109	0,384
4:BTW	0,116	0,062	1,864	0,064	-0,007	0,239
Urban	0,000	0,000				
Intermedia	0,000	0,000				
Rural	0,000	0,000				

Stepwise analysis of covariance on regional RGVA resilience performance by shock type
Local industry shock (LIS) - Growth trajectory retention (8 year recovery period)

Summary of the variables selection Ret_Tra_8:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	Pop_age	Pop_age	IN	0,001	0,066	0,060	35,873	-1054,736	-1048,796	0,960
2	Pop_age / Gov_close	Gov_close	IN	0,001	0,110	0,098	29,517	-1059,745	-1050,835	0,927
3	Pop_age / Pop_work / Gov_close	Pop_work	IN	0,001	0,162	0,144	21,826	-1066,326	-1054,447	0,886
4	Pop_age / Pop_work / Gov_close / Clu	Clu	IN	0,001	0,187	0,164	19,015	-1068,784	-1053,935	0,871
5	Pop_age / Pop_work / RnD_EMP / Gov_close / Clu	RnD_EMP	IN	0,001	0,217	0,188	15,540	-1072,031	-1054,212	0,852
6	Pop_age / Pop_work / Agri_GVA / RnD_EMP / Gov_close / Clu	Agri_GVA	IN	0,001	0,245	0,212	12,099	-1075,442	-1054,653	0,832

Stepwise analysis of covariance on regional RGVA resilience performance by shock type
Local industry shock (LIS) - Growth trajectory retention (8 year recovery period)

Goodness of fit statistics (Ret_Tra_8):

Observations	144
Sum of weights	144
DF	137
R^2	0,245
Adjusted R^2	0,212
MSE	0,001
RMSE	0,023
MAPE	149,878
DW	1,834
Cp	12,099
AIC	-1075,442
SBC	-1054,653
PC	0,832
Press	0,081
Q^2	0,177

Analysis of variance (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	6	0,024	0,004	7,427	**<0,0001**
Error	137	0,075	0,001		
Corrected	143	0,099			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance by shock type
Local industry shock (LIS) - Growth trajectory retention (8 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,007	0,007	12,000	0,001
Mig_net	0,000	0,000			
Pop_work	1,000	0,003	0,003	6,062	0,015
Agri_GVA	1,000	0,001	0,001	1,490	0,224
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	1,000	0,001	0,001	2,746	0,100
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	1,000	0,008	0,008	13,932	0,000
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,005	0,005	8,331	0,005
NAT	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000			

Type II Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,005	0,005	8,297	0,005
Mig_net	0,000	0,000			
Pop_work	1,000	0,006	0,006	10,797	0,001
Agri_GVA	1,000	0,003	0,003	5,246	0,024
Manu_GV	0,000	0,000			
Const_GV	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	1,000	0,004	0,004	7,911	0,006
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	1,000	0,007	0,007	13,246	0,000
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,005	0,005	8,331	0,005
NAT	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000			

Type III Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,005	0,005	8,297	0,005
Mig_net	0,000	0,000			
Pop_work	1,000	0,006	0,006	10,797	0,001
Agri_GVA	1,000	0,003	0,003	5,246	0,024
Manu_GV	0,000	0,000			
Const_GV	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	1,000	0,004	0,004	7,911	0,006
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	1,000	0,007	0,007	13,246	0,000
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,005	0,005	8,331	0,005
NAT	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000			

Stepwise analysis of covariance on regional RGVA resilience performance by shock type
Local industry shock (LIS) - Growth trajectory retention (8 year recovery period)

Model parameters (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,042	0,022	1,968	0,051	0,000	0,085
Pop_age	0,020	0,007	2,991	**0,003**	0,007	0,033
Mig_net	0,000	0,000				
Pop_work	-0,156	0,051	-3,043	**0,003**	-0,258	-0,055
Agri_GVA	-0,179	0,067	-2,693	**0,008**	-0,311	-0,048
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	-0,007	0,003	-2,723	**0,007**	-0,013	-0,002
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,003	0,001	3,125	**0,002**	0,001	0,004
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	-0,001	0,000	-3,848	**0,000**	-0,002	-0,001
BE	0,000	0,000				
DE	0,000	0,000				
EL	0,000	0,000				
ES	0,000	0,000				
FI	0,000	0,000				
FR	0,000	0,000				
IT	0,000	0,000				
NL	0,000	0,000				
PT	0,000	0,000				
UK	0,000	0,000				
1: 90-93	0,000	0,000				
2: 00-03	0,000	0,000				
3: 08-09	0,000	0,000				
4:BTW	0,000	0,000				
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				

Standardized coefficients (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,237	0,079	2,991	**0,003**	0,080	0,394
Mig_net	0,000	0,000				
Pop_work	-0,285	0,093	-3,043	**0,003**	-0,469	-0,100
Agri_GVA	-0,187	0,069	-2,693	**0,008**	-0,324	-0,050
Manu_GV	0,000	0,000				
Const_GV	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDF	0,000	0,000				
RnD_EMF	-0,234	0,086	-2,723	**0,007**	-0,403	-0,064
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,280	0,090	3,125	**0,002**	0,103	0,457
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	-0,242	0,063	-3,848	**0,000**	-0,366	-0,118
BE	0,000	0,000				
DE	0,000	0,000				
EL	0,000	0,000				
ES	0,000	0,000				
FI	0,000	0,000				
FR	0,000	0,000				
IT	0,000	0,000				
NL	0,000	0,000				
PT	0,000	0,000				
UK	0,000	0,000				
1: 90-93	0,000	0,000				
2: 00-03	0,000	0,000				
3: 08-09	0,000	0,000				
4:BTW	0,000	0,000				
Urban	0,000	0,000				
Intermedia	0,000	0,000				
Rural	0,000	0,000				

III.c.ii. Employment

III.c.ii.1. National economic downturns

Stepwise analysis of covariance on regional Employment resilience performance by shock type
National economic downturns (NED)

Settings:
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Model selection: Stepwise
Probability for entry: 0,05 / Probability for removal: 0,1
Covariances: Corrections = Newey West (adjusted)(Lag = 1)
Use least squares means: Yes
Explanation of the variable codes can be found in table 28

Summary statistics (Quantitative data):

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Rec_DL	675	0	675	-0,423	0,128	-0,115	0,082
Ret_Tra_4	675	0	675	-0,140	0,139	-0,008	0,022
Ret_Tra_8	675	153	522	-0,064	0,042	-0,010	0,017
Pop_age	675	0	675	0,368	2,642	1,061	0,370
Mig_net	675	0	675	-11,915	54,935	4,848	5,664
Pop_work	675	0	675	0,320	0,633	0,466	0,045
Agri_EMP	675	0	675	0,000	0,410	0,038	0,046
Manu_EMP	675	0	675	0,022	0,501	0,202	0,087
Const_EMP	675	0	675	0,029	0,188	0,078	0,020
Serv_EMP	675	0	675	0,198	0,631	0,393	0,083
Pub_EMP	675	0	675	0,124	0,532	0,290	0,064
HHI	675	0	675	0,178	0,366	0,232	0,025
GDP_PC	675	0	675	-0,980	5,017	0,054	0,651
GFCF_PC	675	0	675	-1,836	2,395	0,028	0,745
PROD	675	0	675	-2,698	3,401	0,138	0,899
RnD_GDP	675	0	675	0,071	14,258	1,927	1,566
RnD_EMP	675	0	675	0,000	4,938	1,386	0,796
MM_Ac	675	0	675	26,283	192,930	106,710	31,389
Avg_bus	675	0	675	2,083	18,605	9,303	4,727
Gov_debt	675	0	675	-15,100	0,300	-4,891	3,356
Cur_blc	675	0	675	-10,900	7,600	-1,167	2,786
Gov_close	675	0	675	0,370	31,490	5,744	5,140
Lab_comp	675	0	675	430,021	133021,48	23598,216	18991,772
Union	675	0	675	17,453	82,671	35,570	11,840
ML_barg	675	0	675	1,000	4,875	2,558	1,095
SHDI	675	0	675	0,713	0,922	0,831	0,043
SC_Org	675	0	675	0,037	0,286	0,108	0,054
EoC	675	0	675	46,900	100,000	79,411	18,067
Clu	675	0	675	0,360	31,000	3,093	4,005

Number of removed observations: 93

Summary statistics (Qualitative data):

Variable	Categories	Counts	Frequencies	%
NAT	DE	222	222	32,889
	DK	11	11	1,630
	EL	9	9	1,333
	ES	26	26	3,852
	FI	15	15	2,222
	IT	104	104	15,407
	NL	31	31	4,593
	PT	19	19	2,815
	SE	27	27	4,000
	UK	211	211	31,259
CRISIS	1: 90-93	408	408	60,444
	2: 00-03	37	37	5,481
	3: 08-09	194	194	28,741
	4:BTW	36	36	5,333
Urb_1	Urban	300	300	44,444
	Intermedia	271	271	40,148
	Rural	104	104	15,407

Stepwise analysis of covariance on regional Employment resilience performance by shock type
National economic downturns (NED)

Correlation matrix:

	Pop_age	Mig_net	Pop_work	Agri_EMP	Manu_EMP	Const_EMP	Serv_EMP	Pub_EMP	HHI	GDP_PC	GFCF_PC	PROD	RnD_GDP	RnD_EMP	MM_Ac	Avg_bus	Gov_debt	Cur_blc	Gov_close	Lab_comp	Union	ML_barg	SHDI	SC_Org	EoC	Clu	DE	DK	EL	ES	FI	IT	NL	PT	SE	UK	1: 90-93	2: 00-03	3: 08-09	4:BTW	Urban	Intermediate	Rural	Rec_DL	Ret_Tra_4	Ret_Tra_8
Pop_age	**1**	-0,037	-0,149	0,269	-0,015	-0,105	-0,150	0,056	-0,186	0,083	-0,049	-0,086	-0,161	-0,110	-0,223	-0,318	-0,263	-0,080	-0,003	0,141	0,067	0,255	0,127	-0,101	-0,496	-0,175	0,090	0,254	0,297	0,200	0,263	0,511	0,178	0,320	0,263	-0,284	-0,139	-0,071	0,191	0,004	-0,283	-0,041	0,214	0,083	0,053	0,238
Mig_net	-0,037	**1**	-0,071	-0,014	0,265	0,065	-0,246	-0,055	0,013	0,089	0,285	0,333	0,066	0,115	0,213	0,446	0,194	-0,082	0,020	0,105	-0,088	-0,017	0,067	0,397	0,064	-0,049	0,493	0,244	0,238	0,233	0,238	0,120	0,165	0,223	0,220	-0,274	0,107	-0,183	-0,157	0,090	-0,195	0,088	0,072	0,066	-0,047	-0,109
Pop_work	-0,149	-0,071	**1**	-0,143	-0,237	-0,039	0,364	-0,032	0,029	0,067	0,319	0,021	0,290	0,315	0,053	-0,015	0,080	0,049	0,212	-0,065	0,166	-0,303	0,381	-0,027	0,356	0,128	-0,339	-0,305	-0,363	-0,422	-0,306	-0,492	-0,228	-0,288	-0,258	0,368	-0,213	0,247	0,243	-0,094	0,030	-0,033	0,001	-0,072	-0,192	-0,284
Agri_EMP	0,269	-0,014	-0,143	**1**	-0,076	0,245	-0,471	-0,080	-0,343	-0,311	-0,207	-0,303	-0,203	-0,233	-0,544	-0,298	-0,156	-0,171	-0,030	-0,133	-0,049	0,262	-0,196	-0,023	-0,419	-0,080	0,114	0,265	0,320	0,298	0,287	0,280	0,239	0,419	0,245	-0,288	-0,153	-0,037	-0,106	0,178	-0,553	-0,213	0,504	0,014	0,093	0,075
Manu_EMP	-0,015	0,265	-0,237	-0,076	**1**	-0,080	-0,577	-0,541	-0,031	0,115	0,174	0,282	0,062	0,015	0,301	0,466	0,339	0,098	-0,004	0,161	0,053	0,206	-0,274	0,329	-0,047	-0,127	0,500	0,279	0,291	0,268	0,293	0,233	0,211	0,275	0,270	-0,327	0,368	-0,173	-0,418	0,068	-0,127	0,056	0,048	-0,081	-0,078	-0,104
Const_EMP	-0,105	0,065	-0,039	0,245	-0,080	**1**	-0,172	-0,165	-0,338	-0,500	-0,186	-0,271	-0,040	-0,131	-0,244	-0,071	-0,018	-0,183	-0,142	-0,170	-0,076	-0,182	-0,182	-0,198	0,095	-0,037	-0,160	-0,179	-0,168	-0,106	-0,158	-0,131	-0,190	-0,114	-0,174	0,166	-0,046	-0,089	-0,036	0,085	-0,146	-0,052	0,130	-0,072	-0,094	-0,005
Serv_EMP	-0,150	-0,246	0,364	-0,471	-0,577	-0,172	**1**	-0,115	0,247	0,247	0,008	-0,046	0,119	0,149	0,316	-0,138	-0,220	-0,054	-0,211	0,075	-0,201	-0,301	0,253	-0,342	0,255	0,045	-0,475	-0,437	-0,442	-0,435	-0,458	-0,368	-0,318	-0,482	-0,485	0,471	-0,129	0,218	0,284	-0,164	0,543	0,081	-0,412	-0,025	-0,021	-0,062
Pub_EMP	0,056	-0,055	-0,032	-0,080	-0,541	-0,165	-0,115	**1**	0,077	-0,095	-0,041	-0,023	-0,081	-0,004	-0,354	-0,223	-0,061	0,118	0,346	-0,168	0,247	-0,020	0,247	0,074	0,002	0,185	-0,100	0,053	0,001	0,019	0,037	0,001	0,013	-0,014	0,140	-0,011	-0,213	0,008	0,292	-0,036	-0,089	-0,012	0,067	0,156	0,097	0,175
HHI	-0,186	0,013	0,029	-0,343	-0,031	-0,338	0,247	0,077	**1**	0,308	0,060	0,124	0,023	0,140	0,253	0,136	-0,062	-0,085	-0,081	0,117	-0,119	-0,089	0,053	0,008	0,126	0,124	-0,003	-0,067	-0,063	-0,053	-0,091	-0,112	-0,070	-0,110	-0,115	0,079	0,089	0,052	0,059	-0,113	0,288	-0,007	-0,186	-0,034	0,018	-0,099
GDP_PC	0,083	0,089	0,067	-0,311	0,115	-0,500	0,247	-0,095	0,308	**1**	0,442	0,450	0,097	0,188	0,410	0,221	0,145	0,190	0,127	0,284	0,075	0,211	0,145	0,314	-0,097	-0,041	0,335	0,265	0,237	0,196	0,255	0,220	0,249	0,200	0,246	-0,271	0,175	0,061	-0,077	-0,092	0,105	0,092	-0,129	-0,011	-0,043	-0,070
GFCF_PC	-0,049	0,285	0,319	-0,207	0,174	-0,186	0,008	-0,041	0,060	0,442	**1**	0,698	0,369	0,517	0,267	0,324	0,368	0,421	0,419	0,260	0,336	0,200	0,240	0,552	0,009	-0,009	0,401	0,339	0,262	0,185	0,316	0,173	0,303	0,179	0,353	-0,307	0,108	-0,007	-0,141	0,015	-0,145	0,152	-0,003	0,033	-0,145	-0,134
PROD	-0,086	0,333	-0,021	-0,303	0,282	-0,271	-0,046	-0,023	0,124	0,450	0,698	**1**	0,237	0,378	0,498	0,420	0,393	0,481	0,303	0,418	0,135	0,353	0,188	0,639	-0,084	-0,051	0,586	0,475	0,390	0,372	0,437	0,291	0,488	0,298	0,435	-0,462	0,161	0,012	-0,310	0,074	-0,007	0,156	-0,097	0,077	-0,061	-0,094
RnD_GDP	-0,161	0,066	0,290	-0,203	0,062	-0,040	0,119	-0,081	0,023	0,097	0,369	0,237	**1**	0,668	0,209	0,222	0,271	0,128	0,218	0,035	0,255	-0,125	0,054	0,140	0,248	0,343	-0,003	-0,066	-0,114	-0,133	-0,055	-0,183	-0,101	-0,123	-0,036	0,096	0,126	-0,007	-0,011	-0,074	0,072	0,006	-0,051	-0,038	-0,066	-0,102
RnD_EMP	-0,110	0,115	0,315	-0,233	0,015	-0,131	0,149	-0,004	0,140	0,188	0,517	0,378	0,668	**1**	0,248	0,264	0,188	0,060	0,302	0,247	0,206	-0,219	0,351	0,209	0,199	0,006	0,069	0,047	-0,018	-0,081	0,030	-0,133	-0,039	-0,053	-0,001	0,021	-0,050	0,000	0,208	-0,091	0,070	-0,027	-0,029	0,006	-0,053	-0,126
MM_Ac	-0,223	0,213	0,053	-0,544	0,301	-0,244	0,316	-0,354	0,253	0,410	0,267	0,498	0,209	0,248	**1**	0,540	0,173	0,117	-0,197	0,422	-0,238	-0,037	0,106	0,170	0,208	-0,079	0,282	-0,012	-0,030	-0,084	-0,063	-0,060	0,054	-0,084	-0,085	-0,007	0,199	0,026	-0,235	-0,002	0,414	0,084	-0,329	-0,010	-0,058	-0,256
Avg_bus	-0,318	0,446	-0,015	-0,298	0,466	-0,071	-0,138	-0,223	0,136	0,221	0,324	0,420	0,222	0,264	0,540	**1**	0,354	-0,068	-0,084	0,050	-0,171	-0,287	-0,020	0,417	0,499	-0,014	0,516	0,009	-0,011	-0,055	-0,016	-0,252	-0,046	-0,045	-0,052	-0,029	0,278	-0,231	-0,358	0,114	0,021	0,033	-0,035	-0,071	-0,160	-0,305
Gov_debt	-0,263	0,194	0,080	-0,156	0,339	-0,018	-0,220	-0,061	-0,062	0,145	0,368	0,393	0,271	0,188	0,173	0,354	**1**	0,411	0,366	-0,081	0,375	0,073	-0,251	0,538	0,164	0,140	0,353	0,231	0,133	0,204	0,241	-0,043	0,240	0,172	0,300	-0,223	0,390	0,142	-0,360	-0,096	-0,081	0,086	-0,002	-0,241	-0,245	-0,351
Cur_blc	-0,080	-0,082	0,049	-0,171	0,098	-0,183	-0,054	0,118	-0,085	0,190	0,421	0,481	0,128	0,060	0,117	-0,068	0,411	**1**	0,450	0,051	0,349	0,454	0,094	0,408	-0,192	0,069	0,161	0,319	0,171	0,175	0,295	0,278	0,439	0,149	0,355	-0,279	0,042	0,235	-0,206	0,009	-0,078	0,129	-0,032	0,131	-0,113	-0,037
Gov_close	-0,003	0,020	0,212	-0,030	-0,004	-0,142	-0,211	0,346	-0,081	0,127	0,419	0,303	0,218	0,302	-0,197	-0,084	0,366	0,450	**1**	-0,044	0,827	0,141	0,318	0,487	-0,040	0,145	0,179	0,458	0,266	0,226	0,402	0,159	0,232	0,252	0,485	-0,309	-0,115	-0,053	0,208	-0,028	-0,223	0,041	0,121	0,092	0,044	0,141
Lab_comp	0,141	0,105	-0,065	-0,133	0,161	-0,170	0,075	-0,168	0,117	0,284	0,260	0,418	0,035	0,247	0,422	0,050	-0,081	0,051	-0,044	**1**	-0,110	0,216	0,238	0,059	-0,308	-0,243	0,261	0,279	0,278	0,239	0,256	0,391	0,268	0,246	0,219	-0,298	-0,030	0,031	0,067	-0,031	0,106	0,002	-0,071	0,102	0,013	-0,024
Union	0,067	-0,088	0,166	-0,049	0,053	-0,076	-0,201	0,247	-0,119	0,075	0,336	0,135	0,255	0,206	-0,238	-0,171	0,375	0,349	0,827	-0,110	**1**	0,123	0,009	0,230	0,043	0,104	-0,041	0,171	0,066	-0,035	0,204	0,082	-0,031	0,038	0,305	-0,083	0,128	-0,116	0,135	-0,122	-0,152	0,042	0,073	-0,029	0,031	0,217
ML_barg	0,255	-0,017	-0,303	0,262	0,206	-0,182	-0,301	-0,020	-0,089	0,211	0,200	0,353	-0,125	-0,219	-0,037	-0,287	0,073	0,454	0,141	0,216	0,123	**1**	-0,178	0,364	-0,811	-0,074	0,467	0,699	0,720	0,677	0,698	0,781	0,805	0,698	0,705	-0,744	0,172	0,261	-0,361	0,005	-0,213	0,108	0,071	0,002	0,042	0,092
SHDI	0,127	0,067	0,381	-0,196	-0,274	-0,182	0,253	0,247	0,053	0,145	0,240	0,188	0,054	0,351	0,106	-0,020	-0,251	0,094	0,318	0,238	0,009	-0,178	**1**	0,189	-0,018	0,020	0,006	0,107	0,067	-0,046	0,106	0,013	0,140	-0,008	0,095	-0,054	-0,599	0,144	0,635	-0,034	-0,002	0,023	-0,013	0,215	-0,032	-0,131
SC_Org	-0,101	0,397	-0,027	-0,023	0,329	-0,198	-0,342	0,074	0,008	0,314	0,552	0,639	0,140	0,209	0,170	0,417	0,538	0,408	0,487	0,059	0,230	0,364	0,189	**1**	-0,163	0,082	0,780	0,671	0,628	0,627	0,718	0,328	0,664	0,562	0,698	-0,685	0,068	-0,003	-0,277	0,121	-0,290	0,114	0,118	0,017	-0,101	-0,196
EoC	-0,496	0,064	0,356	-0,419	-0,047	0,095	0,255	0,002	0,126	-0,097	0,009	-0,084	0,248	0,199	0,208	0,499	0,164	-0,192	-0,040	-0,308	0,043	-0,811	-0,018	-0,163	**1**	0,126	-0,388	-0,725	-0,783	-0,722	-0,723	-0,898	-0,778	-0,789	-0,684	0,769	0,161	-0,182	0,050	-0,070	0,266	-0,028	-0,158	-0,055	-0,072	-0,114
Clu	-0,175	-0,049	0,128	-0,080	-0,127	-0,037	0,045	0,185	0,124	-0,041	-0,009	-0,051	0,343	0,006	-0,079	-0,014	0,140	0,069	0,145	-0,243	0,104	-0,074	0,020	0,082	0,126	**1**	-0,084	-0,053	-0,079	-0,031	-0,050	-0,171	-0,028	-0,064	0,000	0,072	-0,037	0,069	0,041	-0,025	0,013	-0,007	-0,004	-0,016	-0,015	-0,085
DE	0,090	0,493	-0,339	0,114	0,500	-0,160	-0,475	-0,100	-0,003	0,335	0,401	0,586	-0,003	0,069	0,282	0,516	0,353	0,161	0,179	0,261	-0,041	0,467	0,006	0,780	-0,388	-0,084	**1**	0,807	0,816	0,754	0,792	0,592	0,738	0,777	0,751	-0,856	0,137	-0,152	-0,424	0,217	-0,326	0,093	0,155	0,015	-0,058	-0,181
DK	0,254	0,244	-0,305	0,265	0,279	-0,179	-0,437	0,053	-0,067	0,265	0,339	0,475	-0,066	0,047	-0,012	0,009	0,231	0,319	0,458	0,279	0,171	0,699	0,107	0,671	-0,725	-0,053	0,807	**1**	0,938	0,897	0,922	0,814	0,887	0,912	0,895	-0,966	-0,039	0,003	-0,199	0,143	-0,374	0,075	0,199	0,055	0,031	-0,021
EL	0,297	0,238	-0,363	0,320	0,291	-0,168	-0,442	0,001	-0,063	0,237	0,262	0,390	-0,114	-0,018	-0,030	-0,011	0,133	0,171	0,266	0,278	0,066	0,720	0,067	0,628	-0,783	-0,079	0,816	0,938	**1**	0,903	0,928	0,821	0,893	0,918	0,901	-0,972	-0,039	-0,006	-0,221	0,160	-0,363	0,069	0,195	0,009	0,033	
ES	0,200	0,233	-0,422	0,298	0,268	-0,106	-0,435	0,019	-0,053	0,196	0,185	0,372	-0,133	-0,081	-0,084	-0,055	0,204	0,175	0,226	0,239	-0,035	0,677	-0,046	0,627	-0,722	-0,031	0,754	0,897	0,903	**1**	0,886	0,771	0,850	0,876	0,858	-0,932	0,038	0,002	-0,252	0,124	-0,308	0,091	0,145	0,042	0,068	0,015
FI	0,263	0,238	-0,306	0,287	0,293	-0,158	-0,458	0,037	-0,091	0,255	0,316	0,437	-0,055	0,030	-0,063	-0,016	0,241	0,295	0,402	0,256	0,204	0,698	0,106	0,718	-0,723	-0,050	0,792	0,922	0,928	0,886	**1**	0,802	0,876	0,902	0,884	-0,956	-0,045	0,003	-0,183	0,138	-0,384	0,061	0,215	0,054	-0,005	-0,026
IT	0,511	0,120	-0,492	0,280	0,233	-0,131	-0,368	0,001	-0,112	0,220	0,173	0,291	-0,183	-0,133	-0,060	-0,252	-0,043	0,278	0,159	0,391	0,082	0,781	0,013	0,328	-0,898	-0,171	0,592	0,814	0,821	0,771	0,802	**1**	0,759	0,790	0,769	-0,854	-0,019	-0,019	-0,112	0,086	-0,308	0,100	0,139	0,116	0,069	0,156
NL	0,178	0,165	-0,228	0,239	0,211	-0,190	-0,318	0,013	-0,070	0,249	0,303	0,488	-0,101	-0,039	0,054	-0,046	0,240	0,439	0,232	0,268	-0,031	0,805	0,140	0,664	-0,778	-0,028	0,738	0,887	0,893	0,850	0,876	0,759	**1**	0,866	0,848	-0,922	-0,092	0,246	-0,268	0,130	-0,296	0,092	0,136	0,022	-0,055	-0,134
PT	0,320	0,223	-0,288	0,419	0,275	-0,114	-0,482	-0,014	-0,110	0,200	0,179	0,298	-0,123	-0,053	-0,084	-0,045	0,172	0,149	0,252	0,246	0,038	0,698	-0,008	0,562	-0,789	-0,064	0,777	0,912	0,918	0,876	0,902	0,790	0,866	**1**	0,874	-0,947	-0,069	0,029	-0,250	0,184	-0,394	0,010	0,254	0,040	0,033	-0,049
SE	0,263	0,220	-0,258	0,245	0,270	-0,174	-0,485	0,140	-0,115	0,246	0,353	0,435	-0,036	-0,001	-0,085	-0,052	0,300	0,355	0,485	0,219	0,305	0,705	0,095	0,698	-0,684	0,000	0,751	0,895	0,901	0,858	0,884	0,769	0,848	0,874	**1**	-0,930	-0,026	0,002	-0,178	0,123	-0,363	0,114	0,166	0,075	0,051	0,035
UK	-0,284	-0,274	0,368	-0,288	-0,327	0,166	0,471	-0,011	0,079	-0,271	-0,307	-0,462	0,096	0,021	-0,007	-0,029	-0,223	-0,279	-0,309	-0,298	-0,083	-0,744	-0,054	-0,685	0,769	0,072	-0,856	-0,966	-0,972	-0,932	-0,956	-0,854	-0,922	-0,947	-0,930	**1**	0,009	-0,003	0,261	-0,160	0,373	-0,087	-0,190	-0,052	-0,017	0,039
1: 90-93	-0,139	0,107	-0,213	-0,153	0,368	-0,046	-0,129	-0,213	0,089	0,175	0,108	0,161	0,126	-0,050	0,199	0,278	0,390	0,042	-0,115	-0,030	0,128	0,172	-0,599	0,068	0,161	-0,037	0,137	-0,039	-0,039	0,038	-0,045	-0,019	-0,092	-0,069	-0,026	0,009	**1**	0,268	-0,238	-0,619	0,101	0,081	-0,119	-0,251	-0,017	0,050
2: 00-03	-0,071	-0,183	0,247	-0,037	-0,173	-0,089	0,218	0,008	0,052	0,061	-0,007	0,012	-0,007	0,000	0,026	-0,231	0,142	0,235	-0,053	0,031	-0,116	0,261	0,144	-0,003	-0,182	0,069	-0,152	0,003	-0,006	0,002	0,003	-0,019	0,246	0,029	0,002	-0,003	0,268	**1**	0,301	-0,723	0,136	-0,002	-0,089	-0,204	-0,161	-0,179
3: 08-09	0,191	-0,157	0,243	-0,106	-0,418	-0,036	0,284	0,292	0,059	-0,077	-0,141	-0,310	-0,011	0,208	-0,235	-0,358	-0,360	-0,206	0,208	0,067	0,135	-0,361	0,635	-0,277	0,050	0,041	-0,424	-0,199	-0,221	-0,252	-0,183	-0,112	-0,268	-0,250	-0,178	0,261	-0,238	0,301	**1**	-0,548	0,105	-0,044	-0,041	0,112	0,101	0,213
4:BTW	0,004	0,090	-0,094	0,178	0,068	0,085	-0,164	-0,036	-0,113	-0,092	0,015	0,074	-0,074	-0,091	-0,002	0,114	-0,096	0,009	-0,028	-0,031	-0,122	0,005	-0,034	0,121	-0,070	-0,025	0,217	0,143	0,160	0,124	0,138	0,086	0,130	0,184	0,123	-0,160	-0,619	-0,723	-0,548	**1**	-0,179	-0,027	0,136	0,174	0,010	-0,035
Urban	-0,283	-0,195	0,030	-0,553	-0,127	-0,146	0,543	-0,089	0,288	0,105	-0,145	-0,007	0,072	0,070	0,414	0,021	-0,081	-0,078	-0,223	0,106	-0,152	-0,213	-0,002	-0,290	0,266	0,013	-0,326	-0,374	-0,363	-0,308	-0,384	-0,308	-0,296	-0,394	-0,363	0,373	0,101	0,136	0,105	-0,179	**1**	0,163	-0,768	-0,018	0,053	0,026
Intermediate	-0,041	0,088	-0,033	-0,213	0,056	-0,052	0,081	-0,012	-0,007	0,092	0,152	0,156	0,006	-0,027	0,084	0,033	0,086	0,129	0,041	0,002	0,042	0,108	0,023	0,114	-0,028	-0,007	0,093	0,075	0,069	0,091	0,061	0,100	0,092	0,010	0,114	-0,087	0,081	-0,002	-0,044	-0,027	0,163	**1**	-0,757	-0,009	0,012	0,035
Rural	0,214	0,072	0,001	0,504	0,048	0,130	-0,412	0,067	-0,186	-0,129	-0,003	-0,097	-0,051	-0,029	-0,329	-0,035	-0,002	-0,032	0,121	-0,071	0,073	0,071	-0,013	0,118	-0,158	-0,004	0,155	0,199	0,195	0,145	0,215	0,139	0,136	0,254	0,166	-0,190	-0,119	-0,089	-0,041	0,136	-0,768	-0,757	**1**	0,018	-0,043	-0,041
Rec_DL	0,083	0,066	-0,072	0,014	-0,081	-0,072	-0,025	0,156	-0,034	-0,011	0,033	0,077	-0,038	0,006	-0,010	-0,071	-0,241	0,131	0,092	0,102	-0,029	0,002	0,215	0,017	-0,055	-0,016	0,015	0,055	0,009	0,042	0,054	0,116	0,022	0,040	0,075	-0,052	-0,251	-0,204	0,112	0,174	-0,018	-0,009	0,018	**1**	0,495	0,561
Ret_Tra_4	0,053	-0,047	-0,192	0,093	-0,078	-0,094	-0,021	0,097	0,018	-0,043	-0,145	-0,061	-0,066	-0,053	-0,058	-0,160	-0,245	-0,113	0,044	0,013	0,031	0,042	-0,032	-0,101	-0,072	-0,015	-0,058	0,031	0,033	0,068	-0,005	0,069	-0,055	0,033	0,051	-0,017	-0,017	-0,161	0,101	0,010	0,053	0,012	-0,043	0,495	**1**	0,742
Ret_Tra_8	0,238	-0,109	-0,284	0,075	-0,104	-0,005	-0,062	0,175	-0,099	-0,070	-0,134	-0,094	-0,102	-0,126	-0,256	-0,305	-0,351	-0,037	0,141	-0,024	0,217	0,092	-0,131	-0,196	-0,114	-0,085	-0,181	-0,021		0,015	-0,026	0,156	-0,134	-0,049	0,035	0,039	0,050	-0,179	0,213	-0,035	0,026	0,035	-0,041	0,561	0,742	**1**

Stepwise analysis of covariance on regional Employment resilience performance by shock type
National economic downturns (NED) - Recovery of development level

Summary of the variables selection Rec_DL:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	CRISIS	CRISIS	IN	0,006	0,097	0,093	178,944	-3443,980	-3425,921	0,914
2	Cur_blc / CRISIS	Cur_blc	IN	0,006	0,151	0,146	130,771	-3483,250	-3460,677	0,862
3	Gov_debt / Cur_blc / CRISIS	Gov_debt	IN	0,005	0,196	0,190	90,134	-3518,421	-3491,333	0,818
4	Gov_debt / Cur_blc / NAT / CRISIS	NAT	IN	0,005	0,270	0,254	39,311	-3565,107	-3497,386	0,764
5	Gov_debt / Cur_blc / Union / NAT / CRISIS	Union	IN	0,005	0,286	0,270	26,155	-3578,225	-3505,990	0,749
4	Gov_debt / Union / NAT / CRISIS	Cur_blc	OUT	0,005	0,286	0,271	24,155	-3580,225	-3512,504	0,747
5	PROD / Gov_debt / Union / NAT / CRISIS	PROD	IN	0,005	0,292	0,276	20,553	-3583,899	-3511,664	0,743
6	PROD / Gov_debt / Union / SHDI / NAT / CRISIS	SHDI	IN	0,005	0,299	0,282	15,542	-3589,070	-3512,320	0,737

Stepwise analysis of covariance on regional Employment resilience performance by shock type
National economic downturns (NED) - Recovery of development level

Goodness of fit statistics (Rec_DL):

Observations	675
Sum of weights	675
DF	658
R^2	0,299
Adjusted R^2	0,282
MSE	0,005
RMSE	0,069
MAPE	132,823
DW	1,673
Cp	15,542
AIC	-3589,070
SBC	-3512,320
PC	0,737
Press	3,626
Q^2	0,193

Analysis of variance (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	16	1,345	0,084	17,563	**<0,0001**
Error	658	3,149	0,005		
Corrected	674	4,494			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional Employment resilience performance by shock type
National economic downturns (NED) - Recovery of development level

Type I Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,027	0,027	5,577	0,018
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,392	0,392	81,848	0,000
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,022	0,022	4,532	0,034
ML_barg	0,000	0,000			
SHDI	1,000	0,042	0,042	8,779	0,003
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	9,000	0,637	0,071	14,781	0,000
CRISIS	3,000	0,225	0,075	15,699	0,000
Urb_1	0,000	0,000			

Type II Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EM	0,000	0,000			
Const_EM	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,052	0,052	10,849	0,001
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,025	0,025	5,301	0,022
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,104	0,104	21,711	0,000
ML_barg	0,000	0,000			
SHDI	1,000	0,034	0,034	7,027	0,008
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	9,000	0,348	0,039	8,078	0,000
CRISIS	3,000	0,225	0,075	15,699	0,000
Urb_1	0,000	0,000			

Type III Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EM	0,000	0,000			
Const_EM	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,052	0,052	10,849	0,001
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,025	0,025	5,301	0,022
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,104	0,104	21,711	0,000
ML_barg	0,000	0,000			
SHDI	1,000	0,034	0,034	7,027	0,008
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	9,000	0,348	0,039	8,078	0,000
CRISIS	3,000	0,225	0,075	15,699	0,000
Urb_1	0,000	0,000			

Stepwise analysis of covariance on regional Employment resilience performance by shock type
National economic downturns (NED) - Recovery of development level

Model parameters (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,775	0,508	1,526	0,127	-0,222	1,773
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_EMP	0,000	0,000				
Manu_EMP	0,000	0,000				
Const_EMP	0,000	0,000				
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,018	0,006	3,059	**0,002**	0,006	0,030
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	-0,004	0,004	-1,158	0,247	-0,012	0,003
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	-0,011	0,007	-1,695	0,091	-0,024	0,002
ML_barg	0,000	0,000				
SHDI	-0,577	0,313	-1,840	0,066	-1,192	0,039
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
DE	-0,132	0,105	-1,250	0,212	-0,339	0,075
DK	0,319	0,255	1,251	0,212	-0,182	0,821
EL	-0,258	0,156	-1,648	0,100	-0,565	0,049
ES	-0,310	0,244	-1,270	0,205	-0,790	0,170
FI	0,337	0,225	1,500	0,134	-0,104	0,778
IT	-0,063	0,029	-2,147	**0,032**	-0,120	-0,005
NL	-0,053	0,058	-0,908	0,364	-0,168	0,062
PT	-0,104	0,140	-0,742	0,458	-0,379	0,171
SE	0,369	0,229	1,615	0,107	-0,080	0,819
UK	-0,107	0,078	-1,367	0,172	-0,260	0,047
1: 90-93	0,054	0,050	1,067	0,286	-0,045	0,153
2: 00-03	-0,163	0,078	-2,095	**0,037**	-0,315	-0,010
3: 08-09	0,047	0,017	2,725	**0,007**	0,013	0,080
4:BTW	0,062	0,034	1,850	0,065	-0,004	0,128
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				

Standardized coefficients (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_EMP	0,000	0,000				
Manu_EM	0,000	0,000				
Const_EM	0,000	0,000				
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,198	0,065	3,059	**0,002**	0,071	0,325
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	-0,177	0,153	-1,158	0,247	-0,477	0,123
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	-1,613	0,952	-1,695	0,091	-3,481	0,255
ML_barg	0,000	0,000				
SHDI	-0,306	0,167	-1,840	0,066	-0,633	0,021
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
DE	-1,292	1,034	-1,250	0,212	-3,323	0,738
DK	1,922	1,537	1,251	0,212	-1,096	4,939
EL	-1,535	0,931	-1,648	0,100	-3,364	0,294
ES	-1,998	1,574	-1,270	0,205	-5,089	1,092
FI	2,068	1,378	1,500	0,134	-0,639	4,775
IT	-0,511	0,238	-2,147	**0,032**	-0,979	-0,044
NL	-0,348	0,384	-0,908	0,364	-1,101	0,405
PT	-0,649	0,874	-0,742	0,458	-2,366	1,068
SE	2,389	1,479	1,615	0,107	-0,515	5,293
UK	-0,606	0,443	-1,367	0,172	-1,476	0,264
1: 90-93	0,393	0,368	1,067	0,286	-0,330	1,115
2: 00-03	-0,656	0,313	-2,095	**0,037**	-1,271	-0,041
3: 08-09	0,306	0,112	2,725	**0,007**	0,086	0,527
4:BTW	0,171	0,093	1,850	0,065	-0,010	0,353
Urban	0,000	0,000				
Intermedia	0,000	0,000				
Rural	0,000	0,000				

Stepwise analysis of covariance on regional Employment resilience performance by shock type
National economic downturns (NED) - Growth trajectory retention (4 year recovery period)

Summary of the variables selection Ret_Tra_4:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R²	Adjusted R²	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	NAT	NAT	IN	0,000	0,095	0,082	135,350	-5177,884	-5132,737	0,933
2	Gov_debt / NAT	Gov_debt	IN	0,000	0,145	0,132	93,418	-5214,487	-5164,826	0,883
3	Gov_debt / NAT / CRISIS	CRISIS	IN	0,000	0,185	0,169	64,611	-5240,722	-5177,516	0,850
4	Pop_work / Gov_debt / NAT / CRISIS	Pop_work	IN	0,000	0,209	0,192	45,612	-5258,940	-5191,219	0,827
5	Pop_work / MM_Ac / Gov_debt / NAT / CRISIS	MM_Ac	IN	0,000	0,231	0,213	28,482	-5275,902	-5203,666	0,807
6	Pop_work / Agri_EMP / MM_Ac / Gov_debt / NAT / CRISIS	Agri_EMP	IN	0,000	0,241	0,222	21,960	-5282,523	-5205,773	0,799
7	Pop_work / Agri_EMP / Const_EMP / MM_Ac / Gov_debt / NAT / CRISIS	Const_EMP	IN	0,000	0,248	0,228	17,702	-5286,926	-5205,661	0,794

Stepwise analysis of covariance on regional Employment resilience performance by shock type
National economic downturns (NED) - Growth trajectory retention (4 year recovery period)

Goodness of fit statistics (Ret_Tra_4):

Observations	675
Sum of weights	675
DF	657
R²	0,248
Adjusted R²	0,228
MSE	0,000
RMSE	0,020
MAPE	220,275
DW	1,715
Cp	17,702
AIC	-5286,926
SBC	-5205,661
PC	0,794
Press	0,268
Q²	0,205

Analysis of variance (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	17	0,084	0,005	12,724	**<0,0001**
Error	657	0,254	0,000		
Corrected	674	0,337			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional Employment resilience performance by shock type
National economic downturns (NED) - Growth trajectory retention (4 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,012	0,012	32,042	0,000
Agri_EMP	1,000	0,001	0,001	3,850	0,050
Manu_EMP	0,000	0,000			
Const_EMP	1,000	0,005	0,005	12,882	0,000
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,000	0,000	0,825	0,364
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,016	0,016	41,786	0,000
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	9,000	0,038	0,004	11,072	0,000
CRISIS	3,000	0,010	0,003	8,425	0,000
Urb_I	0,000	0,000			

Type II Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,012	0,012	29,875	0,000
Agri_EMP	1,000	0,004	0,004	10,987	0,001
Manu_EM	0,000	0,000			
Const_EM	1,000	0,002	0,002	6,262	0,013
Serv_EMF	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMF	0,000	0,000			
MM_Ac	1,000	0,009	0,009	24,166	0,000
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,014	0,014	36,861	0,000
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	9,000	0,037	0,004	10,539	0,000
CRISIS	3,000	0,010	0,003	8,425	0,000
Urb_I	0,000	0,000			

Type III Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,012	0,012	29,875	0,000
Agri_EMP	1,000	0,004	0,004	10,987	0,001
Manu_EM	0,000	0,000			
Const_EM	1,000	0,002	0,002	6,262	0,013
Serv_EMF	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMF	0,000	0,000			
MM_Ac	1,000	0,009	0,009	24,166	0,000
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,014	0,014	36,861	0,000
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	9,000	0,037	0,004	10,539	0,000
CRISIS	3,000	0,010	0,003	8,425	0,000
Urb_I	0,000	0,000			

Stepwise analysis of covariance on regional Employment resilience performance by shock type
National economic downturns (NED) - Growth trajectory retention (4 year recovery period)

Model parameters (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,028	0,018	1,544	0,123	-0,008	0,063
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	-0,133	0,039	-3,430	**0,001**	-0,209	-0,057
Agri_EMP	0,083	0,028	2,990	**0,003**	0,029	0,138
Manu_EMP	0,000	0,000				
Const_EMP	-0,103	0,058	-1,777	0,076	-0,216	0,011
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000	3,783	**0,000**	0,000	0,000
Avg_bus	0,000	0,000				
Gov_debt	-0,002	0,000	-6,353	**<0,0001**	-0,003	-0,002
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
DE	-0,017	0,003	-5,469	**<0,0001**	-0,024	-0,011
DK	0,015	0,004	3,807	**0,000**	0,007	0,023
EL	-0,021	0,005	-4,127	**<0,0001**	-0,031	-0,011
ES	0,002	0,005	0,434	0,665	-0,008	0,013
FI	-0,003	0,005	-0,659	0,510	-0,013	0,006
IT	-0,019	0,003	-6,341	**<0,0001**	-0,025	-0,013
NL	0,018	0,006	2,786	**0,005**	0,005	0,030
PT	0,013	0,006	2,325	**0,020**	0,002	0,025
SE	0,022	0,004	6,085	**<0,0001**	0,015	0,029
UK	-0,010	0,003	-3,391	**0,001**	-0,015	-0,004
1: 90-93	0,013	0,002	5,744	**<0,0001**	0,009	0,017
2: 00-03	-0,030	0,005	-5,968	**<0,0001**	-0,040	-0,020
3: 08-09	0,011	0,002	4,495	**<0,0001**	0,006	0,015
4:BTW	0,007	0,003	2,556	**0,011**	0,002	0,012
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				

Standardized coefficients (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	-0,270	0,079	-3,430	**0,001**	-0,425	-0,116
Agri_EMP	0,169	0,057	2,990	**0,003**	0,058	0,280
Manu_EM	0,000	0,000				
Const_EM	-0,094	0,053	-1,777	0,076	-0,198	0,010
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMF	0,000	0,000				
MM_Ac	0,268	0,071	3,783	**0,000**	0,129	0,407
Avg_bus	0,000	0,000				
Gov_debt	-0,345	0,054	-6,353	**<0,0001**	-0,451	-0,238
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
DE	-0,626	0,115	-5,469	**<0,0001**	-0,851	-0,401
DK	0,328	0,086	3,807	**0,000**	0,159	0,498
EL	-0,457	0,111	-4,127	**<0,0001**	-0,674	-0,239
ES	0,055	0,127	0,434	0,665	-0,194	0,304
FI	-0,073	0,111	-0,659	0,510	-0,291	0,145
IT	-0,558	0,088	-6,341	**<0,0001**	-0,731	-0,386
NL	0,424	0,152	2,786	**0,005**	0,125	0,723
PT	0,305	0,131	2,325	**0,020**	0,047	0,563
SE	0,514	0,084	6,085	**<0,0001**	0,348	0,679
UK	-0,199	0,059	-3,391	**0,001**	-0,314	-0,084
1: 90-93	0,347	0,060	5,744	**<0,0001**	0,228	0,465
2: 00-03	-0,448	0,075	-5,968	**<0,0001**	-0,596	-0,301
3: 08-09	0,256	0,057	4,495	**<0,0001**	0,144	0,367
4:BTW	0,068	0,027	2,556	**0,011**	0,016	0,120
Urban	0,000	0,000				
Intermedia	0,000	0,000				
Rural	0,000	0,000				

Stepwise analysis of covariance on regional Employment resilience performance by shock type
National economic downturns (NED) - Growth trajectory retention (8 year recovery period)

Summary of the variables selection Ret_Tra_8:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	NAT	NAT	IN	0,000	0,263	0,251	103,652	-4411,809	-4373,490	0,763
2	Gov_debt / NAT	Gov_debt	IN	0,000	0,301	0,289	74,051	-4437,687	-4395,110	0,726
3	Pop_work / Gov_debt / NAT	Pop_work	IN	0,000	0,341	0,328	43,380	-4466,165	-4419,331	0,688
4	Pop_work / PROD / Gov_debt / NAT	PROD	IN	0,000	0,356	0,342	32,968	-4476,227	-4425,135	0,675
5	Pop_work / PROD / Gov_debt / NAT / CRISIS	CRISIS	IN	0,000	0,372	0,355	25,555	-4483,582	-4419,717	0,665
6	Pop_work / HHI / PROD / Gov_debt / NAT / CRISIS	HHI	IN	0,000	0,381	0,362	20,462	-4488,786	-4420,663	0,659
7	Pop_work / HHI / PROD / Gov_debt / SC_Org / NAT / CRISIS	SC_Org	IN	0,000	0,386	0,367	17,730	-4491,647	-4419,267	0,655

Stepwise analysis of covariance on regional Employment resilience performance by shock type
National economic downturns (NED) - Growth trajectory retention (8 year recovery period)

Goodness of fit statistics (Ret_Tra_8):

Observations	522
Sum of weights	522
DF	505
R^2	0,386
Adjusted R^2	0,367
MSE	0,000
RMSE	0,013
MAPE	1432,434
DW	1,611
Cp	17,730
AIC	-4491,647
SBC	-4419,267
PC	0,655
Press	0,099
Q^2	0,320

Analysis of variance (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	16	0,056	0,004	19,867	**<0,0001**
Error	505	0,090	0,000		
Corrected	521	0,146			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional Employment resilience performance by shock type
National economic downturns (NED) - Growth trajectory retention (8 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,012	0,012	66,311	0,000
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	1,000	0,001	0,001	6,571	0,011
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,001	0,001	5,762	0,017
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,011	0,011	63,932	0,000
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	1,000	0,001	0,001	7,220	0,007
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	8,000	0,027	0,003	19,152	0,000
CRISIS	3,000	0,003	0,001	4,953	0,002
Urb_1	0,000	0,000			

Type II Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,006	0,006	36,315	0,000
Agri_EMP	0,000	0,000			
Manu_EM	0,000	0,000			
Const_EM	0,000	0,000			
Serv_EMF	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	1,000	0,001	0,001	7,355	0,007
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,002	0,002	13,497	0,000
RnD_GDP	0,000	0,000			
RnD_EMF	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,004	0,004	22,808	0,000
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	1,000	0,001	0,001	4,725	0,030
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	8,000	0,017	0,002	12,144	0,000
CRISIS	3,000	0,003	0,001	4,953	0,002
Urb_1	0,000	0,000			

Type III Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,006	0,006	36,315	0,000
Agri_EMP	0,000	0,000			
Manu_EM	0,000	0,000			
Const_EM	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	1,000	0,001	0,001	7,355	0,007
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,002	0,002	13,497	0,000
RnD_GDP	0,000	0,000			
RnD_EMF	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,004	0,004	22,808	0,000
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	1,000	0,001	0,001	4,725	0,030
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	8,000	0,017	0,002	12,144	0,000
CRISIS	3,000	0,003	0,001	4,953	0,002
Urb_1	0,000	0,000			

Stepwise analysis of covariance on regional Employment resilience performance by shock type
National economic downturns (NED) - Growth trajectory retention (8 year recovery period)

Model parameters (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,043	0,016	2,724	**0,007**	0,012	0,074
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	-0,116	0,026	-4,519	**<0,0001**	-0,167	-0,066
Agri_EMP	0,000	0,000				
Manu_EMP	0,000	0,000				
Const_EMP	0,000	0,000				
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	-0,063	0,043	-1,452	0,147	-0,148	0,022
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,004	0,001	3,291	**0,001**	0,002	0,007
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	-0,002	0,000	-5,324	**<0,0001**	-0,003	-0,001
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,079	0,040	1,982	**0,048**	0,001	0,157
EoC	0,000	0,000				
Clu	0,000	0,000				
DE	-0,019	0,003	-5,826	**<0,0001**	-0,026	-0,013
DK	0,007	0,005	1,360	0,174	-0,003	0,017
EL	0,000	0,000				
ES	-0,006	0,006	-1,103	0,271	-0,017	0,005
FI	0,006	0,018	0,336	0,737	-0,029	0,040
IT	-0,008	0,004	-1,840	0,066	-0,016	0,001
NL	-0,004	0,008	-0,498	0,619	-0,020	0,012
PT	0,012	0,009	1,354	0,176	-0,005	0,030
SE	0,010	0,004	2,241	**0,025**	0,001	0,018
UK	0,001	0,004	0,290	0,772	-0,007	0,010
1: 90-93	0,007	0,003	2,416	**0,016**	0,001	0,012
2: 00-03	-0,015	0,007	-2,166	**0,031**	-0,029	-0,001
3: 08-09	0,009	0,003	2,815	**0,005**	0,003	0,015
4:BTW	-0,001	0,003	-0,223	0,824	-0,006	0,004
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				

Standardized coefficients (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	-0,310	0,069	-4,519	**<0,0001**	-0,445	-0,175
Agri_EMP	0,000	0,000				
Manu_EM	0,000	0,000				
Const_EM	0,000	0,000				
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	-0,099	0,068	-1,452	0,147	-0,234	0,035
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,208	0,063	3,291	**0,001**	0,084	0,332
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	-0,342	0,064	-5,324	**<0,0001**	-0,468	-0,216
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,244	0,123	1,982	**0,048**	0,002	0,485
EoC	0,000	0,000				
Clu	0,000	0,000				
DE	-0,944	0,162	-5,826	**<0,0001**	-1,262	-0,626
DK	0,183	0,134	1,360	0,174	-0,081	0,447
EL	0,000	0,000				
ES	-0,193	0,175	-1,103	0,271	-0,537	0,151
FI	0,160	0,476	0,336	0,737	-0,776	1,096
IT	-0,281	0,153	-1,840	0,066	-0,581	0,019
NL	-0,130	0,260	-0,498	0,619	-0,641	0,382
PT	0,347	0,256	1,354	0,176	-0,157	0,851
SE	0,296	0,132	2,241	**0,025**	0,037	0,556
UK	0,035	0,119	0,290	0,772	-0,200	0,269
1: 90-93	0,232	0,096	2,416	**0,016**	0,043	0,420
2: 00-03	-0,331	0,153	-2,166	**0,031**	-0,631	-0,031
3: 08-09	0,207	0,074	2,815	**0,005**	0,063	0,352
4:BTW	-0,008	0,038	-0,223	0,824	-0,083	0,066
Urban	0,000	0,000				
Intermedia	0,000	0,000				
Rural	0,000	0,000				

III.c.ii.2. National industry shocks

Stepwise analysis of covariance on regional Employment resilience performance by shock type
National industry shocks (NIS)

Settings:
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Model selection: Stepwise
Probability for entry: 0,05 / Probability for removal: 0,1
Covariances: Corrections = Newey West (adjusted)(Lag = 1)
Use least squares means: Yes
Explanation of the variable codes can be found in table 28

Summary statistics (Quantitative data):

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Rec_DL	192	0	192	-0,645	0,177	-0,119	0,107
Ret_Tra_4	192	0	192	-0,182	0,082	-0,003	0,028
Ret_Tra_8	192	22	170	-0,083	0,044	-0,006	0,020
Pop_age	192	0	192	0,276	1,959	1,036	0,323
Mig_net	192	0	192	-16,024	52,407	2,191	8,761
Pop_work	192	0	192	0,334	0,624	0,459	0,060
Agri_EMP	192	0	192	0,000	0,585	0,106	0,106
Manu_EMP	192	0	192	0,039	0,590	0,215	0,124
Const_EMP	192	0	192	0,018	0,210	0,100	0,041
Serv_EMP	192	0	192	0,125	0,656	0,337	0,097
Pub_EMP	192	0	192	0,087	0,448	0,243	0,060
HHI	192	0	192	0,183	0,458	0,229	0,041
GDP_PC	192	0	192	-1,200	3,853	-0,232	0,825
GFCF_PC	192	0	192	-1,966	2,209	-0,284	0,918
PROD	192	0	192	-2,858	2,771	-0,563	1,165
RnD_GDP	192	0	192	0,066	8,410	1,378	1,109
RnD_EMP	192	0	192	0,000	3,646	1,044	0,757
MM_Ac	192	0	192	25,258	188,415	86,059	39,511
Avg_bus	192	0	192	2,078	18,605	7,405	5,057
Gov_debt	192	0	192	-10,100	0,200	-4,452	2,742
Cur_blc	192	0	192	-10,400	6,000	-2,019	3,002
Gov_close	192	0	192	0,370	31,490	4,277	3,006
Lab_comp	192	0	192	768,090	271583,24	24611,457	30697,562
Union	192	0	192	7,926	74,604	29,142	9,594
ML_barg	192	0	192	1,000	4,750	3,026	0,893
SHDI	192	0	192	0,709	0,921	0,810	0,049
SC_Org	192	0	192	0,038	0,207	0,104	0,044
EoC	192	0	192	46,900	100,000	67,700	16,328
Clu	192	0	192	0,360	8,213	2,061	1,242

Number of removed observations: 54

Summary statistics (Qualitative data):

Variable	Categories	Counts	Frequencies	%
NAT	AT	4	4	2,083
	BE	4	4	2,083
	DE	66	66	34,375
	DK	1	1	0,521
	EL	22	22	11,458
	ES	29	29	15,104
	FR	2	2	1,042
	IT	31	31	16,146
	NL	2	2	1,042
	PT	18	18	9,375
	SE	1	1	0,521
	UK	12	12	6,250
CRISIS	1: 90-93	87	87	45,313
	2: 00-03	65	65	33,854
	3: 08-09	16	16	8,333
	4:BTW	24	24	12,500
Urb_1	Urban	40	40	20,833
	Intermedia	84	84	43,750
	Rural	68	68	35,417

Stepwise analysis of covariance on regional Employment resilience performance by shock type
National economic downturns (NED)

Correlation matrix:

	Pop_age	Mig_net	Pop_work	Agri_EMP	Manu_EMP	Const_EMP	Serv_EMP	Pub_EMP	HHI	GDP_PC	GFCF_PC	PROD	RnD_GDP	RnD_EMP	MM_Ac	Avg_bus	Gov_debt	Cur_blc	Gov_close	Lab_comp	Union	ML_barg	SHDI	SC_Org	EoC	Clu	DE	DK	EL	ES	FI	IT	NL	PT	SE	UK	1: 90-93	2: 00-03	3: 08-09	4:BTW	Urban	Intermediate	Rural	Rec_DL	Ret_Tra_4	Ret_Tra_8
Pop_age	**1**	-0,037	-0,149	0,269	-0,015	-0,105	-0,150	0,056	-0,186	0,083	-0,049	-0,086	-0,161	-0,110	-0,223	-0,318	-0,263	-0,080	-0,003	0,141	0,067	0,255	0,127	-0,101	-0,496	-0,175	0,090	0,254	0,297	0,200	0,263	0,511	0,178	0,320	0,263	-0,284	-0,139	-0,071	0,191	0,004	-0,283	-0,041	0,214	0,083	0,053	0,238
Mig_net	-0,037	**1**	-0,071	-0,014	0,265	0,065	-0,246	-0,055	0,013	0,089	0,285	0,333	0,066	0,115	0,213	0,446	0,194	-0,082	0,020	0,105	-0,088	-0,017	0,067	0,397	0,064	-0,049	0,493	0,244	0,238	0,233	0,238	0,120	0,165	0,223	0,220	-0,274	0,107	-0,183	-0,157	0,090	-0,195	0,088	0,072	0,066	-0,047	-0,109
Pop_work	-0,149	-0,071	**1**	-0,143	-0,237	-0,039	0,364	-0,032	0,029	0,067	0,319	0,021	0,290	0,315	0,053	-0,015	0,080	0,049	0,212	-0,065	0,166	-0,303	0,381	-0,027	0,356	0,128	-0,339	-0,305	-0,363	-0,422	-0,306	-0,492	-0,228	-0,288	-0,258	0,368	-0,213	0,247	0,243	-0,094	0,030	-0,033	0,001	-0,072	-0,192	-0,284
Agri_EMP	0,269	-0,014	-0,143	**1**	-0,076	0,245	-0,471	-0,080	-0,343	-0,311	-0,207	-0,303	-0,203	-0,233	-0,544	-0,298	-0,156	-0,171	-0,030	-0,133	-0,049	0,262	-0,196	-0,023	-0,419	-0,080	0,114	0,265	0,320	0,298	0,287	0,280	0,239	0,419	0,245	-0,288	-0,153	-0,037	-0,106	0,178	-0,553	-0,213	0,504	0,014	0,093	0,075
Manu_EMP	-0,015	0,265	-0,237	-0,076	**1**	-0,080	-0,577	-0,541	-0,031	0,115	0,174	0,282	0,062	0,015	0,301	0,466	0,339	0,098	-0,004	0,161	0,053	0,206	-0,274	0,329	-0,047	-0,127	0,500	0,279	0,291	0,268	0,293	0,233	0,211	0,275	0,270	-0,327	0,368	-0,173	-0,418	0,068	-0,127	0,056	0,048	-0,081	-0,078	-0,104
Const_EMP	-0,105	0,065	-0,039	0,245	-0,080	**1**	-0,172	-0,165	-0,338	-0,500	-0,186	-0,271	-0,040	-0,131	-0,244	-0,071	-0,018	-0,183	-0,142	-0,170	-0,076	-0,182	-0,182	-0,198	0,095	-0,037	-0,160	-0,179	-0,168	-0,106	-0,158	-0,131	-0,190	-0,114	-0,174	0,166	-0,046	-0,089	-0,036	0,085	-0,146	-0,052	0,130	-0,072	-0,094	-0,005
Serv_EMP	-0,150	-0,246	0,364	-0,471	-0,577	-0,172	**1**	-0,115	0,247	0,247	0,008	-0,046	0,119	0,149	0,316	-0,138	-0,220	-0,054	-0,211	0,075	-0,201	-0,301	0,253	-0,342	0,255	0,045	-0,475	-0,437	-0,442	-0,435	-0,458	-0,368	-0,318	-0,482	-0,485	0,471	-0,129	0,218	0,284	-0,164	0,543	0,081	-0,412	-0,025	-0,021	-0,062
Pub_EMP	0,056	-0,055	-0,032	-0,080	-0,541	-0,165	-0,115	**1**	0,077	-0,095	-0,041	-0,023	-0,081	-0,004	-0,354	-0,223	-0,061	0,118	0,346	-0,168	0,247	-0,020	0,247	0,074	0,002	0,185	-0,100	0,053	0,001	0,019	0,037	0,001	0,013	-0,014	0,140	-0,011	-0,213	0,008	0,292	-0,036	-0,089	-0,012	0,067	0,156	0,097	0,175
HHI	-0,186	0,013	0,029	-0,343	-0,031	-0,338	0,247	0,077	**1**	0,308	0,060	0,124	0,023	0,140	0,253	0,136	-0,062	-0,085	-0,081	0,117	-0,119	-0,089	0,053	0,008	0,126	0,124	-0,003	-0,067	-0,063	-0,053	-0,091	-0,112	-0,070	-0,110	-0,115	0,079	0,089	0,052	0,059	-0,113	0,288	-0,007	-0,186	-0,034	0,018	-0,099
GDP_PC	0,083	0,089	0,067	-0,311	0,115	-0,500	0,247	-0,095	0,308	**1**	0,442	0,450	0,097	0,188	0,410	0,221	0,145	0,190	0,127	0,284	0,075	0,211	0,145	0,314	-0,097	-0,041	0,335	0,265	0,237	0,196	0,255	0,220	0,249	0,200	0,246	-0,271	0,175	0,061	-0,077	-0,092	0,105	0,092	-0,129	-0,011	-0,043	-0,070
GFCF_PC	-0,049	0,285	0,319	-0,207	0,174	-0,186	0,008	-0,041	0,060	0,442	**1**	0,698	0,369	0,517	0,267	0,324	0,368	0,421	0,419	0,260	0,336	0,200	0,240	0,552	0,009	-0,009	0,401	0,339	0,262	0,185	0,316	0,173	0,303	0,179	0,353	-0,307	0,108	-0,007	-0,141	0,015	-0,145	0,152	-0,003	0,033	-0,145	-0,134
PROD	-0,086	0,333	-0,021	-0,303	0,282	-0,271	-0,046	-0,023	0,124	0,450	0,698	**1**	0,237	0,378	0,498	0,420	0,393	0,481	0,303	0,418	0,135	0,353	0,188	0,639	-0,084	-0,051	0,586	0,475	0,390	0,372	0,437	0,291	0,488	0,298	0,435	-0,462	0,161	0,012	-0,310	0,074	-0,007	0,156	-0,097	0,077	-0,061	-0,094
RnD_GDP	-0,161	0,066	0,290	-0,203	0,062	-0,040	0,119	-0,081	0,023	0,097	0,369	0,237	**1**	0,668	0,209	0,222	0,271	0,128	0,218	0,035	0,255	-0,125	0,054	0,140	0,248	0,343	-0,003	-0,066	-0,114	-0,133	-0,055	-0,183	-0,101	-0,123	-0,036	0,096	0,126	-0,007	-0,011	-0,074	0,072	0,006	-0,051	-0,038	-0,066	-0,102
RnD_EMP	-0,110	0,115	0,315	-0,233	0,015	-0,131	0,149	-0,004	0,140	0,188	0,517	0,378	0,668	**1**	0,248	0,264	0,188	0,060	0,302	0,247	0,206	-0,219	0,351	0,209	0,199	0,006	0,069	0,047	-0,018	-0,081	0,030	-0,133	-0,039	-0,053	-0,001	0,021	-0,050	0,000	0,208	-0,091	0,070	-0,027	-0,029	0,006	-0,053	-0,126
MM_Ac	-0,223	0,213	0,053	-0,544	0,301	-0,244	0,316	-0,354	0,253	0,410	0,267	0,498	0,209	0,248	**1**	0,540	0,173	0,117	-0,197	0,422	-0,238	-0,037	0,106	0,170	0,208	-0,079	0,282	-0,012	-0,030	-0,084	-0,063	-0,060	0,054	-0,084	-0,085	-0,007	0,199	0,026	-0,235	-0,002	0,414	0,084	-0,329	-0,010	-0,058	-0,256
Avg_bus	-0,318	0,446	-0,015	-0,298	0,466	-0,071	-0,138	-0,223	0,136	0,221	0,324	0,420	0,222	0,264	0,540	**1**	0,354	-0,068	-0,084	0,050	-0,171	-0,287	-0,020	0,417	0,499	-0,014	0,516	0,009	-0,011	-0,055	-0,016	-0,252	-0,046	-0,045	-0,052	-0,029	0,278	-0,231	-0,358	0,114	0,021	0,033	-0,035	-0,071	-0,160	-0,305
Gov_debt	-0,263	0,194	0,080	-0,156	0,339	-0,018	-0,220	-0,061	-0,062	0,145	0,368	0,393	0,271	0,188	0,173	0,354	**1**	0,411	0,366	-0,081	0,375	0,073	-0,251	0,538	0,164	0,140	0,353	0,231	0,133	0,204	0,241	-0,043	0,240	0,172	0,300	-0,223	0,390	0,142	-0,360	-0,096	-0,081	0,086	-0,002	-0,241	-0,245	-0,351
Cur_blc	-0,080	-0,082	0,049	-0,171	0,098	-0,183	-0,054	0,118	-0,085	0,190	0,421	0,481	0,128	0,060	0,117	-0,068	0,411	**1**	0,450	0,051	0,349	0,454	0,094	0,408	-0,192	0,069	0,161	0,319	0,171	0,175	0,295	0,278	0,439	0,149	0,355	-0,279	0,042	0,235	-0,206	0,009	-0,078	0,129	-0,032	0,131	-0,113	-0,037
Gov_close	-0,003	0,020	0,212	-0,030	-0,004	-0,142	-0,211	0,346	-0,081	0,127	0,419	0,303	0,218	0,302	-0,197	-0,084	0,366	0,450	**1**	-0,044	0,827	0,141	0,318	0,487	-0,040	0,145	0,179	0,458	0,266	0,226	0,402	0,159	0,232	0,252	0,485	-0,309	-0,115	-0,053	0,208	-0,028	-0,223	0,041	0,121	0,092	0,044	0,141
Lab_comp	0,141	0,105	-0,065	-0,133	0,161	-0,170	0,075	-0,168	0,117	0,284	0,260	0,418	0,035	0,247	0,422	0,050	-0,081	0,051	-0,044	**1**	-0,110	0,216	0,238	0,059	-0,308	-0,243	0,261	0,279	0,278	0,239	0,256	0,391	0,268	0,246	0,219	-0,298	-0,030	0,031	0,067	-0,031	0,106	0,002	-0,071	0,102	0,013	-0,024
Union	0,067	-0,088	0,166	-0,049	0,053	-0,076	-0,201	0,247	-0,119	0,075	0,336	0,135	0,255	0,206	-0,238	-0,171	0,375	0,349	0,827	-0,110	**1**	0,123	0,009	0,230	0,043	0,104	-0,041	0,171	0,066	-0,035	0,204	0,082	-0,031	0,038	0,305	-0,083	0,128	-0,116	0,135	-0,122	-0,152	0,042	0,073	-0,029	0,031	0,217
ML_barg	0,255	-0,017	-0,303	0,262	0,206	-0,182	-0,301	-0,020	-0,089	0,211	0,200	0,353	-0,125	-0,219	-0,037	-0,287	0,073	0,454	0,141	0,216	0,123	**1**	-0,178	0,364	-0,811	-0,074	0,467	0,699	0,720	0,677	0,698	0,781	0,805	0,698	0,705	-0,744	0,172	0,261	-0,361	0,005	-0,213	0,108	0,071	0,002	0,042	0,092
SHDI	0,127	0,067	0,381	-0,196	-0,274	-0,182	0,253	0,247	0,053	0,145	0,240	0,188	0,054	0,351	0,106	-0,020	-0,251	0,094	0,318	0,238	0,009	-0,178	**1**	0,189	-0,018	0,020	0,006	0,107	0,067	-0,046	0,106	0,013	0,140	-0,008	0,095	-0,054	-0,599	0,144	0,635	-0,034	-0,002	0,023	-0,013	0,215	-0,032	-0,131
SC_Org	-0,101	0,397	-0,027	-0,023	0,329	-0,198	-0,342	0,074	0,008	0,314	0,552	0,639	0,140	0,209	0,170	0,417	0,538	0,408	0,487	0,059	0,230	0,364	0,189	**1**	-0,163	0,082	0,780	0,671	0,628	0,627	0,718	0,328	0,664	0,562	0,698	-0,685	0,068	-0,003	-0,277	0,121	-0,290	0,114	0,118	0,017	-0,101	-0,196
EoC	-0,496	0,064	0,356	-0,419	-0,047	0,095	0,255	0,002	0,126	-0,097	0,009	-0,084	0,248	0,199	0,208	0,499	0,164	-0,192	-0,040	-0,308	0,043	-0,811	-0,018	-0,163	**1**	0,126	-0,388	-0,725	-0,783	-0,722	-0,723	-0,898	-0,778	-0,789	-0,684	0,769	0,161	-0,182	0,050	-0,070	0,266	-0,028	-0,158	-0,055	-0,072	-0,114
Clu	-0,175	-0,049	0,128	-0,080	-0,127	-0,037	0,045	0,185	0,124	-0,041	-0,009	-0,051	0,343	0,006	-0,079	-0,014	0,140	0,069	0,145	-0,243	0,104	-0,074	0,020	0,082	0,126	**1**	-0,084	-0,053	-0,079	-0,031	-0,050	-0,171	-0,028	-0,064	0,000	0,072	-0,037	0,069	0,041	-0,025	0,013	-0,007	-0,004	-0,016	-0,015	-0,085
DE	0,090	0,493	-0,339	0,114	0,500	-0,160	-0,475	-0,100	-0,003	0,335	0,401	0,586	-0,003	0,069	0,282	0,516	0,353	0,161	0,179	0,261	-0,041	0,467	0,006	0,780	-0,388	-0,084	**1**	0,807	0,816	0,754	0,792	0,592	0,738	0,777	0,751	-0,856	0,137	-0,152	-0,424	0,217	-0,326	0,093	0,155	0,015	-0,058	-0,181
DK	0,254	0,244	-0,305	0,265	0,279	-0,179	-0,437	0,053	-0,067	0,265	0,339	0,475	-0,066	0,047	-0,012	0,009	0,231	0,319	0,458	0,279	0,171	0,699	0,107	0,671	-0,725	-0,053	0,807	**1**	0,938	0,897	0,922	0,814	0,887	0,912	0,895	-0,966	-0,039	0,003	-0,199	0,143	-0,374	0,075	0,199	0,055	0,031	-0,021
EL	0,297	0,238	-0,363	0,320	0,291	-0,168	-0,442	0,001	-0,063	0,237	0,262	0,390	-0,114	-0,018	-0,030	-0,011	0,133	0,171	0,266	0,278	0,066	0,720	0,067	0,628	-0,783	-0,079	0,816	0,938	**1**	0,903	0,928	0,821	0,893	0,918	0,901	-0,972	-0,039	-0,006	-0,221	0,160	-0,363	0,069	0,195	0,009	0,033	
ES	0,200	0,233	-0,422	0,298	0,268	-0,106	-0,435	0,019	-0,053	0,196	0,185	0,372	-0,133	-0,081	-0,084	-0,055	0,204	0,175	0,226	0,239	-0,035	0,677	-0,046	0,627	-0,722	-0,031	0,754	0,897	0,903	**1**	0,886	0,771	0,850	0,876	0,858	-0,932	0,038	0,002	-0,252	0,124	-0,308	0,091	0,145	0,042	0,068	0,015
FI	0,263	0,238	-0,306	0,287	0,293	-0,158	-0,458	0,037	-0,091	0,255	0,316	0,437	-0,055	0,030	-0,063	-0,016	0,241	0,295	0,402	0,256	0,204	0,698	0,106	0,718	-0,723	-0,050	0,792	0,922	0,928	0,886	**1**	0,802	0,876	0,902	0,884	-0,956	-0,045	0,003	-0,183	0,138	-0,384	0,061	0,215	0,054	-0,005	-0,026
IT	0,511	0,120	-0,492	0,280	0,233	-0,131	-0,368	0,001	-0,112	0,220	0,173	0,291	-0,183	-0,133	-0,060	-0,252	-0,043	0,278	0,159	0,391	0,082	0,781	0,013	0,328	-0,898	-0,171	0,592	0,814	0,821	0,771	0,802	**1**	0,759	0,790	0,769	-0,854	-0,019	-0,019	-0,112	0,086	-0,308	0,100	0,139	0,116	0,069	0,156
NL	0,178	0,165	-0,228	0,239	0,211	-0,190	-0,318	0,013	-0,070	0,249	0,303	0,488	-0,101	-0,039	0,054	-0,046	0,240	0,439	0,232	0,268	-0,031	0,805	0,140	0,664	-0,778	-0,028	0,738	0,887	0,893	0,850	0,876	0,759	**1**	0,866	0,848	-0,922	-0,092	0,246	-0,268	0,130	-0,296	0,092	0,136	0,022	-0,055	-0,134
PT	0,320	0,223	-0,288	0,419	0,275	-0,114	-0,482	-0,014	-0,110	0,200	0,179	0,298	-0,123	-0,053	-0,084	-0,045	0,172	0,149	0,252	0,246	0,038	0,698	-0,008	0,562	-0,789	-0,064	0,777	0,912	0,918	0,876	0,902	0,790	0,866	**1**	0,874	-0,947	-0,069	0,029	-0,250	0,184	-0,394	0,010	0,254	0,040	0,033	-0,049
SE	0,263	0,220	-0,258	0,245	0,270	-0,174	-0,485	0,140	-0,115	0,246	0,353	0,435	-0,036	-0,001	-0,085	-0,052	0,300	0,355	0,485	0,219	0,305	0,705	0,095	0,698	-0,684	0,000	0,751	0,895	0,901	0,858	0,884	0,769	0,848	0,874	**1**	-0,930	-0,026	0,002	-0,178	0,123	-0,363	0,114	0,166	0,075	0,051	0,035
UK	-0,284	-0,274	0,368	-0,288	-0,327	0,166	0,471	-0,011	0,079	-0,271	-0,307	-0,462	0,096	0,021	-0,007	-0,029	-0,223	-0,279	-0,309	-0,298	-0,083	-0,744	-0,054	-0,685	0,769	0,072	-0,856	-0,966	-0,972	-0,932	-0,956	-0,854	-0,922	-0,947	-0,930	**1**	0,009	-0,003	0,261	-0,160	0,373	-0,087	-0,190	-0,052	-0,017	0,039
1: 90-93	-0,139	0,107	-0,213	-0,153	0,368	-0,046	-0,129	-0,213	0,089	0,175	0,108	0,161	0,126	-0,050	0,199	0,278	0,390	0,042	-0,115	-0,030	0,128	0,172	-0,599	0,068	0,161	-0,037	0,137	-0,039	-0,039	0,038	-0,045	-0,019	-0,092	-0,069	-0,026	0,009	**1**	0,268	-0,238	-0,619	0,101	0,081	-0,119	-0,251	-0,017	0,050
2: 00-03	-0,071	-0,183	0,247	-0,037	-0,173	-0,089	0,218	0,008	0,052	0,061	-0,007	0,012	-0,007	0,000	0,026	-0,231	0,142	0,235	-0,053	0,031	-0,116	0,261	0,144	-0,003	-0,182	0,069	-0,152	0,003	-0,006	0,002	0,003	-0,019	0,246	0,029	0,002	-0,003	0,268	**1**	0,301	-0,723	0,136	-0,002	-0,089	-0,204	-0,161	-0,179
3: 08-09	0,191	-0,157	0,243	-0,106	-0,418	-0,036	0,284	0,292	0,059	-0,077	-0,141	-0,310	-0,011	0,208	-0,235	-0,358	-0,360	-0,206	0,208	0,067	0,135	-0,361	0,635	-0,277	0,050	0,041	-0,424	-0,199	-0,221	-0,252	-0,183	-0,112	-0,268	-0,250	-0,178	0,261	-0,238	0,301	**1**	-0,548	0,105	-0,044	-0,041	0,112	0,101	0,213
4:BTW	0,004	0,090	-0,094	0,178	0,068	0,085	-0,164	-0,036	-0,113	-0,092	0,015	0,074	-0,074	-0,091	-0,002	0,114	-0,096	0,009	-0,028	-0,031	-0,122	0,005	-0,034	0,121	-0,070	-0,025	0,217	0,143	0,160	0,124	0,138	0,086	0,130	0,184	0,123	-0,160	-0,619	-0,723	-0,548	**1**	-0,179	-0,027	0,136	0,174	0,010	-0,035
Urban	-0,283	-0,195	0,030	-0,553	-0,127	-0,146	0,543	-0,089	0,288	0,105	-0,145	-0,007	0,072	0,070	0,414	0,021	-0,081	-0,078	-0,223	0,106	-0,152	-0,213	-0,002	-0,290	0,266	0,013	-0,326	-0,374	-0,363	-0,308	-0,384	-0,308	-0,296	-0,394	-0,363	0,373	0,101	0,136	0,105	-0,179	**1**	0,163	-0,768	-0,018	0,053	0,026
Intermediate	-0,041	0,088	-0,033	-0,213	0,056	-0,052	0,081	-0,012	-0,007	0,092	0,152	0,156	0,006	-0,027	0,084	0,033	0,086	0,129	0,041	0,002	0,042	0,108	0,023	0,114	-0,028	-0,007	0,093	0,075	0,069	0,091	0,061	0,100	0,092	0,010	0,114	-0,087	0,081	-0,002	-0,044	-0,027	0,163	**1**	-0,757	-0,009	0,012	0,035
Rural	0,214	0,072	0,001	0,504	0,048	0,130	-0,412	0,067	-0,186	-0,129	-0,003	-0,097	-0,051	-0,029	-0,329	-0,035	-0,002	-0,032	0,121	-0,071	0,073	0,071	-0,013	0,118	-0,158	-0,004	0,155	0,199	0,195	0,145	0,215	0,139	0,136	0,254	0,166	-0,190	-0,119	-0,089	-0,041	0,136	-0,768	-0,757	**1**	0,018	-0,043	-0,041
Rec_DL	0,083	0,066	-0,072	0,014	-0,081	-0,072	-0,025	0,156	-0,034	-0,011	0,033	0,077	-0,038	0,006	-0,010	-0,071	-0,241	0,131	0,092	0,102	-0,029	0,002	0,215	0,017	-0,055	-0,016	0,015	0,055	0,009	0,042	0,054	0,116	0,022	0,040	0,075	-0,052	-0,251	-0,204	0,112	0,174	-0,018	-0,009	0,018	**1**	0,495	0,561
Ret_Tra_4	0,053	-0,047	-0,192	0,093	-0,078	-0,094	-0,021	0,097	0,018	-0,043	-0,145	-0,061	-0,066	-0,053	-0,058	-0,160	-0,245	-0,113	0,044	0,013	0,031	0,042	-0,032	-0,101	-0,072	-0,015	-0,058	0,031	0,033	0,068	-0,005	0,069	-0,055	0,033	0,051	-0,017	-0,017	-0,161	0,101	0,010	0,053	0,012	-0,043	0,495	**1**	0,742
Ret_Tra_8	0,238	-0,109	-0,284	0,075	-0,104	-0,005	-0,062	0,175	-0,099	-0,070	-0,134	-0,094	-0,102	-0,126	-0,256	-0,305	-0,351	-0,037	0,141	-0,024	0,217	0,092	-0,131	-0,196	-0,114	-0,085	-0,181	-0,021		0,015	-0,026	0,156	-0,134	-0,049	0,035	0,039	0,050	-0,179	0,213	-0,035	0,026	0,035	-0,041	0,561	0,742	**1**

Stepwise analysis of covariance on regional Employment resilience performance by shock type
National industry shocks (NIS) - Recovery of development level

Summary of the variables selection Rec_DL:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	Const_EMP	Const_EMP	IN	0,011	0,058	0,053	114,179	-868,373	-861,858	0,962
2	Mig_net / Const_EMP	Mig_net	IN	0,010	0,114	0,105	97,969	-878,306	-868,534	0,914
3	Mig_net / Const_EMP / CRISIS	CRISIS	IN	0,010	0,170	0,148	86,147	-884,751	-865,206	0,884
4	Mig_net / Const_EMP / CRISIS / Urb_1	Urb_1	IN	0,009	0,204	0,174	79,231	-888,792	-862,732	0,865
5	Mig_net / Const_EMP / NAT / CRISIS / Urb_1	NAT	IN	0,009	0,300	0,227	70,399	-891,511	-829,619	0,854
6	Mig_net / Const_EMP / Gov_debt / NAT / CRISIS / Urb_1	Gov_debt	IN	0,008	0,336	0,263	60,845	-899,661	-834,511	0,818
7	Mig_net / Const_EMP / Gov_debt / Cur_blc / NAT / CRISIS / Urb_1	Cur_blc	IN	0,008	0,370	0,296	52,131	-907,577	-839,170	0,785
8	Mig_net / Const_EMP / MM_Ac / Gov_debt / Cur_blc / NAT / CRISIS / Urb_1	MM_Ac	IN	0,008	0,399	0,325	44,712	-914,739	-843,074	0,757
9	Mig_net / Const_EMP / MM_Ac / Gov_debt / Cur_blc / SHDI / NAT / CRISIS / Urb_1	SHDI	IN	0,007	0,418	0,342	40,656	-918,869	-843,947	0,741
10	Mig_net / Const_EMP / PROD / MM_Ac / Gov_debt / Cur_blc / SHDI / NAT / CRISIS / Urb_1	PROD	IN	0,007	0,448	0,372	33,147	-926,908	-848,728	0,710
11	Mig_net / Const_EMP / PROD / MM_Ac / Gov_debt / Cur_blc / ML_barg / SHDI / NAT / CRISIS / Urb_1	ML_barg	IN	0,007	0,467	0,391	28,833	-931,877	-850,440	0,692
10	Mig_net / PROD / MM_Ac / Gov_debt / Cur_blc / ML_barg / SHDI / NAT / CRISIS / Urb_1	Const_EMP	OUT	0,007	0,467	0,394	26,833	-933,877	-855,697	0,685
11	Mig_net / Pop_work / PROD / MM_Ac / Gov_debt / Cur_blc / ML_barg / SHDI / NAT / CRISIS / Urb_1	Pop_work	IN	0,007	0,482	0,408	24,092	-937,281	-855,843	0,673

Stepwise analysis of covariance on regional Employment resilience performance by shock type
National economic downturns (NED) - Recovery of development level

Goodness of fit statistics (Rec_DL):

Observations	675
Sum of weights	675
DF	658
R^2	0,299
Adjusted R^2	0,282
MSE	0,005
RMSE	0,069
MAPE	132,823
DW	1,673
Cp	15,542
AIC	-3589,070
SBC	-3512,320
PC	0,737
Press	3,626
Q^2	0,193

Analysis of variance (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	16	1,345	0,084	17,563	**<0,0001**
Error	658	3,149	0,005		
Corrected	674	4,494			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional Employment resilience performance by shock type
National economic downturns (NED) - Recovery of development level

Type I Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,027	0,027	5,577	0,018
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,392	0,392	81,848	0,000
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,022	0,022	4,532	0,034
ML_barg	0,000	0,000			
SHDI	1,000	0,042	0,042	8,779	0,003
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	9,000	0,637	0,071	14,781	0,000
CRISIS	3,000	0,225	0,075	15,699	0,000
Urb_1	0,000	0,000			

Type II Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EM	0,000	0,000			
Const_EM	0,000	0,000			
Serv_EMF	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,052	0,052	10,849	0,001
RnD_GDP	0,000	0,000			
RnD_EMF	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,025	0,025	5,301	0,022
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,104	0,104	21,711	0,000
ML_barg	0,000	0,000			
SHDI	1,000	0,034	0,034	7,027	0,008
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	9,000	0,348	0,039	8,078	0,000
CRISIS	3,000	0,225	0,075	15,699	0,000
Urb_1	0,000	0,000			

Type III Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EM	0,000	0,000			
Const_EM	0,000	0,000			
Serv_EMF	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,052	0,052	10,849	0,001
RnD_GDP	0,000	0,000			
RnD_EMF	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,025	0,025	5,301	0,022
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,104	0,104	21,711	0,000
ML_barg	0,000	0,000			
SHDI	1,000	0,034	0,034	7,027	0,008
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	9,000	0,348	0,039	8,078	0,000
CRISIS	3,000	0,225	0,075	15,699	0,000
Urb_1	0,000	0,000			

Stepwise analysis of covariance on regional Employment resilience performance by shock type
National economic downturns (NED) - Recovery of development level

Model parameters (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,775	0,508	1,526	0,127	-0,222	1,773
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_EMP	0,000	0,000				
Manu_EMP	0,000	0,000				
Const_EMP	0,000	0,000				
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,018	0,006	3,059	**0,002**	0,006	0,030
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	-0,004	0,004	-1,158	0,247	-0,012	0,003
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	-0,011	0,007	-1,695	0,091	-0,024	0,002
ML_barg	0,000	0,000				
SHDI	-0,577	0,313	-1,840	0,066	-1,192	0,039
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
DE	-0,132	0,105	-1,250	0,212	-0,339	0,075
DK	0,319	0,255	1,251	0,212	-0,182	0,821
EL	-0,258	0,156	-1,648	0,100	-0,565	0,049
ES	-0,310	0,244	-1,270	0,205	-0,790	0,170
FI	0,337	0,225	1,500	0,134	-0,104	0,778
IT	-0,063	0,029	-2,147	**0,032**	-0,120	-0,005
NL	-0,053	0,058	-0,908	0,364	-0,168	0,062
PT	-0,104	0,140	-0,742	0,458	-0,379	0,171
SE	0,369	0,229	1,615	0,107	-0,080	0,819
UK	-0,107	0,078	-1,367	0,172	-0,260	0,047
1: 90-93	0,054	0,050	1,067	0,286	-0,045	0,153
2: 00-03	-0,163	0,078	-2,095	**0,037**	-0,315	-0,010
3: 08-09	0,047	0,017	2,725	**0,007**	0,013	0,080
4:BTW	0,062	0,034	1,850	0,065	-0,004	0,128
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				

Standardized coefficients (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_EMP	0,000	0,000				
Manu_EM	0,000	0,000				
Const_EM	0,000	0,000				
Serv_EMF	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,198	0,065	3,059	**0,002**	0,071	0,325
RnD_GDF	0,000	0,000				
RnD_EMF	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	-0,177	0,153	-1,158	0,247	-0,477	0,123
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	-1,613	0,952	-1,695	0,091	-3,481	0,255
ML_barg	0,000	0,000				
SHDI	-0,306	0,167	-1,840	0,066	-0,633	0,021
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
DE	-1,292	1,034	-1,250	0,212	-3,323	0,738
DK	1,922	1,537	1,251	0,212	-1,096	4,939
EL	-1,535	0,931	-1,648	0,100	-3,364	0,294
ES	-1,998	1,574	-1,270	0,205	-5,089	1,092
FI	2,068	1,378	1,500	0,134	-0,639	4,775
IT	-0,511	0,238	-2,147	**0,032**	-0,979	-0,044
NL	-0,348	0,384	-0,908	0,364	-1,101	0,405
PT	-0,649	0,874	-0,742	0,458	-2,366	1,068
SE	2,389	1,479	1,615	0,107	-0,515	5,293
UK	-0,606	0,443	-1,367	0,172	-1,476	0,264
1: 90-93	0,393	0,368	1,067	0,286	-0,330	1,115
2: 00-03	-0,656	0,313	-2,095	**0,037**	-1,271	-0,041
3: 08-09	0,306	0,112	2,725	**0,007**	0,086	0,527
4:BTW	0,171	0,093	1,850	0,065	-0,010	0,353
Urban	0,000	0,000				
Intermedia	0,000	0,000				
Rural	0,000	0,000				

Stepwise analysis of covariance on regional Employment resilience performance by shock type
National industry shocks (NIS) - Growth trajectory retention (4 year recovery period)

Summary of the variables selection Ret_Tra_4:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	Mig_net	Mig_net	IN	0,001	0,069	0,064	86,868	-1381,165	-1374,650	0,951
2	Mig_net / Pop_work	Pop_work	IN	0,001	0,109	0,100	76,863	-1387,740	-1377,968	0,919

Stepwise analysis of covariance on regional Employment resilience performance by shock type
National economic downturns (NED) - Growth trajectory retention (4 year recovery period)

Goodness of fit statistics (Ret_Tra_4):

Observations	675
Sum of weights	675
DF	657
R^2	0,248
Adjusted R^2	0,228
MSE	0,000
RMSE	0,020
MAPE	220,275
DW	1,715
Cp	17,702
AIC	-5286,926
SBC	-5205,661
PC	0,794
Press	0,268
Q^2	0,205

Analysis of variance (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	17	0,084	0,005	12,724	**<0,0001**
Error	657	0,254	0,000		
Corrected'	674	0,337			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional Employment resilience performance by shock type
National economic downturns (NED) - Growth trajectory retention (4 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,012	0,012	32,042	0,000
Agri_EMP	1,000	0,001	0,001	3,850	0,050
Manu_EMP	0,000	0,000			
Const_EMP	1,000	0,005	0,005	12,882	0,000
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,000	0,000	0,825	0,364
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,016	0,016	41,786	0,000
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	9,000	0,038	0,004	11,072	0,000
CRISIS	3,000	0,010	0,003	8,425	0,000
Urb_1	0,000	0,000			

Type II Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,012	0,012	29,875	0,000
Agri_EMP	1,000	0,004	0,004	10,987	0,001
Manu_EM	0,000	0,000			
Const_EM	1,000	0,002	0,002	6,262	0,013
Serv_EMF	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMF	0,000	0,000			
MM_Ac	1,000	0,009	0,009	24,166	0,000
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,014	0,014	36,861	0,000
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	9,000	0,037	0,004	10,539	0,000
CRISIS	3,000	0,010	0,003	8,425	0,000
Urb_1	0,000	0,000			

Type III Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,012	0,012	29,875	0,000
Agri_EMP	1,000	0,004	0,004	10,987	0,001
Manu_EM	0,000	0,000			
Const_EM	1,000	0,002	0,002	6,262	0,013
Serv_EMF	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMF	0,000	0,000			
MM_Ac	1,000	0,009	0,009	24,166	0,000
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,014	0,014	36,861	0,000
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	9,000	0,037	0,004	10,539	0,000
CRISIS	3,000	0,010	0,003	8,425	0,000
Urb_1	0,000	0,000			

Stepwise analysis of covariance on regional Employment resilience performance by shock type
National economic downturns (NED) - Growth trajectory retention (4 year recovery period)

Model parameters (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,028	0,018	1,544	0,123	-0,008	0,063
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	-0,133	0,039	-3,430	**0,001**	-0,209	-0,057
Agri_EMP	0,083	0,028	2,990	**0,003**	0,029	0,138
Manu_EMP	0,000	0,000				
Const_EMP	-0,103	0,058	-1,777	0,076	-0,216	0,011
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000	3,783	**0,000**	0,000	0,000
Avg_bus	0,000	0,000				
Gov_debt	-0,002	0,000	-6,353	**<0,0001**	-0,003	-0,002
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
DE	-0,017	0,003	-5,469	**<0,0001**	-0,024	-0,011
DK	0,015	0,004	3,807	**0,000**	0,007	0,023
EL	-0,021	0,005	-4,127	**<0,0001**	-0,031	-0,011
ES	0,002	0,005	0,434	0,665	-0,008	0,013
FI	-0,003	0,005	-0,659	0,510	-0,013	0,006
IT	-0,019	0,003	-6,341	**<0,0001**	-0,025	-0,013
NL	0,018	0,006	2,786	**0,005**	0,005	0,030
PT	0,013	0,006	2,325	**0,020**	0,002	0,025
SE	0,022	0,004	6,085	**<0,0001**	0,015	0,029
UK	-0,010	0,003	-3,391	**0,001**	-0,015	-0,004
1: 90-93	0,013	0,002	5,744	**<0,0001**	0,009	0,017
2: 00-03	-0,030	0,005	-5,968	**<0,0001**	-0,040	-0,020
3: 08-09	0,011	0,002	4,495	**<0,0001**	0,006	0,015
4:BTW	0,007	0,003	2,556	**0,011**	0,002	0,012
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				

Standardized coefficients (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	-0,270	0,079	-3,430	**0,001**	-0,425	-0,116
Agri_EMP	0,169	0,057	2,990	**0,003**	0,058	0,280
Manu_EM	0,000	0,000				
Const_EM	-0,094	0,053	-1,777	0,076	-0,198	0,010
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,268	0,071	3,783	**0,000**	0,129	0,407
Avg_bus	0,000	0,000				
Gov_debt	-0,345	0,054	-6,353	**<0,0001**	-0,451	-0,238
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
DE	-0,626	0,115	-5,469	**<0,0001**	-0,851	-0,401
DK	0,328	0,086	3,807	**0,000**	0,159	0,498
EL	-0,457	0,111	-4,127	**<0,0001**	-0,674	-0,239
ES	0,055	0,127	0,434	0,665	-0,194	0,304
FI	-0,073	0,111	-0,659	0,510	-0,291	0,145
IT	-0,558	0,088	-6,341	**<0,0001**	-0,731	-0,386
NL	0,424	0,152	2,786	**0,005**	0,125	0,723
PT	0,305	0,131	2,325	**0,020**	0,047	0,563
SE	0,514	0,084	6,085	**<0,0001**	0,348	0,679
UK	-0,199	0,059	-3,391	**0,001**	-0,314	-0,084
1: 90-93	0,347	0,060	5,744	**<0,0001**	0,228	0,465
2: 00-03	-0,448	0,075	-5,968	**<0,0001**	-0,596	-0,301
3: 08-09	0,256	0,057	4,495	**<0,0001**	0,144	0,367
4:BTW	0,068	0,027	2,556	**0,011**	0,016	0,120
Urban	0,000	0,000				
Intermedia	0,000	0,000				
Rural	0,000	0,000				

Stepwise analysis of covariance on regional Employment resilience performance by shock type
National industry shocks (NIS) - Growth trajectory retention (8 year recovery period)

Summary of the variables selection Ret_Tra_8:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	NAT	NAT	IN	0,000	0,240	0,187	85,875	-1348,742	-1311,112	0,875
2	Mig_net / NAT	Mig_net	IN	0,000	0,303	0,250	68,663	-1361,445	-1320,680	0,812
3	Mig_net / SHDI / NAT	SHDI	IN	0,000	0,353	0,299	55,357	-1372,143	-1328,242	0,763
4	Pop_age / Mig_net / SHDI / NAT	Pop_age	IN	0,000	0,406	0,352	41,313	-1384,558	-1337,521	0,709
5	Pop_age / Mig_net / PROD / SHDI / NAT	PROD	IN	0,000	0,444	0,390	31,674	-1393,836	-1343,663	0,671
6	Pop_age / Mig_net / PROD / Union / SHDI / NAT	Union	IN	0,000	0,507	0,455	14,496	-1412,227	-1358,918	0,603
7	Pop_age / Mig_net / PROD / Cur_blc / Union / SHDI / NAT	Cur_blc	IN	0,000	0,527	0,474	10,344	-1417,322	-1360,878	0,585

Stepwise analysis of covariance on regional Employment resilience performance by shock type
National economic downturns (NED) - Growth trajectory retention (8 year recovery period)

Goodness of fit statistics (Ret_Tra_8):

Observations	522
Sum of weights	522
DF	505
R^2	0,386
Adjusted R^2	0,367
MSE	0,000
RMSE	0,013
MAPE	1432,434
DW	1,611
Cp	17,730
AIC	-4491,647
SBC	-4419,267
PC	0,655
Press	0,099
Q^2	0,320

Analysis of variance (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	16	0,056	0,004	19,867	**<0,0001**
Error	505	0,090	0,000		
Corrected	521	0,146			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional Employment resilience performance by shock type
National economic downturns (NED) - Growth trajectory retention (8 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,012	0,012	66,311	0,000
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	1,000	0,001	0,001	6,571	0,011
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,001	0,001	5,762	0,017
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,011	0,011	63,932	0,000
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	1,000	0,001	0,001	7,220	0,007
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	8,000	0,027	0,003	19,152	0,000
CRISIS	3,000	0,003	0,001	4,953	0,002
Urb_1	0,000	0,000			

Type II Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,006	0,006	36,315	0,000
Agri_EMP	0,000	0,000			
Manu_EM	0,000	0,000			
Const_EM	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	1,000	0,001	0,001	7,355	0,007
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,002	0,002	13,497	0,000
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,004	0,004	22,808	0,000
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	1,000	0,001	0,001	4,725	0,030
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	8,000	0,017	0,002	12,144	0,000
CRISIS	3,000	0,003	0,001	4,953	0,002
Urb_1	0,000	0,000			

Type III Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,006	0,006	36,315	0,000
Agri_EMP	0,000	0,000			
Manu_EM	0,000	0,000			
Const_EM	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	1,000	0,001	0,001	7,355	0,007
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,002	0,002	13,497	0,000
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,004	0,004	22,808	0,000
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	1,000	0,001	0,001	4,725	0,030
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	8,000	0,017	0,002	12,144	0,000
CRISIS	3,000	0,003	0,001	4,953	0,002
Urb_1	0,000	0,000			

Stepwise analysis of covariance on regional Employment resilience performance by shock type
National economic downturns (NED) - Growth trajectory retention (8 year recovery period)

Model parameters (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,043	0,016	2,724	**0,007**	0,012	0,074
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	-0,116	0,026	-4,519	**<0,0001**	-0,167	-0,066
Agri_EMP	0,000	0,000				
Manu_EMP	0,000	0,000				
Const_EMP	0,000	0,000				
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	-0,063	0,043	-1,452	0,147	-0,148	0,022
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,004	0,001	3,291	**0,001**	0,002	0,007
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	-0,002	0,000	-5,324	**<0,0001**	-0,003	-0,001
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,079	0,040	1,982	**0,048**	0,001	0,157
EoC	0,000	0,000				
Clu	0,000	0,000				
DE	-0,019	0,003	-5,826	**<0,0001**	-0,026	-0,013
DK	0,007	0,005	1,360	0,174	-0,003	0,017
EL	0,000	0,000				
ES	-0,006	0,006	-1,103	0,271	-0,017	0,005
FI	0,006	0,018	0,336	0,737	-0,029	0,040
IT	-0,008	0,004	-1,840	0,066	-0,016	0,001
NL	-0,004	0,008	-0,498	0,619	-0,020	0,012
PT	0,012	0,009	1,354	0,176	-0,005	0,030
SE	0,010	0,004	2,241	**0,025**	0,001	0,018
UK	0,001	0,004	0,290	0,772	-0,007	0,010
1: 90-93	0,007	0,003	2,416	**0,016**	0,001	0,012
2: 00-03	-0,015	0,007	-2,166	**0,031**	-0,029	-0,001
3: 08-09	0,009	0,003	2,815	**0,005**	0,003	0,015
4:BTW	-0,001	0,003	-0,223	0,824	-0,006	0,004
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				

Standardized coefficients (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	-0,310	0,069	-4,519	**<0,0001**	-0,445	-0,175
Agri_EMP	0,000	0,000				
Manu_EM	0,000	0,000				
Const_EM	0,000	0,000				
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	-0,099	0,068	-1,452	0,147	-0,234	0,035
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,208	0,063	3,291	**0,001**	0,084	0,332
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	-0,342	0,064	-5,324	**<0,0001**	-0,468	-0,216
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,244	0,123	1,982	**0,048**	0,002	0,485
EoC	0,000	0,000				
Clu	0,000	0,000				
DE	-0,944	0,162	-5,826	**<0,0001**	-1,262	-0,626
DK	0,183	0,134	1,360	0,174	-0,081	0,447
EL	0,000	0,000				
ES	-0,193	0,175	-1,103	0,271	-0,537	0,151
FI	0,160	0,476	0,336	0,737	-0,776	1,096
IT	-0,281	0,153	-1,840	0,066	-0,581	0,019
NL	-0,130	0,260	-0,498	0,619	-0,641	0,382
PT	0,347	0,256	1,354	0,176	-0,157	0,851
SE	0,296	0,132	2,241	**0,025**	0,037	0,556
UK	0,035	0,119	0,290	0,772	-0,200	0,269
1: 90-93	0,232	0,096	2,416	**0,016**	0,043	0,420
2: 00-03	-0,331	0,153	-2,166	**0,031**	-0,631	-0,031
3: 08-09	0,207	0,074	2,815	**0,005**	0,063	0,352
4:BTW	-0,008	0,038	-0,223	0,824	-0,083	0,066
Urban	0,000	0,000				
Intermedia	0,000	0,000				
Rural	0,000	0,000				

III.c.ii.3. Local industry shocks

Stepwise analysis of covariance on regional Employment resilience performance by shock type
Local industry shocks (LIS)

Settings:
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Model selection: Stepwise
Probability for entry: 0,05 / Probability for removal: 0,1
Covariances: Corrections = Newey West (adjusted)(Lag = 1)
Use least squares means: Yes
Explanation of the variable codes can be found in table 28

Summary statistics (Quantitative data):

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Rec_DL	252	0	252	-0,453	0,899	-0,093	0,138
Ret_Tra_4	252	0	252	-0,118	0,083	-0,003	0,025
Ret_Tra_8	252	60	192	-0,113	0,058	-0,006	0,021
Pop_age	252	0	252	0,181	2,408	1,069	0,391
Mig_net	252	0	252	-18,814	20,570	2,628	6,107
Pop_work	252	0	252	0,330	0,671	0,445	0,060
Agri_EMP	252	0	252	0,000	0,537	0,105	0,099
Manu_EMP	252	0	252	0,024	0,565	0,220	0,130
Const_EMP	252	0	252	0,019	0,294	0,085	0,038
Serv_EMP	252	0	252	0,135	0,648	0,333	0,087
Pub_EMP	252	0	252	0,110	0,576	0,256	0,068
HHI	252	0	252	0,175	0,543	0,240	0,053
GDP_PC	252	0	252	-1,260	4,710	-0,121	0,795
GFCF_PC	252	0	252	-1,835	1,978	-0,282	0,756
PROD	252	0	252	-2,858	2,307	-0,261	1,065
RnD_GDP	252	0	252	0,000	8,234	1,543	1,375
RnD_EMP	252	0	252	0,000	3,649	1,154	0,785
MM_Ac	252	0	252	24,795	192,930	87,823	38,125
Avg_bus	252	0	252	1,349	18,605	7,344	5,390
Gov_debt	252	0	252	-15,100	6,700	-4,185	3,010
Cur_blc	252	0	252	-14,500	7,500	-0,978	3,646
Gov_close	252	0	252	0,370	20,220	4,595	2,672
Lab_comp	252	0	252	610,461	134579,34	25043,979	23487,003
Union	252	0	252	9,341	82,671	28,979	11,223
ML_barg	252	0	252	1,000	4,750	2,694	0,776
SHDI	252	0	252	0,705	0,930	0,824	0,056
SC_Org	252	0	252	0,038	0,213	0,103	0,047
EoC	252	0	252	46,900	100,000	67,292	17,391
Clu	252	0	252	0,360	31,000	2,256	2,917

Number of removed observations: 57

Summary statistics (Qualitative data):

Variable	Categories	Counts	Frequencies	%
NAT	AT	3	3	1,190
	BE	3	3	1,190
	DE	71	71	28,175
	EL	17	17	6,746
	ES	25	25	9,921
	FI	4	4	1,587
	FR	16	16	6,349
	IT	64	64	25,397
	NL	7	7	2,778
	PT	15	15	5,952
	SE	1	1	0,397
	UK	26	26	10,317
CRISIS	1: 90-93	82	82	32,540
	2: 00-03	55	55	21,825
	3: 08-09	37	37	14,683
	4:BTW	78	78	30,952
Urb_1	Urban	61	61	24,206
	Intermedia	95	95	37,698
	Rural	96	96	38,095

Stepwise analysis of covariance on regional Employment resilience performance by shock type
Local industry shocks (LIS)

Correlation matrix:

	Pop_age	Mig_net	Pop_work	Agri_EMP	Manu_EMP	Const_EMP	Serv_EMP	Pub_EMP	HHI	GDP_PC	GFCF_PC	PROD	RnD_GDP	RnD_EMP	MM_Ac	Avg_bus	Gov_debt	Cur_blc	Gov_close	Lab_comp	Union	ML_barg	SHDI	SC_Org	EoC	Clu	AT	BE	DE	EL	ES	FI	FR	IT	NL	PT	SE	UK	1: 90-93	2: 00-03	3: 08-09	4:BTW	Urban	Intermediate	Rural	Rec_DL	Ret_Tra_4	Ret_Tra_8
Pop_age	**1**	-0.036	0.131	0.071	0.091	-0.133	-0.123	-0.048	-0.016	-0.010	-0.117	-0.091	0.002	0.125	-0.008	0.047	0.079	-0.060	-0.024	0.130	-0.126	0.033	0.285	-0.002	-0.092	-0.105	0.126	0.115	0.145	0.178	0.065	0.134	0.107	0.064	0.075	0.190	0.138	-0.147	-0.166	0.076	0.189	-0.025	-0.223	-0.222	0.251	-0.030	-0.066	-0.013
Mig_net	-0.036	**1**	0.164	-0.227	0.219	0.041	0.087	-0.224	0.207	0.260	0.269	0.185	0.106	0.145	0.197	0.154	0.073	-0.221	-0.110	0.133	0.058	0.030	0.104	0.097	0.170	-0.060	-0.093	-0.093	0.072	-0.010	-0.019	-0.116	-0.130	-0.101	-0.097	-0.144	-0.083	0.082	0.134	-0.027	-0.025	-0.039	0.049	0.114	-0.094	-0.040	-0.005	-0.217
Pop_work	0.131	0.164	**1**	-0.249	0.309	-0.174	0.178	-0.363	0.188	0.254	0.372	0.210	0.395	0.411	0.390	0.520	0.285	0.161	0.092	0.214	-0.012	-0.367	0.471	0.214	0.559	0.074	-0.358	-0.395	0.070	-0.324	-0.455	-0.346	-0.438	-0.585	-0.324	-0.146	-0.389	0.402	-0.019	0.138	0.124	-0.089	0.095	-0.067	-0.011	0.060	-0.126	-0.119
Agri_EMP	0.071	-0.227	-0.249	**1**	-0.531	0.109	-0.398	0.007	-0.411	-0.473	-0.490	-0.663	-0.440	-0.435	-0.664	-0.583	-0.347	-0.477	-0.287	-0.382	0.031	0.359	-0.586	-0.410	-0.529	-0.141	0.154	0.150	-0.301	0.330	0.159	0.141	0.192	0.126	0.118	0.363	0.138	-0.152	-0.035	-0.092	-0.177	0.113	-0.525	-0.301	0.460	-0.096	-0.013	-0.086
Manu_EMP	0.091	0.219	0.309	-0.531	**1**	-0.395	-0.332	-0.502	0.469	0.456	0.333	0.427	0.471	0.424	0.585	0.675	0.061	0.420	0.255	0.364	0.019	-0.061	0.392	0.472	0.263	-0.029	0.227	0.208	0.650	0.077	-0.019	0.197	0.110	0.032	0.162	0.147	0.225	-0.238	0.159	0.163	0.176	-0.195	0.238	0.239	-0.270	-0.054	-0.063	-0.111
Const_EMP	-0.133	0.041	-0.174	0.109	-0.395	**1**	-0.006	0.053	-0.276	-0.397	-0.200	-0.333	-0.333	-0.340	-0.417	-0.356	-0.003	-0.400	-0.237	-0.249	-0.067	0.116	-0.432	-0.202	-0.111	-0.047	-0.039	-0.043	-0.299	-0.056	0.268	-0.070	-0.085	-0.007	-0.085	0.042	-0.057	0.055	0.115	-0.028	-0.048	-0.022	-0.184	-0.006	0.102	0.081	0.217	0.179
Serv_EMP	-0.123	0.087	0.178	-0.398	-0.332	-0.006	**1**	-0.058	0.039	0.241	0.266	0.305	0.059	0.117	0.307	0.005	0.217	0.082	-0.136	0.092	-0.090	-0.337	0.290	-0.054	0.295	0.000	-0.454	-0.453	-0.358	-0.357	-0.331	-0.462	-0.394	-0.303	-0.251	-0.567	-0.481	0.482	-0.152	-0.106	-0.046	0.123	0.363	0.010	-0.199	0.039	0.036	0.126
Pub_EMP	-0.048	-0.224	-0.363	0.007	-0.502	0.053	-0.058	**1**	-0.198	-0.272	-0.153	-0.058	-0.153	-0.141	-0.315	-0.253	0.114	0.007	0.236	-0.120	0.071	-0.039	-0.028	-0.125	-0.049	0.288	-0.058	-0.016	-0.184	-0.142	0.078	0.045	0.061	0.146	-0.115	-0.110	0.013	0.031	-0.125	-0.028	0.005	0.063	-0.052	-0.028	0.044	0.072	-0.027	0.054
HHI	-0.016	0.207	0.188	-0.411	0.469	-0.276	0.039	-0.198	**1**	0.691	0.191	0.330	0.395	0.373	0.376	0.461	0.089	0.112	0.021	0.102	-0.017	-0.099	0.246	0.312	0.290	0.274	-0.017	-0.024	0.331	0.042	-0.084	-0.028	-0.095	-0.177	0.022	-0.072	-0.007	0.003	0.093	0.130	0.091	-0.123	0.259	0.173	-0.241	-0.083	-0.057	-0.132
GDP_PC	-0.010	0.260	0.254	-0.473	0.456	-0.397	0.241	-0.272	0.691	**1**	0.461	0.537	0.424	0.400	0.538	0.455	0.112	0.202	0.135	0.268	0.057	-0.163	0.338	0.333	0.334	0.061	-0.088	-0.098	0.245	-0.114	-0.176	-0.096	-0.120	-0.142	-0.037	-0.215	-0.084	0.090	0.048	0.060	0.024	-0.053	0.359	0.132	-0.270	-0.081	-0.096	-0.108
GFCF_PC	-0.117	0.269	0.372	-0.490	0.333	-0.200	0.266	-0.153	0.191	0.461	**1**	0.755	0.551	0.502	0.513	0.436	0.137	0.415	0.410	0.314	0.194	-0.222	0.403	0.394	0.426	-0.011	-0.147	-0.158	0.134	-0.348	-0.314	-0.150	-0.129	-0.136	-0.140	-0.406	-0.186	0.207	0.101	-0.059	0.063	-0.043	0.184	0.091	-0.152	0.054	-0.016	0.025
PROD	-0.091	0.185	0.210	-0.663	0.427	-0.333	0.305	-0.058	0.330	0.537	0.755	**1**	0.563	0.531	0.712	0.594	0.236	0.589	0.433	0.463	0.054	-0.280	0.532	0.528	0.505	0.027	-0.105	-0.074	0.334	-0.323	-0.217	-0.087	-0.041	-0.125	-0.026	-0.410	-0.089	0.112	0.121	0.018	0.107	-0.097	0.365	0.112	-0.262	0.118	0.059	0.150
RnD_GDP	0.002	0.106	0.395	-0.440	0.471	-0.333	0.059	-0.153	0.395	0.424	0.551	0.563	**1**	0.900	0.553	0.624	0.265	0.440	0.392	0.363	0.013	-0.279	0.458	0.466	0.475	0.006	-0.107	-0.112	0.342	-0.214	-0.224	-0.019	-0.055	-0.270	-0.072	-0.172	-0.095	0.100	0.123	0.084	0.181	-0.150	0.258	0.110	-0.203	0.008	-0.019	-0.055
RnD_EMP	0.125	0.145	0.411	-0.435	0.424	-0.340	0.117	-0.141	0.373	0.400	0.502	0.531	0.900	**1**	0.541	0.605	0.307	0.359	0.339	0.445	0.010	-0.227	0.581	0.466	0.449	-0.024	-0.087	-0.101	0.354	-0.092	-0.209	0.011	-0.078	-0.272	-0.065	-0.186	-0.080	0.080	0.008	0.075	0.196	-0.102	0.261	0.086	-0.190	-0.026	-0.056	-0.102
MM_Ac	-0.008	0.197	0.390	-0.664	0.585	-0.417	0.307	-0.315	0.376	0.538	0.513	0.712	0.553	0.541	**1**	0.703	0.199	0.550	0.207	0.537	-0.045	-0.261	0.594	0.455	0.465	0.032	-0.059	-0.034	0.458	-0.221	-0.273	-0.110	-0.105	-0.164	0.052	-0.196	-0.072	0.063	0.134	0.114	0.196	-0.172	0.560	0.202	-0.419	0.000	-0.062	-0.035
Avg_bus	0.047	0.154	0.520	-0.583	0.675	-0.356	0.005	-0.253	0.461	0.455	0.436	0.594	0.624	0.605	0.703	**1**	0.272	0.521	0.275	0.323	-0.107	-0.350	0.617	0.654	0.727	0.104	-0.067	-0.084	0.669	-0.204	-0.193	-0.087	-0.179	-0.369	-0.085	-0.157	-0.074	0.069	0.157	0.261	0.239	-0.254	0.332	0.187	-0.289	0.024	-0.060	-0.063
Gov_debt	0.079	0.073	0.285	-0.347	0.061	-0.003	0.217	0.114	0.089	0.112	0.137	0.236	0.265	0.307	0.199	0.272	**1**	0.262	0.313	0.142	-0.172	-0.398	0.356	0.310	0.466	0.191	-0.204	-0.263	0.012	-0.366	-0.044	-0.130	-0.105	-0.401	-0.173	-0.237	-0.210	0.235	-0.158	0.061	-0.073	0.070	0.119	-0.036	-0.042	0.170	-0.048	-0.056
Cur_blc	-0.060	-0.221	0.161	-0.477	0.420	-0.400	0.082	0.007	0.112	0.202	0.415	0.589	0.440	0.359	0.550	0.521	0.262	**1**	0.496	0.270	-0.043	-0.229	0.505	0.519	0.320	0.021	0.115	0.153	0.437	-0.200	-0.077	0.156	0.106	0.022	0.169	-0.098	0.102	-0.107	-0.041	-0.019	0.067	0.001	0.282	0.147	-0.239	0.270	0.123	0.294
Gov_close	-0.024	-0.110	0.092	-0.287	0.255	-0.237	-0.136	0.236	0.021	0.135	0.410	0.433	0.392	0.339	0.207	0.275	0.313	0.496	**1**	0.131	0.429	-0.054	0.305	0.511	0.212	0.086	0.211	0.140	0.284	-0.146	-0.071	0.400	0.196	0.065	0.103	0.029	0.224	-0.153	0.089	0.079	0.147	-0.121	-0.014	-0.038	0.030	0.011	-0.073	0.057
Lab_comp	0.130	0.133	0.214	-0.382	0.364	-0.249	0.092	-0.120	0.102	0.268	0.314	0.463	0.363	0.445	0.537	0.323	0.142	0.270	0.131	**1**	-0.088	-0.123	0.475	0.139	0.072	-0.185	0.108	0.105	0.308	-0.040	0.010	0.108	0.067	0.197	0.117	0.058	0.128	-0.143	0.011	0.141	0.300	-0.166	0.396	0.138	-0.294	-0.026	-0.083	-0.094
Union	-0.126	0.058	-0.012	0.031	0.019	-0.067	-0.090	0.071	-0.017	0.057	0.194	0.054	0.013	0.010	-0.045	-0.107	-0.172	-0.043	0.429	-0.088	**1**	0.214	-0.059	-0.078	-0.031	-0.017	-0.078	-0.019	-0.169	-0.056	-0.331	0.077	-0.346	0.211	-0.129	-0.113	-0.046	0.110	0.076	-0.096	-0.016	0.010	0.025	0.089	-0.066	-0.254	-0.160	-0.167
ML_barg	0.033	0.030	-0.367	0.359	-0.061	0.116	-0.337	-0.039	-0.099	-0.163	-0.222	-0.280	-0.279	-0.227	-0.261	-0.350	-0.398	-0.229	-0.054	-0.123	0.214	**1**	-0.315	0.031	-0.660	-0.018	0.600	0.700	0.213	0.727	0.462	0.605	0.471	0.478	0.600	0.539	0.663	-0.648	0.208	0.065	0.064	-0.138	-0.216	0.048	0.087	-0.170	0.083	-0.103
SHDI	0.285	0.104	0.471	-0.586	0.392	-0.432	0.290	-0.028	0.246	0.338	0.403	0.532	0.458	0.581	0.594	0.617	0.356	0.505	0.305	0.475	-0.059	-0.315	**1**	0.440	0.449	0.080	-0.057	-0.064	0.398	-0.110	-0.224	-0.011	-0.178	-0.129	-0.033	-0.238	-0.062	0.062	-0.305	0.101	0.242	0.006	0.304	0.094	-0.218	0.096	-0.157	-0.119
SC_Org	-0.002	0.097	0.214	-0.410	0.472	-0.202	-0.054	-0.125	0.312	0.333	0.394	0.528	0.466	0.466	0.455	0.654	0.310	0.519	0.511	0.139	-0.078	0.031	0.440	**1**	0.396	0.225	0.338	0.327	0.715	0.152	0.296	0.412	0.237	-0.172	0.374	0.065	0.357	-0.340	0.210	0.221	0.209	-0.251	0.086	0.108	-0.110	0.140	0.092	0.011
EoC	-0.092	0.170	0.559	-0.529	0.263	-0.111	0.295	-0.049	0.290	0.334	0.426	0.505	0.475	0.449	0.465	0.727	0.466	0.320	0.212	0.072	-0.031	-0.660	0.449	0.396	**1**	0.160	-0.592	-0.618	0.072	-0.665	-0.413	-0.561	-0.606	-0.742	-0.602	-0.633	-0.616	0.639	0.069	0.087	0.072	-0.089	0.289	0.075	-0.199	0.118	-0.038	-0.008
Clu	-0.105	-0.060	0.074	-0.141	-0.029	-0.047	0.000	0.288	0.274	0.061	-0.011	0.027	0.006	-0.024	0.032	0.104	0.191	0.021	0.086	-0.185	-0.017	-0.018	0.080	0.225	0.160	**1**	0.007	-0.004	0.056	0.012	0.079	0.012	-0.042	-0.229	0.041	-0.020	0.019	0.016	0.036	0.175	0.047	-0.100	0.021	-0.006	-0.007	-0.018	-0.121	-0.157
AT	0.126	-0.093	-0.358	0.154	0.227	-0.039	-0.454	-0.058	-0.017	-0.088	-0.147	-0.105	-0.107	-0.087	-0.059	-0.067	-0.204	0.115	0.211	0.108	-0.078	0.600	-0.057	0.338	-0.592	0.007	**1**	0.888	0.616	0.743	0.700	0.873	0.750	0.619	0.833	0.757	0.924	-0.943	0.067	0.150	0.116	-0.128	-0.175	0.041	0.069	-0.007	0.089	-0.009
BE	0.115	-0.093	-0.395	0.150	0.208	-0.043	-0.453	-0.016	-0.024	-0.098	-0.158	-0.074	-0.112	-0.101	-0.034	-0.084	-0.263	0.153	0.140	0.105	-0.019	0.700	-0.064	0.327	-0.618	-0.004	0.888	**1**	0.616	0.743	0.700	0.873	0.750	0.619	0.833	0.757	0.924	-0.943	0.143	0.167	0.153	-0.181	-0.144	0.096	0.019	-0.007	0.091	-0.018
DE	0.145	0.072	0.070	-0.301	0.650	-0.299	-0.358	-0.184	0.331	0.245	0.134	0.334	0.342	0.354	0.458	0.669	0.012	0.437	0.284	0.308	-0.169	0.213	0.398	0.715	0.072	0.056	0.616	0.616	**1**	0.448	0.389	0.599	0.457	0.222	0.555	0.466	0.652	-0.673	0.187	0.307	0.288	-0.302	0.122	0.193	-0.181	-0.008	0.020	-0.075
EL	0.178	-0.010	-0.324	0.330	0.077	-0.056	-0.357	-0.142	0.042	-0.114	-0.348	-0.323	-0.214	-0.092	-0.221	-0.204	-0.366	-0.200	-0.146	-0.040	-0.056	0.727	-0.110	0.152	-0.665	0.012	0.743	0.743	0.448	**1**	0.557	0.728	0.609	0.456	0.690	0.616	0.776	-0.795	-0.035	0.083	0.081	-0.046	-0.226	-0.011	0.128	-0.043	0.094	-0.112
ES	0.065	-0.019	-0.455	0.159	-0.019	0.268	-0.331	0.078	-0.084	-0.176	-0.314	-0.217	-0.224	-0.209	-0.273	-0.193	-0.044	-0.077	-0.071	0.010	-0.331	0.462	-0.224	0.296	-0.413	0.079	0.700	0.700	0.389	0.557	**1**	0.685	0.564	0.399	0.646	0.571	0.733	-0.751	0.089	0.133	0.052	-0.109	-0.138	0.111	0.007	0.158	0.242	0.023
FI	0.134	-0.116	-0.346	0.141	0.197	-0.070	-0.462	0.045	-0.028	-0.096	-0.150	-0.087	-0.019	0.011	-0.110	-0.087	-0.130	0.156	0.400	0.108	0.077	0.605	-0.011	0.412	-0.561	0.012	0.873	0.873	0.599	0.728	0.685	**1**	0.735	0.603	0.818	0.742	0.908	-0.927	0.080	0.165	0.171	-0.159	-0.184	0.026	0.083	0.000	0.069	-0.025
FR	0.107	-0.130	-0.438	0.192	0.110	-0.085	-0.394	0.061	-0.095	-0.120	-0.129	-0.041	-0.055	-0.078	-0.105	-0.179	-0.105	0.106	0.196	0.067	-0.346	0.471	-0.178	0.237	-0.606	-0.042	0.750	0.750	0.457	0.609	0.564	0.735	**1**	0.465	0.697	0.623	0.783	-0.802	0.125	0.069	0.065	-0.104	-0.281	-0.113	0.217	0.044	0.116	0.111
IT	0.064	-0.101	-0.585	0.126	0.032	-0.007	-0.303	0.146	-0.177	-0.142	-0.136	-0.125	-0.270	-0.272	-0.164	-0.369	-0.401	0.022	0.065	0.197	0.211	0.478	-0.129	-0.172	-0.742	-0.229	0.619	0.619	0.222	0.456	0.399	0.603	0.465	**1**	0.560	0.473	0.655	-0.675	-0.065	-0.043	0.033	0.033	-0.024	0.175	-0.092	-0.156	0.006	-0.012
NL	0.075	-0.097	-0.324	0.118	0.162	-0.085	-0.251	-0.115	0.022	-0.037	-0.140	-0.026	-0.072	-0.065	0.052	-0.085	-0.173	0.169	0.103	0.117	-0.129	0.600	-0.033	0.374	-0.602	0.041	0.833	0.833	0.555	0.690	0.646	0.818	0.697	0.560	**1**	0.704	0.867	-0.886	0.145	0.160	0.135	-0.173	-0.052	0.076	-0.018	-0.016	0.092	0.006
PT	0.190	-0.144	-0.146	0.363	0.147	0.042	-0.567	-0.110	-0.072	-0.215	-0.406	-0.410	-0.172	-0.186	-0.196	-0.157	-0.237	-0.098	0.029	0.058	-0.113	0.539	-0.238	0.065	-0.633	-0.020	0.757	0.757	0.466	0.616	0.571	0.742	0.623	0.473	0.704	**1**	0.790	-0.809	0.126	0.220	0.124	-0.184	-0.223	-0.012	0.126	-0.088	-0.005	-0.076
SE	0.138	-0.083	-0.389	0.138	0.225	-0.057	-0.481	0.013	-0.007	-0.084	-0.186	-0.089	-0.095	-0.080	-0.072	-0.074	-0.210	0.102	0.224	0.128	-0.046	0.663	-0.062	0.357	-0.616	0.019	0.924	0.924	0.652	0.776	0.733	0.908	0.783	0.655	0.867	0.790	**1**	-0.979	0.118	0.172	0.154	-0.172	-0.139	0.101	0.014	-0.032	0.097	-0.019
UK	-0.147	0.082	0.402	-0.152	-0.238	0.055	0.482	0.031	0.003	0.090	0.207	0.112	0.100	0.080	0.063	0.069	0.235	-0.107	-0.153	-0.143	0.110	-0.648	0.062	-0.340	0.639	0.016	-0.943	-0.943	-0.673	-0.795	-0.751	-0.927	-0.802	-0.675	-0.886	-0.809	-0.979	**1**	-0.105	-0.174	-0.155	0.168	0.145	-0.088	-0.024	0.022	-0.097	0.021
1: 90-93	-0.166	0.134	-0.019	-0.035	0.159	0.115	-0.152	-0.125	0.093	0.048	0.101	0.121	0.123	0.008	0.134	0.157	-0.158	-0.041	0.089	0.011	0.076	0.208	-0.305	0.210	0.069	0.036	0.067	0.143	0.187	-0.035	0.089	0.080	0.125	-0.065	0.145	0.126	0.118	-0.105	**1**	0.542	0.598	-0.854	-0.035	0.023	0.005	-0.141	0.074	0.007
2: 00-03	0.076	-0.027	0.138	-0.092	0.163	-0.028	-0.106	-0.028	0.130	0.060	-0.059	0.018	0.084	0.075	0.114	0.261	0.061	-0.019	0.079	0.141	-0.096	0.065	0.101	0.221	0.087	0.175	0.150	0.167	0.307	0.083	0.133	0.165	0.069	-0.043	0.160	0.220	0.172	-0.174	0.542	**1**	0.624	-0.844	-0.016	0.018	-0.003	-0.155	-0.161	-0.236
3: 08-09	0.189	-0.025	0.124	-0.177	0.176	-0.048	-0.046	0.005	0.091	0.024	0.063	0.107	0.181	0.196	0.196	0.239	-0.073	0.067	0.147	0.300	-0.016	0.064	0.242	0.209	0.072	0.047	0.116	0.153	0.288	0.081	0.052	0.171	0.065	0.033	0.135	0.124	0.154	-0.155	0.598	0.624	**1**	-0.855	0.065	0.054	-0.067	-0.104	-0.072	-0.067
4:BTW	-0.025	-0.039	-0.089	0.113	-0.195	-0.022	0.123	0.063	-0.123	-0.053	-0.043	-0.097	-0.150	-0.102	-0.172	-0.254	0.070	0.001	-0.121	-0.166	0.010	-0.138	0.006	-0.251	-0.089	-0.100	-0.128	-0.181	-0.302	-0.046	-0.109	-0.159	-0.104	0.033	-0.173	-0.184	-0.172	0.168	-0.854	-0.844	-0.855	**1**	-0.002	-0.036	0.023	0.158	0.056	0.119
Urban	-0.223	0.049	0.095	-0.525	0.238	-0.184	0.363	-0.052	0.259	0.359	0.184	0.365	0.258	0.261	0.560	0.332	0.119	0.282	-0.014	0.396	0.025	-0.216	0.304	0.086	0.289	0.021	-0.175	-0.144	0.122	-0.226	-0.138	-0.184	-0.281	-0.024	-0.052	-0.223	-0.139	0.145	-0.035	-0.016	0.065	-0.002	**1**	0.563	-0.869	-0.035	-0.032	-0.065
Intermediate	-0.222	0.114	-0.067	-0.301	0.239	-0.006	0.010	-0.028	0.173	0.132	0.091	0.112	0.110	0.086	0.202	0.187	-0.036	0.147	-0.038	0.138	0.089	0.048	0.094	0.108	0.075	-0.006	0.041	0.096	0.193	-0.011	0.111	0.026	-0.113	0.175	0.076	-0.012	0.101	-0.088	0.023	0.018	0.054	-0.036	0.563	**1**	-0.897	-0.094	-0.019	-0.126
Rural	0.251	-0.094	-0.011	0.460	-0.270	0.102	-0.199	0.044	-0.241	-0.270	-0.152	-0.262	-0.203	-0.190	-0.419	-0.289	-0.042	-0.239	0.030	-0.294	-0.066	0.087	-0.218	-0.110	-0.199	-0.007	0.069	0.019	-0.181	0.128	0.007	0.083	0.217	-0.092	-0.018	0.126	0.014	-0.024	0.005	-0.003	-0.067	0.023	-0.869	-0.897	**1**	0.075	0.028	0.110
Rec_DL	-0.030	-0.040	0.060	-0.096	-0.054	0.081	0.099	0.072	-0.083	-0.081	0.054	0.118	0.008	-0.026	0.000	0.024	0.170	0.270	0.011	-0.026	-0.254	-0.170	0.096	0.140	0.118	-0.018	-0.007	-0.007	-0.008	-0.043	0.158	0.000	0.044	-0.156	-0.016	-0.088	-0.032	0.022	-0.141	-0.155	-0.104	0.158	-0.035	-0.094	0.075	**1**	0.629	0.615
Ret_Tra_4	-0.066	-0.005	-0.126	-0.013	-0.063	0.217	0.036	-0.027	-0.057	-0.096	-0.016	0.059	-0.019	-0.056	-0.062	-0.060	-0.048	0.123	-0.073	-0.083	-0.160	0.083	-0.157	0.092	-0.038	-0.121	0.089	0.091	0.020	0.094	0.242	0.069	0.116	0.006	0.092	-0.005	0.097	-0.097	0.074	-0.161	-0.072	0.056	-0.032	-0.019	0.028	0.629	**1**	0.764
Ret_Tra_8	-0.013	-0.217	-0.119	-0.086	-0.111	0.179	0.126	0.054	-0.132	-0.108	0.025	0.150	-0.055	-0.102	-0.035	-0.063	-0.056	0.294	0.057	-0.094	-0.167	-0.103	-0.119	0.011	-0.008	-0.157	-0.009	-0.018	-0.075	-0.112	0.023	-0.025	0.111	-0.012	0.006	-0.076	-0.019	0.021	0.007	-0.236	-0.067	0.119	-0.065	-0.126	0.110	0.615	0.764	**1**

Stepwise analysis of covariance on regional Employment resilience performance by shock type
Local industry shocks (LIS) - Recovery of development level

Summary of the variables selection Rec_DL:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	Cur_blc	Cur_blc	IN	0,018	0,073	0,069	85,373	-1015,006	-1007,947	0,942
2	Cur_blc / NAT	NAT	IN	0,015	0,269	0,233	36,710	-1053,035	-1007,152	0,810
3	PROD / Cur_blc / NAT	PROD	IN	0,014	0,286	0,247	32,638	-1056,928	-1007,516	0,798
4	PROD / RnD_EMP / Cur_blc / NAT	RnD_EMP	IN	0,014	0,303	0,262	28,528	-1061,000	-1008,059	0,785
5	PROD / RnD_EMP / Cur_blc / ML_barg / NAT	ML_barg	IN	0,014	0,318	0,275	25,170	-1064,448	-1007,977	0,774
6	Const_EMP / PROD / RnD_EMP / Cur_blc / ML_barg / NAT	Const_EMP	IN	0,014	0,331	0,285	22,591	-1067,199	-1007,199	0,766

Stepwise analysis of covariance on regional Employment resilience performance by shock type
Local industry shocks (LIS) - Recovery of development level

Goodness of fit statistics (Rec_DL):

Observations	252
Sum of weights	252
DF	235
R^2	0,331
Adjusted R^2	0,285
MSE	0,014
RMSE	0,116
MAPE	347,219
DW	1,858
Cp	22,591
AIC	-1067,199
SBC	-1007,199
PC	0,766
Press	3,632
Q^2	0,238

Analysis of variance (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	16	1,576	0,099	7,261	**<0,0001**
Error	235	3,189	0,014		
Corrected '	251	4,765			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional Employment resilience performance by shock type
Local industry shocks (LIS) - Recovery of development level

Type I Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	1,000	0,031	0,031	2,302	0,131
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,113	0,113	8,331	0,004
RnD_GDP	0,000	0,000			
RnD_EMP	1,000	0,031	0,031	2,259	0,134
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,410	0,410	30,250	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,083	0,083	6,109	0,014
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	11,000	0,908	0,083	6,083	0,000
CRISIS	0,000	0,000			
Urb_1	0,000	0,000			

Type II Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EM	0,000	0,000			
Const_EM	1,000	0,061	0,061	4,473	0,035
Serv_EMF	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,142	0,142	10,431	0,001
RnD_GDP	0,000	0,000			
RnD_EMF	1,000	0,077	0,077	5,663	0,018
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,619	0,619	45,619	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,090	0,090	6,634	0,011
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	11,000	0,908	0,083	6,083	0,000
CRISIS	0,000	0,000			
Urb_1	0,000	0,000			

Type III Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EM	0,000	0,000			
Const_EM	1,000	0,061	0,061	4,473	0,035
Serv_EMF	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,142	0,142	10,431	0,001
RnD_GDP	0,000	0,000			
RnD_EMF	1,000	0,077	0,077	5,663	0,018
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,619	0,619	45,619	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,090	0,090	6,634	0,011
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	11,000	0,908	0,083	6,083	0,000
CRISIS	0,000	0,000			
Urb_1	0,000	0,000			

Stepwise analysis of covariance on regional Employment resilience performance by shock type
Local industry shocks (LIS) - Recovery of development level

Model parameters (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,071	0,096	0,738	0,461	-0,119	0,261
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_EMP	0,000	0,000				
Manu_EMP	0,000	0,000				
Const_EMP	0,525	0,329	1,597	0,112	-0,123	1,173
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,045	0,017	2,650	**0,009**	0,012	0,079
RnD_GDP	0,000	0,000				
RnD_EMP	-0,031	0,019	-1,619	0,107	-0,069	0,007
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,023	0,003	7,807	**<0,0001**	0,017	0,029
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	-0,047	0,027	-1,740	0,083	-0,100	0,006
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	-0,015	0,030	-0,514	0,608	-0,074	0,043
BE	-0,053	0,052	-1,002	0,318	-0,156	0,051
DE	-0,096	0,020	-4,896	**<0,0001**	-0,135	-0,058
EL	0,228	0,042	5,467	**<0,0001**	0,146	0,310
ES	0,141	0,030	4,727	**<0,0001**	0,082	0,199
FI	-0,009	0,032	-0,275	0,783	-0,072	0,054
FR	0,012	0,018	0,699	0,485	-0,022	0,047
IT	-0,048	0,019	-2,461	**0,015**	-0,086	-0,009
NL	-0,103	0,022	-4,623	**<0,0001**	-0,147	-0,059
PT	0,105	0,036	2,899	**0,004**	0,034	0,177
SE	-0,102	0,049	-2,084	**0,038**	-0,198	-0,006
UK	-0,061	0,059	-1,024	0,307	-0,178	0,056
1: 90-93	0,000	0,000				
2: 00-03	0,000	0,000				
3: 08-09	0,000	0,000				
4:BTW	0,000	0,000				
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				

Standardized coefficients (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_EMP	0,000	0,000				
Manu_EM	0,000	0,000				
Const_EM	0,144	0,090	1,597	0,112	-0,033	0,321
Serv_EMF	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,350	0,132	2,650	**0,009**	0,090	0,611
RnD_GDF	0,000	0,000				
RnD_EMF	-0,179	0,110	-1,619	0,107	-0,396	0,039
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,604	0,077	7,807	**<0,0001**	0,451	0,756
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	-0,263	0,151	-1,740	0,083	-0,561	0,035
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	-0,036	0,071	-0,514	0,608	-0,176	0,103
BE	-0,125	0,125	-1,002	0,318	-0,371	0,121
DE	-0,417	0,085	-4,896	**<0,0001**	-0,584	-0,249
EL	0,681	0,125	5,467	**<0,0001**	0,436	0,926
ES	0,461	0,097	4,727	**<0,0001**	0,269	0,653
FI	-0,021	0,077	-0,275	0,783	-0,174	0,131
FR	0,037	0,052	0,699	0,485	-0,066	0,140
IT	-0,200	0,081	-2,461	**0,015**	-0,360	-0,040
NL	-0,265	0,057	-4,623	**<0,0001**	-0,378	-0,152
PT	0,307	0,106	2,899	**0,004**	0,098	0,516
SE	-0,231	0,111	-2,084	**0,038**	-0,448	-0,013
UK	-0,134	0,131	-1,024	0,307	-0,393	0,124
1: 90-93	0,000	0,000				
2: 00-03	0,000	0,000				
3: 08-09	0,000	0,000				
4:BTW	0,000	0,000				
Urban	0,000	0,000				
Intermedia	0,000	0,000				
Rural	0,000	0,000				

Stepwise analysis of covariance on regional Employment resilience performance by shock type
Local industry shocks (LIS) - Growth trajectory retention (4 year recovery period)

Summary of the variables selection Ret_Tra_4:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R²	Adjusted R²	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	Const_EMP	Const_EMF	IN	0,001	0,047	0,043	57,339	-1876,160	-1869,101	0,968
2	Const_EMP / Cur_blc	Cur_blc	IN	0,001	0,100	0,092	42,584	-1888,382	-1877,794	0,922
3	Const_EMP / Cur_blc / NAT	NAT	IN	0,001	0,212	0,169	28,530	-1900,012	-1850,600	0,881
4	Const_EMP / Cur_blc / NAT / CRISIS	CRISIS	IN	0,000	0,271	0,222	15,585	-1913,665	-1853,665	0,834
5	Const_EMP / PROD / Cur_blc / NAT / CRISIS	PROD	IN	0,000	0,290	0,238	11,526	-1918,288	-1854,758	0,819
6	Const_EMP / PROD / Cur_blc / Clu / NAT / CRISIS	Clu	IN	0,000	0,303	0,249	9,474	-1920,815	-1853,756	0,811

Stepwise analysis of covariance on regional Employment resilience performance by shock type
Local industry shocks (LIS) - Growth trajectory retention (4 year recovery period)

Goodness of fit statistics (Ret_Tra_4):

Observations	252
Sum of weights	252
DF	233
R²	0,303
Adjusted R²	0,249
MSE	0,000
RMSE	0,021
MAPE	186,206
DW	2,005
Cp	9,474
AIC	-1920,815
SBC	-1853,756
PC	0,811
Press	0,124
Q²	0,187

Analysis of variance (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	18	0,046	0,003	5,619	**<0,0001**
Error	233	0,106	0,000		
Corrected	251	0,152			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional Employment resilience performance by shock type
Local industry shocks (LIS) - Growth trajectory retention (4 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	1,000	0,007	0,007	15,781	0,000
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,003	0,003	6,443	0,012
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,005	0,005	11,179	0,001
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,002	0,002	4,200	0,042
NAT	11,000	0,022	0,002	4,329	0,000
CRISIS	3,000	0,007	0,002	5,305	0,001
Urb_1	0,000	0,000			

Type II Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EM	0,000	0,000			
Const_EM	1,000	0,005	0,005	10,714	0,001
Serv_EMF	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,003	0,003	5,712	0,018
RnD_GDP	0,000	0,000			
RnD_EMF	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,015	0,015	32,245	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,002	0,002	4,224	0,041
NAT	11,000	0,023	0,002	4,542	0,000
CRISIS	3,000	0,007	0,002	5,305	0,001
Urb_1	0,000	0,000			

Type III Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EM	0,000	0,000			
Const_EM	1,000	0,005	0,005	10,714	0,001
Serv_EMF	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,003	0,003	5,712	0,018
RnD_GDP	0,000	0,000			
RnD_EMF	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,015	0,015	32,245	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,002	0,002	4,224	0,041
NAT	11,000	0,023	0,002	4,542	0,000
CRISIS	3,000	0,007	0,002	5,305	0,001
Urb_1	0,000	0,000			

Stepwise analysis of covariance on regional Employment resilience performance by shock type
Local industry shocks (LIS) - Growth trajectory retention (4 year recovery period)

Model parameters (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,011	0,006	-1,799	0,073	-0,022	0,001
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_EMP	0,000	0,000				
Manu_EMP	0,000	0,000				
Const_EMP	0,150	0,062	2,423	**0,016**	0,028	0,271
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,006	0,002	2,356	**0,019**	0,001	0,011
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,004	0,001	5,626	**<0,0001**	0,002	0,005
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	-0,001	0,000	-3,003	**0,003**	-0,002	0,000
AT	-0,001	0,011	-0,135	0,893	-0,023	0,020
BE	-0,031	0,008	-3,796	**0,000**	-0,047	-0,015
DE	-0,012	0,004	-3,005	**0,003**	-0,020	-0,004
EL	0,040	0,010	3,918	**0,000**	0,020	0,060
ES	0,026	0,007	3,945	**0,000**	0,013	0,039
FI	-0,019	0,005	-3,719	**0,000**	-0,029	-0,009
FR	0,000	0,003	0,125	0,901	-0,006	0,007
IT	-0,001	0,003	-0,311	0,756	-0,007	0,005
NL	-0,014	0,005	-2,637	**0,009**	-0,025	-0,004
PT	0,015	0,008	1,780	0,076	-0,002	0,031
SE	0,002	0,006	0,355	0,723	-0,009	0,013
UK	-0,006	0,007	-0,819	0,413	-0,019	0,008
1: 90-93	0,009	0,003	3,172	**0,002**	0,003	0,015
2: 00-03	-0,006	0,003	-2,265	**0,024**	-0,012	-0,001
3: 08-09	-0,003	0,002	-1,157	0,248	-0,007	0,002
4:BTW	0,000	0,003	-0,019	0,985	-0,005	0,005
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				

Standardized coefficients (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_EMP	0,000	0,000				
Manu_EM	0,000	0,000				
Const_EM	0,229	0,094	2,423	**0,016**	0,043	0,414
Serv_EMF	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,252	0,107	2,356	**0,019**	0,041	0,462
RnD_GDP	0,000	0,000				
RnD_EMF	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,539	0,096	5,626	**<0,0001**	0,350	0,728
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	-0,124	0,041	-3,003	**0,003**	-0,205	-0,043
AT	-0,020	0,146	-0,135	0,893	-0,307	0,268
BE	-0,411	0,108	-3,796	**0,000**	-0,624	-0,198
DE	-0,287	0,096	-3,005	**0,003**	-0,476	-0,099
EL	0,674	0,172	3,918	**0,000**	0,335	1,013
ES	0,482	0,122	3,945	**0,000**	0,241	0,722
FI	-0,254	0,068	-3,719	**0,000**	-0,388	-0,119
FR	0,007	0,053	0,125	0,901	-0,097	0,111
IT	-0,023	0,073	-0,311	0,756	-0,166	0,121
NL	-0,205	0,078	-2,637	**0,009**	-0,359	-0,052
PT	0,241	0,135	1,780	0,076	-0,026	0,507
SE	0,026	0,072	0,355	0,723	-0,116	0,167
UK	-0,069	0,084	-0,819	0,413	-0,234	0,096
1: 90-93	0,296	0,093	3,172	**0,002**	0,112	0,480
2: 00-03	-0,186	0,082	-2,265	**0,024**	-0,348	-0,024
3: 08-09	-0,073	0,063	-1,157	0,248	-0,198	0,051
4:BTW	-0,001	0,051	-0,019	0,985	-0,101	0,099
Urban	0,000	0,000				
Intermedia	0,000	0,000				
Rural	0,000	0,000				

Stepwise analysis of covariance on regional Employment resilience performance by shock type
Local industry shocks (LIS) - Growth trajectory retention (8 year recovery period)

Summary of the variables selection Ret_Tra_8:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	Cur_blc	Cur_blc	IN	0,000	0,086	0,081	131,447	-1489,956	-1483,441	0,933
2	Const_EMP / Cur_blc	Const_EMP	IN	0,000	0,207	0,198	91,303	-1515,120	-1505,348	0,818
3	Const_EMP / Cur_blc / SHDI	SHDI	IN	0,000	0,270	0,259	71,047	-1529,184	-1516,154	0,761
4	Const_EMP / Cur_blc / Union / SHDI	Union	IN	0,000	0,311	0,296	58,861	-1538,171	-1521,884	0,726
5	Const_EMP / PROD / Cur_blc / Union / SHDI	PROD	IN	0,000	0,333	0,315	53,204	-1542,375	-1522,830	0,710
6	Const_EMP / PROD / Cur_blc / Union / SHDI / NAT	NAT	IN	0,000	0,416	0,363	46,150	-1545,921	-1490,544	0,697
7	Pop_age / Const_EMP / PROD / Cur_blc / Union / SHDI / NAT	Pop_age	IN	0,000	0,437	0,382	40,730	-1551,030	-1492,395	0,679
8	Pop_age / Const_EMP / PROD / Cur_blc / Union / SHDI / NAT / CRISIS	CRISIS	IN	0,000	0,487	0,427	29,214	-1562,934	-1494,527	0,639
9	Pop_age / Const_EMP / PROD / Cur_blc / Lab_comp / Union / SHDI / NAT / CRISIS	Lab_comp	IN	0,000	0,501	0,439	26,540	-1566,008	-1494,343	0,628
10	Pop_age / Const_EMP / HHI / PROD / Cur_blc / Lab_comp / Union / SHDI / NAT / CRISIS	HHI	IN	0,000	0,512	0,449	24,579	-1568,415	-1493,493	0,621
11	Pop_age / Const_EMP / HHI / PROD / Cur_blc / Lab_comp / Union / ML_barg / SHDI / NAT / CRISIS	ML_barg	IN	0,000	0,523	0,458	22,682	-1570,853	-1492,673	0,613

Stepwise analysis of covariance on regional Employment resilience performance by shock type
Local industry shocks (LIS) - Growth trajectory retention (8 year recovery period)

Goodness of fit statistics (Ret_Tra_8):

Observations	192
Sum of weights	192
DF	168
R^2	0,523
Adjusted R^2	0,458
MSE	0,000
RMSE	0,016
MAPE	194,123
DW	1,946
Cp	22,682
AIC	-1570,853
SBC	-1492,673
PC	0,613
Press	0,055
Q^2	0,379

Analysis of variance (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	23	0,046	0,002	8,015	**<0,0001**
Error	168	0,042	0,000		
Corrected Total	191	0,088			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional Employment resilience performance by shock type
Local industry shocks (LIS) - Growth trajectory retention (8 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,000	0,000	0,061	0,805
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	1,000	0,003	0,003	11,327	0,001
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	1,000	0,001	0,001	2,416	0,122
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,006	0,006	23,468	0,000
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,010	0,010	41,347	0,000
Gov_close	0,000	0,000			
Lab_comp	1,000	0,003	0,003	10,649	0,001
Union	1,000	0,004	0,004	17,768	0,000
ML_barg	1,000	0,000	0,000	0,850	0,358
SHDI	1,000	0,008	0,008	30,354	0,000
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	11,000	0,007	0,001	2,559	0,005
CRISIS	3,000	0,004	0,001	5,989	0,001
Urb_1	0,000	0,000			

Type II Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,003	0,003	10,679	0,001
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EM	0,000	0,000			
Const_EM	1,000	0,003	0,003	11,833	0,001
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	1,000	0,001	0,001	4,689	0,032
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,003	0,003	12,160	0,001
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,010	0,010	38,509	0,000
Gov_close	0,000	0,000			
Lab_comp	1,000	0,002	0,002	6,290	0,013
Union	1,000	0,007	0,007	27,442	0,000
ML_barg	1,000	0,001	0,001	3,928	0,049
SHDI	1,000	0,003	0,003	11,815	0,001
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	11,000	0,010	0,001	3,796	0,000
CRISIS	3,000	0,004	0,001	5,989	0,001
Urb_1	0,000	0,000			

Type III Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,003	0,003	10,679	0,001
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EM	0,000	0,000			
Const_EM	1,000	0,003	0,003	11,833	0,001
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	1,000	0,001	0,001	4,689	0,032
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,003	0,003	12,160	0,001
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,010	0,010	38,509	0,000
Gov_close	0,000	0,000			
Lab_comp	1,000	0,002	0,002	6,290	0,013
Union	1,000	0,007	0,007	27,442	0,000
ML_barg	1,000	0,001	0,001	3,928	0,049
SHDI	1,000	0,003	0,003	11,815	0,001
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	11,000	0,010	0,001	3,796	0,000
CRISIS	3,000	0,004	0,001	5,989	0,001
Urb_1	0,000	0,000			

Stepwise analysis of covariance on regional Employment resilience performance by shock type
Local industry shocks (LIS) - Growth trajectory retention (8 year recovery period)

Model parameters (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,260	0,068	3,808	**0,000**	0,125	0,395
Pop_age	0,012	0,005	2,179	**0,031**	0,001	0,022
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_EMP	0,000	0,000				
Manu_EMP	0,000	0,000				
Const_EMP	0,135	0,045	3,002	**0,003**	0,046	0,224
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	-0,055	0,024	-2,316	**0,022**	-0,102	-0,008
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,009	0,004	2,397	**0,018**	0,002	0,017
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,005	0,001	6,463	**<0,0001**	0,003	0,007
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000	-1,616	0,108	0,000	0,000
Union	-0,002	0,001	-4,038	**<0,0001**	-0,004	-0,001
ML_barg	-0,006	0,004	-1,313	0,191	-0,015	0,003
SHDI	-0,204	0,070	-2,914	**0,004**	-0,342	-0,066
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	0,000	0,006	-0,055	0,956	-0,012	0,012
BE	0,010	0,014	0,715	0,475	-0,018	0,039
DE	-0,019	0,005	-3,663	**0,000**	-0,029	-0,009
EL	0,007	0,013	0,556	0,579	-0,019	0,033
ES	-0,044	0,016	-2,777	**0,006**	-0,075	-0,013
FI	0,081	0,025	3,213	**0,002**	0,031	0,132
FR	-0,069	0,019	-3,687	**0,000**	-0,106	-0,032
IT	-0,001	0,004	-0,147	0,883	-0,009	0,008
NL	-0,042	0,010	-4,096	**<0,0001**	-0,062	-0,022
PT	-0,016	0,013	-1,263	0,208	-0,041	0,009
SE	0,104	0,025	4,147	**<0,0001**	0,054	0,153
UK	-0,013	0,010	-1,285	0,201	-0,032	0,007
1: 90-93	0,015	0,005	3,231	**0,001**	0,006	0,024
2: 00-03	-0,006	0,003	-2,087	**0,038**	-0,012	0,000
3: 08-09	-0,014	0,005	-2,760	**0,006**	-0,024	-0,004
4:BTW	0,005	0,004	1,417	0,158	-0,002	0,013
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				

Standardized coefficients (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,199	0,091	2,179	**0,031**	0,019	0,379
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_EMP	0,000	0,000				
Manu_EM	0,000	0,000				
Const_EM	0,259	0,086	3,002	**0,003**	0,089	0,429
Serv_EMF	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	-0,147	0,063	-2,316	**0,022**	-0,272	-0,022
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,455	0,190	2,397	**0,018**	0,080	0,829
RnD_GDF	0,000	0,000				
RnD_EMF	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,633	0,098	6,463	**<0,0001**	0,439	0,826
Gov_close	0,000	0,000				
Lab_comp	-0,211	0,130	-1,616	0,108	-0,469	0,047
Union	-1,391	0,345	-4,038	**<0,0001**	-2,072	-0,711
ML_barg	-0,212	0,161	-1,313	0,191	-0,531	0,107
SHDI	-0,498	0,171	-2,914	**0,004**	-0,836	-0,161
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	-0,005	0,096	-0,055	0,956	-0,195	0,184
BE	0,161	0,225	0,715	0,475	-0,283	0,604
DE	-0,525	0,143	-3,663	**0,000**	-0,807	-0,242
EL	0,134	0,240	0,556	0,579	-0,341	0,608
ES	-0,995	0,358	-2,777	**0,006**	-1,703	-0,288
FI	1,310	0,408	3,213	**0,002**	0,505	2,114
FR	-1,394	0,378	-3,687	**0,000**	-2,140	-0,647
IT	-0,016	0,110	-0,147	0,883	-0,232	0,200
NL	-0,717	0,175	-4,096	**<0,0001**	-1,062	-0,371
PT	-0,298	0,236	-1,263	0,208	-0,765	0,168
SE	1,535	0,370	4,147	**<0,0001**	0,804	2,265
UK	-0,181	0,141	-1,285	0,201	-0,459	0,097
1: 90-93	0,576	0,178	3,231	**0,001**	0,224	0,928
2: 00-03	-0,209	0,100	-2,087	**0,038**	-0,408	-0,011
3: 08-09	-0,319	0,115	-2,760	**0,006**	-0,547	-0,091
4:BTW	0,112	0,079	1,417	0,158	-0,044	0,267
Urban	0,000	0,000				
Intermedia	0,000	0,000				
Rural	0,000	0,000				

III.d. Analysis of the effect of resilience capabilities on resilience performance by Urban-Rural typology

III.d.i. RGVA

III.d.i.1. Urban regions

Stepwise analysis of covariance on regional RGVA resilience performance by urban-rural typology
Urban regions

Settings:
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Model selection: Stepwise
Probability for entry: 0,05 / Probability for removal: 0,1
Covariances: Corrections = Newey West (adjusted)(Lag = 1)
Use least squares means: Yes
Explanation of the variable codes can be found in table 28

Summary statistics (Quantitative data):

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Rec_DL	593	0	593	-0,487	0,509	-0,086	0,089
Ret_Tra_4	593	0	593	-0,097	0,083	-0,010	0,025
Ret_Tra_8	593	131	462	-0,097	0,042	-0,012	0,019
Pop_age	593	0	593	0,367	2,498	1,013	0,329
Mig_net	593	0	593	-27,218	30,899	2,715	5,184
Pop_work	593	0	593	0,320	0,610	0,474	0,045
Agri_GVA	593	0	593	0,000	0,126	0,008	0,013
Manu_GVA	593	0	593	0,034	0,708	0,222	0,102
Const_GVA	593	0	593	0,011	0,265	0,069	0,031
Serv_GVA	593	0	593	0,183	0,782	0,482	0,099
Pub_GVA	593	0	593	0,062	0,545	0,220	0,067
HHI	593	0	593	0,196	0,525	0,243	0,032
GDP_PC	593	0	593	-0,912	5,176	0,305	0,963
GFCF_PC	593	0	593	-1,759	2,618	0,106	0,793
PROD	593	0	593	-2,654	3,003	0,479	0,995
RnD_GDP	593	0	593	0,000	14,868	2,231	1,652
RnD_EMP	593	0	593	0,000	4,938	1,615	0,769
MM_Ac	593	0	593	35,288	192,930	130,100	30,743
Avg_bus	593	0	593	2,361	18,031	10,118	4,639
Gov_debt	593	0	593	-11,100	6,600	-3,889	2,355
Cur_blc	593	0	593	-10,400	10,200	-0,399	3,577
Gov_close	593	0	593	2,480	31,490	4,976	3,068
Lab_comp	593	0	593	350,010	271583,242	38521,915	39934,538
Union	593	0	593	7,926	84,677	29,494	11,891
ML_barg	593	0	593	1,000	4,875	2,365	1,003
SHDI	593	0	593	0,713	0,958	0,852	0,056
SC_Org	593	0	593	0,038	0,202	0,107	0,048
EoC	593	0	593	50,000	100,000	80,536	17,472
Clu	593	0	593	0,360	31,000	2,828	3,807

Number of removed observations: 61

Summary statistics (Qualitative data):

Variable	Categories	Counts	Frequencies	%
NAT	AT	4	4	0,675
	BE	22	22	3,710
	DE	222	222	37,437
	DK	4	4	0,675
	ES	19	19	3,204
	FI	2	2	0,337
	FR	33	33	5,565
	IT	45	45	7,589
	NL	36	36	6,071
	PT	5	5	0,843
	SE	6	6	1,012
	UK	195	195	32,884
CRISIS	1: 90-93	239	239	40,304
	2: 00-03	95	95	16,020
	3: 08-09	236	236	39,798
	4:BTW	23	23	3,879
Shock	LIS	38	38	6,408
	NED	522	522	88,027
	NIS	33	33	5,565

Stepwise analysis of covariance on regional RGVA resilience performance by urban-rural typology
Urban regions

Correlation matrix:

	Pop_age	Mig_net	Pop_work	Agri_GVA	Manu_GVA	Const_GVA	Serv_GVA	Pub_GVA	HHI	GDP_PC	GFCF_PC	PROD	RnD_GDP	RnD_EMP	MM_Ac	Avg_bus	Gov_debt	Cur_blc	Gov_close	Lab_comp	Union	ML_barg	SHDI	SC_Org	EoC	Cla	AT	BE	DE	DK	ES	FI	FR	IT	NL	PT	SE	UK	1: 90-93	2: 00-03	3: 08-09	4:BTW	LIS	NED	NIS	Rec_DL	Ret_Tra_4	Ret_Tra_8
Pop_age	**1**	0,041	0,060	-0,134	0,044	-0,359	0,115	-0,045	0,060	0,160	-0,110	0,129	-0,028	0,024	0,210	0,378	-0,029	0,406	0,090	-0,010	-0,135	0,053	0,410	0,318	-0,043	-0,061	0,294	0,258	0,451	0,283	0,203	0,287	0,162	0,326	0,173	0,279	0,281	-0,299	-0,219	-0,015	0,319	-0,063	0,010	0,060	-0,049	0,102	0,078	0,188
Mig_net	0,041	**1**	0,109	0,042	0,102	-0,003	-0,031	-0,116	0,114	0,047	0,085	0,055	0,082	0,066	-0,004	0,135	0,094	-0,051	0,114	-0,186	0,148	-0,022	0,068	0,224	0,068	0,021	0,072	0,089	0,120	0,080	0,080	0,069	-0,022	0,003	0,049	0,058	0,074	-0,067	-0,017	-0,054	-0,004	0,046	0,110	-0,102	0,020	0,040	0,047	0,014
Pop_work	0,060	0,109	**1**	-0,243	-0,118	-0,059	0,206	-0,048	0,049	0,186	0,391	0,149	0,377	0,438	0,250	0,167	0,368	0,214	0,154	0,072	-0,127	-0,262	0,494	0,160	0,326	0,120	-0,217	-0,274	-0,121	-0,206	-0,299	-0,211	-0,233	-0,401	-0,069	-0,215	-0,204	0,233	-0,339	0,149	0,285	-0,043	0,034	0,116	-0,103	-0,090	-0,064	-0,116
Agri_GVA	-0,134	0,042	-0,243	**1**	-0,126	0,174	-0,081	0,032	-0,319	-0,245	-0,142	-0,127	-0,138	-0,290	-0,359	-0,296	-0,155	0,020	-0,104	-0,125	-0,038	0,235	-0,185	0,003	-0,299	-0,080	0,152	0,128	-0,002	0,145	0,214	0,153	0,113	0,248	0,245	0,152	0,147	-0,157	0,025	-0,034	-0,104	0,076	-0,118	-0,146	0,166	-0,095	-0,047	-0,058
Manu_GVA	0,044	0,102	-0,118	-0,126	**1**	-0,032	-0,702	-0,446	0,195	-0,042	-0,105	-0,070	0,009	-0,086	0,051	0,385	0,238	-0,026	-0,032	-0,143	0,164	-0,040	-0,220	0,109	0,188	-0,066	0,009	-0,009	0,183	0,000	-0,020	0,006	-0,087	-0,006	-0,052	0,007	0,003	-0,012	0,212	-0,037	-0,285	0,072	0,164	-0,345	0,171	-0,008	0,014	0,073
Const_GVA	-0,359	-0,003	-0,059	0,174	-0,032	**1**	-0,335	0,051	-0,475	-0,425	-0,092	-0,393	0,032	-0,187	-0,361	-0,278	0,116	-0,435	-0,233	-0,201	0,198	-0,175	-0,520	-0,409	0,208	-0,037	-0,394	-0,384	-0,453	-0,415	-0,314	-0,399	-0,333	-0,328	-0,364	-0,391	-0,391	0,406	0,351	-0,182	-0,226	0,010	0,034	0,022	-0,033	-0,102	-0,036	-0,069
Serv_GVA	0,115	-0,031	0,206	-0,081	-0,702	-0,335	**1**	-0,238	0,098	0,425	0,325	0,436	0,110	0,301	0,342	-0,146	-0,305	0,194	0,162	0,370	-0,200	0,189	0,426	0,190	-0,310	0,011	0,246	0,241	0,132	0,258	0,209	0,254	0,304	0,247	0,254	0,248	0,250	-0,250	-0,222	0,147	0,264	-0,111	-0,143	0,263	-0,121	0,031	0,032	-0,034
Pub_GVA	-0,045	-0,116	-0,048	0,032	-0,446	0,051	-0,238	**1**	-0,159	-0,319	-0,250	-0,330	-0,163	-0,169	-0,345	-0,183	0,066	-0,052	-0,064	-0,211	-0,037	-0,185	-0,019	-0,258	0,135	0,116	-0,226	-0,191	-0,265	-0,220	-0,178	-0,231	-0,186	-0,254	-0,177	-0,228	-0,222	0,232	-0,161	-0,071	0,168	0,034	-0,030	0,156	-0,100	0,032	-0,042	-0,018
HHI	0,060	0,114	0,049	-0,319	0,195	-0,475	0,098	-0,159	**1**	0,537	0,181	0,276	0,058	0,218	0,246	0,166	0,046	0,091	0,086	0,156	-0,066	0,037	0,124	0,229	-0,021	0,084	0,148	0,131	0,217	0,162	0,148	0,156	0,139	0,098	0,112	0,145	0,146	-0,158	-0,040	0,067	-0,044	0,024	0,229	-0,276	0,088	-0,038	-0,013	-0,055
GDP_PC	0,160	0,047	0,186	-0,245	-0,042	-0,425	0,425	-0,319	0,537	**1**	0,505	0,545	0,201	0,436	0,497	0,211	0,032	0,355	0,245	0,328	-0,085	0,188	0,257	0,445	-0,171	-0,030	0,339	0,292	0,380	0,351	0,271	0,343	0,341	0,250	0,307	0,324	0,343	-0,345	-0,006	0,165	-0,057	-0,046	0,108	0,003	-0,056	0,064	0,014	-0,022
GFCF_PC	-0,110	0,085	0,391	-0,142	-0,105	-0,092	0,325	-0,250	0,181	0,505	**1**	0,655	0,366	0,686	0,413	-0,006	0,116	0,275	0,426	0,443	0,092	0,247	0,221	0,442	-0,230	0,022	0,276	0,256	0,180	0,299	0,168	0,274	0,347	0,151	0,303	0,226	0,292	-0,263	0,020	0,103	-0,134	0,025	0,050	0,043	-0,057	0,054	-0,015	-0,071
PROD	0,129	0,055	0,149	-0,127	-0,070	-0,393	0,436	-0,330	0,276	0,545	0,655	**1**	0,151	0,472	0,714	0,215	-0,032	0,525	0,397	0,579	-0,147	0,418	0,464	0,678	-0,405	-0,063	0,594	0,582	0,578	0,621	0,495	0,603	0,622	0,428	0,608	0,547	0,600	-0,606	-0,088	0,217	-0,062	-0,013	0,071	0,043	-0,067	0,124	0,000	-0,007
RnD_GDP	-0,028	0,082	0,377	-0,138	0,009	0,032	0,110	-0,163	0,058	0,201	0,366	0,151	**1**	0,535	0,210	0,138	0,211	0,122	0,204	0,096	0,041	-0,108	0,129	0,135	0,147	0,508	-0,049	-0,064	0,020	-0,027	-0,097	-0,049	-0,010	-0,133	-0,062	-0,063	-0,024	0,051	0,012	0,085	0,022	-0,072	0,053	0,032	-0,051	-0,031	-0,056	-0,132
RnD_EMP	0,024	0,066	0,438	-0,290	-0,086	-0,187	0,301	-0,169	0,218	0,436	0,686	0,472	0,535	**1**	0,386	0,196	0,182	0,271	0,423	0,429	-0,033	-0,098	0,428	0,310	0,041	-0,007	0,101	0,080	0,140	0,144	0,003	0,097	0,182	-0,043	0,045	0,072	0,111	-0,091	-0,164	0,140	0,144	-0,064	0,032	0,045	-0,049	0,043	0,014	0,013
MM_Ac	0,210	-0,004	0,250	-0,359	0,051	-0,361	0,342	-0,345	0,246	0,497	0,413	0,714	0,210	0,386	**1**	0,433	0,062	0,477	0,126	0,489	-0,209	0,210	0,463	0,530	-0,167	-0,052	0,403	0,423	0,532	0,401	0,258	0,400	0,414	0,218	0,403	0,379	0,372	-0,413	-0,064	0,215	0,031	-0,096	0,104	0,098	-0,124	0,153	0,075	0,083
Avg_bus	0,378	0,135	0,167	-0,296	0,385	-0,278	-0,146	-0,183	0,166	0,211	-0,006	0,215	0,138	0,196	0,433	**1**	0,382	0,290	0,088	-0,002	-0,171	-0,260	0,307	0,430	0,461	0,009	0,117	0,036	0,578	0,118	0,038	0,122	-0,022	-0,079	-0,001	0,102	0,100	-0,130	-0,060	0,109	-0,003	-0,016	0,125	0,004	-0,066	0,085	0,020	0,110
Gov_debt	-0,029	0,094	0,368	-0,155	0,238	0,116	-0,305	0,066	0,046	0,032	0,116	-0,032	0,211	0,182	0,062	0,382	**1**	0,145	0,202	-0,182	0,167	-0,234	-0,050	0,186	0,455	0,097	-0,181	-0,225	0,030	-0,154	-0,168	-0,146	-0,247	-0,381	-0,114	-0,183	-0,138	0,176	0,057	0,140	-0,195	0,021	0,087	-0,049	-0,008	-0,096	-0,121	-0,113
Cur_blc	0,406	-0,051	0,214	0,020	-0,026	-0,435	0,194	-0,052	0,091	0,255	0,275	0,525	0,122	0,271	0,477	0,290	0,145	**1**	0,354	0,260	-0,255	0,404	0,552	0,663	-0,365	-0,028	0,623	0,597	0,638	0,627	0,509	0,623	0,550	0,441	0,652	0,583	0,627	-0,627	-0,302	0,164	0,125	0,037	-0,061	-0,014	0,041	0,159	0,002	0,048
Gov_close	0,090	0,114	0,154	-0,104	-0,032	-0,233	0,162	-0,064	0,086	0,245	0,426	0,397	0,204	0,423	0,126	0,088	0,202	0,354	**1**	0,123	0,366	0,194	0,239	0,416	-0,138	0,018	0,374	0,308	0,316	0,475	0,276	0,391	0,338	0,271	0,254	0,340	0,453	-0,362	-0,071	0,163	0,005	-0,043	0,021	0,037	-0,038	0,082	0,003	0,042
Lab_comp	-0,010	-0,186	0,072	-0,125	-0,143	-0,201	0,370	-0,211	0,156	0,328	0,443	0,579	0,096	0,429	0,489	-0,002	-0,182	0,260	0,123	**1**	-0,435	0,141	0,359	0,223	-0,381	-0,175	0,346	0,280	0,279	0,351	0,298	0,354	0,557	0,308	0,312	0,345	0,342	-0,362	-0,156	0,164	0,113	-0,060	-0,014	0,046	-0,027	0,097	0,016	0,026
Union	-0,135	0,148	-0,127	-0,038	0,164	0,198	-0,200	-0,037	-0,066	-0,085	0,092	-0,147	0,041	-0,033	-0,209	-0,171	0,167	-0,255	0,366	-0,435	**1**	0,143	-0,416	-0,175	0,134	0,056	-0,247	-0,177	-0,350	-0,082	-0,249	-0,202	-0,118	0,206	0,388	-0,139	-0,228	-0,038	0,004	-0,038	0,026	-0,123	-0,015	0,001
ML_barg	0,053	-0,022	-0,262	0,235	-0,040	-0,175	0,189	-0,185	0,037	0,188	0,247	0,418	-0,108	-0,098	0,210	-0,260	-0,234	0,404	0,194	0,141	0,143	**1**	-0,064	0,487	-0,828	-0,079	0,733	0,792	0,468	0,732	0,704	0,758	0,654	0,765	0,798	0,743	0,740	-0,750	0,178	0,226	-0,273	-0,058	-0,014	-0,010	0,014	0,063	-0,078	-0,164
SHDI	0,410	0,068	0,494	-0,185	-0,220	-0,520	0,426	-0,019	0,124	0,257	0,221	0,464	0,129	0,428	0,463	0,307	-0,050	0,552	0,239	0,359	-0,416	-0,064	**1**	0,425	-0,067	0,038	0,279	0,264	0,364	0,285	0,162	0,273	0,256	0,112	0,306	0,246	0,280	-0,278	-0,716	0,234	0,592	-0,040	-0,003	0,111	-0,080	0,105	0,065	0,119
SC_Org	0,318	0,224	0,160	0,003	0,109	-0,409	0,190	-0,258	0,229	0,445	0,442	0,678	0,135	0,310	0,530	0,430	0,186	0,663	0,416	0,223	-0,175	0,487	0,425	**1**	-0,372	-0,026	0,769	0,705	0,830	0,773	0,719	0,784	0,657	0,533	0,747	0,733	0,780	-0,779	-0,117	0,276	-0,120	0,016	0,093	-0,012	-0,038	0,154	-0,002	-0,035
EoC	-0,043	0,068	0,326	-0,299	0,188	0,208	-0,310	0,135	-0,021	-0,171	-0,230	-0,405	0,147	0,041	-0,167	0,461	0,455	-0,365	-0,138	-0,381	0,134	-0,828	-0,067	-0,372	**1**	0,125	-0,771	-0,789	-0,402	-0,762	-0,743	-0,773	-0,815	-0,846	-0,804	-0,787	-0,756	0,780	0,030	-0,164	0,099	-0,002	0,067	0,059	-0,077	-0,114	0,022	0,123
Cla	-0,061	0,021	0,120	-0,080	-0,066	-0,037	0,011	0,116	0,084	-0,030	0,022	-0,063	0,508	-0,007	-0,052	0,009	0,097	-0,028	0,018	-0,175	0,056	-0,079	0,038	-0,026	0,125	**1**	-0,098	-0,077	-0,098	-0,099	-0,077	-0,105	-0,135	-0,158	-0,073	-0,112	-0,096	0,110	-0,095	0,001	0,033	0,044	0,078	0,012	-0,049	-0,094	-0,075	-0,194
AT	0,294	0,072	-0,217	0,152	0,009	-0,394	0,246	-0,226	0,148	0,339	0,276	0,594	-0,049	0,101	0,403	0,117	-0,181	0,623	0,374	0,346	-0,201	0,733	0,279	0,769	-0,771	-0,098	**1**	0,920	0,852	0,971	0,927	0,978	0,899	0,880	0,894	0,967	0,964	-0,985	-0,085	0,238	-0,110	0,007	0,026	-0,052	0,025	0,198	0,008	
BE	0,258	0,089	-0,274	0,128	-0,009	-0,384	0,241	-0,191	0,131	0,292	0,256	0,582	-0,064	0,080	0,423	0,036	-0,225	0,597	0,308	0,280	-0,033	0,792	0,264	0,705	-0,789	-0,077	0,920	**1**	0,771	0,920	0,875	0,928	0,845	0,824	0,839	0,917	0,914	-0,935	-0,057	0,200	-0,091	-0,005	0,004	-0,052	0,036	0,201	0,025	0,000
DE	0,451	0,120	-0,121	-0,002	0,183	-0,453	0,132	-0,265	0,217	0,380	0,180	0,578	0,020	0,140	0,532	0,578	0,030	0,638	0,316	0,279	-0,264	0,468	0,364	0,830	-0,402	-0,098	0,852	0,771	**1**	0,852	0,783	0,863	0,732	0,696	0,723	0,847	0,842	-0,874	-0,090	0,238	-0,108	0,010	0,086	-0,053	-0,004	0,214	0,025	0,031
DK	0,283	0,080	-0,206	0,145	0,000	-0,415	0,258	-0,220	0,162	0,351	0,299	0,621	-0,027	0,144	0,401	0,118	-0,154	0,627	0,475	0,351	-0,152	0,732	0,285	0,773	-0,762	-0,099	0,971	0,920	0,852	**1**	0,927	0,978	0,899	0,880	0,894	0,967	0,964	-0,985	-0,085	0,254	-0,122	0,007	0,026	-0,052	0,025	0,200	0,010	-0,029
ES	0,203	0,080	-0,299	0,214	-0,020	-0,314	0,209	-0,178	0,148	0,271	0,168	0,495	-0,097	0,003	0,258	0,038	-0,168	0,509	0,276	0,298	-0,247	0,704	0,162	0,719	-0,743	-0,077	0,927	0,875	0,783	0,927	**1**	0,935	0,852	0,832	0,847	0,924	0,921	-0,942	-0,034	0,198	-0,162	0,031	0,033	-0,057	0,025	0,200	0,035	-0,024
FI	0,287	0,069	-0,211	0,153	0,006	-0,399	0,254	-0,231	0,156	0,343	0,274	0,603	-0,049	0,097	0,400	0,122	-0,146	0,623	0,391	0,354	-0,177	0,758	0,273	0,784	-0,773	-0,105	0,978	0,928	0,863	0,978	0,935	**1**	0,906	0,888	0,901	0,975	0,971	-0,993	-0,075	0,251	-0,132	0,009	0,027	-0,055	0,027	0,195	0,000	-0,048
FR	0,162	-0,022	-0,233	0,113	-0,087	-0,333	0,304	-0,186	0,139	0,341	0,347	0,622	-0,010	0,182	0,414	-0,022	-0,247	0,550	0,338	0,557	-0,350	0,654	0,256	0,657	-0,815	-0,135	0,899	0,845	0,732	0,899	0,852	0,906	**1**	0,799	0,815	0,895	0,891	-0,914	-0,060	0,231	-0,103	-0,011	0,012	-0,026	0,013	0,235	0,010	-0,041
IT	0,326	0,003	-0,401	0,248	-0,006	-0,328	0,247	-0,254	0,098	0,250	0,151	0,428	-0,133	-0,043	0,218	-0,079	-0,381	0,441	0,271	0,308	-0,082	0,765	0,112	0,533	-0,846	-0,158	0,880	0,824	0,696	0,880	0,832	0,888	0,799	**1**	0,793	0,876	0,873	-0,896	-0,007	0,163	-0,115	-0,003	-0,031	-0,105	0,093	0,142	0,009	-0,032
NL	0,173	0,049	-0,069	0,245	-0,052	-0,364	0,254	-0,177	0,112	0,307	0,303	0,608	-0,062	0,045	0,403	-0,001	-0,114	0,652	0,254	0,312	-0,249	0,798	0,306	0,747	-0,804	-0,073	0,894	0,839	0,723	0,894	0,847	0,901	0,815	0,793	**1**	0,890	0,886	-0,909	-0,151	0,295	-0,145	0,049	0,020	-0,047	0,024	0,128	-0,032	-0,135
PT	0,279	0,058	-0,215	0,152	0,007	-0,391	0,248	-0,228	0,145	0,324	0,226	0,547	-0,063	0,072	0,379	0,102	-0,183	0,583	0,340	0,345	-0,202	0,743	0,246	0,733	-0,787	-0,112	0,967	0,917	0,847	0,967	0,924	0,975	0,895	0,876	0,890	**1**	0,961	-0,982	-0,074	0,252	-0,130	0,007	0,026	-0,050	0,024	0,194	-0,004	-0,069
SE	0,281	0,074	-0,204	0,147	0,003	-0,391	0,250	-0,222	0,146	0,343	0,292	0,600	-0,024	0,111	0,372	0,100	-0,138	0,627	0,453	0,342	-0,118	0,740	0,280	0,780	-0,756	-0,096	0,964	0,914	0,842	0,964	0,921	0,971	0,891	0,873	0,886	0,961	**1**	-0,979	-0,076	0,250	-0,125	0,006	0,026	-0,049	0,023	0,200	0,019	-0,026
UK	-0,299	-0,067	0,233	-0,157	-0,012	0,406	-0,250	0,232	-0,158	-0,345	-0,263	-0,606	0,051	-0,091	-0,413	-0,130	0,176	-0,627	-0,362	-0,362	0,206	-0,750	-0,278	-0,779	0,780	0,110	-0,985	-0,935	-0,874	-0,985	-0,942	-0,993	-0,914	-0,896	-0,909	-0,982	-0,979	**1**	0,077	-0,248	0,129	-0,010	-0,027	0,058	-0,029	-0,204	-0,011	0,035
1: 90-93	-0,219	-0,017	-0,339	0,025	0,212	0,351	-0,222	-0,161	-0,040	-0,006	0,020	-0,088	0,012	-0,164	-0,064	-0,060	0,057	-0,302	-0,071	-0,156	0,388	0,178	-0,716	-0,117	0,030	-0,095	-0,085	-0,057	-0,090	-0,085	-0,034	-0,075	-0,060	-0,007	-0,151	-0,074	-0,076	0,077	**1**	-0,023	-0,298	-0,493	0,002	0,071	-0,053	-0,046	-0,030	-0,059
2: 00-03	-0,015	-0,054	0,149	-0,034	-0,037	-0,182	0,147	-0,071	0,067	0,165	0,103	0,217	0,085	0,140	0,215	0,109	0,140	0,164	0,163	0,164	-0,139	0,226	0,234	0,276	-0,164	0,001	0,238	0,200	0,238	0,254	0,198	0,251	0,231	0,163	0,295	0,252	0,250	-0,248	-0,023	**1**	-0,020	-0,525	-0,030	0,067	-0,034	-0,026	-0,221	-0,257
3: 08-09	0,319	-0,004	0,285	-0,104	-0,285	-0,226	0,264	0,168	-0,044	-0,057	-0,134	-0,062	0,022	0,144	0,031	-0,003	-0,195	0,125	0,005	0,113	-0,228	-0,273	0,592	-0,120	0,099	0,033	-0,110	-0,091	-0,108	-0,122	-0,162	-0,132	-0,103	-0,115	-0,145	-0,130	-0,125	0,129	-0,298	-0,020	**1**	-0,492	-0,112	0,236	-0,117	-0,014	0,100	0,228
4:BTW	-0,063	0,046	-0,043	0,076	0,072	0,010	-0,111	0,034	0,024	-0,046	0,025	-0,013	-0,072	-0,064	-0,096	-0,016	0,021	0,037	-0,043	-0,060	-0,038	-0,058	-0,040	0,016	-0,002	0,044	0,007	-0,005	0,010	0,007	0,031	0,009	-0,011	-0,003	0,049	0,007	0,006	-0,010	-0,493	-0,525	-0,492	**1**	0,096	-0,258	0,142	0,058	0,073	0,056
LIS	0,010	0,110	0,034	-0,118	0,164	0,034	-0,143	-0,030	0,229	0,108	0,050	0,071	0,053	0,032	0,104	0,125	0,087	-0,061	0,021	-0,014	0,004	-0,014	-0,003	0,093	0,067	0,078	0,026	0,004	0,086	0,026	0,033	0,027	0,012	-0,031	0,020	0,026	0,026	-0,027	0,002	-0,030	-0,112	0,096	**1**	0,278	-0,708	-0,015	-0,071	-0,048
NED	0,060	-0,102	0,116	-0,146	-0,345	0,022	0,263	0,156	-0,276	0,003	0,043	0,043	0,032	0,045	0,098	0,004	-0,049	-0,014	0,037	0,046	-0,038	-0,010	0,111	-0,012	0,059	0,012	-0,052	-0,052	-0,053	-0,052	-0,057	-0,055	-0,026	-0,105	-0,047	-0,050	-0,049	0,058	0,071	0,067	0,236	-0,258	0,278	**1**	-0,875	0,090	-0,019	-0,003
NIS	-0,049	0,020	-0,103	0,166	0,171	-0,033	-0,121	-0,100	0,088	-0,056	-0,057	-0,067	-0,051	-0,049	-0,124	-0,066	-0,008	0,041	-0,038	-0,027	0,026	0,014	-0,080	-0,038	-0,077	-0,049	0,025	0,036	-0,004	0,025	0,025	0,027	0,013	0,093	0,024	0,024	0,023	-0,029	-0,053	-0,034	-0,117	0,142	-0,708	-0,875	**1**	-0,059	0,049	0,027
Rec_DL	0,102	0,040	-0,090	-0,095	-0,008	-0,102	0,031	0,032	-0,038	0,064	0,054	0,124	-0,031	0,043	0,153	0,085	-0,096	0,159	0,082	0,097	-0,123	0,063	0,105	0,154	-0,114	-0,094	0,198	0,201	0,214	0,200	0,200	0,195	0,235	0,142	0,128	0,194	0,200	-0,204	-0,046	-0,026	-0,014	0,058	-0,015	0,090	-0,059	**1**	0,526	0,446
Ret_Tra_4	0,078	0,047	-0,064	-0,047	0,014	-0,036	0,032	-0,042	-0,013	0,014	-0,015	0,000	-0,056	0,014	0,075	0,020	-0,121	0,002	0,003	0,016	-0,015	-0,078	0,065	-0,002	0,022	-0,075	0,008	0,025	0,025	0,010	0,035	0,000	0,010	0,009	-0,032	-0,004	0,019	-0,011	-0,030	-0,221	0,100	0,073	-0,071	-0,019	0,049	0,526	**1**	0,758
Ret_Tra_8	0,188	0,014	-0,116	-0,058	0,073	-0,069	-0,034	-0,018	-0,055	-0,022	-0,071	-0,007	-0,132	0,013	0,083	0,110	-0,113	0,048	0,042	0,026	0,001	-0,164	0,119	-0,035	0,123	-0,194		0,000	0,031	-0,029	-0,024	-0,048	-0,041	-0,032	-0,135	-0,069	-0,026	0,035	-0,059	-0,257	0,228	0,056	-0,048	-0,003	0,027	0,446	0,758	**1**

Stepwise analysis of covariance on regional RGVA resilience performance by urban-rural typology
Urban regions - Recovery of development level

Summary of the variables selection Rec_DL:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	NAT	NAT	IN	0,007	0,089	0,072	44,857	-2898,121	-2845,499	0,949
2	HHI / NAT	HHI	IN	0,007	0,098	0,080	40,542	-2902,253	-2845,245	0,942
3	Agri_GVA / HHI / NAT	Agri_GVA	IN	0,007	0,111	0,091	34,118	-2908,533	-2847,141	0,932
4	Agri_GVA / HHI / Gov_debt / NAT	Gov_debt	IN	0,007	0,118	0,097	31,427	-2911,194	-2845,416	0,928

Stepwise analysis of covariance on regional RGVA resilience performance by urban-rural typology
Urban regions - Recovery of development level

Goodness of fit statistics (Rec_DL):

Observations	593
Sum of weights	593
DF	578
R^2	0,118
Adjusted R^2	0,097
MSE	0,007
RMSE	0,085
MAPE	5290,571
DW	1,734
Cp	31,427
AIC	-2911,194
SBC	-2845,416
PC	0,928
Press	4,387
Q^2	0,070

Analysis of variance (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	14	0,556	0,040	5,520	**<0,0001**
Error	578	4,159	0,007		
Corrected´	592	4,715			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance by urban-rural typology
Urban regions - Recovery of development level

Type I Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	1,000	0,042	0,042	5,881	0,016
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	1,000	0,025	0,025	3,443	0,064
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,059	0,059	8,250	0,004
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	11,000	0,430	0,039	5,428	0,000
CRISIS	0,000	0,000			
Shock	0,000	0,000			

Type II Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	1,000	0,059	0,059	8,216	0,004
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	1,000	0,078	0,078	10,886	0,001
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,033	0,033	4,561	0,033
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	11,000	0,430	0,039	5,428	0,000
CRISIS	0,000	0,000			
Shock	0,000	0,000			

Type III Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	1,000	0,059	0,059	8,216	0,004
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	1,000	0,078	0,078	10,886	0,001
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,033	0,033	4,561	0,033
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	11,000	0,430	0,039	5,428	0,000
CRISIS	0,000	0,000			
Shock	0,000	0,000			

Stepwise analysis of covariance on regional RGVA resilience performance by urban-rural typology
Urban regions - Recovery of development level

Model parameters (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,004	0,052	-0,069	0,945	-0,107	0,099
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	-0,896	0,358	-2,504	**0,013**	-1,599	-0,193
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	-0,389	0,206	-1,886	0,060	-0,795	0,016
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	-0,004	0,002	-2,038	**0,042**	-0,009	0,000
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	-0,021	0,019	-1,079	0,281	-0,059	0,017
BE	0,013	0,012	1,061	0,289	-0,011	0,037
DE	0,026	0,009	3,021	**0,003**	0,009	0,043
DK	0,020	0,053	0,378	0,705	-0,083	0,123
ES	0,040	0,022	1,829	0,068	-0,003	0,082
FI	-0,048	0,030	-1,609	0,108	-0,107	0,011
FR	0,046	0,016	2,886	**0,004**	0,015	0,077
IT	-0,024	0,016	-1,479	0,140	-0,056	0,008
NL	-0,019	0,015	-1,314	0,189	-0,048	0,010
PT	-0,033	0,021	-1,575	0,116	-0,074	0,008
SE	0,027	0,025	1,088	0,277	-0,022	0,077
UK	-0,027	0,009	-2,937	**0,003**	-0,045	-0,009
1: 90-93	0,000	0,000				
2: 00-03	0,000	0,000				
3: 08-09	0,000	0,000				
4:BTW	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	-0,135	0,054	-2,504	**0,013**	-0,240	-0,029
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	-0,141	0,075	-1,886	0,060	-0,288	0,006
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	-0,118	0,058	-2,038	**0,042**	-0,232	-0,004
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	-0,113	0,104	-1,079	0,281	-0,318	0,092
BE	0,078	0,074	1,061	0,289	-0,066	0,223
DE	0,245	0,081	3,021	**0,003**	0,086	0,404
DK	0,108	0,284	0,378	0,705	-0,451	0,666
ES	0,233	0,127	1,829	0,068	-0,017	0,483
FI	-0,256	0,159	-1,609	0,108	-0,570	0,057
FR	0,287	0,099	2,886	**0,004**	0,092	0,482
IT	-0,159	0,107	-1,479	0,140	-0,369	0,052
NL	-0,123	0,093	-1,314	0,189	-0,306	0,061
PT	-0,179	0,113	-1,575	0,116	-0,402	0,044
SE	0,150	0,138	1,088	0,277	-0,121	0,420
UK	-0,141	0,048	-2,937	**0,003**	-0,236	-0,047
1: 90-93	0,000	0,000				
2: 00-03	0,000	0,000				
3: 08-09	0,000	0,000				
4:BTW	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Stepwise analysis of covariance on regional RGVA resilience performance by urban-rural typology
Urban regions - Growth trajectory retention (4 year recovery period)

Summary of the variables selection Ret_Tra_4:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R²	Adjusted R²	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya' s PC
1	CRISIS	CRISIS	IN	0,001	0,058	0,053	45,092	-4426,025	-4408,485	0,955
2	MM_Ac / CRISIS	MM_Ac	IN	0,001	0,073	0,067	37,116	-4433,489	-4411,563	0,943
3	Pop_work / MM_Ac / CRISIS	Pop_work	IN	0,001	0,082	0,074	32,985	-4437,382	-4411,070	0,937

Stepwise analysis of covariance on regional RGVA resilience performance by urban-rural typology
Urban regions - Growth trajectory retention (4 year recovery period)

Goodness of fit statistics (Ret_Tra_4):

Observations	593
Sum of weights	593
DF	587
R²	0,082
Adjusted R²	0,074
MSE	0,001
RMSE	0,024
MAPE	177,985
DW	1,504
Cp	32,985
AIC	-4437,382
SBC	-4411,070
PC	0,937
Press	0,334
Q²	0,063

Analysis of variance (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	5	0,029	0,006	10,511	**<0,0001**
Error	587	0,327	0,001		
Corrected '	592	0,356			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance by urban-rural typology
Urban regions - Growth trajectory retention (4 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,001	0,001	2,634	0,105
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,003	0,003	5,684	0,017
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	0,000	0,000			
CRISIS	3,000	0,025	0,008	14,747	0,000
Shock	0,000	0,000			

Type II Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,003	0,003	5,862	0,016
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,007	0,007	12,564	0,000
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	0,000	0,000			
CRISIS	3,000	0,025	0,008	14,747	0,000
Shock	0,000	0,000			

Type III Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,003	0,003	5,862	0,016
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,007	0,007	12,564	0,000
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	0,000	0,000			
CRISIS	3,000	0,025	0,008	14,747	0,000
Shock	0,000	0,000			

Stepwise analysis of covariance on regional RGVA resilience performance by urban-rural typology
Urban regions - Growth trajectory retention (4 year recovery period)

Model parameters (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,003	0,013	0,213	0,831	-0,023	0,028
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	-0,059	0,027	-2,176	**0,030**	-0,111	-0,006
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000	3,516	**0,000**	0,000	0,000
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	0,000	0,000				
BE	0,000	0,000				
DE	0,000	0,000				
DK	0,000	0,000				
ES	0,000	0,000				
FI	0,000	0,000				
FR	0,000	0,000				
IT	0,000	0,000				
NL	0,000	0,000				
PT	0,000	0,000				
SE	0,000	0,000				
UK	0,000	0,000				
1: 90-93	-0,001	0,002	-0,567	0,571	-0,006	0,003
2: 00-03	-0,013	0,003	-4,785	**<0,0001**	-0,019	-0,008
3: 08-09	0,005	0,002	2,763	**0,006**	0,001	0,009
4:BTW	0,010	0,004	2,631	**0,009**	0,002	0,017
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	-0,108	0,050	-2,176	**0,030**	-0,205	-0,011
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,147	0,042	3,516	**0,000**	0,065	0,230
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	0,000	0,000				
BE	0,000	0,000				
DE	0,000	0,000				
DK	0,000	0,000				
ES	0,000	0,000				
FI	0,000	0,000				
FR	0,000	0,000				
IT	0,000	0,000				
NL	0,000	0,000				
PT	0,000	0,000				
SE	0,000	0,000				
UK	0,000	0,000				
1: 90-93	-0,029	0,052	-0,567	0,571	-0,130	0,072
2: 00-03	-0,235	0,049	-4,785	**<0,0001**	-0,331	-0,139
3: 08-09	0,113	0,041	2,763	**0,006**	0,033	0,193
4:BTW	0,077	0,029	2,631	**0,009**	0,019	0,134
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Stepwise analysis of covariance on regional RGVA resilience performance by urban-rural typology
Urban regions - Growth trajectory retention (8 year recovery period)

Summary of the variables selection Ret_Tra_8:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R²	Adjusted R²	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	CRISIS	CRISIS	IN	0,000	0,122	0,117	92,404	-3695,788	-3679,246	0,893
2	Clu / CRISIS	Clu	IN	0,000	0,160	0,152	71,180	-3713,855	-3693,177	0,859
3	Clu / NAT / CRISIS	NAT	IN	0,000	0,239	0,215	41,992	-3739,471	-3677,437	0,812
4	MM_Ac / Clu / NAT / CRISIS	MM_Ac	IN	0,000	0,252	0,226	35,971	-3745,355	-3679,186	0,802
5	Pop_work / MM_Ac / Clu / NAT / CRISIS	Pop_work	IN	0,000	0,268	0,242	27,637	-3753,717	-3683,412	0,788
6	Pop_work / MM_Ac / Union / Clu / NAT / CRISIS	Union	IN	0,000	0,278	0,250	23,620	-3757,858	-3683,418	0,781
7	Pop_work / PROD / MM_Ac / Union / Clu / NAT / CRISIS	PROD	IN	0,000	0,286	0,257	20,503	-3761,146	-3682,571	0,775

Stepwise analysis of covariance on regional RGVA resilience performance by urban-rural typology
Urban regions - Growth trajectory retention (8 year recovery period)

Goodness of fit statistics (Ret_Tra_8):

Observations	462
Sum of weights	462
DF	443
R²	0,286
Adjusted R²	0,257
MSE	0,000
RMSE	0,017
MAPE	729,188
DW	1,692
Cp	20,503
AIC	-3761,146
SBC	-3682,571
PC	0,775
Press	0,139
Q²	0,199

Analysis of variance (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	18	0,050	0,003	9,865	**<0,0001**
Error	443	0,124	0,000		
Corrected´	461	0,174			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance by urban-rural typology
Urban regions - Growth trajectory retention (8 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,002	0,002	8,314	0,004
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,000	0,000	**0,041**	0,840
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,005	0,005	16,135	0,000
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,000	0,000	0,228	0,634
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,005	0,005	19,132	0,000
NAT	10,000	0,027	0,003	9,709	0,000
CRISIS	3,000	0,010	0,003	12,210	0,000
Shock	0,000	0,000			

Type II Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,003	0,003	10,774	0,001
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,001	0,001	5,100	0,024
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,005	0,005	19,544	0,000
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,002	0,002	5,469	0,020
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,006	0,006	22,999	0,000
NAT	10,000	0,013	0,001	4,576	0,000
CRISIS	3,000	0,010	0,003	12,210	0,000
Shock	0,000	0,000			

Type III Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,003	0,003	10,774	0,001
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,001	0,001	5,100	0,024
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,005	0,005	19,544	0,000
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,002	0,002	5,469	0,020
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,006	0,006	22,999	0,000
NAT	10,000	0,013	0,001	4,576	0,000
CRISIS	3,000	0,010	0,003	12,210	0,000
Shock	0,000	0,000			

Stepwise analysis of covariance on regional RGVA resilience performance by urban-rural typology
Urban regions - Growth trajectory retention (8 year recovery period)

Model parameters (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,046	0,025	1,842	0,066	-0,003	0,096
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	-0,094	0,035	-2,658	**0,008**	-0,163	-0,024
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	-0,003	0,002	-1,609	0,108	-0,008	0,001
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000	3,518	**0,000**	0,000	0,000
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	-0,001	0,000	-2,189	**0,029**	-0,002	0,000
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	-0,001	0,000	-4,659	**<0,0001**	-0,002	-0,001
AT	0,000	0,000				
BE	0,012	0,006	1,948	0,052	0,000	0,025
DE	-0,013	0,006	-2,039	**0,042**	-0,025	0,000
DK	0,052	0,016	3,324	**0,001**	0,021	0,083
ES	-0,015	0,012	-1,248	0,213	-0,040	0,009
FI	0,024	0,027	0,895	0,371	-0,029	0,078
FR	-0,034	0,013	-2,518	**0,012**	-0,060	-0,007
IT	-0,010	0,005	-1,976	**0,049**	-0,020	0,000
NL	-0,024	0,007	-3,277	**0,001**	-0,039	-0,010
PT	-0,045	0,010	-4,637	**<0,0001**	-0,064	-0,026
SE	0,062	0,019	3,347	**0,001**	0,026	0,099
UK	-0,005	0,005	-1,101	0,272	-0,014	0,004
1: 90-93	0,001	0,003	0,164	0,870	-0,006	0,007
2: 00-03	-0,011	0,003	-4,162	**<0,0001**	-0,016	-0,006
3: 08-09	0,004	0,003	1,337	0,182	-0,002	0,010
4:BTW	0,007	0,004	1,518	0,130	-0,002	0,015
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	-0,217	0,081	-2,658	**0,008**	-0,377	-0,056
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	-0,176	0,109	-1,609	0,108	-0,391	0,039
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,337	0,096	3,518	**0,000**	0,149	0,526
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	-0,540	0,247	-2,189	**0,029**	-1,025	-0,055
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	-0,203	0,043	-4,659	**<0,0001**	-0,288	-0,117
AT	0,000	0,000				
BE	0,326	0,167	1,948	0,052	-0,003	0,654
DE	-0,558	0,274	-2,039	**0,042**	-1,096	-0,020
DK	1,274	0,383	3,324	**0,001**	0,521	2,027
ES	-0,414	0,332	-1,248	0,213	-1,067	0,238
FI	0,584	0,653	0,895	0,371	-0,699	1,867
FR	-0,955	0,379	-2,518	**0,012**	-1,701	-0,210
IT	-0,287	0,145	-1,976	**0,049**	-0,573	-0,002
NL	-0,678	0,207	-3,277	**0,001**	-1,085	-0,272
PT	-1,095	0,236	-4,637	**<0,0001**	-1,559	-0,631
SE	1,523	0,455	3,347	**0,001**	0,629	2,417
UK	-0,118	0,107	-1,101	0,272	-0,329	0,093
1: 90-93	0,015	0,092	0,164	0,870	-0,165	0,195
2: 00-03	-0,262	0,063	-4,162	**<0,0001**	-0,386	-0,139
3: 08-09	0,098	0,073	1,337	0,182	-0,046	0,242
4:BTW	0,067	0,044	1,518	0,130	-0,020	0,155
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

III.d.i.2. Intermediate regions

Stepwise analysis of covariance on regional RGVA resilience performance by urban-rural typology
Intermediate regions

Settings:
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Model selection: Stepwise
Probability for entry: 0,05 / Probability for removal: 0,1
Covariances: Corrections = Newey West (adjusted)(Lag = 1)
Use least squares means: Yes
Explanation of the variable codes can be found in table 28

Summary statistics (Quantitative data):

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Rec_DL	796	0	796	-0,489	0,278	-0,070	0,100
Ret_Tra_4	796	0	796	-0,110	0,138	-0,009	0,024
Ret_Tra_8	796	138	658	-0,127	0,051	-0,011	0,019
Pop_age	796	0	796	0,192	2,946	1,148	0,413
Mig_net	796	0	796	-24,580	66,719	3,736	6,884
Pop_work	796	0	796	0,320	0,567	0,471	0,048
Agri_GVA	796	0	796	0,000	0,177	0,022	0,020
Manu_GV.	796	0	796	0,020	0,720	0,228	0,094
Const_GV.	796	0	796	0,014	0,299	0,075	0,028
Serv_GVA	796	0	796	0,176	0,653	0,441	0,071
Pub_GVA	796	0	796	0,074	0,568	0,235	0,068
HHI	796	0	796	0,178	0,543	0,231	0,030
GDP_PC	796	0	796	-1,094	4,370	-0,042	0,585
GFCF_PC	796	0	796	-1,759	2,618	0,033	0,745
PROD	796	0	796	-2,654	4,694	0,257	0,881
RnD_GDP	796	0	796	0,000	8,410	1,908	1,463
RnD_EMF	796	0	796	0,000	4,938	1,372	0,900
MM_Ac	796	0	796	26,605	167,725	104,924	27,566
Avg_bus	796	0	796	1,998	18,605	9,782	5,258
Gov_debt	796	0	796	-11,100	4,000	-4,011	2,528
Cur_blc	796	0	796	-14,500	9,100	0,753	3,607
Gov_close	796	0	796	0,370	31,490	5,948	4,063
Lab_comp	796	0	796	324,327	271583,242	25447,986	21629,703
Union	796	0	796	7,906	82,671	28,810	14,827
ML_barg	796	0	796	1,000	4,875	2,731	0,840
SHDI	796	0	796	0,713	0,931	0,854	0,050
SC_Org	796	0	796	0,038	0,209	0,130	0,043
EoC	796	0	796	46,900	100,000	73,725	14,752
Clu	796	0	796	0,360	31,000	2,672	2,063

Number of removed observations: 64

Summary statistics (Qualitative data):

Variable	Categories	Counts	Frequencies	%
NAT	AT	8	8	1,005
	BE	34	34	4,271
	DE	416	416	52,261
	DK	8	8	1,005
	EL	4	4	0,503
	ES	38	38	4,774
	FI	9	9	1,131
	FR	62	62	7,789
	IT	90	90	11,307
	NL	32	32	4,020
	PT	13	13	1,633
	SE	23	23	2,889
	UK	59	59	7,412
CRISIS	1: 90-93	263	263	33,040
	2: 00-03	185	185	23,241
	3: 08-09	290	290	36,432
	4:BTW	58	58	7,286
Shock	LIS	64	64	8,040
	NED	666	666	83,668
	NIS	66	66	8,291

Stepwise analysis of covariance on regional RGVA resilience performance by urban-rural typology
Intermediate regions

Correlation matrix:

	Pop_age	Mig_net	Pop_work	Agri_GVA	Manu_GVA	Const_GVA	Serv_GVA	Pub_GVA	HHI	GDP_PC	GFCF_PC	PROD	RnD_GDP	RnD_EMP	MM_Ac	Avg_bus	Gov_debt	Cur_blc	Gov_close	Lab_comp	Union	ML_barg	SHDI	SC_Org	EoC	Clu	AT	BE	DE	DK	EL	ES	FI	FR	IT	NL	PT	SE	UK	1: 90-93	2: 00-03	3: 08-09	4:BTW	LIS	NED	NIS	Rec_DL	Ret_Tra_4	Ret_Tra_8
Pop_age	**1**	-0,206	0,325	-0,153	-0,044	-0,282	0,046	0,174	0,069	0,047	-0,144	-0,174	0,044	0,055	0,029	0,195	0,040	0,346	-0,025	0,077	-0,109	-0,112	0,427	0,087	0,114	-0,143	0,108	0,035	0,272	0,068	0,104	-0,031	0,087	-0,080	0,190	-0,014	0,044	0,063	-0,104	-0,221	-0,032	0,384	-0,080	-0,033	0,073	-0,036	0,110	0,097	0,278
Mig_net	-0,206	**1**	-0,071	-0,012	-0,002	0,106	0,120	-0,164	0,020	0,133	0,188	0,113	-0,016	-0,001	0,134	0,078	0,055	-0,270	-0,025	0,009	0,138	0,011	-0,128	0,079	0,074	-0,029	-0,002	0,033	0,059	0,001	0,006	0,052	-0,006	-0,063	-0,012	-0,062	-0,004	0,000	-0,004	0,138	-0,127	-0,172	0,086	0,141	0,067	-0,117	0,009	-0,058	-0,097
Pop_work	0,325	-0,071	**1**	-0,394	0,145	-0,233	-0,024	0,034	0,123	0,102	0,265	0,056	0,305	0,341	0,261	0,404	0,428	0,386	0,222	0,168	-0,019	-0,368	0,615	0,304	0,526	0,164	-0,184	-0,276	0,182	-0,162	-0,220	-0,367	-0,181	-0,341	-0,431	-0,098	-0,151	-0,120	0,221	-0,289	0,200	0,379	-0,157	0,069	0,116	-0,117	0,014	0,004	0,115
Agri_GVA	-0,153	-0,012	-0,394	**1**	-0,166	0,298	-0,042	-0,140	-0,443	-0,352	-0,208	-0,212	-0,280	-0,307	-0,441	-0,372	-0,116	-0,208	-0,106	-0,123	0,047	0,224	-0,366	-0,248	-0,295	-0,123	0,005	0,015	-0,263	0,005	0,052	0,214	0,033	0,030	0,195	0,081	0,026	0,034	-0,024	0,097	-0,101	-0,150	0,083	-0,121	-0,193	0,197	-0,136	-0,071	-0,128
Manu_GVA	-0,044	-0,002	0,145	-0,166	**1**	-0,269	-0,638	-0,564	0,303	0,311	0,125	0,214	0,212	0,197	0,213	0,312	0,156	0,095	0,061	0,083	0,093	0,029	0,114	0,244	0,106	0,074	0,128	0,062	0,242	0,110	0,106	0,004	0,132	-0,044	0,039	0,134	0,143	0,116	-0,127	0,058	0,092	-0,123	-0,009	-0,080	-0,215	0,193	-0,097	-0,129	-0,153
Const_GVA	-0,282	0,106	-0,233	0,298	-0,269	**1**	-0,049	-0,070	-0,403	-0,423	-0,047	-0,284	-0,189	-0,257	-0,364	-0,280	-0,012	-0,390	-0,086	-0,148	0,047	0,076	-0,510	-0,196	-0,056	-0,157	-0,111	-0,110	-0,252	-0,133	-0,124	0,169	-0,109	-0,040	-0,055	-0,139	-0,083	-0,064	0,118	0,153	-0,088	-0,303	0,133	0,123	-0,088	0,003	-0,051	0,048	-0,046
Serv_GVA	0,046	0,120	-0,024	-0,042	-0,638	-0,049	**1**	-0,133	-0,197	-0,018	0,097	0,020	-0,067	-0,009	0,129	-0,155	-0,338	-0,055	-0,119	0,152	-0,116	0,048	0,081	-0,191	-0,150	-0,185	-0,045	-0,008	-0,129	-0,048	-0,041	-0,059	-0,080	0,045	0,129	-0,093	-0,078	-0,114	0,053	0,004	-0,054	0,221	-0,101	-0,020	0,273	-0,186	0,073	0,038	0,087
Pub_GVA	0,174	-0,164	0,034	-0,140	-0,564	-0,070	-0,133	**1**	0,081	-0,139	-0,197	-0,141	-0,066	-0,071	-0,155	-0,048	0,179	0,147	0,107	-0,180	-0,041	-0,189	0,071	0,015	0,120	0,192	-0,088	-0,037	-0,022	-0,050	-0,069	-0,076	-0,064	0,021	-0,226	-0,055	-0,091	-0,026	0,080	-0,177	-0,006	0,106	0,041	0,118	0,105	-0,133	0,119	0,141	0,174
HHI	0,069	0,020	0,123	-0,443	0,303	-0,403	-0,197	0,081	**1**	0,451	0,071	0,137	0,204	0,195	0,120	0,223	0,069	0,056	-0,068	0,070	-0,084	-0,108	0,114	0,138	0,121	0,196	0,033	0,007	0,167	0,026	0,041	0,008	0,010	-0,056	-0,055	0,029	0,045	-0,020	-0,033	-0,104	-0,034	-0,017	0,085	0,099	-0,207	0,100	-0,087	-0,049	-0,066
GDP_PC	0,047	0,133	0,102	-0,352	0,311	-0,423	-0,018	-0,139	0,451	**1**	0,328	0,322	0,186	0,198	0,260	0,157	0,028	0,044	0,087	0,103	0,088	0,023	0,114	0,155	0,050	0,099	0,059	-0,004	0,080	0,034	0,014	-0,077	0,030	-0,003	0,040	0,056	-0,032	0,044	-0,029	0,040	-0,104	-0,046	0,057	-0,025	0,027	-0,007	-0,028	-0,100	-0,060
GFCF_PC	-0,144	0,188	0,265	-0,208	0,125	-0,047	0,097	-0,197	0,071	0,328	**1**	0,674	0,522	0,590	0,316	0,169	0,146	0,093	0,253	0,398	0,245	0,031	0,153	0,276	0,139	0,141	0,011	0,042	0,057	0,035	-0,045	-0,143	-0,009	-0,029	-0,071	0,006	-0,119	0,062	0,017	0,087	-0,049	-0,055	0,008	0,053	0,073	-0,078	0,021	0,003	-0,015
PROD	-0,174	0,113	0,056	-0,212	0,214	-0,284	0,020	-0,141	0,137	0,322	0,674	**1**	0,433	0,513	0,461	0,253	0,055	0,288	0,168	0,395	0,091	0,059	0,299	0,409	0,070	0,130	0,138	0,206	0,228	0,168	0,109	-0,026	0,149	0,137	0,008	0,239	-0,031	0,159	-0,159	0,017	-0,050	-0,059	0,050	0,040	0,094	-0,087	0,173	0,076	0,080
RnD_GDP	0,044	-0,016	0,305	-0,280	0,212	-0,189	-0,067	-0,066	0,204	0,186	0,522	0,433	**1**	0,890	0,320	0,363	0,215	0,227	0,181	0,308	0,034	-0,188	0,295	0,255	0,274	0,038	-0,017	-0,051	0,178	-0,016	-0,047	-0,138	-0,017	-0,034	-0,177	-0,077	-0,072	0,036	0,031	0,025	0,095	0,139	-0,141	0,003	0,030	-0,023	0,034	0,044	0,064
RnD_EMP	0,055	-0,001	0,341	-0,307	0,197	-0,257	-0,009	-0,071	0,195	0,198	0,590	0,513	0,890	**1**	0,364	0,348	0,221	0,228	0,147	0,458	-0,021	-0,253	0,423	0,255	0,242	0,050	0,004	-0,033	0,185	0,009	-0,016	-0,134	0,001	-0,019	-0,156	-0,061	-0,060	-0,001	0,016	-0,088	0,085	0,202	-0,109	-0,023	0,014	0,001	0,033	0,047	0,070
MM_Ac	0,029	0,134	0,261	-0,441	0,213	-0,364	0,129	-0,155	0,120	0,260	0,316	0,461	0,320	0,364	**1**	0,485	0,017	0,288	-0,141	0,308	-0,159	-0,143	0,409	0,294	0,247	-0,023	0,061	0,154	0,407	0,017	0,017	-0,216	-0,024	0,029	-0,118	0,031	-0,040	-0,071	-0,056	0,058	0,100	0,162	-0,176	-0,003	0,166	-0,117	0,204	0,044	0,136
Avg_bus	0,195	0,078	0,404	-0,372	0,312	-0,280	-0,155	-0,048	0,223	0,157	0,169	0,253	0,363	0,348	0,485	**1**	0,375	0,331	-0,033	0,168	-0,215	-0,435	0,459	0,605	0,701	0,026	0,046	-0,072	0,750	0,046	0,041	-0,102	0,025	-0,200	-0,266	-0,046	-0,005	-0,034	-0,069	-0,105	0,153	0,017	-0,028	0,036	0,017	-0,029	0,201	0,081	0,134
Gov_debt	0,040	0,055	0,428	-0,116	0,156	-0,012	-0,338	0,179	0,069	0,028	0,146	0,055	0,215	0,221	0,017	0,375	**1**	0,318	0,403	-0,077	0,181	-0,375	0,285	0,501	0,552	0,319	-0,071	-0,163	0,231	-0,024	-0,090	-0,033	0,014	-0,229	-0,428	-0,014	-0,100	0,125	0,070	-0,213	0,173	-0,056	0,062	0,068	-0,142	0,068	-0,031	-0,087	-0,084
Cur_blc	0,346	-0,270	0,386	-0,208	0,095	-0,390	-0,055	0,147	0,056	0,044	0,093	0,288	0,227	0,228	0,288	0,331	0,318	**1**	0,296	0,097	-0,111	-0,031	0,641	0,549	0,145	0,181	0,337	0,311	0,460	0,343	0,274	0,093	0,363	0,201	-0,002	0,373	0,200	0,332	-0,342	-0,261	0,114	0,358	-0,117	-0,074	0,058	-0,005	0,177	0,081	0,154
Gov_close	-0,025	-0,025	0,222	-0,106	0,061	-0,086	-0,119	0,107	-0,068	0,087	0,253	0,168	0,181	0,147	-0,141	-0,033	0,403	0,296	**1**	-0,050	0,606	0,071	0,184	0,335	0,109	0,286	0,197	0,090	0,034	0,388	0,146	0,017	0,293	0,121	0,015	0,070	0,118	0,467	-0,178	-0,049	0,135	0,040	-0,064	-0,005	0,092	-0,063	-0,031	-0,075	-0,046
Lab_comp	0,077	0,009	0,168	-0,123	0,083	-0,148	0,152	-0,180	0,070	0,103	0,398	0,395	0,308	0,458	0,308	0,168	-0,077	0,097	-0,050	**1**	-0,175	-0,094	0,292	0,039	-0,012	-0,251	0,107	0,021	0,208	0,116	0,110	0,036	0,099	0,106	0,204	0,034	0,096	0,054	-0,134	-0,086	0,044	0,169	-0,071	-0,048	-0,011	0,031	0,056	0,060	0,127
Union	-0,109	0,138	-0,019	0,047	0,093	0,047	-0,116	-0,041	-0,084	0,088	0,245	0,091	0,034	-0,021	-0,159	-0,215	0,181	-0,111	0,606	-0,175	**1**	0,399	-0,190	0,022	-0,002	0,261	-0,071	0,159	-0,270	0,025	-0,075	-0,172	0,046	-0,327	0,094	-0,124	-0,075	0,228	0,081	0,238	-0,042	-0,173	-0,013	0,022	0,064	-0,057	-0,160	-0,124	-0,129
ML_barg	-0,112	0,011	-0,368	0,224	0,029	0,076	0,048	-0,189	-0,108	0,023	0,031	0,059	-0,188	-0,253	-0,143	-0,435	-0,375	-0,031	0,071	-0,094	0,399	**1**	-0,368	-0,034	-0,683	0,079	0,439	0,591	-0,077	0,435	0,487	0,380	0,497	0,286	0,613	0,524	0,464	0,474	-0,483	0,325	-0,038	-0,225	-0,034	-0,017	0,034	-0,016	-0,130	-0,113	-0,190
SHDI	0,427	-0,128	0,615	-0,366	0,114	-0,510	0,081	0,071	0,114	0,114	0,153	0,299	0,295	0,423	0,409	0,459	0,285	0,641	0,184	0,292	-0,190	-0,368	**1**	0,446	0,309	0,135	0,112	0,090	0,407	0,130	0,100	-0,148	0,106	-0,005	-0,133	0,133	-0,003	0,097	-0,111	-0,535	0,225	0,564	-0,138	-0,043	0,065	-0,026	0,112	0,087	0,236
SC_Org	0,087	0,079	0,304	-0,248	0,244	-0,196	-0,191	0,015	0,138	0,155	0,276	0,409	0,255	0,255	0,294	0,605	0,501	0,549	0,335	0,039	0,022	-0,034	0,446	**1**	0,340	0,310	0,457	0,340	0,727	0,461	0,451	0,340	0,516	0,165	-0,063	0,454	0,325	0,501	-0,489	-0,174	0,166	-0,063	0,049	0,078	0,014	-0,048	0,159	0,065	0,073
EoC	0,114	0,074	0,526	-0,295	0,106	-0,056	-0,150	0,120	0,121	0,059	0,139	0,070	0,274	0,242	0,247	0,701	0,552	0,145	0,109	-0,012	-0,002	-0,683	0,309	0,340	**1**	0,088	0,052	0,094	-0,029	0,065	0,031	0,031	0,066	-0,085	-0,199	0,181	0,019	0,178	-0,026	-0,087	0,065	-0,032	0,034	0,158	0,004	-0,080	-0,093	-0,103	-0,136
Clu	-0,143	-0,029	0,164	-0,123	0,074	-0,157	-0,185	0,192	0,196	0,099	0,141	0,130	0,038	0,050	-0,023	0,026	0,319	0,181	0,286	-0,251	0,261	0,079	0,135	0,310	0,088	**1**	0,052	0,094	-0,029	0,065	0,031	0,031	0,066	-0,085	-0,199	0,181	0,019	0,178	-0,026	-0,087	0,065	-0,032	0,034	0,158	0,004	-0,080	-0,093	-0,103	-0,136
AT	0,108	-0,002	-0,184	0,005	0,128	-0,111	-0,045	-0,088	0,033	0,059	0,011	0,138	-0,017	0,004	0,061	0,046	-0,071	0,337	0,197	0,107	-0,071	0,439	0,112	0,457	-0,479	0,052	**1**	0,749	0,578	0,874	0,903	0,735	0,868	0,674	0,628	0,756	0,843	0,792	-0,936	-0,114	0,068	-0,061	0,063	-0,034	-0,094	0,084	0,090	-0,005	-0,051
BE	0,035	0,033	-0,276	0,015	0,062	-0,110	-0,008	-0,037	0,007	-0,004	0,042	0,206	-0,051	-0,033	0,154	-0,072	-0,163	0,311	0,090	0,021	0,159	0,591	0,090	0,340	-0,536	0,094	0,749	**1**	0,412	0,749	0,775	0,619	0,743	0,559	0,514	0,638	0,720	0,672	-0,805	-0,035	0,021	-0,054	0,040	-0,037	-0,051	0,055	0,076	0,010	-0,015
DE	0,272	0,059	0,182	-0,263	0,242	-0,252	-0,129	-0,022	0,167	0,080	0,057	0,228	0,178	0,185	0,407	0,750	0,231	0,460	0,034	0,208	-0,270	-0,077	0,407	0,727	0,252	-0,029	0,578	0,412	**1**	0,578	0,613	0,393	0,570	0,295	0,209	0,422	0,539	0,472	-0,652	-0,168	0,159	-0,044	0,038	0,029	-0,024	0,003	0,243	0,097	0,127
DK	0,068	0,001	-0,162	0,005	0,110	-0,133	-0,048	-0,050	0,026	0,034	0,035	0,168	-0,016	0,009	0,017	0,046	-0,024	0,343	0,388	0,116	0,025	0,435	0,130	0,461	-0,452	0,065	0,874	0,749	0,578	**1**	0,903	0,735	0,868	0,674	0,628	0,756	0,843	0,792	-0,936	-0,114	0,093	-0,083	0,063	-0,012	-0,064	0,052	0,093	0,012	-0,058
EL	0,104	0,006	-0,220	0,052	0,106	-0,124	-0,041	-0,069	0,041	0,014	-0,045	0,109	-0,047	-0,016	0,017	0,041	-0,090	0,274	0,146	0,110	-0,075	0,487	0,100	0,451	-0,518	0,031	0,903	0,775	0,613	0,903	**1**	0,762	0,896	0,700	0,654	0,782	0,871	0,819	-0,966	-0,134	0,042	-0,124	0,124	-0,013	-0,097	0,076	0,039	0,006	
ES	-0,031	0,052	-0,367	0,214	0,004	0,169	-0,059	-0,076	0,008	-0,077	-0,143	-0,026	-0,138	-0,134	-0,216	-0,102	-0,033	0,093	0,017	0,036	-0,172	0,380	-0,148	0,340	-0,425	0,031	0,735	0,619	0,393	0,735	0,762	**1**	0,729	0,547	0,501	0,625	0,707	0,659	-0,791	-0,066	-0,018	-0,200	0,160	-0,009	-0,171	0,127	0,057	0,066	-0,026
FI	0,087	-0,006	-0,181	0,033	0,132	-0,109	-0,080	-0,064	0,010	0,030	-0,009	0,149	-0,017	0,001	-0,024	0,025	0,014	0,363	0,293	0,099	0,046	0,497	0,106	0,516	-0,459	0,066	0,868	0,743	0,570	0,868	0,896	0,729	**1**	0,668	0,623	0,750	0,837	0,786	-0,929	-0,130	0,083	-0,114	0,096	-0,012	-0,084	0,066	0,094	0,002	-0,065
FR	-0,080	-0,063	-0,341	0,030	-0,044	-0,040	0,045	0,021	-0,056	-0,003	-0,029	0,137	-0,034	-0,019	0,029	-0,200	-0,229	0,201	0,121	0,106	-0,327	0,286	-0,005	0,165	-0,617	-0,085	0,674	0,559	0,295	0,674	0,700	0,547	0,668	**1**	0,440	0,566	0,646	0,600	-0,728	-0,021	0,046	-0,016	-0,003	-0,032	-0,007	0,020	0,136	-0,001	-0,052
IT	0,190	-0,012	-0,431	0,195	0,039	-0,055	0,129	-0,226	-0,055	0,040	-0,071	0,008	-0,177	-0,156	-0,118	-0,266	-0,428	-0,002	0,015	0,204	0,094	0,613	-0,063	-0,706	-0,199	0,628	0,514	0,209	0,628	0,654	0,501	0,623	0,440	**1**	0,520	0,601	0,554	0,682	0,055	0,038	-0,074	0,031	-0,043	-0,080	0,079	-0,011	-0,010	-0,073	
NL	-0,014	-0,062	-0,098	0,081	0,134	-0,139	-0,093	-0,055	0,029	0,056	0,006	0,239	-0,077	-0,061	0,031	-0,046	-0,014	0,373	0,070	0,034	-0,124	0,524	0,133	0,454	-0,539	0,181	0,756	0,638	0,422	0,756	0,782	0,625	0,750	0,566	0,520	**1**	0,727	0,679	-0,813	-0,161	0,073	-0,108	0,114	0,055	-0,080	0,030	0,056	0,005	-0,136
PT	0,044	-0,004	-0,151	0,026	0,143	-0,083	-0,078	-0,091	0,045	-0,032	-0,119	-0,031	-0,072	-0,060	-0,040	-0,005	-0,100	0,200	0,118	0,096	-0,075	0,464	-0,003	0,325	-0,537	0,019	0,843	0,720	0,539	0,843	0,871	0,707	0,837	0,646	0,601	0,727	**1**	0,762	-0,903	-0,082	0,083	-0,090	0,055	-0,043	-0,096	0,090	0,064	-0,026	-0,113
SE	0,063	0,000	-0,120	0,034	0,116	-0,064	-0,114	-0,026	-0,020	0,044	0,062	0,159	0,036	-0,001	-0,071	-0,034	0,125	0,332	0,467	0,054	0,228	0,474	0,097	0,501	-0,392	0,178	0,792	0,672	0,472	0,792	0,819	0,659	0,786	0,600	0,554	0,679	0,762	**1**	-0,850	-0,059	0,088	-0,090	0,040	-0,011	-0,032	0,028	0,026	-0,023	-0,038
UK	-0,104	-0,004	0,221	-0,024	-0,127	0,118	0,053	0,080	-0,033	-0,029	0,017	-0,159	0,031	0,016	-0,056	-0,069	0,070	-0,342	-0,178	-0,134	0,081	-0,483	-0,111	-0,489	0,504	-0,026	-0,936	-0,805	-0,652	-0,936	-0,966	-0,791	-0,929	-0,728	-0,682	-0,813	-0,903	-0,850	**1**	0,106	-0,076	0,103	-0,079	0,014	0,085	-0,068	-0,112	-0,022	0,039
1: 90-93	-0,221	0,138	-0,289	0,097	0,058	0,153	0,004	-0,177	-0,104	0,040	0,087	0,017	0,025	-0,088	0,058	-0,105	-0,213	-0,261	-0,049	-0,086	0,238	0,225	-0,535	-0,174	-0,076	-0,087	-0,114	-0,035	-0,168	-0,114	-0,134	-0,066	-0,130	-0,021	0,055	-0,161	-0,082	-0,059	0,106	**1**	0,104	-0,006	-0,607	0,019	0,228	-0,173	0,079	-0,039	-0,059
2: 00-03	-0,032	-0,127	0,200	-0,101	0,092	-0,088	-0,054	-0,006	-0,034	-0,104	-0,049	-0,050	0,095	0,085	0,100	0,153	0,173	0,114	0,135	0,044	-0,042	-0,038	0,225	0,166	0,100	0,065	0,068	0,021	0,159	0,093	0,042	-0,018	0,083	0,046	-0,038	0,073	0,083	0,088	-0,076	0,104	**1**	0,084	-0,615	-0,057	0,069	-0,022	-0,033	-0,166	-0,149
3: 08-09	0,384	-0,172	0,379	-0,150	-0,123	-0,303	0,221	0,106	-0,017	-0,046	-0,055	-0,059	0,139	0,202	0,162	0,017	-0,056	0,358	0,040	0,169	-0,173	-0,225	0,564	-0,063	0,050	-0,032	-0,061	-0,054	-0,044	-0,083	-0,124	-0,200	-0,114	-0,016	-0,074	-0,108	-0,090	-0,090	0,103	-0,006	0,084	**1**	-0,610	-0,117	0,211	-0,094	0,085	0,096	0,304
4:BTW	-0,080	0,086	-0,157	0,083	-0,009	0,133	-0,101	0,041	0,085	0,057	0,008	0,050	-0,141	-0,109	-0,176	-0,028	0,062	-0,117	-0,064	-0,071	-0,013	-0,034	-0,138	0,049	-0,036	0,034	0,063	0,040	0,038	0,063	0,124	0,160	0,096	-0,003	0,031	0,114	0,055	0,040	-0,079	-0,607	-0,615	-0,610	**1**	0,085	-0,283	0,161	-0,076	0,051	-0,042
LIS	-0,033	0,141	0,069	-0,121	-0,080	0,123	-0,020	0,118	0,099	-0,025	0,053	0,040	0,003	-0,023	-0,003	0,036	0,068	-0,074	-0,005	-0,048	0,022	-0,017	-0,043	0,078	0,054	0,158	-0,034	-0,037	0,029	-0,012	-0,013	-0,009	-0,012	-0,032	-0,043	0,055	-0,043	-0,011	0,014	0,019	-0,057	-0,117	0,085	**1**	0,354	-0,742	-0,015	0,032	-0,054
NED	0,073	0,067	0,116	-0,193	-0,215	-0,088	0,273	0,105	-0,207	0,027	0,073	0,094	0,030	0,014	0,166	0,017	-0,142	0,058	0,092	-0,011	0,064	0,034	0,065	0,014	0,071	0,004	-0,094	-0,051	-0,024	-0,064	-0,097	-0,171	-0,084	-0,007	-0,080	-0,080	-0,096	-0,032	0,085	0,228	0,069	0,211	-0,283	0,354	**1**	-0,889	0,164	0,018	0,056
NIS	-0,036	-0,117	-0,117	0,197	0,193	0,003	-0,186	-0,133	0,100	-0,007	-0,078	-0,087	-0,023	0,001	-0,117	-0,029	0,068	-0,005	-0,063	0,031	-0,057	-0,016	-0,026	-0,048	-0,077	-0,080	0,084	0,055	0,003	0,052	0,076	0,127	0,066	0,020	0,079	0,030	0,090	0,028	-0,068	-0,173	-0,022	-0,094	0,161	-0,742	-0,889	**1**	-0,110	-0,029	-0,013
Rec_DL	0,110	0,009	0,014	-0,136	-0,097	-0,051	0,073	0,119	-0,087	-0,028	0,021	0,173	0,034	0,033	0,204	0,201	-0,031	0,177	-0,031	0,056	-0,160	-0,130	0,112	0,159	0,101	-0,093	0,090	0,076	0,243	0,093	0,039	0,057	0,094	0,136	-0,011	0,056	0,064	0,026	-0,112	0,079	-0,033	0,085	-0,076	-0,015	0,164	-0,110	**1**	0,530	0,448
Ret_Tra_4	0,097	-0,058	0,004	-0,071	-0,129	0,048	0,038	0,141	-0,049	-0,100	0,003	0,076	0,044	0,047	0,044	0,081	-0,087	0,081	-0,075	0,060	-0,124	-0,113	0,087	0,065	0,073	-0,103	-0,005	0,010	0,097	0,012	0,006	0,066	0,002	-0,001	-0,010	0,005	-0,026	-0,023	-0,022	-0,039	-0,166	0,096	0,051	0,032	0,018	-0,029	0,530	**1**	0,654
Ret_Tra_8	0,278	-0,097	0,115	-0,128	-0,153	-0,046	0,087	0,174	-0,066	-0,060	-0,015	0,080	0,064	0,070	0,136	0,134	-0,084	0,154	-0,046	0,127	-0,129	-0,190	0,236	0,073	0,189	-0,136	-0,051	-0,015	0,127	-0,058		-0,026	-0,065	-0,052	-0,073	-0,136	-0,113	-0,038	0,039	-0,059	-0,149	0,304	-0,042	-0,054	0,056	-0,013	0,448	0,654	**1**

Stepwise analysis of covariance on regional RGVA resilience performance by urban-rural typology
Intermediate regions - Recovery of development level

Summary of the variables selection Rec_DL:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	NAT	NAT	IN	0,008	0,158	0,145	133,039	-3784,075	-3723,240	0,870
2	NAT / Shock	Shock	IN	0,008	0,186	0,172	106,907	-3807,089	-3736,895	0,845
3	Manu_GVA / NAT / Shock	Manu_GVA	IN	0,008	0,200	0,185	93,882	-3818,909	-3744,036	0,833
4	Manu_GVA / NAT / CRISIS / Shock	CRISIS	IN	0,008	0,222	0,204	76,708	-3834,708	-3745,795	0,816
5	Manu_GVA / ML_barg / NAT / CRISIS / Shock	ML_barg	IN	0,008	0,243	0,224	56,019	-3854,643	-3761,051	0,796
6	Manu_GVA / ML_barg / SHDI / NAT / CRISIS / Shock	SHDI	IN	0,008	0,251	0,231	49,643	-3860,897	-3762,625	0,790
7	Manu_GVA / Gov_debt / ML_barg / SHDI / NAT / CRISIS / Shock	Gov_debt	IN	0,008	0,258	0,238	43,567	-3866,937	-3763,986	0,784
8	Manu_GVA / Serv_GVA / Gov_debt / ML_barg / SHDI / NAT / CRISIS / Shock	Serv_GVA	IN	0,008	0,264	0,243	39,578	-3870,952	-3763,321	0,780

Stepwise analysis of covariance on regional RGVA resilience performance by urban-rural typolo
Intermediate regions - Recovery of development level

Goodness of fit statistics (Rec_DL):

Observations	796
Sum of weights	796
DF	773
R^2	0,264
Adjusted R^2	0,243
MSE	0,008
RMSE	0,087
MAPE	182,252
DW	1,793
Cp	39,578
AIC	-3870,952
SBC	-3763,321
PC	0,780
Press	6,235
Q^2	0,209

Analysis of variance (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	22	2,081	0,095	12,595	**<0,0001**
Error	773	5,805	0,008		
Corrected '	795	7,887			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance by urban-rural typology
Intermediate regions - Recovery of development level

Type I Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	1,000	0,075	0,075	9,979	0,002
Const_GVA	0,000	0,000			
Serv_GVA	1,000	0,002	0,002	0,219	0,640
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,001	0,001	0,151	0,698
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,164	0,164	21,873	0,000
SHDI	1,000	0,075	0,075	9,921	0,002
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	12,000	1,245	0,104	13,817	0,000
CRISIS	3,000	0,398	0,133	17,683	0,000
Shock	2,000	0,121	0,060	8,048	0,000

Type II Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	1,000	0,217	0,217	28,924	0,000
Const_GVA	0,000	0,000			
Serv_GVA	1,000	0,044	0,044	5,863	0,016
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,073	0,073	9,659	0,002
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,173	0,173	23,034	0,000
SHDI	1,000	0,094	0,094	12,476	0,000
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	12,000	1,066	0,089	11,832	0,000
CRISIS	3,000	0,366	0,122	16,238	0,000
Shock	2,000	0,121	0,060	8,048	0,000

Type III Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	1,000	0,217	0,217	28,924	0,000
Const_GVA	0,000	0,000			
Serv_GVA	1,000	0,044	0,044	5,863	0,016
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,073	0,073	9,659	0,002
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,173	0,173	23,034	0,000
SHDI	1,000	0,094	0,094	12,476	0,000
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	12,000	1,066	0,089	11,832	0,000
CRISIS	3,000	0,366	0,122	16,238	0,000
Shock	2,000	0,121	0,060	8,048	0,000

Stepwise analysis of covariance on regional RGVA resilience performance by urban-rural typology
Intermediate regions - Recovery of development level

Model parameters (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,465	0,172	-2,702	**0,007**	-0,803	-0,127
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GVA	-0,277	0,063	-4,397	**<0,0001**	-0,400	-0,153
Const_GVA	0,000	0,000				
Serv_GVA	-0,163	0,090	-1,820	0,069	-0,339	0,013
Pub_GVA	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	-0,007	0,003	-2,384	**0,017**	-0,012	-0,001
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	-0,044	0,011	-3,857	**0,000**	-0,067	-0,022
SHDI	0,679	0,222	3,063	**0,002**	0,244	1,114
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	0,011	0,023	0,460	0,645	-0,035	0,056
BE	0,043	0,017	2,564	**0,011**	0,010	0,076
DE	0,041	0,012	3,413	**0,001**	0,017	0,064
DK	0,002	0,013	0,116	0,908	-0,025	0,028
EL	-0,307	0,030	-10,182	**<0,0001**	-0,366	-0,247
ES	0,029	0,020	1,446	0,148	-0,010	0,068
FI	0,112	0,046	2,428	**0,015**	0,022	0,203
FR	0,026	0,015	1,750	0,081	-0,003	0,055
IT	0,021	0,014	1,548	0,122	-0,006	0,049
NL	0,071	0,025	2,780	**0,006**	0,021	0,121
PT	0,039	0,036	1,084	0,279	-0,032	0,110
SE	-0,004	0,025	-0,178	0,859	-0,054	0,045
UK	-0,084	0,024	-3,514	**0,000**	-0,130	-0,037
1: 90-93	0,066	0,012	5,583	**<0,0001**	0,043	0,089
2: 00-03	-0,033	0,009	-3,833	**0,000**	-0,050	-0,016
3: 08-09	-0,036	0,012	-2,908	**0,004**	-0,060	-0,012
4:BTW	0,003	0,014	0,241	0,810	-0,024	0,031
LIS	-0,029	0,011	-2,688	**0,007**	-0,050	-0,008
NED	0,023	0,007	3,060	**0,002**	0,008	0,037
NIS	0,006	0,010	0,593	0,553	-0,014	0,026

Standardized coefficients (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GV.	-0,262	0,060	-4,397	**<0,0001**	-0,379	-0,145
Const_GV.	0,000	0,000				
Serv_GVA	-0,117	0,064	-1,820	0,069	-0,243	0,009
Pub_GVA	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMF	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	-0,168	0,071	-2,384	**0,017**	-0,307	-0,030
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	-0,372	0,096	-3,857	**0,000**	-0,561	-0,182
SHDI	0,340	0,111	3,063	**0,002**	0,122	0,557
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	0,030	0,066	0,460	0,645	-0,099	0,160
BE	0,148	0,058	2,564	**0,011**	0,035	0,260
DE	0,258	0,075	3,413	**0,001**	0,109	0,406
DK	0,004	0,038	0,116	0,908	-0,070	0,079
EL	-0,840	0,082	-10,182	**<0,0001**	-1,002	-0,678
ES	0,101	0,070	1,446	0,148	-0,036	0,238
FI	0,322	0,133	2,428	**0,015**	0,062	0,583
FR	0,102	0,058	1,750	0,081	-0,012	0,216
IT	0,093	0,060	1,548	0,122	-0,025	0,210
NL	0,239	0,086	2,780	**0,006**	0,070	0,408
PT	0,116	0,107	1,084	0,279	-0,094	0,326
SE	-0,014	0,081	-0,178	0,859	-0,173	0,144
UK	-0,220	0,063	-3,514	**0,000**	-0,343	-0,097
1: 90-93	0,383	0,069	5,583	**<0,0001**	0,249	0,518
2: 00-03	-0,177	0,046	-3,833	**0,000**	-0,268	-0,086
3: 08-09	-0,213	0,073	-2,908	**0,004**	-0,357	-0,069
4:BTW	0,009	0,036	0,241	0,810	-0,063	0,080
LIS	-0,116	0,043	-2,688	**0,007**	-0,201	-0,031
NED	0,134	0,044	3,060	**0,002**	0,048	0,221
NIS	0,017	0,029	0,593	0,553	-0,039	0,073

Stepwise analysis of covariance on regional RGVA resilience performance by urban-rural typology
Intermediate regions - Growth trajectory retention (4 year recovery period)

Summary of the variables selection Ret_Tra_4:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya' s PC
1	CRISIS	CRISIS	IN	0,001	0,040	0,036	118,387	-5961,613	-5942,894	0,970
2	NAT / CRISIS	NAT	IN	0,001	0,090	0,072	95,699	-5979,709	-5904,835	0,948
3	Gov_debt / NAT / CRISIS	Gov_debt	IN	0,001	0,110	0,091	78,627	-5995,566	-5916,013	0,929
4	Pub_GVA / Gov_debt / NAT / CRISIS	Pub_GVA	IN	0,001	0,130	0,111	61,456	-6011,930	-5927,697	0,910
5	Pub_GVA / Gov_debt / ML_barg / NAT / CRISIS	ML_barg	IN	0,001	0,146	0,127	48,079	-6024,971	-5936,059	0,895
6	Pub_GVA / GDP_PC / Gov_debt / ML_barg / NAT / CRISIS	GDP_PC	IN	0,000	0,157	0,137	39,695	-6033,292	-5939,700	0,886
7	Pub_GVA / GDP_PC / Gov_debt / ML_barg / SHDI / NAT / CRISIS	SHDI	IN	0,000	0,166	0,144	33,582	-6039,450	-5941,178	0,879
8	Pub_GVA / GDP_PC / Gov_debt / ML_barg / SHDI / Clu / NAT / CRISIS	Clu	IN	0,000	0,174	0,152	27,958	-6045,193	-5942,242	0,873
9	Agri_GVA / Pub_GVA / GDP_PC / Gov_debt / ML_barg / SHDI / Clu / NAT / CRISIS	Agri_GVA	IN	0,000	0,181	0,157	23,621	-6049,687	-5942,056	0,868
10	Agri_GVA / Const_GVA / Pub_GVA / GDP_PC / Gov_debt / ML_barg / SHDI / Clu / NAT / CRISIS	Const_GVA	IN	0,000	0,185	0,161	21,439	-6052,002	-5939,691	0,866

Stepwise analysis of covariance on regional RGVA resilience performance by urban-rural typolo
Intermediate regions - Growth trajectory retention (4 year recovery period)

Goodness of fit statistics (Ret_Tra_4):

Observations	796
Sum of weights	796
DF	772
R^2	0,185
Adjusted R^2	0,161
MSE	0,000
RMSE	0,022
MAPE	227,499
DW	1,899
Cp	21,439
AIC	-6052,002
SBC	-5939,691
PC	0,866
Press	0,400
Q^2	0,128

Analysis of variance (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	23	0,085	0,004	7,624	**<0,0001**
Error	772	0,374	0,000		
Corrected '	795	0,459			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance by urban-rural typology
Intermediate regions - Growth trajectory retention (4 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	1,000	0,002	0,002	4,710	0,030
Manu_GVA	0,000	0,000			
Const_GVA	1,000	0,002	0,002	4,931	0,027
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,008	0,008	17,076	0,000
HHI	0,000	0,000			
GDP_PC	1,000	0,003	0,003	7,194	0,007
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,006	0,006	13,275	0,000
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,007	0,007	13,798	0,000
SHDI	1,000	0,006	0,006	11,512	0,001
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,002	0,002	4,309	0,038
NAT	12,000	0,026	0,002	4,529	0,000
CRISIS	3,000	0,021	0,007	14,734	0,000
Shock	0,000	0,000			

Type II Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	1,000	0,003	0,003	5,393	0,020
Manu_GVA	0,000	0,000			
Const_GVA	1,000	0,002	0,002	4,196	0,041
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,011	0,011	22,179	0,000
HHI	0,000	0,000			
GDP_PC	1,000	0,004	0,004	8,403	0,004
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,015	0,015	30,573	0,000
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,007	0,007	14,134	0,000
SHDI	1,000	0,005	0,005	9,951	0,002
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,003	0,003	6,820	0,009
NAT	12,000	0,025	0,002	4,271	0,000
CRISIS	3,000	0,021	0,007	14,734	0,000
Shock	0,000	0,000			

Type III Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	1,000	0,003	0,003	5,393	0,020
Manu_GVA	0,000	0,000			
Const_GVA	1,000	0,002	0,002	4,196	0,041
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,011	0,011	22,179	0,000
HHI	0,000	0,000			
GDP_PC	1,000	0,004	0,004	8,403	0,004
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,015	0,015	30,573	0,000
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,007	0,007	14,134	0,000
SHDI	1,000	0,005	0,005	9,951	0,002
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,003	0,003	6,820	0,009
NAT	12,000	0,025	0,002	4,271	0,000
CRISIS	3,000	0,021	0,007	14,734	0,000
Shock	0,000	0,000			

Stepwise analysis of covariance on regional RGVA resilience performance by urban-rural typology
Intermediate regions - Growth trajectory retention (4 year recovery period)

Model parameters (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,146	0,048	-3,044	**0,002**	-0,240	-0,052
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	-0,117	0,055	-2,143	**0,032**	-0,224	-0,010
Manu_GVA	0,000	0,000				
Const_GVA	0,083	0,045	1,831	0,067	-0,006	0,171
Serv_GVA	0,000	0,000				
Pub_GVA	0,065	0,021	3,076	**0,002**	0,023	0,106
HHI	0,000	0,000				
GDP_PC	-0,005	0,002	-2,250	**0,025**	-0,009	-0,001
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	-0,003	0,001	-4,380	**<0,0001**	-0,004	-0,002
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	-0,009	0,002	-3,746	**0,000**	-0,013	-0,004
SHDI	0,157	0,053	2,957	**0,003**	0,053	0,261
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	-0,001	0,000	-3,764	**0,000**	-0,002	-0,001
AT	-0,013	0,005	-2,811	**0,005**	-0,021	-0,004
BE	0,001	0,004	0,373	0,709	-0,006	0,008
DE	0,000	0,003	0,108	0,914	-0,005	0,006
DK	0,002	0,006	0,384	0,701	-0,009	0,014
EL	-0,018	0,006	-2,785	**0,005**	-0,030	-0,005
ES	0,015	0,005	3,360	**0,001**	0,006	0,024
FI	0,020	0,010	1,961	0,050	0,000	0,041
FR	-0,012	0,004	-3,229	**0,001**	-0,019	-0,005
IT	0,000	0,004	-0,136	0,892	-0,008	0,007
NL	0,016	0,005	3,110	**0,002**	0,006	0,026
PT	-0,008	0,009	-0,873	0,383	-0,027	0,010
SE	0,011	0,005	2,338	**0,020**	0,002	0,021
UK	-0,016	0,005	-2,941	**0,003**	-0,026	-0,005
1: 90-93	0,011	0,003	3,274	**0,001**	0,004	0,017
2: 00-03	-0,011	0,002	-4,990	**<0,0001**	-0,015	-0,006
3: 08-09	-0,004	0,003	-1,434	0,152	-0,010	0,001
4:BTW	0,004	0,003	1,289	0,198	-0,002	0,010
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	-0,097	0,045	-2,143	**0,032**	-0,185	-0,008
Manu_GV	0,000	0,000				
Const_GV	0,095	0,052	1,831	0,067	-0,007	0,197
Serv_GVA	0,000	0,000				
Pub_GVA	0,182	0,059	3,076	**0,002**	0,066	0,298
HHI	0,000	0,000				
GDP_PC	-0,122	0,054	-2,250	**0,025**	-0,228	-0,016
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	-0,305	0,070	-4,380	**<0,0001**	-0,442	-0,168
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	-0,305	0,082	-3,746	**0,000**	-0,466	-0,145
SHDI	0,325	0,110	2,957	**0,003**	0,109	0,540
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	-0,106	0,028	-3,764	**0,000**	-0,161	-0,051
AT	-0,149	0,053	-2,811	**0,005**	-0,253	-0,045
BE	0,019	0,050	0,373	0,709	-0,080	0,117
DE	0,008	0,073	0,108	0,914	-0,136	0,151
DK	0,026	0,068	0,384	0,701	-0,108	0,160
EL	-0,201	0,072	-2,785	**0,005**	-0,342	-0,059
ES	0,221	0,066	3,360	**0,001**	0,092	0,350
FI	0,241	0,123	1,961	0,050	0,000	0,482
FR	-0,191	0,059	-3,229	**0,001**	-0,307	-0,075
IT	-0,009	0,064	-0,136	0,892	-0,135	0,118
NL	0,224	0,072	3,110	**0,002**	0,082	0,365
PT	-0,102	0,117	-0,873	0,383	-0,331	0,127
SE	0,149	0,064	2,338	**0,020**	0,024	0,275
UK	-0,171	0,058	-2,941	**0,003**	-0,286	-0,057
1: 90-93	0,256	0,078	3,274	**0,001**	0,102	0,409
2: 00-03	-0,236	0,047	-4,990	**<0,0001**	-0,328	-0,143
3: 08-09	-0,099	0,069	-1,434	0,152	-0,235	0,037
4:BTW	0,045	0,035	1,289	0,198	-0,023	0,113
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Stepwise analysis of covariance on regional RGVA resilience performance by urban-rural typology
Intermediate regions - Growth trajectory retention (8 year recovery period)

Summary of the variables selection Ret_Tra_8:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	CRISIS	CRISIS	IN	0,000	0,133	0,129	182,334	-5307,729	-5289,772	0,878
2	NAT / CRISIS	NAT	IN	0,000	0,209	0,192	131,243	-5346,207	-5278,869	0,828
3	Gov_debt / NAT / CRISIS	Gov_debt	IN	0,000	0,251	0,233	93,236	-5379,826	-5307,998	0,787
4	Pub_GVA / Gov_debt / NAT / CRISIS	Pub_GVA	IN	0,000	0,269	0,251	77,202	-5394,535	-5318,219	0,769
5	Pub_GVA / Gov_debt / Clu / NAT / CRISIS	Clu	IN	0,000	0,283	0,264	65,911	-5405,126	-5324,321	0,757
6	Pub_GVA / Gov_debt / SHDI / Clu / NAT / CRISIS	SHDI	IN	0,000	0,291	0,271	60,451	-5410,301	-5325,006	0,751
7	Pub_GVA / HHI / Gov_debt / SHDI / Clu / NAT / CRISIS	HHI	IN	0,000	0,296	0,276	57,233	-5413,366	-5323,582	0,748
8	Pub_GVA / HHI / Gov_debt / SHDI / Clu / NAT / CRISIS / Shock	Shock	IN	0,000	0,304	0,281	54,092	-5416,362	-5317,599	0,744
9	Agri_GVA / Pub_GVA / HHI / Gov_debt / SHDI / Clu / NAT / CRISIS / Shock	Agri_GVA	IN	0,000	0,312	0,289	47,968	-5422,413	-5319,161	0,737

Stepwise analysis of covariance on regional RGVA resilience performance by urban-rural typolo
Intermediate regions - Growth trajectory retention (8 year recovery period)

Goodness of fit statistics (Ret_Tra_8):

Observations	658
Sum of weights	658
DF	635
R^2	0,312
Adjusted R^2	0,289
MSE	0,000
RMSE	0,016
MAPE	327,746
DW	1,772
Cp	47,968
AIC	-5422,413
SBC	-5319,161
PC	0,737
Press	0,182
Q^2	0,225

Analysis of variance (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	22	0,073	0,003	13,112	**<0,0001**
Error	635	0,162	0,000		
Corrected ′	657	0,235			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance by urban-rural typology
Intermediate regions - Growth trajectory retention (8 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	1,000	0,004	0,004	15,120	0,000
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,006	0,006	22,158	0,000
HHI	1,000	0,005	0,005	19,082	0,000
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,005	0,005	18,055	0,000
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	1,000	0,014	0,014	53,639	0,000
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,004	0,004	16,898	0,000
NAT	11,000	0,022	0,002	7,677	0,000
CRISIS	3,000	0,012	0,004	16,193	0,000
Shock	2,000	0,003	0,001	5,239	0,006

Type II Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	1,000	0,002	0,002	7,817	0,005
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,008	0,008	30,230	0,000
HHI	1,000	0,003	0,003	13,516	0,000
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,011	0,011	42,649	0,000
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	1,000	0,002	0,002	5,931	0,015
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,002	0,002	9,527	0,002
NAT	11,000	0,018	0,002	6,587	0,000
CRISIS	3,000	0,014	0,005	18,105	0,000
Shock	2,000	0,003	0,001	5,239	0,006

Type III Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	1,000	0,002	0,002	7,817	0,005
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,008	0,008	30,230	0,000
HHI	1,000	0,003	0,003	13,516	0,000
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,011	0,011	42,649	0,000
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	1,000	0,002	0,002	5,931	0,015
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,002	0,002	9,527	0,002
NAT	11,000	0,018	0,002	6,587	0,000
CRISIS	3,000	0,014	0,005	18,105	0,000
Shock	2,000	0,003	0,001	5,239	0,006

Stepwise analysis of covariance on regional RGVA resilience performance by urban-rural typology
Intermediate regions - Growth trajectory retention (8 year recovery period)

Model parameters (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,092	0,058	-1,577	0,115	-0,207	0,023
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	-0,119	0,049	-2,419	**0,016**	-0,215	-0,022
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,058	0,016	3,651	**0,000**	0,027	0,090
HHI	-0,093	0,042	-2,249	**0,025**	-0,175	-0,012
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	-0,003	0,001	-3,487	**0,001**	-0,005	-0,001
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,098	0,067	1,472	0,142	-0,033	0,228
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	-0,001	0,000	-3,330	**0,001**	-0,002	0,000
AT	-0,014	0,003	-4,507	**<0,0001**	-0,020	-0,008
BE	-0,006	0,005	-1,173	0,241	-0,016	0,004
DE	0,005	0,003	1,476	0,141	-0,002	0,011
DK	0,001	0,004	0,300	0,764	-0,007	0,010
EL	0,000	0,000				
ES	0,013	0,004	2,931	**0,003**	0,004	0,021
FI	0,008	0,012	0,713	0,476	-0,014	0,031
FR	-0,008	0,003	-2,322	**0,021**	-0,015	-0,001
IT	-0,012	0,006	-2,132	**0,033**	-0,023	-0,001
NL	-0,004	0,006	-0,588	0,557	-0,016	0,009
PT	-0,016	0,012	-1,389	0,165	-0,039	0,007
SE	0,017	0,005	3,312	**0,001**	0,007	0,027
UK	0,008	0,003	2,890	**0,004**	0,002	0,013
1: 90-93	0,003	0,003	1,121	0,263	-0,002	0,009
2: 00-03	-0,007	0,002	-2,803	**0,005**	-0,011	-0,002
3: 08-09	0,006	0,004	1,686	0,092	-0,001	0,013
4:BTW	-0,003	0,004	-0,677	0,499	-0,011	0,005
LIS	-0,001	0,003	-0,214	0,831	-0,006	0,005
NED	-0,004	0,002	-1,991	**0,047**	-0,008	0,000
NIS	0,004	0,002	1,950	0,052	0,000	0,009

Standardized coefficients (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	-0,127	0,053	-2,419	**0,016**	-0,230	-0,024
Manu_GV.	0,000	0,000				
Const_GV.	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,214	0,059	3,651	**0,000**	0,099	0,329
HHI	-0,153	0,068	-2,249	**0,025**	-0,286	-0,019
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	-0,417	0,120	-3,487	**0,001**	-0,652	-0,182
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,264	0,179	1,472	0,142	-0,088	0,615
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	-0,127	0,038	-3,330	**0,001**	-0,202	-0,052
AT	-0,191	0,042	-4,507	**<0,0001**	-0,274	-0,108
BE	-0,097	0,083	-1,173	0,241	-0,261	0,066
DE	0,154	0,105	1,476	0,141	-0,051	0,360
DK	0,018	0,060	0,300	0,764	-0,100	0,137
EL	0,000	0,000				
ES	0,236	0,080	2,931	**0,003**	0,078	0,393
FI	0,119	0,167	0,713	0,476	-0,209	0,447
FR	-0,154	0,066	-2,322	**0,021**	-0,285	-0,024
IT	-0,256	0,120	-2,132	**0,033**	-0,492	-0,020
NL	-0,061	0,104	-0,588	0,557	-0,267	0,144
PT	-0,241	0,174	-1,389	0,165	-0,582	0,100
SE	0,284	0,086	3,312	**0,001**	0,115	0,452
UK	0,098	0,034	2,890	**0,004**	0,032	0,165
1: 90-93	0,102	0,091	1,121	0,263	-0,077	0,282
2: 00-03	-0,191	0,068	-2,803	**0,005**	-0,325	-0,057
3: 08-09	0,174	0,103	1,686	0,092	-0,029	0,376
4:BTW	-0,038	0,056	-0,677	0,499	-0,147	0,072
LIS	-0,013	0,063	-0,214	0,831	-0,137	0,110
NED	-0,121	0,061	-1,991	**0,047**	-0,240	-0,002
NIS	0,065	0,033	1,950	0,052	0,000	0,130

III.d.i.3. Rural regions

Stepwise analysis of covariance on regional RGVA resilience performance by urban-rural typology
Rural regions

Settings:
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Model selection: Stepwise
Probability for entry: 0,05 / Probability for removal: 0,1
Covariances: Corrections = Newey West (adjusted)(Lag = 1)
Use least squares means: Yes
Explanation of the variable codes can be found in table 28

Summary statistics (Quantitative data):

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Rec_DL	513	0	513	-0,590	0,213	-0,079	0,104
Ret_Tra_4	513	0	513	-0,125	0,067	-0,012	0,023
Ret_Tra_8	513	127	386	-0,091	0,034	-0,012	0,018
Pop_age	513	0	513	0,441	2,604	1,207	0,378
Mig_net	513	0	513	-15,122	52,407	2,468	6,549
Pop_work	513	0	513	0,265	0,667	0,466	0,053
Agri_GVA	513	0	513	0,000	0,149	0,040	0,025
Manu_GVA	513	0	513	0,039	0,562	0,213	0,086
Const_GVA	513	0	513	0,018	0,352	0,087	0,033
Serv_GVA	513	0	513	0,187	0,702	0,411	0,062
Pub_GVA	513	0	513	0,074	0,567	0,250	0,062
HHI	513	0	513	0,176	0,377	0,220	0,024
GDP_PC	513	0	513	-1,199	1,692	-0,299	0,399
GFCF_PC	513	0	513	-1,759	2,328	-0,105	0,718
PROD	513	0	513	-2,654	2,834	-0,069	0,919
RnD_GDP	513	0	513	0,110	8,410	1,721	1,345
RnD_EMP	513	0	513	0,000	4,938	1,244	0,825
MM_Ac	513	0	513	24,795	172,543	87,325	28,734
Avg_bus	513	0	513	1,349	18,605	7,939	5,343
Gov_debt	513	0	513	-11,100	6,700	-4,278	2,589
Cur_blc	513	0	513	-13,900	8,200	0,403	3,737
Gov_close	513	0	513	0,370	31,490	6,196	4,481
Lab_comp	513	0	513	410,956	133021,48	21791,931	18004,349
Union	513	0	513	7,794	80,777	26,740	16,098
ML_barg	513	0	513	1,000	4,750	2,699	0,687
SHDI	513	0	513	0,701	0,931	0,842	0,050
SC_Org	513	0	513	0,038	0,286	0,118	0,046
EoC	513	0	513	46,900	100,000	68,321	15,534
Clu	513	0	513	0,000	82,000	2,702	3,793

Number of removed observations: 97

Summary statistics (Qualitative data):

Variable	Categories	Counts	Frequencies	%
NAT	AT	26	26	5,068
	BE	24	24	4,678
	DE	188	188	36,647
	DK	8	8	1,559
	EL	13	13	2,534
	ES	14	14	2,729
	FI	13	13	2,534
	FR	119	119	23,197
	IE	2	2	0,390
	IT	37	37	7,212
	NL	1	1	0,195
	PT	36	36	7,018
	SE	6	6	1,170
	UK	26	26	5,068
CRISIS	1: 90-93	151	151	29,435
	2: 00-03	141	141	27,485
	3: 08-09	168	168	32,749
	4:BTW	53	53	10,331
Shock	LIS	64	64	12,476
	NED	376	376	73,294
	NIS	73	73	14,230

Stepwise analysis of covariance on regional RGVA resilience performance by urban-rural typology
Rural regions

Correlation matrix:

	Pop_age	Mig_net	Pop_work	Agri_GVA	Manu_GVA	Const_GVA	Serv_GVA	Pub_GVA	HHI	GDP_PC	GFCF_PC	PROD	RnD_GDP	RnD_EMP	MM_Ac	Avg_bus	Gov_debt	Cur_blc	Gov_close	Lab_comp	Union	ML_barg	SHDI	SC_Org	EoC	Cla	AT	BE	DE	DK	EL	ES	FI	FR	IE	IT	NL	PT	SE	UK	1: 90-93	2: 00-03	3: 08-09	4:BTW	LIS	NED	NIS	Rec_DL	Ret_Tra_4	Ret_Tra_8
Pop_age	**1**	-0.281	0.220	0.102	-0.058	-0.162	-0.010	0.135	-0.047	-0.189	-0.325	-0.304	0.010	0.009	-0.174	0.058	-0.063	0.008	-0.156	0.133	-0.192	-0.156	0.246	-0.047	-0.014	-0.130	0.011	-0.090	0.159	0.024	0.141	0.059	0.001	-0.077	0.042	0.160	0.067	0.129	0.053	-0.074	-0.235	-0.078	0.215	0.045	-0.115	0.025	0.039	0.017	0.063	0.161
Mig_net	-0.281	**1**	-0.184	-0.108	-0.039	0.074	0.122	-0.065	0.089	0.170	0.216	0.254	0.012	0.028	0.171	0.055	0.036	-0.244	-0.106	0.053	0.056	0.011	-0.094	0.056	0.046	-0.019	-0.111	0.061	-0.010	-0.090	-0.075	-0.004	-0.123	0.019	-0.073	-0.092	-0.077	-0.159	-0.072	0.075	0.140	-0.039	-0.144	0.022	0.001	-0.083	0.057	0.023	-0.074	-0.050
Pop_work	0.220	-0.184	**1**	-0.137	0.231	-0.106	-0.191	-0.016	0.077	0.096	0.207	-0.148	0.189	0.193	0.020	0.411	0.379	0.160	0.197	0.088	0.140	-0.320	0.420	0.242	0.528	0.109	-0.086	-0.335	0.180	-0.156	-0.262	-0.322	-0.180	-0.464	-0.257	-0.380	-0.268	-0.019	-0.198	0.267	-0.245	0.159	0.208	-0.062	-0.072	-0.009	0.042	0.078	-0.018	-0.009
Agri_GVA	0.102	-0.108	-0.137	**1**	-0.280	0.183	-0.120	0.005	-0.444	-0.325	-0.289	-0.362	-0.224	-0.241	-0.487	-0.354	-0.150	-0.336	-0.167	-0.125	0.035	0.125	-0.444	-0.372	-0.285	-0.045	-0.082	-0.129	-0.306	-0.088	0.106	0.060	-0.024	-0.036	-0.072	0.052	-0.054	0.197	-0.058	0.064	0.071	-0.160	-0.211	0.150	-0.027	-0.190	0.145	-0.202	-0.052	-0.197
Manu_GVA	-0.058	-0.039	0.231	-0.280	**1**	-0.285	-0.525	-0.595	0.208	0.391	0.198	0.131	0.204	0.196	0.288	0.446	0.188	0.084	0.022	0.112	0.057	-0.063	0.251	0.344	0.264	0.149	0.108	-0.037	0.374	0.079	0.117	-0.008	0.084	-0.170	0.116	0.015	0.128	0.038	0.090	-0.103	-0.006	0.110	0.003	-0.052	0.025	0.026	-0.031	-0.006	-0.032	-0.091
Const_GVA	-0.162	0.074	-0.106	0.183	-0.285	**1**	-0.161	-0.050	-0.368	-0.268	-0.118	-0.250	-0.118	-0.213	-0.281	-0.145	-0.080	-0.223	-0.131	-0.162	-0.087	-0.010	-0.458	-0.192	-0.055	-0.064	0.015	-0.165	-0.182	-0.124	-0.183	0.109	-0.143	-0.044	-0.108	-0.057	-0.108	0.115	-0.102	0.103	0.145	-0.059	-0.209	0.063	0.100	-0.193	0.085	-0.075	-0.014	-0.086
Serv_GVA	-0.010	0.122	-0.191	-0.120	-0.525	-0.161	**1**	-0.143	0.029	0.111	0.107	0.209	-0.042	0.011	0.112	-0.215	-0.221	0.076	-0.005	0.101	-0.119	0.081	0.086	-0.073	-0.196	-0.077	0.119	0.142	-0.111	0.067	0.075	0.084	0.039	0.213	0.080	0.192	0.072	-0.140	0.055	-0.086	0.018	-0.050	0.108	-0.039	-0.025	0.112	-0.065	0.014	0.041	0.202
Pub_GVA	0.135	-0.065	-0.016	0.005	-0.595	-0.050	-0.143	**1**	0.060	-0.381	-0.202	-0.112	-0.088	-0.071	-0.166	-0.182	0.065	0.063	0.113	-0.119	0.073	-0.040	-0.011	-0.151	-0.024	-0.077	-0.245	0.049	-0.186	-0.076	-0.184	-0.157	-0.070	0.059	-0.155	-0.205	-0.172	-0.053	-0.104	0.150	-0.117	-0.005	0.085	0.017	-0.053	0.031	0.005	0.117	0.031	0.056
HHI	-0.047	0.089	0.077	-0.444	0.208	-0.368	0.029	0.060	**1**	0.318	0.130	0.170	0.050	0.090	0.175	0.205	0.129	0.106	0.012	-0.033	0.153	0.022	0.227	0.226	0.148	0.107	-0.002	0.134	0.159	0.034	0.146	-0.018	0.029	-0.161	0.022	-0.046	0.047	-0.121	0.020	-0.021	-0.200	-0.108	-0.040	0.171	0.048	-0.002	-0.023	-0.200	-0.080	0.092
GDP_PC	-0.189	0.170	0.096	-0.325	0.391	-0.268	0.111	-0.381	0.318	**1**	0.535	0.455	0.129	0.156	0.285	0.272	0.106	0.205	0.190	0.157	0.107	-0.066	0.285	0.327	0.227	0.164	0.062	-0.091	0.139	0.016	-0.048	-0.089	0.012	-0.062	-0.006	0.078	0.003	-0.277	0.019	0.018	0.067	-0.052	0.076	-0.046	0.005	0.051	-0.038	0.021	0.010	0.114
GFCF_PC	-0.325	0.216	0.207	-0.289	0.198	-0.118	0.107	-0.202	0.130	0.535	**1**	0.715	0.452	0.497	0.371	0.309	0.242	0.303	0.334	0.273	0.170	-0.154	0.396	0.404	0.389	0.200	0.074	-0.116	0.091	-0.034	-0.218	-0.180	-0.053	-0.105	-0.083	-0.060	-0.126	-0.469	-0.083	0.130	-0.018	0.021	0.065	-0.034	0.030	0.021	-0.029	0.200	0.119	0.193
PROD	-0.304	0.254	-0.148	-0.362	0.131	-0.250	0.209	-0.112	0.170	0.455	0.715	**1**	0.430	0.457	0.619	0.316	0.057	0.451	0.264	0.365	0.028	-0.075	0.424	0.457	0.280	0.067	0.039	0.130	0.239	0.080	-0.128	-0.058	0.034	0.143	0.030	0.010	0.039	-0.460	0.048	-0.036	0.113	0.033	0.157	-0.151	0.039	0.154	-0.126	0.318	0.161	0.269
RnD_GDP	0.010	0.012	0.189	-0.224	0.204	-0.118	-0.042	-0.088	0.050	0.129	0.452	0.430	**1**	0.895	0.296	0.373	0.171	0.283	0.205	0.451	-0.030	-0.141	0.358	0.348	0.270	-0.007	0.059	-0.074	0.242	0.051	-0.074	-0.054	0.098	0.012	0.015	-0.099	0.021	-0.120	0.004	-0.025	0.068	0.089	0.204	-0.180	0.019	0.070	-0.058	0.196	0.105	0.135
RnD_EMP	0.009	0.028	0.193	-0.241	0.196	-0.213	0.011	-0.071	0.090	0.156	0.497	0.457	0.895	**1**	0.293	0.321	0.206	0.266	0.314	0.490	0.032	-0.129	0.472	0.375	0.232	0.040	0.134	-0.026	0.220	0.168	0.021	0.008	0.161	0.020	0.081	-0.042	0.076	-0.109	0.062	-0.085	-0.034	0.102	0.271	-0.170	0.003	0.120	-0.085	0.165	0.092	0.120
MM_Ac	-0.174	0.171	0.020	-0.487	0.288	-0.281	0.112	-0.166	0.175	0.285	0.371	0.619	0.296	0.293	**1**	0.540	0.048	0.412	0.004	0.262	-0.049	-0.068	0.426	0.445	0.329	-0.037	0.122	0.298	0.541	0.118	-0.023	-0.032	0.005	0.012	0.126	0.027	0.162	-0.215	0.098	-0.157	0.099	0.100	0.208	-0.203	0.033	0.154	-0.123	0.351	0.140	0.247
Avg_bus	0.058	0.055	0.411	-0.354	0.446	-0.145	-0.215	-0.182	0.205	0.272	0.309	0.316	0.373	0.321	0.540	**1**	0.373	0.323	-0.004	0.138	0.031	-0.311	0.486	0.683	0.778	0.054	-0.040	-0.108	0.775	-0.033	-0.111	-0.087	-0.072	-0.426	-0.027	-0.182	-0.022	-0.186	-0.045	0.018	0.020	0.103	0.075	-0.098	0.101	0.053	-0.086	0.257	0.113	0.229
Gov_debt	-0.063	0.036	0.379	-0.150	0.188	-0.080	-0.221	0.065	0.129	0.106	0.242	0.057	0.171	0.206	0.048	0.373	**1**	0.351	0.422	-0.098	0.350	-0.153	0.307	0.530	0.555	0.200	-0.092	-0.182	0.211	-0.037	-0.173	-0.066	0.144	-0.328	-0.086	-0.284	-0.122	-0.176	-0.001	0.122	-0.162	0.313	-0.102	-0.020	-0.004	-0.245	0.172	0.079	-0.011	-0.051
Cur_blc	0.008	-0.244	0.160	-0.336	0.084	-0.223	0.076	0.063	0.106	0.205	0.303	0.451	0.283	0.266	0.412	0.323	0.351	**1**	0.444	0.082	0.086	0.064	0.508	0.576	0.315	0.106	0.213	0.207	0.363	0.223	-0.051	0.061	0.306	0.084	0.195	0.018	0.207	-0.169	0.248	-0.203	-0.001	0.138	0.325	-0.231	-0.013	0.152	-0.099	0.302	0.107	0.207
Gov_close	-0.156	-0.106	0.197	-0.167	0.022	-0.131	-0.005	0.113	0.012	0.190	0.334	0.264	0.205	0.314	0.004	-0.004	0.422	0.444	**1**	-0.034	0.524	0.041	0.287	0.460	0.178	0.124	0.220	0.042	-0.008	0.470	-0.004	0.033	0.383	0.041	0.118	0.013	0.137	-0.051	0.277	-0.145	-0.056	0.203	0.152	-0.147	0.006	0.066	-0.049	0.124	0.000	0.032
Lab_comp	0.133	0.053	0.088	-0.125	0.112	-0.162	0.101	-0.119	-0.033	0.157	0.273	0.365	0.451	0.490	0.262	0.138	-0.098	0.082	-0.034	**1**	-0.282	-0.117	0.326	0.098	-0.034	-0.132	0.022	-0.031	0.193	0.106	0.025	0.068	0.064	0.220	0.127	0.207	0.132	0.006	0.094	-0.144	-0.003	0.135	0.263	-0.197	-0.090	0.069	-0.003	0.172	0.051	0.080
Union	-0.192	0.056	0.140	0.035	0.057	-0.087	-0.119	0.073	0.153	0.107	0.170	0.028	-0.030	0.032	-0.049	0.031	0.350	0.086	0.524	-0.282	**1**	0.413	-0.053	0.179	0.221	0.210	-0.022	0.197	-0.111	0.086	-0.058	-0.137	0.191	-0.565	-0.081	0.064	-0.092	-0.037	0.057	0.093	0.012	-0.003	-0.137	0.065	0.081	-0.017	-0.028	-0.110	-0.077	-0.138
ML_barg	-0.156	0.011	-0.320	0.125	-0.063	-0.010	0.081	-0.040	0.022	-0.066	-0.154	-0.075	-0.141	-0.129	-0.068	-0.311	-0.153	0.064	0.041	-0.117	0.413	**1**	-0.363	-0.118	-0.471	0.130	0.289	0.660	-0.033	0.385	0.386	0.391	0.556	0.127	0.506	0.480	0.467	0.463	0.409	-0.475	0.292	0.056	-0.091	-0.125	0.089	0.100	-0.113	-0.097	-0.049	-0.184
SHDI	0.246	-0.094	0.420	-0.444	0.251	-0.458	0.086	-0.011	0.227	0.285	0.396	0.424	0.358	0.472	0.426	0.486	0.307	0.508	0.287	0.326	-0.053	-0.363	**1**	0.569	0.430	0.093	0.119	0.026	0.436	0.135	0.057	-0.052	0.105	-0.063	0.092	-0.053	0.082	-0.291	0.123	-0.090	-0.470	0.151	0.471	-0.080	-0.089	0.162	-0.068	0.195	0.109	0.258
SC_Org	-0.047	0.056	0.242	-0.372	0.344	-0.192	-0.073	-0.151	0.226	0.327	0.404	0.457	0.348	0.375	0.445	0.683	0.530	0.576	0.460	0.098	0.179	-0.118	0.569	**1**	0.579	0.108	0.284	0.103	0.712	0.311	0.170	0.242	0.435	-0.091	0.281	-0.036	0.314	-0.128	0.356	-0.312	-0.065	0.177	0.109	-0.109	0.089	0.088	-0.105	0.270	0.152	0.275
EoC	-0.014	0.046	0.528	-0.285	0.264	-0.055	-0.196	-0.024	0.148	0.227	0.389	0.280	0.270	0.232	0.329	0.778	0.555	0.315	0.178	-0.034	0.221	-0.471	0.430	0.579	**1**	0.156	-0.320	-0.447	0.386	-0.359	-0.504	-0.369	-0.337	-0.660	-0.431	-0.522	-0.469	-0.537	-0.391	0.472	-0.061	0.062	0.006	-0.003	0.053	-0.009	-0.020	0.193	0.090	0.209
Cla	-0.130	-0.019	0.109	-0.045	0.149	-0.064	-0.077	-0.077	0.107	0.164	0.200	0.067	-0.007	0.040	-0.037	0.054	0.200	0.106	0.124	-0.132	0.210	0.130	0.093	0.108	0.156	**1**	0.064	0.030	0.002	0.042	0.008	-0.041	0.039	-0.127	0.176	-0.086	0.023	-0.002	0.076	-0.004	-0.045	0.067	-0.009	-0.006	0.013	0.019	-0.020	-0.149	0.130	0.006
AT	0.011	-0.111	-0.086	-0.082	0.108	0.015	0.119	-0.245	-0.002	0.062	0.074	0.039	0.099	0.134	0.122	-0.040	-0.092	0.213	0.220	0.022	-0.022	0.289	0.119	0.284	-0.320	0.064	**1**	0.510	0.283	0.624	0.580	0.572	0.580	0.319	0.695	0.455	0.710	0.459	0.645	-0.726	-0.051	0.093	0.198	-0.121	-0.071	0.000	0.035	0.047	0.028	0.019
BE	-0.090	0.061	-0.335	-0.129	-0.037	-0.165	0.142	0.049	0.134	-0.091	-0.116	0.130	-0.074	-0.026	0.298	-0.108	-0.182	0.207	0.042	-0.031	0.197	0.660	0.026	0.103	-0.447	0.030	0.510	**1**	0.295	0.635	0.590	0.582	0.590	0.329	0.707	0.465	0.722	0.468	0.656	-0.737	0.066	0.078	0.136	-0.139	0.060	0.131	-0.120	0.054	0.043	0.004
DE	0.159	-0.010	0.180	-0.306	0.374	-0.182	-0.111	-0.186	0.159	0.139	0.091	0.239	0.242	0.220	0.541	0.775	0.211	0.363	-0.008	0.193	-0.111	-0.033	0.436	0.712	0.386	0.002	0.283	0.295	**1**	0.430	0.379	0.370	0.379	-0.023	0.508	0.223	0.523	0.228	0.453	-0.540	0.012	0.159	0.099	-0.133	0.126	0.125	-0.149	0.276	0.145	0.225
DK	0.024	-0.090	-0.156	-0.088	0.079	-0.124	0.067	-0.076	0.034	0.016	-0.034	0.080	0.051	0.168	0.118	-0.033	-0.037	0.223	0.470	0.106	0.086	0.385	0.135	0.311	-0.359	0.042	0.624	0.635	0.430	**1**	0.711	0.703	0.711	0.448	0.840	0.577	0.857	0.580	0.784	-0.874	0.006	0.169	0.137	-0.154	0.055	0.133	-0.119	0.061	0.017	-0.006
EL	0.141	-0.075	-0.262	0.106	0.117	-0.183	0.075	-0.184	0.146	-0.048	-0.218	-0.128	-0.074	0.021	-0.023	-0.111	-0.173	-0.051	-0.004	0.025	-0.058	0.386	0.057	0.170	-0.504	0.008	0.580	0.590	0.379	0.711	**1**	0.656	0.664	0.403	0.788	0.533	0.803	0.537	0.734	-0.820	-0.148	-0.033	-0.070	0.125	0.038	0.095	-0.084	-0.156	0.047	
ES	0.059	-0.004	-0.322	0.060	-0.008	0.109	0.084	-0.157	-0.018	-0.089	-0.180	-0.058	-0.054	0.008	-0.032	-0.087	-0.066	0.061	0.033	0.008	-0.137	0.391	-0.052	0.242	-0.369	-0.041	0.572	0.582	0.370	0.703	0.656	**1**	0.656	0.395	0.779	0.526	0.794	0.529	0.725	-0.811	0.027	0.084	0.019	-0.064	0.065	0.020	-0.046	0.019	0.041	0.020
FI	0.001	-0.123	-0.180	-0.024	0.084	-0.143	0.039	-0.070	0.029	0.012	-0.053	0.034	0.098	0.161	0.005	-0.072	0.144	0.306	0.383	0.064	0.191	0.556	0.105	0.435	-0.337	0.039	0.580	0.590	0.379	0.711	0.664	0.656	**1**	0.403	0.788	0.533	0.803	0.537	0.734	-0.820	-0.030	0.183	0.068	-0.109	0.093	0.085	-0.105	0.053	0.043	0.008
FR	-0.077	0.019	-0.464	-0.036	-0.170	-0.044	0.213	0.059	-0.161	-0.062	-0.105	0.143	0.012	0.020	0.012	-0.426	-0.328	0.084	0.041	0.220	-0.565	0.127	-0.063	-0.091	-0.660	-0.127	0.319	0.329	-0.023	0.448	0.403	0.395	0.403	**1**	0.517	0.268	0.531	0.272	0.468	-0.546	0.144	0.126	0.159	-0.213	-0.018	0.113	-0.070	0.136	0.072	0.055
IE	0.042	-0.073	-0.257	-0.072	0.116	-0.108	0.080	-0.155	0.022	-0.006	-0.083	0.030	0.015	0.081	0.126	-0.027	-0.086	0.195	0.118	0.127	-0.081	0.506	0.092	0.281	-0.431	0.176	0.695	0.707	0.508	0.840	0.788	0.779	0.788	0.517	**1**	0.646	0.943	0.649	0.865	-0.962	0.022	0.175	0.116	-0.154	0.059	0.119	-0.112	0.052	0.074	-0.016
IT	0.160	-0.092	-0.380	0.052	0.015	-0.057	0.192	-0.205	-0.046	0.078	-0.060	0.010	-0.099	-0.042	0.027	-0.182	-0.284	0.018	0.013	0.207	0.064	0.480	-0.053	-0.036	-0.522	-0.086	0.455	0.465	0.223	0.577	0.533	0.526	0.533	0.268	0.646	**1**	0.660	0.414	0.597	-0.675	0.018	0.011	0.050	-0.039	0.056	0.042	-0.057	-0.016	-0.016	-0.016
NL	0.067	-0.077	-0.268	-0.054	0.128	-0.108	0.072	-0.172	0.047	0.003	-0.126	0.039	0.021	0.076	0.162	-0.022	-0.122	0.207	0.137	0.132	-0.092	0.467	0.082	0.314	-0.469	0.023	0.710	0.722	0.523	0.857	0.803	0.794	0.803	0.531	0.943	0.660	**1**	0.664	0.882	-0.980	0.011	0.137	0.107	-0.126	0.077	0.105	-0.111	0.048	0.029	0.006
PT	0.129	-0.159	-0.019	0.197	0.038	0.115	-0.140	-0.053	-0.121	-0.277	-0.469	-0.460	-0.120	-0.109	-0.215	-0.186	-0.176	-0.169	-0.051	0.006	-0.037	0.463	-0.291	-0.128	-0.537	-0.002	0.459	0.468	0.228	0.580	0.537	0.529	0.537	0.272	0.649	0.414	0.664	**1**	0.601	-0.679	0.085	0.145	0.034	-0.130	0.002	0.008	-0.007	-0.065	-0.090	-0.274
SE	0.053	-0.072	-0.198	-0.058	0.090	-0.102	0.055	-0.104	0.020	0.019	-0.083	0.048	0.004	0.062	0.098	-0.045	-0.001	0.248	0.277	0.094	0.057	0.409	0.123	0.356	-0.391	0.076	0.645	0.656	0.453	0.784	0.734	0.725	0.734	0.468	0.865	0.597	0.882	0.601	**1**	-0.900	0.011	0.180	0.121	-0.154	0.041	0.107	-0.094	0.103	0.076	0.028
UK	-0.074	0.075	0.267	0.064	-0.103	0.103	-0.086	0.150	-0.021	0.018	0.130	-0.036	-0.025	-0.085	-0.157	0.018	0.122	-0.203	-0.145	-0.144	0.093	-0.475	-0.090	-0.312	0.472	-0.004	-0.726	-0.737	-0.540	-0.874	-0.820	-0.811	-0.820	-0.546	-0.962	-0.675	-0.980	-0.679	-0.900	**1**	-0.029	-0.157	-0.127	0.155	-0.061	-0.115	0.109	-0.087	-0.060	-0.023
1: 90-93	-0.235	0.140	-0.245	0.071	-0.006	0.145	0.018	-0.117	-0.200	0.067	-0.018	0.113	0.068	-0.034	0.099	0.020	-0.162	-0.001	-0.056	-0.003	0.012	0.292	-0.470	-0.065	-0.061	-0.045	-0.051	0.066	0.012	0.006	-0.148	0.027	-0.030	0.144	0.022	0.018	0.011	0.085	0.011	-0.029	**1**	0.199	0.163	-0.673	0.105	0.206	-0.194	0.153	0.033	-0.002
2: 00-03	-0.078	-0.039	0.159	-0.160	0.110	-0.059	-0.050	-0.005	-0.108	-0.052	0.021	0.033	0.089	0.102	0.100	0.103	0.313	0.138	0.203	0.135	-0.003	0.056	0.151	0.177	0.062	0.067	0.093	0.078	0.159	0.169	-0.033	0.084	0.183	0.126	0.175	0.011	0.137	0.145	0.180	-0.157	0.199	**1**	0.178	-0.673	-0.150	-0.009	0.080	0.047	-0.159	-0.216
3: 08-09	0.215	-0.144	0.208	-0.211	0.003	-0.209	0.108	0.085	-0.040	0.076	0.065	0.157	0.204	0.271	0.208	0.075	-0.102	0.325	0.152	0.263	-0.137	-0.091	0.471	0.109	0.006	-0.009	0.198	0.136	0.099	0.137	-0.070	0.019	0.068	0.159	0.116	0.050	0.107	0.034	0.121	-0.127	0.163	0.178	**1**	-0.674	-0.055	0.318	-0.193	0.196	0.083	0.180
4:BTW	0.045	0.022	-0.062	0.150	-0.052	0.063	-0.039	0.017	0.171	-0.046	-0.034	-0.151	-0.180	-0.170	-0.203	-0.098	-0.020	-0.231	-0.147	-0.197	0.065	-0.125	-0.080	-0.109	-0.003	-0.006	-0.121	-0.139	-0.133	-0.154	0.125	-0.064	-0.109	-0.213	-0.154	-0.039	-0.126	-0.130	-0.154	0.155	-0.673	-0.673	-0.674	**1**	0.049	-0.259	0.155	-0.198	0.019	0.039
LIS	-0.115	0.001	-0.072	-0.027	0.025	0.100	-0.025	-0.053	0.048	0.005	0.030	0.039	0.019	0.003	0.033	0.101	-0.004	-0.013	0.006	-0.090	0.081	0.089	-0.089	0.089	0.053	0.013	-0.071	0.060	0.126	0.055	0.038	0.065	0.093	-0.018	0.059	0.056	0.077	0.002	0.041	-0.061	0.105	-0.150	-0.055	0.049	**1**	0.408	-0.775	0.011	0.116	0.112
NED	0.025	-0.083	-0.009	-0.190	0.026	-0.193	0.112	0.031	-0.002	0.051	0.021	0.154	0.070	0.120	0.154	0.053	-0.245	0.152	0.066	0.069	-0.017	0.100	0.162	0.088	-0.009	0.019	0.000	0.131	0.125	0.133	0.095	0.020	0.085	0.113	0.139	0.042	0.105	0.008	0.107	-0.115	0.206	-0.009	0.318	-0.259	0.408	**1**	-0.893	0.216	0.143	0.204
NIS	0.039	0.057	0.042	0.145	-0.031	0.085	-0.065	0.005	-0.023	-0.038	-0.029	-0.126	-0.058	-0.085	-0.123	-0.086	0.172	-0.099	-0.049	-0.003	-0.028	-0.113	-0.068	-0.105	-0.020	-0.020	0.035	-0.120	-0.149	-0.119	-0.084	-0.046	-0.105	-0.070	-0.112	-0.057	-0.111	-0.007	-0.094	0.109	-0.194	0.080	-0.193	0.155	-0.775	-0.893	**1**	-0.155	-0.156	-0.196
Rec_DL	0.017	0.023	0.078	-0.202	-0.006	-0.075	0.014	0.117	-0.200	0.021	0.200	0.108	0.196	0.165	0.351	0.257	0.079	0.302	0.124	0.172	-0.110	-0.097	0.195	0.270	0.193	-0.149	0.047	0.054	0.276	0.061	-0.156	0.019	0.053	0.136	0.052	-0.016	0.048	-0.065	0.103	-0.087	0.153	0.047	0.196	-0.198	0.011	0.216	-0.155	**1**	0.503	0.566
Ret_Tra_4	0.063	-0.074	-0.018	-0.052	-0.032	-0.014	0.041	0.031	-0.080	0.010	0.119	0.161	0.105	0.092	0.140	0.113	-0.011	0.107	0.000	0.051	-0.077	-0.049	0.109	0.152	0.090	0.130	0.028	0.043	0.145	0.017	0.047	0.041	0.043	0.072	0.074	-0.016	0.029	-0.090	0.076	-0.060	0.033	-0.159	0.083	0.019	0.116	0.143	-0.156	0.503	**1**	0.732
Ret_Tra_8	0.161	-0.050	-0.009	-0.197	-0.091	-0.086	0.202	0.056	0.092	0.114	0.193	0.269	0.135	0.120	0.247	0.229	-0.051	0.207	0.032	0.080	-0.138	-0.184	0.258	0.275	0.209	0.006	0.019	0.004	0.225	-0.006		0.020	-0.008	0.055	-0.016	-0.016	-0.006	-0.274	0.028	-0.023	-0.002	-0.216	0.180	0.039	0.112	0.204	-0.196	0.566	0.732	**1**

Stepwise analysis of covariance on regional RGVA resilience performance by urban-rural typology
Rural regions - Recovery of development level

Summary of the variables selection Rec_DL:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	NAT	NAT	IN	0,008	0,315	0,297	100,762	-2490,337	-2430,973	0,724
2	NAT / Shock	Shock	IN	0,007	0,347	0,327	77,649	-2510,649	-2442,804	0,696
3	HHI / NAT / Shock	HHI	IN	0,007	0,368	0,347	61,652	-2525,447	-2453,362	0,676
4	HHI / NAT / CRISIS / Shock	CRISIS	IN	0,007	0,389	0,365	49,594	-2536,874	-2452,069	0,661
5	HHI / Gov_debt / NAT / CRISIS / Shock	Gov_debt	IN	0,007	0,399	0,374	42,998	-2543,383	-2454,337	0,653
6	Const_GVA / HHI / Gov_debt / NAT / CRISIS / Shock	Const_GVA	IN	0,007	0,406	0,381	38,765	-2547,641	-2454,355	0,647
7	Const_GVA / HHI / GFCF_PC / Gov_debt / NAT / CRISIS / Shock	GFCF_PC	IN	0,007	0,412	0,385	35,965	-2550,514	-2452,988	0,644
8	Const_GVA / Pub_GVA / HHI / GFCF_PC / Gov_debt / NAT / CRISIS / Shock	Pub_GVA	IN	0,007	0,421	0,394	29,726	-2556,988	-2455,221	0,635
9	Const_GVA / Pub_GVA / HHI / GFCF_PC / MM_Ac / Gov_debt / NAT / CRISIS / Shock	MM_Ac	IN	0,006	0,427	0,399	26,598	-2560,333	-2454,326	0,631
10	Const_GVA / Pub_GVA / HHI / GFCF_PC / MM_Ac / Gov_debt / Clu / NAT / CRISIS / Shock	Clu	IN	0,006	0,432	0,403	24,503	-2562,642	-2452,394	0,629

Stepwise analysis of covariance on regional RGVA resilience performance by urban-rural typology
Rural regions - Recovery of development level

Goodness of fit statistics (Rec_DL):

Observations	513
Sum of weights	513
DF	487
R^2	0,432
Adjusted R^2	0,403
MSE	0,006
RMSE	0,080
MAPE	167,777
DW	1,950
Cp	24,503
AIC	-2562,642
SBC	-2452,394
PC	0,629
Press	3,681
Q^2	0,334

Analysis of variance (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	25	2,387	0,095	14,822	**<0,0001**
Error	487	3,138	0,006		
Corrected	512	5,525			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance by urban-rural typology
Rural regions - Recovery of development level

Type I Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	1,000	0,031	0,031	4,820	0,029
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,071	0,071	10,977	0,001
HHI	1,000	0,345	0,345	53,570	0,000
GDP_PC	0,000	0,000			
GFCF_PC	1,000	0,344	0,344	53,371	0,000
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,613	0,613	95,105	0,000
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,014	0,014	2,182	0,140
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,093	0,093	14,402	0,000
NAT	13,000	0,611	0,047	7,296	0,000
CRISIS	3,000	0,111	0,037	5,741	0,001
Shock	2,000	0,155	0,077	12,025	0,000

Type II Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	1,000	0,037	0,037	5,786	0,017
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,065	0,065	10,076	0,002
HHI	1,000	0,193	0,193	30,002	0,000
GDP_PC	0,000	0,000			
GFCF_PC	1,000	0,044	0,044	6,850	0,009
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,030	0,030	4,715	0,030
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,035	0,035	5,491	0,020
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,026	0,026	4,108	0,043
NAT	13,000	0,623	0,048	7,441	0,000
CRISIS	3,000	0,145	0,048	7,505	0,000
Shock	2,000	0,155	0,077	12,025	0,000

Type III Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	1,000	0,037	0,037	5,786	0,017
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,065	0,065	10,076	0,002
HHI	1,000	0,193	0,193	30,002	0,000
GDP_PC	0,000	0,000			
GFCF_PC	1,000	0,044	0,044	6,850	0,009
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,030	0,030	4,715	0,030
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,035	0,035	5,491	0,020
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,026	0,026	4,108	0,043
NAT	13,000	0,623	0,048	7,441	0,000
CRISIS	3,000	0,145	0,048	7,505	0,000
Shock	2,000	0,155	0,077	12,025	0,000

Stepwise analysis of covariance on regional RGVA resilience performance by urban-rural typology
Rural regions - Recovery of development level

Model parameters (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,022	0,064	0,343	0,732	-0,103	0,147
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	-0,340	0,162	-2,095	**0,037**	-0,659	-0,021
Serv_GVA	0,000	0,000				
Pub_GVA	0,233	0,089	2,627	**0,009**	0,059	0,407
HHI	-0,948	0,268	-3,535	**0,000**	-1,474	-0,421
GDP_PC	0,000	0,000				
GFCF_PC	0,019	0,009	2,211	**0,027**	0,002	0,036
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,001	0,000	2,119	**0,035**	0,000	0,001
Avg_bus	0,000	0,000				
Gov_debt	0,006	0,004	1,572	0,117	-0,001	0,013
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	-0,003	0,001	-4,415	**<0,0001**	-0,004	-0,001
AT	0,062	0,018	3,517	**0,000**	0,027	0,097
BE	0,032	0,024	1,358	0,175	-0,014	0,078
DE	0,082	0,013	6,487	**<0,0001**	0,057	0,107
DK	-0,003	0,025	-0,124	0,902	-0,052	0,046
EL	-0,157	0,043	-3,615	**0,000**	-0,242	-0,072
ES	0,051	0,033	1,533	0,126	-0,014	0,117
FI	0,019	0,041	0,473	0,636	-0,061	0,099
FR	0,072	0,013	5,408	**<0,0001**	0,046	0,099
IE	-0,056	0,034	-1,675	0,094	-0,123	0,010
IT	0,030	0,021	1,445	0,149	-0,011	0,071
NL	-0,277	0,038	-7,333	**<0,0001**	-0,352	-0,203
PT	0,048	0,023	2,035	**0,042**	0,002	0,094
SE	0,100	0,043	2,332	**0,020**	0,016	0,184
UK	-0,003	0,022	-0,138	0,890	-0,047	0,040
1: 90-93	0,006	0,008	0,696	0,486	-0,010	0,022
2: 00-03	-0,032	0,008	-3,740	**0,000**	-0,048	-0,015
3: 08-09	-0,011	0,008	-1,502	0,134	-0,026	0,004
4:BTW	0,037	0,017	2,197	**0,028**	0,004	0,070
LIS	-0,019	0,013	-1,487	0,138	-0,044	0,006
NED	0,032	0,008	3,803	**0,000**	0,016	0,049
NIS	-0,013	0,011	-1,159	0,247	-0,036	0,009

Standardized coefficients (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	-0,108	0,052	-2,095	**0,037**	-0,210	-0,007
Serv_GVA	0,000	0,000				
Pub_GVA	0,139	0,053	2,627	**0,009**	0,035	0,242
HHI	-0,223	0,063	-3,535	**0,000**	-0,346	-0,099
GDP_PC	0,000	0,000				
GFCF_PC	0,130	0,059	2,211	**0,027**	0,014	0,245
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,140	0,066	2,119	**0,035**	0,010	0,271
Avg_bus	0,000	0,000				
Gov_debt	0,139	0,088	1,572	0,117	-0,035	0,312
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	-0,098	0,022	-4,415	**<0,0001**	-0,141	-0,054
AT	0,190	0,054	3,517	**0,000**	0,084	0,297
BE	0,096	0,071	1,358	0,175	-0,043	0,235
DE	0,446	0,069	6,487	**<0,0001**	0,311	0,581
DK	-0,008	0,061	-0,124	0,902	-0,128	0,113
EL	-0,415	0,115	-3,615	**0,000**	-0,640	-0,189
ES	0,137	0,090	1,533	0,126	-0,039	0,313
FI	0,051	0,108	0,473	0,636	-0,161	0,263
FR	0,348	0,064	5,408	**<0,0001**	0,222	0,474
IE	-0,125	0,074	-1,675	0,094	-0,271	0,022
IT	0,102	0,070	1,445	0,149	-0,037	0,240
NL	-0,599	0,082	-7,333	**<0,0001**	-0,759	-0,438
PT	0,160	0,079	2,035	**0,042**	0,005	0,314
SE	0,237	0,102	2,332	**0,020**	0,037	0,438
UK	-0,006	0,047	-0,138	0,890	-0,098	0,086
1: 90-93	0,033	0,048	0,696	0,486	-0,061	0,127
2: 00-03	-0,179	0,048	-3,740	**0,000**	-0,274	-0,085
3: 08-09	-0,068	0,045	-1,502	0,134	-0,156	0,021
4:BTW	0,109	0,050	2,197	**0,028**	0,012	0,206
LIS	-0,095	0,064	-1,487	0,138	-0,221	0,031
NED	0,226	0,059	3,803	**0,000**	0,109	0,343
NIS	-0,044	0,038	-1,159	0,247	-0,120	0,031

Stepwise analysis of covariance on regional RGVA resilience performance by urban-rural typology
Rural regions - Growth trajectory retention (4 year recovery period)

Summary of the variables selection Ret_Tra_4:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	NAT	NAT	IN	0,000	0,086	0,062	80,319	-3896,683	-3837,319	0,965
2	NAT / CRISIS	CRISIS	IN	0,000	0,140	0,113	52,796	-3922,043	-3849,958	0,919
3	Clu / NAT / CRISIS	Clu	IN	0,000	0,160	0,131	42,502	-3932,042	-3855,717	0,901
4	HHI / Clu / NAT / CRISIS	HHI	IN	0,000	0,177	0,147	33,988	-3940,530	-3859,965	0,886
5	Mig_net / HHI / Clu / NAT / CRISIS	Mig_net	IN	0,000	0,189	0,157	28,965	-3945,658	-3860,853	0,877
6	Mig_net / HHI / Cur_blc / Clu / NAT / CRISIS	Cur_blc	IN	0,000	0,196	0,163	26,446	-3948,297	-3859,251	0,873
7	Mig_net / HHI / Cur_blc / Union / Clu / NAT / CRISIS	Union	IN	0,000	0,205	0,171	23,061	-3951,881	-3858,595	0,867

Stepwise analysis of covariance on regional RGVA resilience performance by urban-rural typology
Rural regions - Growth trajectory retention (4 year recovery period)

Goodness of fit statistics (Ret_Tra_4):

Observations	513
Sum of weights	513
DF	491
R^2	0,205
Adjusted R^2	0,171
MSE	0,000
RMSE	0,021
MAPE	328,567
DW	1,782
Cp	23,061
AIC	-3951,881
SBC	-3858,595
PC	0,867
Press	0,267
Q^2	0,000

Analysis of variance (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	21	0,055	0,003	6,015	**<0,0001**
Error	491	0,212	0,000		
Corrected´	512	0,267			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance by urban-rural typology
Rural regions - Growth trajectory retention (4 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	1,000	0,001	0,001	3,372	0,067
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	1,000	0,001	0,001	3,335	0,068
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,003	0,003	6,484	0,011
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,001	0,001	3,189	0,075
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,006	0,006	13,067	0,000
NAT	13,000	0,024	0,002	4,287	0,000
CRISIS	3,000	0,018	0,006	13,709	0,000
Shock	0,000	0,000			

Type II Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	1,000	0,003	0,003	6,431	0,012
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	1,000	0,003	0,003	7,582	0,006
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,004	0,004	8,743	0,003
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,002	0,002	5,373	0,021
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,006	0,006	14,004	0,000
NAT	13,000	0,030	0,002	5,254	0,000
CRISIS	3,000	0,018	0,006	13,709	0,000
Shock	0,000	0,000			

Type III Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	1,000	0,003	0,003	6,431	0,012
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	1,000	0,003	0,003	7,582	0,006
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,004	0,004	8,743	0,003
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,002	0,002	5,373	0,021
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,006	0,006	14,004	0,000
NAT	13,000	0,030	0,002	5,254	0,000
CRISIS	3,000	0,018	0,006	13,709	0,000
Shock	0,000	0,000			

Stepwise analysis of covariance on regional RGVA resilience performance by urban-rural typology
Rural regions - Growth trajectory retention (4 year recovery period)

Model parameters (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,035	0,020	1,772	0,077	-0,004	0,075
Pop_age	0,000	0,000				
Mig_net	0,000	0,000	-1,542	0,124	-0,001	0,000
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	-0,117	0,055	-2,119	**0,035**	-0,226	-0,009
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	-0,001	0,001	-2,254	**0,025**	-0,003	0,000
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	-0,001	0,000	-1,937	0,053	-0,002	0,000
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,001	0,000	7,230	**<0,0001**	0,001	0,002
AT	0,002	0,005	0,329	0,742	-0,008	0,011
BE	0,027	0,008	3,406	**0,001**	0,011	0,042
DE	0,007	0,006	1,116	0,265	-0,005	0,019
DK	0,028	0,018	1,626	0,105	-0,006	0,063
EL	-0,012	0,012	-0,947	0,344	-0,036	0,012
ES	-0,015	0,014	-1,097	0,273	-0,043	0,012
FI	0,048	0,021	2,250	**0,025**	0,006	0,090
FR	-0,012	0,013	-0,927	0,355	-0,039	0,014
IE	-0,010	0,007	-1,396	0,163	-0,025	0,004
IT	-0,003	0,005	-0,634	0,526	-0,012	0,006
NL	-0,084	0,008	-11,016	**<0,0001**	-0,099	-0,069
PT	-0,024	0,010	-2,432	**0,015**	-0,043	-0,005
SE	0,057	0,022	2,593	**0,010**	0,014	0,100
UK	-0,008	0,007	-1,185	0,237	-0,022	0,006
1: 90-93	0,006	0,002	2,424	**0,016**	0,001	0,010
2: 00-03	-0,011	0,002	-5,000	**<0,0001**	-0,016	-0,007
3: 08-09	0,000	0,002	0,151	0,880	-0,003	0,004
4:BTW	0,005	0,004	1,411	0,159	-0,002	0,013
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	-0,125	0,081	-1,542	0,124	-0,284	0,034
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	-0,125	0,059	-2,119	**0,035**	-0,241	-0,009
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	-0,228	0,101	-2,254	**0,025**	-0,427	-0,029
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	-0,585	0,302	-1,937	0,053	-1,179	0,008
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,212	0,029	7,230	**<0,0001**	0,154	0,269
AT	0,022	0,068	0,329	0,742	-0,112	0,157
BE	0,366	0,107	3,406	**0,001**	0,155	0,577
DE	0,168	0,150	1,116	0,265	-0,127	0,462
DK	0,318	0,196	1,626	0,105	-0,066	0,702
EL	-0,139	0,147	-0,947	0,344	-0,428	0,150
ES	-0,188	0,171	-1,097	0,273	-0,525	0,149
FI	0,578	0,257	2,250	**0,025**	0,073	1,082
FR	-0,272	0,294	-0,927	0,355	-0,849	0,305
IE	-0,103	0,074	-1,396	0,163	-0,249	0,042
IT	-0,044	0,070	-0,634	0,526	-0,182	0,093
NL	-0,824	0,075	-11,016	**<0,0001**	-0,971	-0,677
PT	-0,358	0,147	-2,432	**0,015**	-0,648	-0,069
SE	0,614	0,237	2,593	**0,010**	0,149	1,079
UK	-0,080	0,068	-1,185	0,237	-0,214	0,053
1: 90-93	0,149	0,061	2,424	**0,016**	0,028	0,269
2: 00-03	-0,292	0,058	-5,000	**<0,0001**	-0,406	-0,177
3: 08-09	0,008	0,051	0,151	0,880	-0,092	0,108
4:BTW	0,071	0,050	1,411	0,159	-0,028	0,170
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Stepwise analysis of covariance on regional RGVA resilience performance by urban-rural typology
Rural regions - Growth trajectory retention (8 year recovery period)

Summary of the variables selection Ret_Tra_8:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	NAT	NAT	IN	0,000	0,227	0,202	97,522	-3164,836	-3113,410	0,827
2	NAT / CRISIS	CRISIS	IN	0,000	0,299	0,271	60,841	-3196,637	-3133,343	0,762
3	Union / NAT / CRISIS	Union	IN	0,000	0,335	0,306	41,609	-3214,916	-3147,667	0,726
4	Cur_blc / Union / NAT / CRISIS	Cur_blc	IN	0,000	0,358	0,329	29,781	-3226,721	-3155,516	0,705
5	Manu_GVA / Cur_blc / Union / NAT / CRISIS	Manu_GVA	IN	0,000	0,370	0,340	24,543	-3232,149	-3156,988	0,695
6	Manu_GVA / Cur_blc / Union / Clu / NAT / CRISIS	Clu	IN	0,000	0,379	0,346	21,787	-3235,109	-3155,992	0,689
7	Mig_net / Manu_GVA / Cur_blc / Union / Clu / NAT / CRISIS	Mig_net	IN	0,000	0,387	0,354	18,702	-3238,482	-3155,409	0,683

Stepwise analysis of covariance on regional RGVA resilience performance by urban-rural typology
Rural regions - Growth trajectory retention (8 year recovery period)

Goodness of fit statistics (Ret_Tra_8):

Observations	386
Sum of weights	386
DF	365
R^2	0,387
Adjusted R^2	0,354
MSE	0,000
RMSE	0,015
MAPE	198,734
DW	1,665
Cp	18,702
AIC	-3238,482
SBC	-3155,409
PC	0,683
Press	0,090
Q^2	0,301

Analysis of variance (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	20	0,050	0,002	11,527	**<0,0001**
Error	365	0,079	0,000		
Corrected '	385	0,128			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance by urban-rural typology
Rural regions - Growth trajectory retention (8 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	1,000	0,000	0,000	1,477	0,225
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	1,000	0,001	0,001	4,639	0,032
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,006	0,006	26,285	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,003	0,003	14,772	0,000
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,000	0,000	0,988	0,321
NAT	12,000	0,027	0,002	10,479	0,000
CRISIS	3,000	0,012	0,004	18,877	0,000
Shock	0,000	0,000			

Type II Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	1,000	0,001	0,001	5,117	0,024
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	1,000	0,002	0,002	8,993	0,003
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,004	0,004	19,600	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,005	0,005	21,358	0,000
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,001	0,001	5,233	0,023
NAT	12,000	0,031	0,003	11,902	0,000
CRISIS	3,000	0,012	0,004	18,877	0,000
Shock	0,000	0,000			

Type III Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	1,000	0,001	0,001	5,117	0,024
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	1,000	0,002	0,002	8,993	0,003
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,004	0,004	19,600	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,005	0,005	21,358	0,000
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,001	0,001	5,233	0,023
NAT	12,000	0,031	0,003	11,902	0,000
CRISIS	3,000	0,012	0,004	18,877	0,000
Shock	0,000	0,000			

Stepwise analysis of covariance on regional RGVA resilience performance by urban-rural typology
Rural regions - Growth trajectory retention (8 year recovery period)

Model parameters (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,036	0,017	2,101	**0,036**	0,002	0,071
Pop_age	0,000	0,000				
Mig_net	0,000	0,000	-1,774	0,077	-0,001	0,000
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GVA	-0,032	0,016	-2,052	**0,041**	-0,063	-0,001
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	-0,002	0,001	-2,761	**0,006**	-0,003	-0,001
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	-0,001	0,000	-3,267	**0,001**	-0,002	-0,001
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,002	0,001	1,464	0,144	-0,001	0,005
AT	0,004	0,005	0,746	0,456	-0,006	0,014
BE	0,030	0,009	3,348	**0,001**	0,012	0,047
DE	0,000	0,006	0,001	0,999	-0,012	0,012
DK	0,053	0,016	3,305	**0,001**	0,021	0,085
EL	0,000	0,000				
ES	-0,031	0,015	-2,113	**0,035**	-0,060	-0,002
FI	0,064	0,019	3,319	**0,001**	0,026	0,102
FR	-0,030	0,014	-2,104	**0,036**	-0,058	-0,002
IE	-0,030	0,006	-5,230	**<0,0001**	-0,041	-0,019
IT	-0,001	0,005	-0,096	0,924	-0,011	0,010
NL	-0,068	0,013	-5,329	**<0,0001**	-0,093	-0,043
PT	-0,040	0,010	-4,117	**<0,0001**	-0,059	-0,021
SE	0,063	0,020	3,133	**0,002**	0,024	0,103
UK	-0,007	0,006	-1,183	0,238	-0,019	0,005
1: 90-93	0,007	0,003	2,558	**0,011**	0,002	0,012
2: 00-03	-0,010	0,002	-4,882	**<0,0001**	-0,014	-0,006
3: 08-09	0,001	0,003	0,337	0,736	-0,004	0,006
4:BTW	0,002	0,003	0,579	0,563	-0,005	0,009
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	-0,117	0,066	-1,774	0,077	-0,246	0,013
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GVA	-0,147	0,072	-2,052	**0,041**	-0,288	-0,006
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	-0,333	0,121	-2,761	**0,006**	-0,571	-0,096
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	-1,245	0,381	-3,267	**0,001**	-1,995	-0,496
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,165	0,113	1,464	0,144	-0,057	0,387
AT	0,055	0,074	0,746	0,456	-0,091	0,201
BE	0,490	0,146	3,348	**0,001**	0,202	0,778
DE	0,000	0,197	0,001	0,999	-0,387	0,387
DK	0,718	0,217	3,305	**0,001**	0,291	1,145
EL	0,000	0,000				
ES	-0,487	0,231	-2,113	**0,035**	-0,941	-0,034
FI	0,989	0,298	3,319	**0,001**	0,403	1,575
FR	-0,785	0,373	-2,104	**0,036**	-1,519	-0,051
IE	-0,365	0,070	-5,230	**<0,0001**	-0,503	-0,228
IT	-0,010	0,102	-0,096	0,924	-0,210	0,191
NL	-0,831	0,156	-5,329	**<0,0001**	-1,138	-0,525
PT	-0,771	0,187	-4,117	**<0,0001**	-1,139	-0,403
SE	0,877	0,280	3,133	**0,002**	0,326	1,427
UK	-0,086	0,073	-1,183	0,238	-0,229	0,057
1: 90-93	0,226	0,088	2,558	**0,011**	0,052	0,400
2: 00-03	-0,317	0,065	-4,882	**<0,0001**	-0,444	-0,189
3: 08-09	0,025	0,075	0,337	0,736	-0,122	0,173
4:BTW	0,030	0,052	0,579	0,563	-0,072	0,133
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

III.d.ii. Employment

III.d.ii.1. Urban regions

Stepwise analysis of covariance on regional Employment resilience performance by urban-rural typology
Urban regions

Settings:
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Model selection: Stepwise
Probability for entry: 0,05 / Probability for removal: 0,1
Covariances: Corrections = Newey West (adjusted)(Lag = 1)
Use least squares means: Yes
Explanation of the variable codes can be found in table 28

Summary statistics (Quantitative data):

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Rec_DL	401	0	401	-0,393	0,145	-0,114	0,085
Ret_Tra_4	401	0	401	-0,088	0,139	-0,006	0,023
Ret_Tra_8	401	92	309	-0,064	0,042	-0,009	0,017
Pop_age	401	0	401	0,248	2,498	0,954	0,309
Mig_net	401	0	401	-7,485	25,100	3,082	4,786
Pop_work	401	0	401	0,320	0,594	0,465	0,050
Agri_EMP	401	0	401	0,000	0,207	0,020	0,032
Manu_EMP	401	0	401	0,022	0,556	0,202	0,109
Const_EMP	401	0	401	0,018	0,171	0,074	0,024
Serv_EMP	401	0	401	0,224	0,656	0,429	0,087
Pub_EMP	401	0	401	0,127	0,576	0,275	0,067
HHI	401	0	401	0,181	0,525	0,244	0,037
GDP_PC	401	0	401	-0,980	5,017	0,182	0,893
GFCF_PC	401	0	401	-1,836	2,395	-0,101	0,755
PROD	401	0	401	-2,698	3,401	0,156	0,962
RnD_GDP	401	0	401	0,071	14,258	2,043	1,582
RnD_EMP	401	0	401	0,000	4,938	1,461	0,691
MM_Ac	401	0	401	35,288	192,930	120,837	31,212
Avg_bus	401	0	401	2,543	18,031	9,345	4,325
Gov_debt	401	0	401	-15,100	0,300	-4,947	3,389
Cur_blc	401	0	401	-10,900	6,600	-1,162	2,676
Gov_close	401	0	401	0,370	31,490	4,526	3,129
Lab_comp	401	0	401	464,075	271583,242	29932,709	26666,689
Union	401	0	401	7,926	82,671	32,731	9,189
ML_barg	401	0	401	1,000	4,875	2,331	1,121
SHDI	401	0	401	0,713	0,930	0,832	0,050
SC_Org	401	0	401	0,037	0,202	0,092	0,049
EoC	401	0	401	46,900	100,000	82,513	18,916
Clu	401	0	401	0,360	31,000	2,919	4,733

Number of removed observations: 60

Summary statistics (Qualitative data):

Variable	Categories	Counts	Frequencies	%
NAT	BE	1	1	0,249
	DE	104	104	25,935
	DK	3	3	0,748
	EL	4	4	0,998
	ES	18	18	4,489
	FI	2	2	0,499
	FR	2	2	0,499
	IT	56	56	13,965
	NL	24	24	5,985
	PT	5	5	1,247
	SE	3	3	0,748
	UK	179	179	44,638
CRISIS	1: 90-93	230	230	57,357
	2: 00-03	36	36	8,978
	3: 08-09	111	111	27,681
	4:BTW	24	24	5,985
Shock	LIS	61	61	15,212
	NED	300	300	74,813
	NIS	40	40	9,975

Stepwise analysis of covariance on regional Employment resilience performance by urban-rural typology
Urban regions

Correlation matrix:

	Pop_age	Mig_net	Pop_work	Agri_EMP	Manu_EMP	Const_EMP	Serv_EMP	Pub_EMP	HHI	GDP_PC	GFCF_PC	PROD	RnD_GDP	RnD_EMP	MM_Ac	Avg_bus	Gov_debt	Cur_blc	Gov_close	Lab_comp	Union	ML_barg	SHDI	SC_Org	EoC	Cla	BE	DE	DK	EL	ES	FI	FR	IT	NL	PT	SE	UK	CRISIS-1: 90-93	CRISIS-2: 00-03	CRISIS-3: 08-09	CRISIS-4:BTW	LIS	NED	NIS	Rec_DL	Ret_Tra_4	Ret_Tra_8
Pop_age	**1**	0,090	-0,058	-0,137	0,103	-0,175	-0,066	0,047	0,043	0,160	0,089	0,172	-0,079	0,019	0,115	0,071	-0,122	0,061	0,075	0,177	0,021	0,151	0,250	0,167	-0,237	-0,123	0,253	0,267	0,243	0,258	0,142	0,241	0,246	0,356	0,145	0,236	0,248	-0,254	-0,071	-0,031	0,186	-0,047	0,077	0,044	-0,075	0,105	0,025	0,105
Mig_net	0,090	**1**	0,119	-0,112	0,120	-0,030	-0,012	-0,114	0,152	0,162	0,312	0,268	0,087	0,185	0,147	0,261	0,074	-0,151	0,199	0,011	0,043	-0,031	0,135	0,354	0,051	-0,045	0,149	0,268	0,169	0,128	0,145	0,158	0,139	0,064	0,081	0,140	0,151	-0,155	0,039	-0,170	-0,006	0,048	0,015	0,118	-0,094	0,004	-0,022	-0,059
Pop_work	-0,058	0,119	**1**	-0,480	-0,164	0,018	0,520	-0,187	0,074	0,160	0,419	0,128	0,401	0,496	0,340	0,169	0,048	0,042	0,097	-0,020	-0,044	-0,328	0,472	0,073	0,429	0,082	-0,390	-0,281	-0,356	-0,372	-0,438	-0,358	-0,376	-0,542	-0,226	-0,354	-0,369	0,387	-0,220	0,158	0,197	-0,035	0,046	0,124	-0,116	-0,032	-0,119	-0,300
Agri_EMP	-0,137	-0,112	-0,480	**1**	-0,115	0,144	-0,301	0,052	-0,317	-0,247	-0,252	-0,176	-0,200	-0,379	-0,472	-0,413	-0,112	0,115	-0,060	-0,071	-0,052	0,386	-0,298	-0,058	-0,471	-0,128	0,308	0,111	0,296	0,298	0,351	0,307	0,302	0,442	0,306	0,317	0,303	-0,314	0,000	-0,005	-0,177	0,103	0,000	-0,220	0,160	-0,027	0,033	0,103
Manu_EMP	0,103	0,120	-0,164	-0,115	**1**	-0,171	-0,701	-0,599	0,233	0,086	0,087	0,216	0,036	-0,012	0,306	0,500	0,326	0,147	0,077	0,161	0,101	0,162	-0,214	0,344	-0,043	-0,116	0,308	0,496	0,288	0,291	0,250	0,304	0,297	0,220	0,182	0,302	0,302	-0,315	0,316	-0,093	-0,276	-0,008	0,069	-0,198	0,106	-0,106	0,011	-0,027
Const_EMP	-0,175	-0,030	0,018	0,144	-0,171	**1**	-0,024	-0,123	-0,420	-0,477	-0,209	-0,394	0,011	-0,173	-0,324	-0,168	0,023	-0,240	-0,245	-0,287	0,039	-0,262	-0,255	-0,359	0,223	0,010	-0,351	-0,369	-0,358	-0,340	-0,267	-0,343	-0,360	-0,271	-0,317	-0,324	-0,348	0,347	0,046	-0,029	0,003	-0,019	-0,032	0,055	-0,022	-0,113	-0,065	-0,031
Serv_EMP	-0,066	-0,012	0,520	-0,301	-0,701	-0,024	**1**	-0,005	-0,019	0,285	0,251	0,082	0,206	0,322	0,214	-0,200	-0,120	-0,070	-0,036	0,041	-0,069	-0,221	0,321	-0,129	0,174	0,095	-0,310	-0,380	-0,291	-0,292	-0,316	-0,309	-0,290	-0,339	-0,169	-0,309	-0,318	0,321	-0,206	0,093	0,190	-0,013	-0,061	0,142	-0,069	0,050	-0,031	-0,070
Pub_EMP	0,047	-0,114	-0,187	0,052	-0,599	-0,123	-0,005	**1**	-0,050	-0,219	-0,272	-0,231	-0,234	-0,155	-0,434	-0,297	-0,330	-0,115	0,039	-0,176	-0,065	-0,064	0,166	-0,233	-0,014	0,122	-0,116	-0,232	-0,100	-0,111	-0,065	-0,113	-0,118	-0,030	-0,107	-0,123	-0,096	0,119	-0,263	0,045	0,285	-0,011	-0,022	0,222	-0,150	0,161	0,031	0,098
HHI	0,043	0,152	0,074	-0,317	0,233	-0,420	-0,019	-0,050	**1**	0,506	0,215	0,302	0,052	0,220	0,271	0,215	0,057	0,028	0,113	0,192	-0,050	0,032	0,132	0,229	0,005	0,060	0,144	0,223	0,149	0,141	0,120	0,136	0,154	0,041	0,091	0,127	0,130	-0,140	0,032	0,051	-0,012	-0,034	0,038	-0,206	0,129	0,028	0,017	0,000
GDP_PC	0,160	0,162	0,160	-0,247	0,086	-0,477	0,285	-0,219	0,506	**1**	0,595	0,622	0,163	0,427	0,556	0,271	0,165	0,180	0,276	0,403	0,036	0,237	0,211	0,495	-0,163	-0,051	0,366	0,431	0,365	0,335	0,264	0,355	0,387	0,220	0,322	0,333	0,355	-0,356	0,084	0,082	-0,119	-0,019	-0,020	-0,172	0,136	0,023	-0,011	-0,044
GFCF_PC	0,089	0,312	0,419	-0,252	0,087	-0,209	0,251	-0,272	0,215	0,595	**1**	0,708	0,331	0,661	0,519	0,294	0,278	0,353	0,462	0,361	0,209	0,246	0,283	0,570	-0,082	-0,048	0,298	0,359	0,317	0,256	0,158	0,300	0,308	0,133	0,318	0,238	0,308	-0,285	0,060	0,077	-0,118	-0,003	-0,066	-0,132	0,133	-0,013	-0,075	-0,164
PROD	0,172	0,268	0,128	-0,176	0,216	-0,394	0,082	-0,231	0,302	0,622	0,708	**1**	0,118	0,398	0,666	0,366	0,342	0,485	0,441	0,498	0,017	0,429	0,306	0,741	-0,259	-0,083	0,557	0,633	0,571	0,506	0,440	0,552	0,564	0,337	0,579	0,484	0,550	-0,551	0,063	0,154	-0,233	0,029	0,018	-0,170	0,114	0,062	-0,023	-0,106
RnD_GDP	-0,079	0,087	0,401	-0,200	0,036	0,011	0,206	-0,234	0,052	0,163	0,331	0,118	**1**	0,519	0,256	0,225	0,226	0,129	0,188	-0,020	0,174	-0,159	0,062	0,112	0,265	0,482	-0,145	-0,028	-0,118	-0,155	-0,182	-0,134	-0,135	-0,225	-0,137	-0,150	-0,124	0,144	0,082	-0,047	-0,024	-0,020	0,029	0,011	-0,024	0,034	-0,014	-0,138
RnD_EMP	0,019	0,185	0,496	-0,379	-0,012	-0,173	0,322	-0,155	0,220	0,427	0,661	0,398	0,519	**1**	0,405	0,337	0,119	0,093	0,364	0,262	0,113	-0,210	0,434	0,259	0,213	-0,005	-0,038	0,078	0,005	-0,046	-0,138	-0,032	-0,021	-0,182	-0,055	-0,056	-0,040	0,049	-0,122	-0,038	0,205	-0,022	0,034	0,002	-0,020	0,117	0,029	-0,113
MM_Ac	0,115	0,147	0,340	-0,472	0,306	-0,324	0,214	-0,434	0,271	0,556	0,519	0,666	0,256	0,405	**1**	0,550	0,259	0,304	0,148	0,448	-0,071	0,115	0,336	0,504	0,032	-0,019	0,247	0,447	0,235	0,214	0,084	0,226	0,253	0,037	0,283	0,207	0,219	-0,239	0,089	0,149	-0,085	-0,070	-0,009	-0,090	0,070	0,029	-0,022	-0,201
Avg_bus	0,071	0,261	0,169	-0,413	0,500	-0,168	-0,200	-0,297	0,215	0,271	0,294	0,366	0,225	0,337	0,550	**1**	0,329	0,071	0,133	0,043	-0,043	-0,272	0,159	0,435	0,472	0,040	0,024	0,461	0,021	0,000	-0,069	0,020	0,017	-0,247	-0,068	-0,004	0,011	-0,028	0,179	-0,091	-0,104	-0,018	0,081	0,025	-0,064	0,043	-0,021	-0,132
Gov_debt	-0,122	0,074	0,048	-0,112	0,326	0,023	-0,120	-0,330	0,057	0,165	0,278	0,342	0,226	0,119	0,259	0,329	**1**	0,410	0,249	-0,012	0,251	0,109	-0,309	0,409	0,091	0,072	0,161	0,291	0,173	0,102	0,157	0,175	0,161	-0,024	0,194	0,153	0,183	-0,166	0,307	0,066	-0,579	0,104	0,126	-0,149	0,038	-0,239	-0,218	-0,332
Cur_blc	0,061	-0,151	0,042	0,115	0,147	-0,240	-0,070	-0,115	0,028	0,180	0,353	0,485	0,129	0,093	0,304	0,071	0,410	**1**	0,265	0,181	-0,027	0,518	0,114	0,447	-0,304	-0,023	0,383	0,340	0,386	0,291	0,259	0,366	0,374	0,317	0,526	0,324	0,376	-0,375	-0,039	0,251	-0,322	0,105	0,156	-0,216	0,071	0,070	-0,143	-0,179
Gov_close	0,075	0,199	0,097	-0,060	0,077	-0,245	-0,036	0,039	0,113	0,276	0,462	0,441	0,188	0,364	0,148	0,133	0,249	0,265	**1**	0,121	0,574	0,203	0,158	0,430	-0,101	0,009	0,323	0,322	0,444	0,289	0,231	0,366	0,325	0,230	0,243	0,300	0,391	-0,326	0,030	-0,017	0,000	-0,013	-0,036	-0,080	0,078	0,079	0,053	0,029
Lab_comp	0,177	0,011	-0,020	-0,071	0,161	-0,287	0,041	-0,176	0,192	0,403	0,361	0,498	-0,020	0,262	0,448	0,043	-0,012	0,181	0,121	**1**	-0,240	0,283	0,351	0,276	-0,424	-0,190	0,446	0,401	0,439	0,440	0,365	0,440	0,524	0,437	0,405	0,430	0,434	-0,452	-0,138	0,143	0,129	-0,043	0,018	-0,263	0,181	0,121	0,056	0,006
Union	0,021	-0,043	-0,044	-0,052	0,101	0,039	-0,069	-0,065	-0,050	0,036	0,209	0,017	0,174	0,113	-0,071	-0,043	0,251	-0,027	0,574	-0,240	**1**	0,059	-0,407	-0,102	0,118	0,023	-0,105	-0,128	-0,055	-0,118	-0,230	-0,074	-0,143	-0,001	-0,216	-0,126	-0,045	0,119	0,412	-0,210	-0,163	-0,086	-0,183	0,051	0,065	-0,149	0,010	0,057
ML_barg	0,151	-0,031	-0,328	0,386	0,162	-0,262	-0,221	-0,064	0,032	0,237	0,246	0,429	-0,159	-0,210	0,115	-0,272	0,109	0,518	0,203	0,283	0,059	**1**	-0,159	0,490	-0,844	-0,114	0,802	0,568	0,778	0,777	0,728	0,796	0,786	0,796	0,844	0,783	0,797	-0,798	0,217	0,333	-0,315	-0,096	-0,138	-0,186	0,212	-0,134	-0,060	-0,054
SHDI	0,250	0,135	0,472	-0,298	-0,214	-0,255	0,321	0,166	0,132	0,211	0,283	0,306	0,062	0,434	0,336	0,159	-0,309	0,114	0,158	0,351	-0,407	-0,159	**1**	0,225	-0,002	-0,028	0,073	0,118	0,082	0,079	-0,042	0,071	0,081	-0,024	0,149	0,044	0,070	-0,067	-0,692	0,139	0,523	0,090	0,215	0,023	-0,136	0,300	0,014	-0,093
SC_Org	0,167	0,354	0,073	-0,058	0,344	-0,359	-0,129	-0,233	0,229	0,495	0,570	0,741	0,112	0,259	0,504	0,435	0,409	0,447	0,430	0,276	-0,102	0,490	0,225	**1**	-0,320	-0,036	0,706	0,807	0,710	0,667	0,663	0,721	0,702	0,406	0,713	0,657	0,718	-0,711	0,106	0,181	-0,244	-0,003	0,064	-0,102	0,039	-0,025	-0,058	-0,148
EoC	-0,237	0,051	0,429	-0,471	-0,043	0,223	0,174	-0,014	0,005	-0,163	-0,082	-0,259	0,265	0,213	0,032	0,472	0,091	-0,304	-0,101	-0,424	0,118	-0,844	-0,002	-0,320	**1**	0,166	-0,830	-0,514	-0,810	-0,838	-0,776	-0,820	-0,831	-0,918	-0,834	-0,836	-0,812	0,831	0,082	-0,223	0,111	-0,024	-0,010	0,208	-0,146	0,037	0,001	-0,024
Cla	-0,123	-0,045	0,082	-0,128	-0,116	0,010	0,095	0,122	0,060	-0,051	-0,048	-0,083	0,482	-0,005	-0,019	0,040	0,072	-0,023	0,009	-0,190	0,023	-0,114	-0,028	-0,036	0,166	**1**	-0,138	-0,116	-0,131	-0,143	-0,098	-0,135	-0,142	-0,191	-0,108	-0,141	-0,132	0,141	0,029	0,062	0,011	-0,050	0,011	0,093	-0,074	-0,018	-0,040	-0,101
BE	0,253	0,149	-0,390	0,308	0,308	-0,351	-0,310	-0,116	0,144	0,366	0,298	0,557	-0,145	-0,038	0,247	0,024	0,161	0,383	0,323	0,446	-0,105	0,802	0,073	0,706	-0,830	-0,138	**1**	0,884	0,981	0,976	0,930	0,985	0,985	0,881	0,917	0,972	0,981	-0,995	0,053	0,185	-0,216	0,014	0,033	-0,248	0,162	-0,020	0,012	-0,028
DE	0,267	0,268	-0,281	0,111	0,496	-0,369	-0,380	-0,232	0,223	0,431	0,359	0,633	-0,028	0,078	0,447	0,461	0,291	0,340	0,322	0,401	-0,128	0,568	0,118	0,807	-0,514	-0,116	0,884	**1**	0,870	0,864	0,789	0,877	0,877	0,677	0,765	0,857	0,870	-0,891	0,123	0,105	-0,247	0,019	0,073	-0,216	0,117	-0,004	-0,003	-0,091
DK	0,243	0,169	-0,356	0,296	0,288	-0,358	-0,291	-0,100	0,149	0,365	0,317	0,571	-0,118	0,005	0,235	0,021	0,173	0,386	0,444	0,439	-0,055	0,778	0,082	0,710	-0,810	-0,131	0,981	0,870	**1**	0,967	0,920	0,976	0,976	0,870	0,906	0,963	0,971	-0,986	0,043	0,180	-0,198	0,011	0,031	-0,238	0,156	-0,014	0,014	-0,033
EL	0,258	0,128	-0,372	0,298	0,291	-0,340	-0,292	-0,111	0,141	0,335	0,256	0,506	-0,155	-0,046	0,214	0,000	0,102	0,291	0,289	0,440	-0,118	0,777	0,079	0,667	-0,838	-0,143	0,976	0,864	0,967	**1**	0,915	0,972	0,972	0,864	0,902	0,958	0,967	-0,981	0,031	0,179	-0,180	0,010	0,040	-0,218	0,136	-0,057	0,016	
ES	0,142	0,145	-0,438	0,351	0,250	-0,267	-0,316	-0,065	0,120	0,264	0,158	0,440	-0,182	-0,138	0,084	-0,069	0,157	0,259	0,231	0,365	-0,230	0,728	-0,042	0,663	-0,776	-0,098	0,930	0,789	0,920	0,915	**1**	0,925	0,925	0,802	0,849	0,911	0,920	-0,935	0,098	0,167	-0,218	-0,007	0,030	-0,203	0,131	-0,039	0,048	0,019
FI	0,241	0,158	-0,358	0,307	0,304	-0,343	-0,309	-0,113	0,136	0,355	0,300	0,552	-0,134	-0,032	0,226	0,020	0,175	0,366	0,366	0,440	-0,074	0,796	0,071	0,721	-0,820	-0,135	0,985	0,877	0,976	0,972	0,925	**1**	0,981	0,875	0,911	0,967	0,976	-0,990	0,048	0,183	-0,207	0,012	0,042	-0,228	0,142	-0,024	0,014	-0,024
FR	0,246	0,139	-0,376	0,302	0,297	-0,360	-0,290	-0,118	0,154	0,387	0,308	0,564	-0,135	-0,021	0,253	0,017	0,161	0,374	0,325	0,524	-0,143	0,786	0,081	0,702	-0,831	-0,142	0,985	0,877	0,976	0,972	0,925	0,981	**1**	0,875	0,911	0,967	0,976	-0,990	0,040	0,195	-0,207	0,012	0,022	-0,258	0,175	-0,016	0,008	-0,033
IT	0,356	0,064	-0,542	0,442	0,220	-0,271	-0,339	-0,030	0,041	0,220	0,133	0,337	-0,225	-0,182	0,037	-0,247	-0,024	0,317	0,230	0,437	-0,001	0,796	-0,024	0,406	-0,918	-0,191	0,881	0,677	0,870	0,864	0,802	0,875	0,875	**1**	0,782	0,859	0,870	-0,887	-0,005	0,080	-0,141	0,050	0,039	-0,246	0,157	0,029	0,045	0,087
NL	0,145	0,081	-0,226	0,306	0,182	-0,317	-0,169	-0,107	0,091	0,322	0,318	0,579	-0,137	-0,055	0,283	-0,068	0,194	0,526	0,243	0,405	-0,216	0,844	0,149	0,713	-0,834	-0,108	0,917	0,765	0,906	0,902	0,849	0,911	0,911	0,782	**1**	0,897	0,906	-0,922	-0,030	0,353	-0,228	0,005	0,051	-0,201	0,118	-0,062	-0,080	-0,131
PT	0,236	0,140	-0,354	0,317	0,302	-0,324	-0,309	-0,123	0,127	0,333	0,238	0,484	-0,150	-0,056	0,207	-0,004	0,153	0,324	0,300	0,430	-0,126	0,783	0,044	0,657	-0,836	-0,141	0,972	0,857	0,963	0,958	0,911	0,967	0,967	0,859	0,897	**1**	0,963	-0,977	0,042	0,201	-0,207	0,008	0,039	-0,214	0,134	-0,028	0,003	-0,053
SE	0,248	0,151	-0,369	0,303	0,302	-0,348	-0,318	-0,096	0,130	0,355	0,308	0,550	-0,124	-0,040	0,219	0,011	0,183	0,376	0,391	0,434	-0,045	0,797	0,070	0,718	-0,812	-0,132	0,981	0,870	0,971	0,967	0,920	0,976	0,976	0,870	0,906	0,963	**1**	-0,986	0,051	0,180	-0,207	0,011	0,041	-0,223	0,139	-0,020	0,015	-0,024
UK	-0,254	-0,155	0,387	-0,314	-0,315	0,347	0,321	0,119	-0,140	-0,356	-0,285	-0,551	0,144	0,049	-0,239	-0,028	-0,166	-0,375	-0,326	-0,452	0,119	-0,798	-0,067	-0,711	0,831	0,141	-0,995	-0,891	-0,986	-0,981	-0,935	-0,990	-0,990	-0,887	-0,922	-0,977	-0,986	**1**	-0,049	-0,187	0,216	-0,015	-0,044	0,237	-0,148	0,023	-0,008	0,035
CRISIS-1: 9	-0,071	0,039	-0,220	0,000	0,316	0,046	-0,206	-0,263	0,032	0,084	0,060	0,063	0,082	-0,122	0,089	0,179	0,307	-0,039	0,030	-0,138	0,412	0,217	-0,692	0,106	0,082	0,029	0,053	0,123	0,043	0,031	0,098	0,048	0,040	-0,005	-0,030	0,042	0,051	-0,049	**1**	0,190	-0,158	-0,628	-0,393	0,065	0,170	-0,309	-0,011	-0,008
CRISIS-2: 0	-0,031	-0,170	0,158	-0,005	-0,093	-0,029	0,093	0,045	0,051	0,082	0,077	0,154	-0,047	-0,038	0,149	-0,091	0,066	0,251	-0,017	0,143	-0,210	0,333	0,139	0,181	-0,223	0,062	0,185	0,105	0,180	0,179	0,167	0,183	0,195	0,080	0,353	0,201	0,180	-0,187	0,190	**1**	0,257	-0,674	-0,177	0,022	0,082	-0,211	-0,207	-0,270
CRISIS-3: 0	0,186	-0,006	0,197	-0,177	-0,276	0,003	0,190	0,285	-0,012	-0,119	-0,118	-0,233	-0,024	0,205	-0,085	-0,104	-0,579	-0,322	0,000	0,129	-0,163	-0,315	0,523	-0,244	0,111	0,011	-0,216	-0,247	-0,198	-0,180	-0,218	-0,207	-0,207	-0,141	-0,228	-0,207	-0,207	0,216	-0,158	0,257	**1**	-0,571	-0,126	0,238	-0,103	0,184	0,133	0,139
CRISIS-4:BT	-0,047	0,048	-0,035	0,103	-0,008	-0,019	-0,013	-0,011	-0,034	-0,019	-0,003	0,029	-0,020	-0,022	-0,070	-0,018	0,104	0,105	-0,013	-0,043	-0,086	-0,096	0,090	-0,003	-0,024	-0,050	0,014	0,019	0,011	0,010	-0,007	0,012	0,012	0,050	0,005	0,008	0,011	-0,015	-0,628	-0,674	-0,571	**1**	0,395	-0,186	-0,084	0,179	0,016	0,089
LIS	0,077	0,015	0,046	0,000	0,069	-0,032	-0,061	-0,022	0,038	-0,020	-0,066	0,018	0,029	0,034	-0,009	0,081	0,126	0,156	-0,036	0,018	-0,183	-0,138	0,215	0,064	-0,010	0,011	0,033	0,073	0,031	0,040	0,030	0,042	0,022	0,039	0,051	0,039	0,041	-0,044	-0,393	-0,177	-0,126	0,395	**1**	0,202	-0,702	0,150	0,017	0,068
NED	0,044	0,118	0,124	-0,220	-0,198	0,055	0,142	0,222	-0,206	-0,172	-0,132	-0,170	0,011	0,002	-0,090	0,025	-0,149	-0,216	-0,080	-0,263	0,051	-0,186	0,023	-0,102	0,208	0,093	-0,248	-0,216	-0,238	-0,218	-0,203	-0,228	-0,258	-0,246	-0,201	-0,214	-0,223	0,237	0,065	0,022	0,238	-0,186	0,202	**1**	-0,839	0,015	-0,029	-0,041
NIS	-0,075	-0,094	-0,116	0,160	0,106	-0,022	-0,069	-0,150	0,129	0,136	0,133	0,114	-0,024	-0,020	0,070	-0,064	0,038	0,071	0,078	0,181	0,065	0,212	-0,136	0,039	-0,146	-0,074	0,162	0,117	0,156	0,136	0,131	0,142	0,175	0,157	0,118	0,134	0,139	-0,148	0,170	0,082	-0,103	-0,084	-0,702	-0,839	**1**	-0,094	0,012	-0,006
Rec_DL	0,105	0,004	-0,032	-0,027	-0,106	-0,113	0,050	0,161	0,028	0,023	-0,013	0,062	0,034	0,117	0,029	0,043	-0,239	0,070	0,079	0,121	-0,149	-0,134	0,300	-0,025	0,037	-0,018	-0,020	-0,004	-0,014	-0,057	-0,039	-0,024	-0,016	0,029	-0,062	-0,028	-0,020	0,023	-0,309	-0,211	0,184	0,179	0,150	0,015	-0,094	**1**	0,511	0,616
Ret_Tra_4	0,025	-0,022	-0,119	0,033	0,011	-0,065	-0,031	0,031	0,017	-0,011	-0,075	-0,023	-0,014	0,029	-0,022	-0,021	-0,218	-0,143	0,053	0,056	0,010	-0,060	0,014	-0,058	0,001	-0,040	0,012	-0,003	0,014	0,016	0,048	0,014	0,008	0,045	-0,080	0,003	0,015	-0,008	-0,011	-0,207	0,133	0,016	0,017	-0,029	0,012	0,511	**1**	0,761
Ret_Tra_8	0,105	-0,059	-0,300	0,103	-0,027	-0,031	-0,070	0,098	0,000	-0,044	-0,164	-0,106	-0,138	-0,113	-0,201	-0,132	-0,332	-0,179	0,029	0,006	0,057	-0,054	-0,093	-0,148	-0,024	-0,101	-0,028	-0,091	-0,033		0,019	-0,024	-0,033	0,087	-0,131	-0,053	-0,024	0,035	-0,008	-0,270	0,139	0,089	0,068	-0,041	-0,006	0,616	0,761	**1**

Stepwise analysis of covariance on regional Employment resilience performance by urban-rural typology
Urban regions - Recovery of development level

Summary of the variables selection Rec_DL:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	CRISIS	CRISIS	IN	0,006	0,156	0,150	67,060	-2040,195	-2024,219	0,861
2	Cur_blc / CRISIS	Cur_blc	IN	0,006	0,200	0,192	45,162	-2059,586	-2039,616	0,820
3	Gov_debt / Cur_blc / CRISIS	Gov_debt	IN	0,006	0,211	0,201	41,139	-2063,162	-2039,198	0,813
4	Gov_debt / Cur_blc / NAT / CRISIS	NAT	IN	0,005	0,273	0,243	29,310	-2074,008	-2006,111	0,791
5	PROD / Gov_debt / Cur_blc / NAT / CRISIS	PROD	IN	0,005	0,284	0,252	25,408	-2078,025	-2006,134	0,784
6	Pop_work / PROD / Gov_debt / Cur_blc / NAT / CRISIS	Pop_work	IN	0,005	0,300	0,267	18,804	-2084,962	-2009,077	0,770
7	Pop_work / PROD / Gov_debt / Cur_blc / Union / NAT / CRISIS	Union	IN	0,005	0,315	0,280	12,659	-2091,609	-2011,729	0,757
6	Pop_work / PROD / Cur_blc / Union / NAT / CRISIS	Gov_debt	OUT	0,005	0,315	0,282	10,659	-2093,609	-2017,723	0,754
7	Pop_work / PROD / RnD_GDP / Cur_blc / Union / NAT / CRISIS	RnD_GDP	IN	0,005	0,324	0,290	7,716	-2096,949	-2017,070	0,747
6	Pop_work / PROD / RnD_GDP / Union / NAT / CRISIS	Cur_blc	OUT	0,005	0,324	0,292	5,716	-2098,949	-2023,063	0,744

Stepwise analysis of covariance on regional Employment resilience performance by urban-rural typology
Urban regions - Recovery of development level

Goodness of fit statistics (Rec_DL):

Observations	401
Sum of weights	401
DF	382
R^2	0,324
Adjusted R^2	0,292
MSE	0,005
RMSE	0,071
MAPE	251,792
DW	1,739
Cp	5,716
AIC	-2098,949
SBC	-2023,063
PC	0,744
Press	2,216
Q^2	0,229

Analysis of variance (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	18	0,930	0,052	10,152	**<0,0001**
Error	382	1,944	0,005		
Corrected'	400	2,874			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional Employment resilience performance by urban-rural typology
Urban regions - Recovery of development level

Type I Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,003	0,003	0,565	0,453
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,013	0,013	2,488	0,116
RnD_GDP	1,000	0,006	0,006	1,209	0,272
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,079	0,079	15,521	0,000
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	11,000	0,713	0,065	12,740	0,000
CRISIS	3,000	0,099	0,033	6,475	0,000
Shock	0,000	0,000			

Type II Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,080	0,080	15,702	0,000
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,070	0,070	13,824	0,000
RnD_GDP	1,000	0,026	0,026	5,121	0,024
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,051	0,051	9,997	0,002
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	11,000	0,235	0,021	4,202	0,000
CRISIS	3,000	0,099	0,033	6,475	0,000
Shock	0,000	0,000			

Type III Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,080	0,080	15,702	0,000
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,070	0,070	13,824	0,000
RnD_GDP	1,000	0,026	0,026	5,121	0,024
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,051	0,051	9,997	0,002
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	11,000	0,235	0,021	4,202	0,000
CRISIS	3,000	0,099	0,033	6,475	0,000
Shock	0,000	0,000			

Stepwise analysis of covariance on regional Employment resilience performance by urban-rural typology
Urban regions - Recovery of development level

Model parameters (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,382	0,159	2,398	**0,017**	0,069	0,696
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	-0,499	0,128	-3,899	**0,000**	-0,751	-0,247
Agri_EMP	0,000	0,000				
Manu_EMP	0,000	0,000				
Const_EMP	0,000	0,000				
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,025	0,007	3,493	**0,001**	0,011	0,040
RnD_GDP	0,006	0,002	2,697	**0,007**	0,002	0,011
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	-0,007	0,003	-2,157	**0,032**	-0,014	-0,001
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
BE	0,046	0,075	0,609	0,543	-0,102	0,193
DE	-0,079	0,046	-1,727	0,085	-0,168	0,011
DK	0,233	0,120	1,939	0,053	-0,003	0,469
EL	-0,171	0,060	-2,866	**0,004**	-0,288	-0,054
ES	-0,178	0,109	-1,636	0,103	-0,392	0,036
FI	0,266	0,101	2,634	**0,009**	0,068	0,465
FR	-0,212	0,097	-2,198	**0,029**	-0,402	-0,022
IT	-0,032	0,015	-2,216	**0,027**	-0,061	-0,004
NL	-0,133	0,047	-2,810	**0,005**	-0,227	-0,040
PT	-0,002	0,063	-0,027	0,978	-0,125	0,122
SE	0,274	0,115	2,385	**0,018**	0,048	0,500
UK	-0,011	0,030	-0,376	0,707	-0,071	0,048
CRISIS-1: 9(	0,009	0,020	0,435	0,664	-0,030	0,047
CRISIS-2: 0(	-0,054	0,014	-3,820	**0,000**	-0,082	-0,026
CRISIS-3: 0(	0,011	0,017	0,665	0,507	-0,022	0,045
CRISIS-4:B'	0,034	0,016	2,210	**0,028**	0,004	0,065
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	-0,292	0,075	-3,899	**0,000**	-0,439	-0,145
Agri_EMP	0,000	0,000				
Manu_EMP	0,000	0,000				
Const_EMP	0,000	0,000				
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,288	0,083	3,493	**0,001**	0,126	0,451
RnD_GDP	0,114	0,042	2,697	**0,007**	0,031	0,197
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	-0,803	0,372	-2,157	**0,032**	-1,535	-0,071
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
BE	0,270	0,443	0,609	0,543	-0,602	1,142
DE	-0,762	0,441	-1,727	0,085	-1,629	0,105
DK	1,406	0,725	1,939	0,053	-0,020	2,831
EL	-1,041	0,363	-2,866	**0,004**	-1,754	-0,327
ES	-1,209	0,739	-1,636	0,103	-2,662	0,244
FI	1,594	0,605	2,634	**0,009**	0,404	2,784
FR	-1,269	0,577	-2,198	**0,029**	-2,404	-0,134
IT	-0,268	0,121	-2,216	**0,027**	-0,505	-0,030
NL	-0,941	0,335	-2,810	**0,005**	-1,599	-0,283
PT	-0,010	0,386	-0,027	0,978	-0,769	0,748
SE	1,653	0,693	2,385	**0,018**	0,290	3,016
UK	-0,067	0,179	-0,376	0,707	-0,419	0,284
CRISIS-1: 9(	0,062	0,142	0,435	0,664	-0,217	0,341
CRISIS-2: 0(	-0,248	0,065	-3,820	**0,000**	-0,376	-0,120
CRISIS-3: 0(	0,073	0,110	0,665	0,507	-0,143	0,288
CRISIS-4:B'	0,096	0,044	2,210	**0,028**	0,011	0,182
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Stepwise analysis of covariance on regional Employment resilience performance by urban-rural typology
Urban regions - Growth trajectory retention (4 year recovery period)

Summary of the variables selection Ret_Tra_4:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	CRISIS	CRISIS	IN	0,000	0,085	0,078	17,017	-3057,997	-3042,021	0,933
2	Gov_debt / CRISIS	Gov_debt	IN	0,000	0,101	0,092	11,701	-3063,217	-3043,247	0,921
3	Gov_debt / CRISIS / NORM_SHOCK	)RM_SHO(	IN	0,000	0,117	0,104	8,662	-3066,288	-3038,330	0,914
4	Gov_debt / Gov_close / CRISIS / NORM_SHOCK	Gov_close	IN	0,000	0,126	0,110	6,746	-3068,277	-3036,325	0,910
5	Gov_debt / Gov_close / Union / CRISIS / NORM_SHOCK	Union	IN	0,000	0,134	0,117	4,908	-3070,225	-3034,279	0,905

Stepwise analysis of covariance on regional Employment resilience performance by urban-rural typology
Urban regions - Growth trajectory retention (4 year recovery period)

Goodness of fit statistics (Ret_Tra_4):

Observations	401
Sum of weights	401
DF	392
R^2	0,134
Adjusted R^2	0,117
MSE	0,000
RMSE	0,022
MAPE	153,438
DW	1,605
Cp	4,908
AIC	-3070,225
SBC	-3034,279
PC	0,905
Press	0,187
Q^2	0,105

Analysis of variance (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	8	0,028	0,004	7,608	**<0,0001**
Error	392	0,181	0,000		
Corrected '	400	0,210			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional Employment resilience performance by urban-rural typology
Urban regions - Growth trajectory retention (4 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,010	0,010	21,502	0,000
Cur_blc	0,000	0,000			
Gov_close	1,000	0,003	0,003	5,562	0,019
Lab_comp	0,000	0,000			
Union	1,000	0,000	0,000	**0,023**	0,879
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	0,000	0,000			
CRISIS	3,000	0,013	0,004	9,438	0,000
Shock	2,000	0,003	0,001	2,730	0,066

Type II Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,006	0,006	13,369	0,000
Cur_blc	0,000	0,000			
Gov_close	1,000	0,004	0,004	7,762	0,006
Lab_comp	0,000	0,000			
Union	1,000	0,002	0,002	3,879	0,050
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	0,000	0,000			
CRISIS	3,000	0,014	0,005	9,914	0,000
Shock	2,000	0,003	0,001	2,730	0,066

Type III Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,006	0,006	13,369	0,000
Cur_blc	0,000	0,000			
Gov_close	1,000	0,004	0,004	7,762	0,006
Lab_comp	0,000	0,000			
Union	1,000	0,002	0,002	3,879	0,050
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	0,000	0,000			
CRISIS	3,000	0,014	0,005	9,914	0,000
Shock	2,000	0,003	0,001	2,730	0,066

Stepwise analysis of covariance on regional Employment resilience performance by urban-rural typology
Urban regions - Growth trajectory retention (4 year recovery period)

Model parameters (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,012	0,004	-2,840	**0,005**	-0,020	-0,004
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_EMP	0,000	0,000				
Manu_EMP	0,000	0,000				
Const_EMP	0,000	0,000				
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	-0,002	0,000	-4,444	**<0,0001**	-0,002	-0,001
Cur_blc	0,000	0,000				
Gov_close	0,001	0,000	2,816	**0,005**	0,000	0,002
Lab_comp	0,000	0,000				
Union	0,000	0,000	-1,872	0,062	-0,001	0,000
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
BE	0,000	0,000				
DE	0,000	0,000				
DK	0,000	0,000				
EL	0,000	0,000				
ES	0,000	0,000				
FI	0,000	0,000				
FR	0,000	0,000				
IT	0,000	0,000				
NL	0,000	0,000				
PT	0,000	0,000				
SE	0,000	0,000				
UK	0,000	0,000				
CRISIS-1: 9(	0,009	0,002	3,925	**0,000**	0,004	0,013
CRISIS-2: 0(	-0,016	0,002	-7,283	**<0,0001**	-0,020	-0,012
CRISIS-3: 0(	0,005	0,002	2,677	**0,008**	0,001	0,008
CRISIS-4:B'	0,002	0,003	0,865	0,387	-0,003	0,008
LIS	0,005	0,002	2,162	**0,031**	0,000	0,009
NED	-0,004	0,002	-2,350	**0,019**	-0,007	-0,001
NIS	-0,001	0,002	-0,671	0,503	-0,005	0,003

Standardized coefficients (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_EMP	0,000	0,000				
Manu_EMP	0,000	0,000				
Const_EMP	0,000	0,000				
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	-0,245	0,055	-4,444	**<0,0001**	-0,354	-0,137
Cur_blc	0,000	0,000				
Gov_close	0,180	0,064	2,816	**0,005**	0,054	0,305
Lab_comp	0,000	0,000				
Union	-0,142	0,076	-1,872	0,062	-0,291	0,007
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
BE	0,000	0,000				
DE	0,000	0,000				
DK	0,000	0,000				
EL	0,000	0,000				
ES	0,000	0,000				
FI	0,000	0,000				
FR	0,000	0,000				
IT	0,000	0,000				
NL	0,000	0,000				
PT	0,000	0,000				
SE	0,000	0,000				
UK	0,000	0,000				
CRISIS-1: 9(	0,235	0,060	3,925	**0,000**	0,117	0,352
CRISIS-2: 0(	-0,270	0,037	-7,283	**<0,0001**	-0,342	-0,197
CRISIS-3: 0(	0,111	0,042	2,677	**0,008**	0,030	0,193
CRISIS-4:B'	0,025	0,029	0,865	0,387	-0,032	0,082
LIS	0,107	0,050	2,162	**0,031**	0,010	0,205
NED	-0,102	0,043	-2,350	**0,019**	-0,187	-0,017
NIS	-0,018	0,027	-0,671	0,503	-0,070	0,034

Stepwise analysis of covariance on regional Employment resilience performance by urban-rural typology
Urban regions - Growth trajectory retention (8 year recovery period)

Summary of the variables selection Ret_Tra_8:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R²	Adjusted R²	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	Gov_debt	Gov_debt	IN	0,000	0,110	0,107	72,484	-2536,005	-2528,538	0,902
2	Gov_debt / CRISIS	CRISIS	IN	0,000	0,179	0,168	49,249	-2554,914	-2536,247	0,848
3	Pop_work / Gov_debt / CRISIS	Pop_work	IN	0,000	0,218	0,205	34,809	-2567,856	-2545,456	0,813
4	Pop_work / Gov_debt / NAT / CRISIS	NAT	IN	0,000	0,266	0,228	34,472	-2567,401	-2507,667	0,815
5	Pop_work / Gov_debt / Union / NAT / CRISIS	Union	IN	0,000	0,311	0,273	17,323	-2585,007	-2521,540	0,770
4	Pop_work / Union / NAT / CRISIS	Gov_debt	OUT	0,000	0,311	0,275	15,323	-2587,007	-2527,273	0,765
5	Pop_work / Pub_EMP / Union / NAT / CRISIS	Pub_EMP	IN	0,000	0,321	0,284	13,005	-2589,606	-2526,139	0,758
6	Pop_age / Pop_work / Pub_EMP / Union / NAT / CRISIS	Pop_age	IN	0,000	0,332	0,293	10,217	-2592,785	-2525,585	0,750

Stepwise analysis of covariance on regional Employment resilience performance by urban-rural typology
Urban regions - Growth trajectory retention (8 year recovery period)

Goodness of fit statistics (Ret_Tra_8):

Observations	309
Sum of weights	309
DF	291
R²	0,332
Adjusted R²	0,293
MSE	0,000
RMSE	0,015
MAPE	455,333
DW	1,602
Cp	10,217
AIC	-2592,785
SBC	-2525,585
PC	0,750
Press	0,072
Q²	0,234

Analysis of variance (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	17	0,031	0,002	8,514	**<0,0001**
Error	291	0,062	0,000		
Corrected '	308	0,093			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional Employment resilience performance by urban-rural typology
Urban regions - Growth trajectory retention (8 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,001	0,001	4,775	0,030
Mig_net	0,000	0,000			
Pop_work	1,000	0,008	0,008	37,769	0,000
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	1,000	0,000	0,000	0,123	0,726
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,000	0,000	1,324	0,251
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	10,000	0,016	0,002	7,282	0,000
CRISIS	3,000	0,006	0,002	8,723	0,000
Shock	0,000	0,000			

Type II Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,001	0,001	4,919	0,027
Mig_net	0,000	0,000			
Pop_work	1,000	0,005	0,005	23,533	0,000
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	1,000	0,001	0,001	5,467	0,020
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,004	0,004	18,762	0,000
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	10,000	0,010	0,001	4,801	0,000
CRISIS	3,000	0,006	0,002	8,723	0,000
Shock	0,000	0,000			

Type III Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,001	0,001	4,919	0,027
Mig_net	0,000	0,000			
Pop_work	1,000	0,005	0,005	23,533	0,000
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	1,000	0,001	0,001	5,467	0,020
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,004	0,004	18,762	0,000
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	10,000	0,010	0,001	4,801	0,000
CRISIS	3,000	0,006	0,002	8,723	0,000
Shock	0,000	0,000			

Stepwise analysis of covariance on regional Employment resilience performance by urban-rural typology
Urban regions - Growth trajectory retention (8 year recovery period)

Model parameters (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,165	0,034	4,894	**<0,0001**	0,098	0,231
Pop_age	0,008	0,004	1,821	0,070	-0,001	0,016
Mig_net	0,000	0,000				
Pop_work	-0,142	0,042	-3,410	**0,001**	-0,225	-0,060
Agri_EMP	0,000	0,000				
Manu_EMP	0,000	0,000				
Const_EMP	0,000	0,000				
Serv_EMP	0,000	0,000				
Pub_EMP	-0,036	0,021	-1,736	0,084	-0,076	0,005
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	-0,002	0,001	-3,275	**0,001**	-0,004	-0,001
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
BE	0,028	0,013	2,143	**0,033**	0,002	0,054
DE	-0,041	0,009	-4,489	**<0,0001**	-0,059	-0,023
DK	0,087	0,021	4,216	**<0,0001**	0,046	0,128
EL	0,000	0,000				
ES	-0,069	0,019	-3,580	**0,000**	-0,107	-0,031
FI	0,116	0,020	5,670	**<0,0001**	0,076	0,156
FR	-0,064	0,020	-3,206	**0,001**	-0,104	-0,025
IT	-0,026	0,007	-3,660	**0,000**	-0,039	-0,012
NL	-0,049	0,013	-3,778	**0,000**	-0,075	-0,024
PT	-0,049	0,010	-4,835	**<0,0001**	-0,069	-0,029
SE	0,106	0,026	4,084	**<0,0001**	0,055	0,158
UK	-0,020	0,006	-3,492	**0,001**	-0,031	-0,009
CRISIS-1: 9(	0,012	0,004	2,719	**0,007**	0,003	0,021
CRISIS-2: 0(	-0,012	0,005	-2,411	**0,017**	-0,023	-0,002
CRISIS-3: 0(	-0,003	0,006	-0,483	0,629	-0,015	0,009
CRISIS-4:B7	0,003	0,004	0,765	0,445	-0,005	0,011
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,128	0,070	1,821	0,070	-0,010	0,267
Mig_net	0,000	0,000				
Pop_work	-0,399	0,117	-3,410	**0,001**	-0,629	-0,169
Agri_EMP	0,000	0,000				
Manu_EMP	0,000	0,000				
Const_EMP	0,000	0,000				
Serv_EMP	0,000	0,000				
Pub_EMP	-0,136	0,079	-1,736	0,084	-0,291	0,018
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	-1,252	0,382	-3,275	**0,001**	-2,005	-0,500
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
BE	0,806	0,376	2,143	**0,033**	0,066	1,547
DE	-1,986	0,442	-4,489	**<0,0001**	-2,857	-1,115
DK	2,488	0,590	4,216	**<0,0001**	1,326	3,649
EL	0,000	0,000				
ES	-2,315	0,647	-3,580	**0,000**	-3,587	-1,042
FI	3,307	0,583	5,670	**<0,0001**	2,159	4,455
FR	-1,839	0,574	-3,206	**0,001**	-2,967	-0,710
IT	-0,982	0,268	-3,660	**0,000**	-1,511	-0,454
NL	-1,730	0,458	-3,778	**0,000**	-2,632	-0,829
PT	-1,450	0,300	-4,835	**<0,0001**	-2,040	-0,860
SE	3,075	0,753	4,084	**<0,0001**	1,593	4,557
UK	-0,556	0,159	-3,492	**0,001**	-0,869	-0,242
CRISIS-1: 9(	0,406	0,149	2,719	**0,007**	0,112	0,699
CRISIS-2: 0(	-0,299	0,124	-2,411	**0,017**	-0,542	-0,055
CRISIS-3: 0(	-0,062	0,129	-0,483	0,629	-0,316	0,192
CRISIS-4:B7	0,044	0,058	0,765	0,445	-0,070	0,159
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

III.d.ii.2. Intermediate regions

Stepwise analysis of covariance on regional Employment resilience performance by urban-rural typology
Intermediate regions

Settings:
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Model selection: Stepwise
Probability for entry: 0,05 / Probability for removal: 0,1
Covariances: Corrections = Newey West (adjusted)(Lag = 1)
Use least squares means: Yes
Explanation of the variable codes can be found in table 28

Summary statistics (Quantitative data):

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Rec_DL	450	0	450	-0,453	0,252	-0,113	0,100
Ret_Tra_4	450	0	450	-0,090	0,083	-0,006	0,021
Ret_Tra_8	450	83	367	-0,113	0,058	-0,009	0,019
Pop_age	450	0	450	0,181	2,642	1,073	0,373
Mig_net	450	0	450	-18,814	54,935	5,061	7,042
Pop_work	450	0	450	0,330	0,633	0,455	0,051
Agri_EMP	450	0	450	0,000	0,357	0,063	0,062
Manu_EMP	450	0	450	0,024	0,590	0,224	0,106
Const_EMP	450	0	450	0,019	0,235	0,086	0,031
Serv_EMP	450	0	450	0,135	0,604	0,353	0,073
Pub_EMP	450	0	450	0,111	0,571	0,275	0,068
HHI	450	0	450	0,178	0,543	0,230	0,037
GDP_PC	450	0	450	-1,148	4,370	-0,055	0,627
GFCF_PC	450	0	450	-1,943	2,328	-0,005	0,769
PROD	450	0	450	-2,858	2,834	-0,031	0,955
RnD_GDP	450	0	450	0,000	8,410	1,681	1,449
RnD_EMP	450	0	450	0,000	4,938	1,210	0,858
MM_Ac	450	0	450	26,283	167,725	94,036	30,987
Avg_bus	450	0	450	2,078	18,605	8,503	5,339
Gov_debt	450	0	450	-15,100	0,600	-4,461	3,019
Cur_blc	450	0	450	-14,500	7,600	-1,007	3,015
Gov_close	450	0	450	0,370	31,490	5,721	4,847
Lab_comp	450	0	450	430,021	134579,341	22805,419	20327,917
Union	450	0	450	12,930	82,671	33,894	12,985
ML_barg	450	0	450	1,000	4,750	2,880	0,940
SHDI	450	0	450	0,705	0,930	0,826	0,045
SC_Org	450	0	450	0,038	0,209	0,117	0,049
EoC	450	0	450	46,900	100,000	71,777	16,448
Clu	450	0	450	0,360	31,000	2,634	2,889

Number of removed observations: 53

Summary statistics (Qualitative data):

Variable	Categories	Counts	Frequencies	%
NAT	AT	1	1	0,222
	BE	4	4	0,889
	DE	172	172	38,222
	DK	5	5	1,111
	EL	16	16	3,556
	ES	45	45	10,000
	FI	6	6	1,333
	IT	106	106	23,556
	NL	14	14	3,111
	PT	12	12	2,667
	SE	22	22	4,889
	UK	47	47	10,444
CRISIS	1: 90-93	238	238	52,889
	2: 00-03	66	66	14,667
	3: 08-09	90	90	20,000
	4:BTW	56	56	12,444
Shock	LIS	95	95	21,111
	NED	271	271	60,222
	NIS	84	84	18,667

Stepwise analysis of covariance on regional Employment resilience performance by urban-rural typology
Intermediate regions

Correlation matrix:

	Pop_age	Mig_net	Pop_work	Agri_EMP	Manu_EMP	Const_EMP	Serv_EMP	Pub_EMP	HHI	GDP_PC	GFCF_PC	PROD	RnD_GDP	RnD_EMP	MM_Ac	Avg_bus	Gov_debt	Cur_blc	Gov_close	Lab_comp	Union	ML_barg	SHDI	SC_Org	EoC	Cla	AT	BE	DE	DK	EL	ES	FI	IT	NL	PT	SE	UK	CRISIS-1: 90-93	CRISIS-2: 00-03	CRISIS-3: 08-09	CRISIS-4:BTW	LIS	NED	NIS	Rec_DL	Ret_Tra_4	Ret_Tra_8
Pop_age	**1**	-0.061	0.028	-0.183	0.065	-0.182	0.074	0.068	-0.074	0.201	0.095	0.038	-0.007	0.044	0.033	-0.154	-0.165	0.084	0.019	0.182	0.105	0.103	0.337	-0.166	-0.257	-0.181	0.106	0.076	-0.047	0.065	0.080	-0.068	0.098	0.380	0.011	0.023	0.085	-0.093	-0.080	0.045	0.303	-0.105	-0.059	0.074	-0.018	0.071	-0.007	0.203
Mig_net	-0.061	**1**	0.052	-0.182	0.127	-0.016	0.028	-0.054	0.090	0.190	0.235	0.288	0.087	0.128	0.329	0.284	0.171	-0.155	-0.014	0.163	-0.017	-0.091	0.051	0.223	0.186	-0.003	0.070	0.057	0.284	0.062	0.038	0.056	0.060	-0.063	0.003	0.028	0.030	-0.078	0.199	-0.032	-0.007	-0.090	-0.010	0.164	-0.105	-0.035	-0.130	-0.237
Pop_work	0.028	0.052	**1**	-0.432	0.151	-0.037	0.237	-0.081	0.116	0.171	0.450	0.169	0.361	0.364	0.310	0.307	0.279	0.171	0.314	0.070	0.204	-0.310	0.487	0.215	0.480	0.188	-0.328	-0.335	-0.027	-0.271	-0.323	-0.469	-0.286	-0.522	-0.209	-0.211	-0.142	0.339	-0.040	0.272	0.279	-0.205	-0.107	0.155	-0.046	-0.028	-0.124	-0.154
Agri_EMP	-0.183	-0.182	-0.432	**1**	-0.323	0.160	-0.282	-0.176	-0.292	-0.457	-0.475	-0.539	-0.348	-0.303	-0.562	-0.449	-0.276	-0.340	-0.280	-0.180	-0.154	0.216	-0.490	-0.317	-0.440	-0.204	0.131	0.144	-0.199	0.105	0.369	0.260	0.116	0.168	0.092	0.184	0.044	-0.135	-0.145	-0.090	-0.226	0.209	0.026	-0.384	0.244	-0.039	0.114	0.023
Manu_EMP	0.065	0.127	0.151	-0.323	**1**	-0.299	-0.541	-0.544	0.391	0.330	0.195	0.290	0.272	0.217	0.439	0.442	0.071	0.199	0.007	0.230	-0.005	0.065	0.152	0.241	0.050	-0.108	0.237	0.243	0.430	0.190	0.110	0.009	0.207	0.104	0.136	0.276	0.148	-0.236	0.142	0.031	-0.109	-0.041	0.053	-0.088	0.030	0.022	-0.073	-0.060
Const_EMP	-0.182	-0.016	-0.037	0.160	-0.299	**1**	-0.045	-0.085	-0.295	-0.520	-0.227	-0.363	-0.220	-0.235	-0.269	-0.146	0.075	-0.353	-0.162	-0.063	-0.245	-0.122	-0.232	-0.132	0.000	-0.106	-0.022	-0.014	-0.059	-0.032	-0.036	0.206	-0.020	-0.072	-0.071	0.066	-0.070	0.015	-0.127	0.051	-0.085	0.084	-0.141	-0.327	0.296	-0.007	0.140	0.115
Serv_EMP	0.074	0.028	0.237	-0.282	-0.541	-0.045	**1**	0.040	-0.085	0.154	0.120	0.046	-0.007	0.048	0.139	-0.076	-0.033	-0.021	-0.125	-0.010	-0.120	-0.258	0.159	-0.174	0.218	-0.016	-0.457	-0.460	-0.372	-0.408	-0.406	-0.294	-0.432	-0.281	-0.274	-0.497	-0.457	0.463	0.000	0.039	0.216	-0.108	-0.085	0.297	-0.153	-0.004	-0.041	-0.043
Pub_EMP	0.068	-0.054	-0.081	-0.176	-0.544	-0.085	0.040	**1**	-0.118	-0.028	0.101	0.154	0.000	-0.008	-0.199	-0.131	0.143	0.183	0.451	-0.154	0.389	0.036	0.143	0.161	0.087	0.418	0.013	-0.006	-0.061	0.063	-0.053	-0.026	0.047	0.021	0.032	-0.090	0.254	-0.016	-0.031	-0.032	0.180	-0.048	0.049	0.313	-0.237	0.009	-0.009	0.064
HHI	-0.074	0.090	0.116	-0.292	0.391	-0.295	-0.085	-0.118	**1**	0.431	0.076	0.195	0.281	0.245	0.227	0.283	0.038	0.082	-0.033	0.058	-0.109	-0.092	0.122	0.144	0.128	0.247	0.018	0.005	0.180	0.018	-0.015	-0.048	-0.003	-0.090	0.040	0.032	-0.040	-0.016	0.059	0.126	0.021	-0.090	0.181	-0.026	-0.080	-0.057	-0.046	-0.148
GDP_PC	0.201	0.190	0.171	-0.457	0.330	-0.520	0.154	-0.028	0.431	**1**	0.407	0.434	0.253	0.223	0.378	0.275	0.046	0.237	0.137	0.180	0.164	0.058	0.231	0.216	0.129	0.049	0.031	0.023	0.173	0.034	-0.071	-0.119	0.029	0.048	0.033	-0.054	0.047	-0.029	0.199	0.002	0.067	-0.135	0.103	0.295	-0.254	-0.075	-0.130	-0.084
GFCF_PC	0.095	0.235	0.450	-0.475	0.195	-0.227	0.120	0.101	0.076	0.407	**1**	0.734	0.543	0.524	0.479	0.442	0.258	0.401	0.406	0.263	0.370	-0.061	0.355	0.443	0.360	0.075	0.011	0.021	0.291	0.043	-0.174	-0.225	0.016	-0.069	0.013	-0.127	0.137	-0.007	0.147	-0.059	0.021	-0.064	0.052	0.364	-0.273	0.012	-0.093	-0.024
PROD	0.038	0.288	0.169	-0.539	0.290	-0.363	0.046	0.154	0.195	0.434	0.734	**1**	0.486	0.484	0.574	0.512	0.221	0.488	0.333	0.308	0.273	0.060	0.347	0.536	0.324	0.089	0.107	0.125	0.394	0.132	-0.111	-0.097	0.119	0.001	0.160	-0.102	0.158	-0.111	0.233	-0.086	-0.035	-0.075	0.118	0.453	-0.368	0.061	-0.087	-0.006
RnD_GDP	-0.007	0.087	0.361	-0.348	0.272	-0.220	-0.007	0.000	0.281	0.253	0.543	0.486	**1**	0.850	0.363	0.449	0.296	0.250	0.314	0.164	0.237	-0.164	0.274	0.357	0.366	0.051	-0.035	-0.052	0.217	-0.021	-0.119	-0.176	-0.010	-0.219	-0.052	-0.091	0.077	0.046	0.140	0.064	0.089	-0.138	0.056	0.174	-0.147	-0.028	-0.098	-0.083
RnD_EMP	0.044	0.128	0.364	-0.303	0.217	-0.235	0.048	-0.008	0.245	0.223	0.524	0.484	0.850	**1**	0.360	0.420	0.271	0.165	0.257	0.296	0.151	-0.260	0.418	0.343	0.302	0.053	-0.003	-0.026	0.223	0.019	-0.024	-0.162	0.024	-0.198	-0.035	-0.071	0.040	0.019	0.023	0.046	0.213	-0.121	0.057	0.180	-0.152	-0.009	-0.149	-0.159
MM_Ac	0.033	0.329	0.310	-0.562	0.439	-0.269	0.139	-0.199	0.227	0.378	0.479	0.574	0.363	0.360	**1**	0.642	0.147	0.286	-0.032	0.323	-0.032	-0.138	0.341	0.316	0.365	-0.052	-0.037	-0.004	0.441	-0.045	-0.182	-0.305	-0.085	-0.094	-0.014	-0.116	-0.139	0.036	0.202	0.022	-0.051	-0.094	0.052	0.320	-0.243	0.008	-0.189	-0.222
Avg_bus	-0.154	0.284	0.307	-0.449	0.442	-0.146	-0.076	-0.131	0.283	0.275	0.442	0.512	0.449	0.420	0.642	**1**	0.369	0.140	0.028	0.080	-0.142	-0.382	0.280	0.590	0.667	0.037	-0.005	-0.024	0.694	-0.015	-0.115	-0.196	-0.033	-0.383	-0.053	-0.075	-0.097	0.003	0.192	0.040	-0.157	-0.050	0.060	0.223	-0.182	-0.044	-0.203	-0.237
Gov_debt	-0.165	0.171	0.279	-0.276	0.071	0.075	-0.033	0.143	0.038	0.046	0.258	0.221	0.296	0.271	0.147	0.369	**1**	0.176	0.354	-0.025	0.147	-0.286	0.191	0.540	0.425	0.253	0.080	0.064	0.321	0.097	-0.013	0.101	0.104	-0.339	0.115	0.020	0.242	-0.084	0.021	0.171	-0.066	-0.050	-0.008	0.023	-0.011	-0.061	-0.187	-0.231
Cur_blc	0.084	-0.155	0.171	-0.340	0.199	-0.353	-0.021	0.183	0.082	0.237	0.401	0.488	0.250	0.165	0.286	0.140	0.176	**1**	0.439	0.044	0.309	0.202	0.373	0.340	0.048	0.122	0.139	0.177	0.135	0.174	-0.088	-0.123	0.157	0.132	0.289	0.001	0.251	-0.132	-0.017	0.027	-0.006	0.001	0.157	0.212	-0.227	0.234	-0.028	0.137
Gov_close	0.019	-0.014	0.314	-0.280	0.007	-0.162	-0.125	0.451	-0.033	0.137	0.406	0.333	0.314	0.257	-0.032	0.028	0.354	0.439	**1**	-0.040	0.797	0.024	0.366	0.441	0.184	0.287	0.168	0.148	0.082	0.335	0.030	-0.037	0.264	-0.016	0.102	0.100	0.507	-0.164	-0.008	-0.021	0.285	-0.110	0.013	0.230	-0.162	0.014	-0.001	0.128
Lab_comp	0.182	0.163	0.070	-0.180	0.230	-0.063	-0.010	-0.154	0.058	0.180	0.263	0.308	0.164	0.296	0.323	0.080	-0.025	0.044	-0.040	**1**	-0.070	0.018	0.256	-0.027	-0.138	-0.263	0.178	0.157	0.165	0.168	0.063	0.092	0.154	0.315	0.098	0.128	0.078	-0.183	-0.033	-0.012	0.144	-0.040	0.011	-0.017	0.005	0.004	-0.082	-0.077
Union	0.105	-0.017	0.204	-0.154	-0.005	-0.245	-0.120	0.389	-0.109	0.164	0.370	0.273	0.237	0.151	-0.032	-0.142	0.147	0.309	0.797	-0.070	**1**	0.190	0.130	0.126	0.050	0.173	-0.038	0.010	-0.167	0.057	-0.071	-0.319	0.075	0.066	-0.112	-0.064	0.348	0.036	0.171	-0.129	0.227	-0.137	0.060	0.319	-0.247	-0.100	-0.064	0.079
ML_barg	0.103	-0.091	-0.310	0.216	0.065	-0.122	-0.258	0.036	-0.092	0.058	-0.061	0.060	-0.164	-0.260	-0.138	-0.382	-0.286	0.202	0.024	0.018	0.190	**1**	-0.270	-0.016	-0.681	-0.009	0.528	0.558	0.069	0.488	0.512	0.350	0.487	0.599	0.606	0.486	0.495	-0.539	0.220	0.074	-0.170	-0.073	-0.056	-0.078	0.082	0.007	0.151	0.143
SHDI	0.337	0.051	0.487	-0.490	0.152	-0.232	0.159	0.143	0.122	0.231	0.355	0.347	0.274	0.418	0.341	0.280	0.191	0.373	0.366	0.256	0.130	-0.270	**1**	0.322	0.180	0.146	0.046	0.047	0.193	0.091	-0.023	-0.232	0.090	-0.027	0.110	-0.082	0.110	-0.037	-0.381	0.167	0.439	-0.052	0.045	0.175	-0.142	0.097	-0.194	-0.149
SC_Org	-0.166	0.223	0.215	-0.317	0.241	-0.132	-0.174	0.161	0.144	0.216	0.443	0.536	0.357	0.343	0.316	0.590	0.540	0.340	0.441	-0.027	0.126	-0.016	0.322	**1**	0.354	0.320	0.437	0.426	0.707	0.430	0.271	0.309	0.478	-0.160	0.439	0.268	0.498	-0.441	0.100	0.104	-0.063	-0.067	0.007	0.167	-0.116	0.072	-0.053	-0.089
EoC	-0.257	0.186	0.480	-0.440	0.050	0.000	0.218	0.087	0.128	0.129	0.360	0.324	0.366	0.302	0.365	0.667	0.425	0.048	0.184	-0.138	0.050	-0.681	0.180	0.354	**1**	0.157	-0.580	-0.582	0.088	-0.532	-0.634	-0.437	-0.534	-0.833	-0.582	-0.607	-0.419	0.587	0.194	0.006	0.015	-0.111	0.002	0.293	-0.198	-0.045	-0.117	-0.127
Cla	-0.181	-0.003	0.188	-0.204	-0.108	-0.106	-0.016	0.418	0.247	0.049	0.075	0.089	0.051	0.053	-0.052	0.037	0.253	0.122	0.287	-0.263	0.173	-0.009	0.146	0.320	0.157	**1**	0.017	0.021	0.006	0.039	0.003	0.054	0.045	-0.231	0.106	0.012	0.183	-0.014	-0.001	0.137	0.122	-0.106	0.027	0.168	-0.127	-0.028	-0.089	-0.161
AT	0.106	0.070	-0.328	0.131	0.237	-0.022	-0.457	0.013	0.018	0.031	0.011	0.107	-0.035	-0.003	-0.037	-0.005	0.080	0.139	0.168	0.178	-0.038	0.528	0.046	0.437	-0.580	0.017	**1**	0.946	0.669	0.959	0.936	0.854	0.741	0.927	0.669	0.866	0.880	0.821	-0.988	-0.086	0.042	-0.121	0.081	-0.033	-0.236	0.176	0.083	0.093	
BE	0.076	0.057	-0.335	0.144	0.243	-0.014	-0.460	-0.006	0.005	0.023	0.021	0.125	-0.052	-0.026	-0.004	-0.024	0.064	0.177	0.148	0.157	0.010	0.558	0.047	0.426	-0.582	0.021	0.946	**1**	0.634	0.905	0.824	0.713	0.896	0.638	0.837	0.850	0.792	-0.957	-0.065	0.052	-0.131	0.070	-0.021	-0.247	0.177	0.088	0.079	0.036
DE	-0.047	0.284	-0.027	-0.199	0.430	-0.059	-0.372	-0.061	0.180	0.173	0.291	0.394	0.217	0.223	0.441	0.694	0.321	0.135	0.082	0.165	-0.167	0.069	0.193	0.707	0.088	0.006	0.669	0.634	**1**	0.623	0.525	0.365	0.613	0.187	0.541	0.557	0.483	-0.682	0.062	0.062	-0.243	0.047	0.000	-0.035	0.024	0.021	-0.066	-0.138
DK	0.065	0.062	-0.271	0.105	0.190	-0.032	-0.408	0.063	0.018	0.034	0.043	0.132	-0.021	0.019	-0.045	-0.015	0.097	0.174	0.335	0.168	0.057	0.488	0.091	0.430	-0.532	0.039	0.936	0.905	0.623	**1**	0.815	0.704	0.887	0.628	0.828	0.841	0.783	-0.947	-0.097	0.038	-0.070	0.066	-0.021	-0.187	0.137	0.073	0.102	
EL	0.080	0.038	-0.323	0.369	0.110	-0.036	-0.406	-0.053	-0.015	-0.071	-0.174	-0.111	-0.119	-0.024	-0.182	-0.115	-0.013	-0.088	0.030	0.063	-0.071	0.512	-0.023	0.271	-0.634	0.003	0.854	0.824	0.525	0.815	**1**	0.626	0.807	0.543	0.749	0.762	0.706	-0.865	-0.168	0.066	-0.146	0.126	-0.060	-0.293	0.229	0.099	0.106	0.003
ES	-0.068	0.056	-0.469	0.260	0.009	0.206	-0.294	-0.026	-0.048	-0.119	-0.225	-0.097	-0.176	-0.162	-0.305	-0.196	0.101	-0.123	-0.037	0.092	-0.319	0.350	-0.232	0.309	-0.437	0.054	0.741	0.713	0.365	0.704	0.626	**1**	0.695	0.409	0.638	0.651	0.595	-0.752	-0.036	0.010	-0.147	0.078	-0.070	-0.327	0.257	0.125	0.244	0.151
FI	0.098	0.060	-0.286	0.116	0.207	-0.020	-0.432	0.047	-0.003	0.029	0.016	0.119	-0.010	0.024	-0.085	-0.033	0.104	0.157	0.264	0.154	0.075	0.487	0.090	0.478	-0.534	0.045	0.927	0.896	0.613	0.887	0.807	0.695	**1**	0.619	0.819	0.832	0.775	-0.938	-0.100	0.038	-0.058	0.063	-0.021	-0.179	0.132	0.080	0.048	0.040
IT	0.380	-0.063	-0.522	0.168	0.104	-0.072	-0.281	0.021	-0.090	0.048	-0.069	0.001	-0.219	-0.198	-0.094	-0.383	-0.339	0.132	-0.016	0.315	0.066	0.599	-0.027	-0.160	-0.833	-0.231	0.669	0.638	0.187	0.628	0.543	0.409	0.619	**1**	0.556	0.571	0.507	-0.680	-0.111	-0.115	-0.024	0.114	0.066	-0.157	0.070	0.029	0.078	0.184
NL	0.011	0.003	-0.209	0.092	0.136	-0.071	-0.274	0.032	0.040	0.033	0.013	0.160	-0.052	-0.035	-0.014	-0.053	0.115	0.289	0.102	0.098	-0.112	0.606	0.110	0.439	-0.582	0.106	0.866	0.837	0.541	0.828	0.749	0.638	0.819	0.556	**1**	0.774	0.718	-0.877	-0.120	0.163	-0.136	0.058	-0.012	-0.136	0.097	0.073	0.030	-0.030
PT	0.023	0.028	-0.211	0.184	0.276	0.066	-0.497	-0.090	0.032	-0.054	-0.127	-0.102	-0.091	-0.071	-0.116	-0.075	0.020	0.001	0.100	0.128	-0.064	0.486	-0.082	0.268	-0.607	0.012	0.880	0.850	0.557	0.841	0.762	0.651	0.832	0.571	0.774	**1**	0.730	-0.891	-0.070	0.082	-0.093	0.045	-0.051	-0.284	0.218	0.028	0.084	0.002
SE	0.085	0.030	-0.142	0.044	0.148	-0.070	-0.457	0.254	-0.040	0.047	0.137	0.158	0.077	0.040	-0.139	-0.097	0.242	0.251	0.507	0.078	0.348	0.495	0.110	0.498	-0.419	0.183	0.821	0.792	0.483	0.783	0.706	0.595	0.775	0.507	0.718	0.730	**1**	-0.832	-0.056	0.028	-0.001	0.019	-0.022	-0.107	0.083	0.088	0.124	0.138
UK	-0.093	-0.078	0.339	-0.135	-0.236	0.015	0.463	-0.016	-0.016	-0.029	-0.007	-0.111	0.046	0.019	0.036	0.003	-0.084	-0.132	-0.164	-0.183	0.036	-0.539	-0.037	-0.441	0.587	-0.014	-0.988	-0.957	-0.682	-0.947	-0.865	-0.752	-0.938	-0.680	-0.877	-0.891	-0.832	**1**	0.083	-0.043	0.134	-0.085	0.021	0.226	-0.164	-0.081	-0.094	-0.048
CRISIS-1: 90-93	-0.080	0.199	-0.040	-0.145	0.142	-0.127	0.000	-0.031	0.059	0.199	0.147	0.233	0.140	0.023	0.202	0.192	0.021	-0.017	-0.008	-0.033	0.171	0.220	-0.381	0.100	0.194	-0.001	-0.086	-0.065	0.062	-0.097	-0.168	-0.036	-0.100	-0.111	-0.120	-0.070	-0.056	0.083	**1**	0.317	0.238	-0.757	-0.098	0.236	-0.106	-0.138	0.036	0.035
CRISIS-2: 00-03	0.045	-0.032	0.272	-0.090	0.031	0.051	0.039	-0.032	0.126	0.002	-0.059	-0.086	0.064	0.046	0.022	0.040	0.171	0.027	-0.021	-0.012	-0.129	0.074	0.167	0.104	0.006	0.137	0.042	0.052	0.062	0.038	0.066	0.010	0.038	-0.115	0.163	0.082	0.028	-0.043	0.317	**1**	0.418	-0.741	-0.198	-0.186	0.232	-0.095	-0.148	-0.185
CRISIS-3: 08-09	0.303	-0.007	0.279	-0.226	-0.109	-0.085	0.216	0.180	0.021	0.067	0.021	-0.035	0.089	0.213	-0.051	-0.157	-0.066	-0.006	0.285	0.144	0.227	-0.170	0.439	-0.063	0.015	0.122	-0.121	-0.131	-0.243	-0.070	-0.146	-0.147	-0.058	-0.024	-0.136	-0.093	-0.001	0.134	0.238	0.418	**1**	-0.718	-0.086	0.165	-0.064	-0.023	-0.020	0.085
CRISIS-4:BTW	-0.105	-0.090	-0.205	0.209	-0.041	0.084	-0.108	-0.048	-0.090	-0.135	-0.064	-0.075	-0.138	-0.121	-0.094	-0.050	-0.050	0.001	-0.110	-0.040	-0.137	-0.073	-0.052	-0.067	-0.111	-0.106	0.081	0.070	0.047	0.066	0.126	0.078	0.063	0.114	0.058	0.045	0.019	-0.085	-0.757	-0.741	-0.718	**1**	0.167	-0.122	-0.008	0.120	0.048	0.045
LIS	-0.059	-0.010	-0.107	0.026	0.053	-0.141	-0.085	0.049	0.181	0.103	0.052	0.118	0.056	0.057	0.052	0.060	-0.008	0.157	0.013	0.011	0.060	-0.056	0.045	0.007	0.002	0.027	-0.033	-0.021	0.000	-0.021	-0.060	-0.070	-0.021	0.066	-0.012	-0.051	-0.022	0.021	-0.098	-0.198	-0.086	0.167	**1**	0.387	-0.779	-0.008	-0.037	-0.079
NED	0.074	0.164	0.155	-0.384	-0.088	-0.327	0.297	0.313	-0.026	0.295	0.364	0.453	0.174	0.180	0.320	0.223	0.023	0.212	0.230	-0.017	0.319	-0.078	0.175	0.167	0.293	0.168	-0.236	-0.247	-0.035	-0.187	-0.293	-0.327	-0.179	-0.157	-0.136	-0.284	-0.107	0.226	0.236	-0.186	0.165	-0.122	0.357	**1**	-0.864	-0.033	-0.149	-0.110
NIS	-0.018	-0.105	-0.046	0.244	0.030	0.296	-0.153	-0.237	-0.080	-0.254	-0.273	-0.368	-0.147	-0.152	-0.243	-0.182	-0.011	-0.227	-0.162	0.005	-0.247	0.082	-0.142	-0.116	-0.198	-0.127	0.176	0.177	0.024	0.137	0.229	0.257	0.132	0.070	0.097	0.218	0.083	-0.164	-0.106	0.232	-0.064	-0.008	-0.779	-0.864	**1**	0.026	0.120	0.116
Rec_DL	0.071	-0.035	-0.028	-0.039	0.022	-0.007	-0.004	0.009	-0.057	-0.075	0.012	0.061	-0.028	-0.009	0.008	-0.044	-0.061	0.234	0.014	0.004	-0.100	0.007	0.097	0.072	-0.045	-0.028	0.083	0.088	0.021	0.073	0.099	0.125	0.080	0.029	0.073	0.028	0.088	-0.081	-0.138	-0.095	-0.023	0.120	-0.008	-0.033	0.026	**1**	0.563	0.556
Ret_Tra_4	-0.007	-0.130	-0.124	0.114	-0.073	0.140	-0.041	-0.009	-0.046	-0.130	-0.093	-0.087	-0.098	-0.149	-0.189	-0.203	-0.187	-0.028	-0.001	-0.082	-0.064	0.151	-0.194	-0.053	-0.117	-0.089	0.093	0.079	-0.066	0.102	0.106	0.244	0.048	0.078	0.030	0.084	0.124	-0.094	0.036	-0.148	-0.020	0.048	-0.037	-0.149	0.120	0.563	**1**	0.763
Ret_Tra_8	0.203	-0.237	-0.154	0.023	-0.060	0.115	-0.043	0.064	-0.148	-0.084	-0.024	-0.006	-0.083	-0.159	-0.222	-0.237	-0.231	0.137	0.128	-0.077	0.079	0.143	-0.149	-0.089	-0.127	-0.161		0.036	-0.138		0.003	0.151	0.040	0.184	-0.030	0.002	0.138	-0.048	0.035	-0.185	0.085	0.045	-0.079	-0.110	0.116	0.556	0.763	**1**

Stepwise analysis of covariance on regional Employment resilience performance by urban-rural typology
Intermediate regions - Recovery of development level

Summary of the variables selection Rec_DL:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	Cur_blc	Cur_blc	IN	0,009	0,055	0,052	108,223	-2098,478	-2090,260	0,954
2	Cur_blc / NAT	NAT	IN	0,008	0,171	0,148	61,920	-2135,663	-2082,243	0,878
3	Cur_blc / Union / NAT	Union	IN	0,008	0,196	0,172	49,190	-2147,516	-2089,986	0,855
4	PROD / Cur_blc / Union / NAT	PROD	IN	0,008	0,217	0,192	39,076	-2157,236	-2095,597	0,837
5	PROD / RnD_EMP / Cur_blc / Union / NAT	RnD_EMP	IN	0,008	0,230	0,204	33,306	-2162,918	-2097,170	0,827
6	PROD / RnD_EMP / Cur_blc / Union / NAT / CRISIS	CRISIS	IN	0,008	0,246	0,214	30,116	-2166,175	-2088,100	0,821
7	Const_EMP / PROD / RnD_EMP / Cur_blc / Union / NAT / CRISIS	Const_EMP	IN	0,008	0,254	0,221	27,238	-2169,169	-2086,984	0,815
8	Const_EMP / PROD / RnD_EMP / MM_Ac / Cur_blc / Union / NAT / CRISIS	MM_Ac	IN	0,008	0,262	0,227	24,843	-2171,714	-2085,420	0,811

Stepwise analysis of covariance on regional Employment resilience performance by urban-rural typology
Intermediate regions - Recovery of development level

Goodness of fit statistics (Rec_DL):

Observations	450
Sum of weights	450
DF	429
R^2	0,262
Adjusted R^2	0,227
MSE	0,008
RMSE	0,088
MAPE	231,453
DW	1,497
Cp	24,843
AIC	-2171,714
SBC	-2085,420
PC	0,811
Press	3,656
Q^2	0,179

Analysis of variance (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	20	1,165	0,058	7,601	**<0,0001**
Error	429	3,287	0,008		
Corrected '	449	4,451			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional Employment resilience performance by urban-rural typology
Intermediate regions - Recovery of development level

Type I Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	1,000	0,000	0,000	**0,028**	0,867
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,018	0,018	2,309	0,129
RnD_GDP	0,000	0,000			
RnD_EMP	1,000	0,008	0,008	1,104	0,294
MM_Ac	1,000	0,003	0,003	0,449	0,503
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,255	0,255	33,314	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,144	0,144	18,858	0,000
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	11,000	0,657	0,060	7,798	0,000
CRISIS	3,000	0,078	0,026	3,391	0,018
Shock	0,000	0,000			

Type II Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	1,000	0,044	0,044	5,755	0,017
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,112	0,112	14,653	0,000
RnD_GDP	0,000	0,000			
RnD_EMP	1,000	0,069	0,069	8,972	0,003
MM_Ac	1,000	0,033	0,033	4,356	0,037
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,258	0,258	33,680	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,074	0,074	9,598	0,002
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	11,000	0,608	0,055	7,212	0,000
CRISIS	3,000	0,078	0,026	3,391	0,018
Shock	0,000	0,000			

Type III Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	1,000	0,044	0,044	5,755	0,017
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,112	0,112	14,653	0,000
RnD_GDP	0,000	0,000			
RnD_EMP	1,000	0,069	0,069	8,972	0,003
MM_Ac	1,000	0,033	0,033	4,356	0,037
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,258	0,258	33,680	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,074	0,074	9,598	0,002
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	11,000	0,608	0,055	7,212	0,000
CRISIS	3,000	0,078	0,026	3,391	0,018
Shock	0,000	0,000			

Stepwise analysis of covariance on regional Employment resilience performance by urban-rural typology
Intermediate regions - Recovery of development level

Model parameters (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,104	0,121	0,863	0,389	-0,133	0,342
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_EMP	0,000	0,000				
Manu_EMP	0,000	0,000				
Const_EMP	0,397	0,258	1,536	0,125	-0,111	0,905
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,033	0,009	3,581	**0,000**	0,015	0,052
RnD_GDP	0,000	0,000				
RnD_EMP	-0,020	0,005	-3,677	**0,000**	-0,030	-0,009
MM_Ac	0,000	0,000	1,806	0,072	0,000	0,001
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,017	0,004	4,419	**<0,0001**	0,009	0,024
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	-0,006	0,003	-2,045	**0,041**	-0,012	0,000
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	-0,042	0,021	-1,980	**0,048**	-0,084	0,000
BE	-0,015	0,046	-0,314	0,753	-0,106	0,077
DE	-0,098	0,045	-2,172	**0,030**	-0,187	-0,009
DK	0,065	0,103	0,632	0,528	-0,137	0,266
EL	0,155	0,061	2,536	**0,012**	0,035	0,275
ES	-0,056	0,095	-0,593	0,553	-0,242	0,130
FI	0,142	0,100	1,421	0,156	-0,054	0,337
IT	-0,051	0,021	-2,385	**0,018**	-0,093	-0,009
NL	-0,214	0,051	-4,230	**<0,0001**	-0,314	-0,115
PT	0,016	0,071	0,231	0,818	-0,123	0,156
SE	0,143	0,099	1,445	0,149	-0,052	0,339
UK	-0,045	0,034	-1,339	0,181	-0,111	0,021
CRISIS-1: 9(	0,006	0,020	0,325	0,746	-0,032	0,045
CRISIS-2: 0(	-0,035	0,014	-2,397	**0,017**	-0,063	-0,006
CRISIS-3: 0(	0,017	0,018	0,969	0,333	-0,017	0,052
CRISIS-4:B'	0,011	0,014	0,832	0,406	-0,015	0,038
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_EMP	0,000	0,000				
Manu_EMP	0,000	0,000				
Const_EMP	0,123	0,080	1,536	0,125	-0,034	0,280
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,319	0,089	3,581	**0,000**	0,144	0,494
RnD_GDP	0,000	0,000				
RnD_EMP	-0,171	0,046	-3,677	**0,000**	-0,262	-0,080
MM_Ac	0,147	0,081	1,806	0,072	-0,013	0,307
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,500	0,113	4,419	**<0,0001**	0,278	0,723
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	-0,791	0,387	-2,045	**0,041**	-1,551	-0,031
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	-0,132	0,067	-1,980	**0,048**	-0,263	-0,001
BE	-0,047	0,151	-0,314	0,753	-0,343	0,249
DE	-0,632	0,291	-2,172	**0,030**	-1,203	-0,060
DK	0,213	0,337	0,632	0,528	-0,449	0,875
EL	0,573	0,226	2,536	**0,012**	0,129	1,017
ES	-0,255	0,430	-0,593	0,553	-1,100	0,590
FI	0,471	0,331	1,421	0,156	-0,181	1,123
IT	-0,291	0,122	-2,385	**0,018**	-0,530	-0,051
NL	-0,777	0,184	-4,230	**<0,0001**	-1,137	-0,416
PT	0,058	0,253	0,231	0,818	-0,439	0,556
SE	0,559	0,387	1,445	0,149	-0,201	1,320
UK	-0,139	0,104	-1,339	0,181	-0,343	0,065
CRISIS-1: 9(	0,045	0,139	0,325	0,746	-0,229	0,319
CRISIS-2: 0(	-0,182	0,076	-2,397	**0,017**	-0,330	-0,033
CRISIS-3: 0(	0,097	0,100	0,969	0,333	-0,099	0,293
CRISIS-4:B'	0,037	0,045	0,832	0,406	-0,051	0,126
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Stepwise analysis of covariance on regional Employment resilience performance by urban-rural typology
Intermediate regions - Growth trajectory recovery (4 year recovery period)

Summary of the variables selection Ret_Tra_4:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	NAT	NAT	IN	0,000	0,126	0,104	112,131	-3516,512	-3467,201	0,922
2	Gov_debt / NAT	Gov_debt	IN	0,000	0,176	0,154	82,869	-3541,444	-3488,024	0,873
3	Gov_debt / Cur_blc / NAT	Cur_blc	IN	0,000	0,195	0,171	73,225	-3549,903	-3492,373	0,856
4	Const_EMP / Gov_debt / Cur_blc / NAT	Const_EMP	IN	0,000	0,213	0,188	64,396	-3557,852	-3496,213	0,841
5	Const_EMP / Gov_debt / Cur_blc / NAT / CRISIS	CRISIS	IN	0,000	0,236	0,206	55,930	-3565,495	-3491,528	0,827
6	Const_EMP / Avg_bus / Gov_debt / Cur_blc / NAT / CRISIS	Avg_bus	IN	0,000	0,249	0,218	49,933	-3571,219	-3493,143	0,817
7	Mig_net / Const_EMP / Avg_bus / Gov_debt / Cur_blc / NAT / CRISIS	Mig_net	IN	0,000	0,260	0,227	45,523	-3575,507	-3493,322	0,809
8	Mig_net / Pop_work / Const_EMP / Avg_bus / Gov_debt / Cur_blc / NAT / CRISIS	Pop_work	IN	0,000	0,268	0,234	42,282	-3578,714	-3492,420	0,803
9	Mig_net / Pop_work / Const_EMP / Avg_bus / Gov_debt / Cur_blc / NAT / CRISIS / NORM_SHOCK	)RM_SHO(	IN	0,000	0,279	0,242	39,435	-3581,610	-3487,097	0,798
10	Mig_net / Pop_work / Agri_EMP / Const_EMP / Avg_bus / Gov_debt / Cur_blc / NAT / CRISIS / NORM_SHOCK	Agri_EMP	IN	0,000	0,287	0,249	36,704	-3584,437	-3485,815	0,793
9	Mig_net / Agri_EMP / Const_EMP / Avg_bus / Gov_debt / Cur_blc / NAT / CRISIS / NORM_SHOCK	Pop_work	OUT	0,000	0,287	0,250	34,704	-3586,437	-3491,924	0,790

Stepwise analysis of covariance on regional Employment resilience performance by urban-rural typology
Intermediate regions - Growth trajectory recovery (4 year recovery period)

Goodness of fit statistics (Ret_Tra_4):

Observations	450
Sum of weights	450
DF	427
R^2	0,287
Adjusted R^2	0,250
MSE	0,000
RMSE	0,018
MAPE	266,878
DW	1,671
Cp	34,704
AIC	-3586,437
SBC	-3491,924
PC	0,790
Press	0,162
Q^2	0,176

Analysis of variance (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	22	0,057	0,003	7,816	**<0,0001**
Error	427	0,140	0,000		
Corrected '	449	0,197			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional Employment resilience performance by urban-rural typology
Intermediate regions - Growth trajectory recovery (4 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	1,000	0,003	0,003	10,171	0,002
Pop_work	0,000	0,000			
Agri_EMP	1,000	0,002	0,002	4,991	0,026
Manu_EMP	0,000	0,000			
Const_EMP	1,000	0,003	0,003	9,376	0,002
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	1,000	0,004	0,004	11,439	0,001
Gov_debt	1,000	0,003	0,003	10,460	0,001
Cur_blc	1,000	0,001	0,001	1,713	0,191
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	11,000	0,030	0,003	8,188	0,000
CRISIS	3,000	0,007	0,002	7,088	0,000
Shock	2,000	0,003	0,002	4,908	0,008

Type II Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	1,000	0,002	0,002	6,794	0,009
Pop_work	0,000	0,000			
Agri_EMP	1,000	0,002	0,002	4,605	0,032
Manu_EMP	0,000	0,000			
Const_EMP	1,000	0,003	0,003	7,602	0,006
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	1,000	0,004	0,004	10,805	0,001
Gov_debt	1,000	0,008	0,008	24,478	0,000
Cur_blc	1,000	0,004	0,004	11,677	0,001
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	11,000	0,027	0,002	7,572	0,000
CRISIS	3,000	0,011	0,004	10,912	0,000
Shock	2,000	0,003	0,002	4,908	0,008

Type III Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	1,000	0,002	0,002	6,794	0,009
Pop_work	0,000	0,000			
Agri_EMP	1,000	0,002	0,002	4,605	0,032
Manu_EMP	0,000	0,000			
Const_EMP	1,000	0,003	0,003	7,602	0,006
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	1,000	0,004	0,004	10,805	0,001
Gov_debt	1,000	0,008	0,008	24,478	0,000
Cur_blc	1,000	0,004	0,004	11,677	0,001
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	11,000	0,027	0,002	7,572	0,000
CRISIS	3,000	0,011	0,004	10,912	0,000
Shock	2,000	0,003	0,002	4,908	0,008

Stepwise analysis of covariance on regional Employment resilience performance by urban-rural typology
Intermediate regions - Growth trajectory recovery (4 year recovery period)

Model parameters (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,008	0,006	-1,296	0,196	-0,020	0,004
Pop_age	0,000	0,000				
Mig_net	0,000	0,000	-1,638	0,102	-0,001	0,000
Pop_work	0,000	0,000				
Agri_EMP	-0,046	0,032	-1,418	0,157	-0,110	0,018
Manu_EMP	0,000	0,000				
Const_EMP	0,094	0,046	2,056	**0,040**	0,004	0,184
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	-0,002	0,001	-3,726	**0,000**	-0,003	-0,001
Gov_debt	-0,002	0,000	-4,330	**<0,0001**	-0,003	-0,001
Cur_blc	0,002	0,000	3,568	**0,000**	0,001	0,003
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	-0,010	0,004	-2,358	**0,019**	-0,018	-0,002
BE	-0,023	0,006	-3,677	**0,000**	-0,036	-0,011
DE	0,018	0,005	3,391	**0,001**	0,008	0,029
DK	0,007	0,004	1,697	0,090	-0,001	0,015
EL	0,019	0,008	2,301	**0,022**	0,003	0,036
ES	0,020	0,008	2,640	**0,009**	0,005	0,035
FI	-0,021	0,003	-6,058	**<0,0001**	-0,027	-0,014
IT	-0,007	0,004	-1,614	0,107	-0,015	0,001
NL	-0,005	0,006	-0,924	0,356	-0,016	0,006
PT	-0,004	0,009	-0,411	0,682	-0,021	0,013
SE	0,008	0,004	1,746	0,082	-0,001	0,016
UK	-0,002	0,004	-0,513	0,608	-0,011	0,006
CRISIS-1: 9(	0,007	0,002	3,386	**0,001**	0,003	0,012
CRISIS-2: 0(	-0,012	0,003	-3,766	**0,000**	-0,019	-0,006
CRISIS-3: 0(	0,003	0,002	1,433	0,152	-0,001	0,008
CRISIS-4:B'	0,002	0,003	0,636	0,525	-0,004	0,007
LIS	0,002	0,002	1,198	0,232	-0,001	0,006
NED	-0,005	0,002	-2,816	**0,005**	-0,008	-0,002
NIS	0,003	0,002	1,186	0,236	-0,002	0,007

Standardized coefficients (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	-0,122	0,074	-1,638	0,102	-0,268	0,024
Pop_work	0,000	0,000				
Agri_EMP	-0,136	0,096	-1,418	0,157	-0,324	0,052
Manu_EMP	0,000	0,000				
Const_EMP	0,139	0,067	2,056	**0,040**	0,006	0,271
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	-0,501	0,135	-3,726	**0,000**	-0,766	-0,237
Gov_debt	-0,288	0,067	-4,330	**<0,0001**	-0,419	-0,157
Cur_blc	0,240	0,067	3,568	**0,000**	0,108	0,373
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	-0,148	0,063	-2,358	**0,019**	-0,271	-0,025
BE	-0,362	0,098	-3,677	**0,000**	-0,555	-0,168
DE	0,553	0,163	3,391	**0,001**	0,232	0,874
DK	0,110	0,065	1,697	0,090	-0,017	0,237
EL	0,341	0,148	2,301	**0,022**	0,050	0,633
ES	0,433	0,164	2,640	**0,009**	0,111	0,756
FI	-0,328	0,054	-6,058	**<0,0001**	-0,435	-0,222
IT	-0,186	0,116	-1,614	0,107	-0,414	0,041
NL	-0,091	0,098	-0,924	0,356	-0,283	0,102
PT	-0,060	0,146	-0,411	0,682	-0,348	0,227
SE	0,139	0,080	1,746	0,082	-0,018	0,296
UK	-0,033	0,064	-0,513	0,608	-0,158	0,093
CRISIS-1: 9(	0,250	0,074	3,386	**0,001**	0,105	0,396
CRISIS-2: 0(	-0,310	0,082	-3,766	**0,000**	-0,472	-0,148
CRISIS-3: 0(	0,088	0,061	1,433	0,152	-0,033	0,208
CRISIS-4:B'	0,027	0,043	0,636	0,525	-0,057	0,112
LIS	0,069	0,057	1,198	0,232	-0,044	0,181
NED	-0,187	0,066	-2,816	**0,005**	-0,317	-0,056
NIS	0,050	0,042	1,186	0,236	-0,033	0,134

Stepwise analysis of covariance on regional Employment resilience performance by urban-rural typology
Intermediate regions - Growth trajectory recovery (8 year recovery period)

Summary of the variables selection Ret_Tra_8:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	NAT	NAT	IN	0,000	0,157	0,136	169,632	-2969,615	-2930,561	0,890
2	Cur_blc / NAT	Cur_blc	IN	0,000	0,214	0,192	136,552	-2993,421	-2950,462	0,834
3	Gov_debt / Cur_blc / NAT	Gov_debt	IN	0,000	0,250	0,227	116,759	-3008,417	-2961,553	0,801
4	Const_EMP / Gov_debt / Cur_blc / NAT	Const_EMP	IN	0,000	0,283	0,259	98,169	-3023,232	-2972,463	0,769
5	Mig_net / Const_EMP / Gov_debt / Cur_blc / NAT	Mig_net	IN	0,000	0,303	0,277	88,355	-3031,240	-2976,565	0,753
6	Mig_net / Const_EMP / Gov_debt / Cur_blc / Clu / NAT	Clu	IN	0,000	0,323	0,296	78,019	-3039,990	-2981,409	0,735
7	Mig_net / Const_EMP / Gov_debt / Cur_blc / Clu / NAT / CRISIS	CRISIS	IN	0,000	0,349	0,318	67,857	-3048,568	-2978,272	0,718
8	Pop_age / Mig_net / Const_EMP / Gov_debt / Cur_blc / Clu / NAT / CRISIS	Pop_age	IN	0,000	0,369	0,336	57,674	-3057,952	-2983,751	0,700
9	Pop_age / Mig_net / Const_EMP / Gov_debt / Cur_blc / Union / Clu / NAT / CRISIS	Union	IN	0,000	0,386	0,352	49,419	-3065,817	-2987,710	0,685
10	Pop_age / Mig_net / Const_EMP / Gov_debt / Cur_blc / Union / Clu / NAT / CRISIS / NORM_SHOCK	NORM_SHOC	IN	0,000	0,398	0,362	45,699	-3069,422	-2983,504	0,678
11	Pop_age / Mig_net / Const_EMP / PROD / Gov_debt / Cur_blc / Union / Clu / NAT / CRISIS / NORM_SHOCK	PROD	IN	0,000	0,408	0,371	41,532	-3073,613	-2983,790	0,671
12	Pop_age / Mig_net / Const_EMP / PROD / RnD_EMP / Gov_debt / Cur_blc / Union / Clu / NAT / CRISIS / NORM_SHOCK	RnD_EMP	IN	0,000	0,432	0,393	29,417	-3086,188	-2992,459	0,648
13	Pop_age / Mig_net / Const_EMP / PROD / RnD_EMP / Gov_debt / Cur_blc / Lab_comp / Union / Clu / NAT / CRISIS / NORM_SHOCK	Lab_comp	IN	0,000	0,444	0,405	23,629	-3092,483	-2994,849	0,637

Stepwise analysis of covariance on regional Employment resilience performance by urban-rural typology
Intermediate regions - Growth trajectory recovery (8 year recovery period)

Goodness of fit statistics (Ret_Tra_8):

Observations	367
Sum of weights	367
DF	342
R^2	0,444
Adjusted R^2	0,405
MSE	0,000
RMSE	0,014
MAPE	1015,358
DW	1,581
Cp	23,629
AIC	-3092,483
SBC	-2994,849
PC	0,637
Press	0,085
Q^2	0,328

Analysis of variance (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	24	0,056	0,002	11,389	**<0,0001**
Error	342	0,070	0,000		
Corrected ′	366	0,126			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional Employment resilience performance by urban-rural typology
Intermediate regions - Growth trajectory recovery (8 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,005	0,005	25,260	0,000
Mig_net	1,000	0,006	0,006	31,223	0,000
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	1,000	0,003	0,003	13,023	0,000
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,001	0,001	6,618	0,011
RnD_GDP	0,000	0,000			
RnD_EMP	1,000	0,003	0,003	15,037	0,000
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,003	0,003	14,677	0,000
Cur_blc	1,000	0,001	0,001	4,296	0,039
Gov_close	0,000	0,000			
Lab_comp	1,000	0,001	0,001	5,193	0,023
Union	1,000	0,001	0,001	2,595	0,108
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,002	0,002	10,475	0,001
NAT	9,000	0,023	0,003	12,613	0,000
CRISIS	3,000	0,004	0,001	6,102	0,000
Shock	2,000	0,003	0,001	6,561	0,002

Type II Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,002	0,002	9,904	0,002
Mig_net	1,000	0,003	0,003	16,788	0,000
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	1,000	0,004	0,004	17,228	0,000
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,005	0,005	22,464	0,000
RnD_GDP	0,000	0,000			
RnD_EMP	1,000	0,002	0,002	9,247	0,003
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,001	0,001	4,873	0,028
Cur_blc	1,000	0,004	0,004	18,220	0,000
Gov_close	0,000	0,000			
Lab_comp	1,000	0,002	0,002	7,818	0,005
Union	1,000	0,001	0,001	5,249	0,023
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,002	0,002	9,599	0,002
NAT	9,000	0,015	0,002	8,039	0,000
CRISIS	3,000	0,005	0,002	7,533	0,000
Shock	2,000	0,003	0,001	6,561	0,002

Type III Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,002	0,002	9,904	0,002
Mig_net	1,000	0,003	0,003	16,788	0,000
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	1,000	0,004	0,004	17,228	0,000
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,005	0,005	22,464	0,000
RnD_GDP	0,000	0,000			
RnD_EMP	1,000	0,002	0,002	9,247	0,003
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,001	0,001	4,873	0,028
Cur_blc	1,000	0,004	0,004	18,220	0,000
Gov_close	0,000	0,000			
Lab_comp	1,000	0,002	0,002	7,818	0,005
Union	1,000	0,001	0,001	5,249	0,023
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	1,000	0,002	0,002	9,599	0,002
NAT	9,000	0,015	0,002	8,039	0,000
CRISIS	3,000	0,005	0,002	7,533	0,000
Shock	2,000	0,003	0,001	6,561	0,002

Stepwise analysis of covariance on regional Employment resilience performance by urban-rural typology
Intermediate regions - Growth trajectory recovery (8 year recovery period)

Model parameters (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,021	0,031	0,690	0,491	-0,039	0,082
Pop_age	0,009	0,003	2,505	**0,013**	0,002	0,016
Mig_net	0,000	0,000	-2,791	**0,006**	-0,001	0,000
Pop_work	0,000	0,000				
Agri_EMP	0,000	0,000				
Manu_EMP	0,000	0,000				
Const_EMP	0,123	0,036	3,370	**0,001**	0,051	0,194
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,008	0,002	3,488	**0,001**	0,004	0,013
RnD_GDP	0,000	0,000				
RnD_EMP	-0,004	0,001	-3,389	**0,001**	-0,006	-0,002
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	-0,001	0,000	-2,185	**0,030**	-0,002	0,000
Cur_blc	0,003	0,001	4,042	**<0,0001**	0,001	0,004
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000	-1,979	**0,049**	0,000	0,000
Union	-0,001	0,001	-1,369	0,172	-0,003	0,000
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	-0,001	0,000	-2,102	**0,036**	-0,002	0,000
AT	0,000	0,000				
BE	-0,019	0,013	-1,445	0,149	-0,045	0,007
DE	-0,011	0,008	-1,267	0,206	-0,027	0,006
DK	0,000	0,000				
EL	0,011	0,012	0,972	0,332	-0,012	0,035
ES	-0,009	0,022	-0,419	0,676	-0,053	0,034
FI	0,031	0,030	1,033	0,302	-0,028	0,089
IT	-0,008	0,005	-1,598	0,111	-0,017	0,002
NL	-0,034	0,012	-2,923	**0,004**	-0,057	-0,011
PT	-0,006	0,012	-0,534	0,593	-0,030	0,017
SE	0,049	0,028	1,749	0,081	-0,006	0,104
UK	-0,001	0,004	-0,309	0,758	-0,010	0,007
CRISIS-1: 9(	0,010	0,005	1,765	0,078	-0,001	0,020
CRISIS-2: 0(	-0,010	0,004	-2,436	**0,015**	-0,018	-0,002
CRISIS-3: 0(	0,000	0,006	0,024	0,981	-0,012	0,012
CRISIS-4:B7	0,000	0,004	0,053	0,958	-0,007	0,008
LIS	0,001	0,002	0,453	0,651	-0,003	0,004
NED	-0,005	0,002	-3,106	**0,002**	-0,009	-0,002
NIS	0,004	0,002	2,155	**0,032**	0,000	0,009

Standardized coefficients (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,156	0,062	2,505	**0,013**	0,034	0,279
Mig_net	-0,199	0,071	-2,791	**0,006**	-0,338	-0,059
Pop_work	0,000	0,000				
Agri_EMP	0,000	0,000				
Manu_EMP	0,000	0,000				
Const_EMP	0,214	0,063	3,370	**0,001**	0,089	0,339
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,419	0,120	3,488	**0,001**	0,183	0,655
RnD_GDP	0,000	0,000				
RnD_EMP	-0,176	0,052	-3,389	**0,001**	-0,279	-0,074
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	-0,175	0,080	-2,185	**0,030**	-0,333	-0,018
Cur_blc	0,355	0,088	4,042	**<0,0001**	0,182	0,528
Gov_close	0,000	0,000				
Lab_comp	-0,151	0,076	-1,979	**0,049**	-0,301	-0,001
Union	-0,718	0,525	-1,369	0,172	-1,750	0,314
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	-0,151	0,072	-2,102	**0,036**	-0,292	-0,010
AT	0,000	0,000				
BE	-0,328	0,227	-1,445	0,149	-0,774	0,118
DE	-0,378	0,298	-1,267	0,206	-0,965	0,209
DK	0,000	0,000				
EL	0,219	0,225	0,972	0,332	-0,224	0,662
ES	-0,230	0,549	-0,419	0,676	-1,310	0,850
FI	0,506	0,490	1,033	0,302	-0,457	1,470
IT	-0,219	0,137	-1,598	0,111	-0,489	0,051
NL	-0,671	0,230	-2,923	**0,004**	-1,122	-0,220
PT	-0,119	0,223	-0,534	0,593	-0,557	0,319
SE	1,032	0,590	1,749	0,081	-0,129	2,192
UK	-0,022	0,070	-0,309	0,758	-0,159	0,116
CRISIS-1: 9(	0,367	0,208	1,765	0,078	-0,042	0,775
CRISIS-2: 0(	-0,293	0,120	-2,436	**0,015**	-0,529	-0,056
CRISIS-3: 0(	0,003	0,141	0,024	0,981	-0,274	0,281
CRISIS-4:B7	0,004	0,066	0,053	0,958	-0,127	0,134
LIS	0,027	0,059	0,453	0,651	-0,089	0,142
NED	-0,226	0,073	-3,106	**0,002**	-0,369	-0,083
NIS	0,096	0,044	2,155	**0,032**	0,008	0,183

III.d.ii.3. Rural regions

Stepwise analysis of covariance on regional Employment resilience performance by urban-rural typology
Rural regions

Settings:
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Model selection: Stepwise
Probability for entry: 0,05 / Probability for removal: 0,1
Covariances: Corrections = Newey West (adjusted)(Lag = 1)
Use least squares means: Yes
Explanation of the variable codes can be found in table 28

Summary statistics (Quantitative data):

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Rec_DL	268	0	268	-0,645	0,899	-0,103	0,125
Ret_Tra_4	268	0	268	-0,182	0,073	-0,006	0,030
Ret_Tra_8	268	60	208	-0,062	0,048	-0,007	0,020
Pop_age	268	0	268	0,277	2,515	1,190	0,391
Mig_net	268	0	268	-16,024	52,407	3,139	7,434
Pop_work	268	0	268	0,330	0,671	0,461	0,059
Agri_EMP	268	0	268	0,000	0,585	0,135	0,106
Manu_EMP	268	0	268	0,039	0,536	0,191	0,094
Const_EMP	268	0	268	0,037	0,294	0,093	0,034
Serv_EMP	268	0	268	0,125	0,546	0,310	0,068
Pub_EMP	268	0	268	0,087	0,446	0,271	0,065
HHI	268	0	268	0,175	0,368	0,221	0,030
GDP_PC	268	0	268	-1,260	1,692	-0,323	0,442
GFCF_PC	268	0	268	-1,966	2,328	-0,239	0,870
PROD	268	0	268	-2,858	2,834	-0,483	1,107
RnD_GDP	268	0	268	0,066	7,758	1,411	1,242
RnD_EMP	268	0	268	0,000	4,938	1,104	0,795
MM_Ac	268	0	268	24,795	151,318	74,298	30,242
Avg_bus	268	0	268	1,349	18,605	7,382	5,243
Gov_debt	268	0	268	-15,100	6,700	-4,551	3,159
Cur_blc	268	0	268	-14,500	7,500	-1,876	3,539
Gov_close	268	0	268	0,370	31,490	5,475	5,117
Lab_comp	268	0	268	540,731	133021,480	17536,655	15730,973
Union	268	0	268	9,341	74,629	31,829	12,960
ML_barg	268	0	268	1,000	4,750	2,819	0,805
SHDI	268	0	268	0,705	0,924	0,816	0,048
SC_Org	268	0	268	0,038	0,286	0,109	0,052
EoC	268	0	268	46,900	100,000	67,804	17,244
Clu	268	0	268	0,451	11,407	2,598	1,670

Number of removed observations: 91

Summary statistics (Qualitative data):

Variable	Categories	Counts	Frequencies	%
NAT	AT	6	6	2,239
	BE	2	2	0,746
	DE	83	83	30,970
	DK	4	4	1,493
	EL	28	28	10,448
	ES	17	17	6,343
	FI	11	11	4,104
	FR	16	16	5,970
	IT	37	37	13,806
	NL	2	2	0,746
	PT	35	35	13,060
	SE	4	4	1,493
	UK	23	23	8,582
CRISIS	1: 90-93	109	109	40,672
	2: 00-03	55	55	20,522
	3: 08-09	46	46	17,164
	4:BTW	58	58	21,642
Shock	LIS	96	96	35,821
	NED	104	104	38,806
	NIS	68	68	25,373

Stepwise analysis of covariance on regional Employment resilience performance by urban-rural typology
Rural regions

Correlation matrix:

	Pop_age	Mig_net	Pop_work	Agri_EMP	Manu_EMP	Const_EMP	Serv_EMP	Pub_EMP	HHI	GDP_PC	GFCF_PC	PROD	RnD_GDP	RnD_EMP	MM_Ac	Avg_bus	Gov_debt	Cur_blc	Gov_close	Lab_comp	Union	ML_barg	SHDI	SC_Org	EoC	Clu	AT	BE	DE	DK	EL	ES	FI	FR	IT	NL	PT	SE	UK	CRISIS-1: 90-93	CRISIS-2: 00-03	CRISIS-3: 08-09	CRISIS-4:BTW	LIS	NED	NIS	Rec_DL	Ret_Tra_4	Ret_Tra_8
Pop_age	**1**	-0.084	-0.013	0.124	-0.119	-0.065	0.002	0.002	-0.074	-0.150	-0.329	-0.267	-0.126	-0.018	-0.181	-0.266	-0.156	-0.337	-0.150	0.151	-0.108	0.047	0.096	-0.274	-0.303	-0.149	0.067	0.091	-0.110	0.093	0.135	0.167	0.062	0.040	0.212	0.107	0.247	0.126	-0.126	-0.174	0.111	0.208	-0.041	0.082	0.147	-0.137	-0.084	0.069	0.074
Mig_net	-0.084	**1**	-0.028	-0.248	0.203	-0.061	0.128	0.007	0.194	0.295	0.252	0.381	0.143	0.175	0.311	0.268	0.059	-0.071	-0.088	0.143	0.046	-0.030	0.100	0.222	0.207	0.055	-0.079	-0.042	0.188	-0.075	-0.004	-0.024	-0.084	-0.102	-0.075	-0.060	-0.163	-0.048	0.048	0.230	-0.031	0.016	-0.101	0.025	0.277	-0.182	-0.090	-0.171	-0.242
Pop_work	-0.013	-0.028	**1**	-0.097	0.094	0.078	-0.008	-0.012	-0.026	0.030	0.196	-0.132	0.143	0.099	0.020	0.250	0.210	-0.019	0.195	0.040	0.199	-0.363	0.243	0.032	0.399	0.278	-0.292	-0.363	-0.069	-0.266	-0.357	-0.413	-0.235	-0.445	-0.482	-0.340	0.024	-0.280	0.355	-0.011	0.206	0.194	-0.149	-0.213	-0.030	0.145	-0.096	-0.316	-0.289
Agri_EMP	0.124	-0.248	-0.097	**1**	-0.477	-0.136	-0.399	-0.450	-0.196	-0.497	-0.638	-0.687	-0.363	-0.324	-0.609	-0.569	-0.299	-0.423	-0.346	-0.264	-0.195	0.307	-0.588	-0.557	-0.549	-0.193	0.073	0.074	-0.368	0.034	0.284	0.160	0.016	0.088	0.005	0.065	0.425	0.033	-0.080	-0.069	0.016	-0.135	0.077	0.044	-0.280	0.144	-0.006	0.136	0.056
Manu_EMP	-0.119	0.203	0.094	-0.477	**1**	-0.224	-0.308	-0.234	0.153	0.415	0.340	0.403	0.367	0.281	0.628	0.606	0.182	0.307	0.102	0.303	0.029	-0.048	0.219	0.462	0.272	0.127	0.212	0.165	0.561	0.161	-0.054	0.019	0.145	0.104	0.081	0.196	0.056	0.162	-0.204	0.276	0.048	0.006	-0.149	-0.046	0.137	-0.056	-0.026	-0.049	-0.152
Const_EMP	-0.065	-0.061	0.078	-0.136	-0.224	**1**	-0.007	0.029	-0.073	-0.305	-0.056	-0.193	-0.161	-0.211	-0.132	0.012	0.090	-0.212	-0.168	-0.119	-0.195	-0.040	-0.174	-0.074	0.071	-0.171	-0.033	-0.012	0.039	-0.046	-0.067	0.170	-0.085	-0.098	-0.051	-0.046	0.035	-0.050	0.020	-0.046	0.036	-0.125	0.054	-0.195	-0.279	0.284	-0.093	-0.062	0.099
Serv_EMP	0.002	0.128	-0.008	-0.399	-0.308	-0.007	**1**	0.058	0.250	0.332	0.277	0.284	-0.080	-0.017	0.020	-0.085	-0.028	0.039	0.035	-0.046	0.064	-0.121	0.353	0.016	0.160	0.144	-0.273	-0.297	-0.271	-0.258	-0.058	-0.251	-0.253	-0.227	-0.105	-0.246	-0.560	-0.283	0.324	-0.214	-0.046	0.073	0.090	0.037	0.047	-0.050	0.012	-0.133	-0.016
Pub_EMP	0.002	0.007	-0.012	-0.450	-0.234	0.029	0.058	**1**	-0.124	0.022	0.289	0.341	0.229	0.249	0.129	0.131	0.205	0.316	0.469	0.102	0.313	-0.285	0.365	0.261	0.297	0.070	-0.125	-0.044	0.049	0.004	-0.289	-0.116	0.072	-0.006	0.011	-0.110	-0.209	0.032	0.078	-0.040	-0.067	0.202	-0.031	0.059	0.356	-0.251	0.085	0.021	0.091
HHI	-0.074	0.194	-0.026	-0.196	0.153	-0.073	0.250	-0.124	**1**	0.342	0.058	0.130	-0.001	0.106	0.105	0.106	-0.068	-0.060	-0.040	-0.076	0.071	0.112	0.200	0.162	-0.003	0.207	0.033	0.046	0.096	0.047	0.286	-0.066	0.024	-0.038	-0.053	0.064	-0.127	0.027	-0.036	-0.042	0.010	0.041	0.000	0.078	0.027	-0.063	-0.044	-0.045	-0.147
GDP_PC	-0.150	0.295	0.030	-0.497	0.415	-0.305	0.332	0.022	0.342	**1**	0.572	0.595	0.233	0.219	0.410	0.312	0.062	0.330	0.245	0.197	0.276	-0.046	0.390	0.388	0.258	0.349	-0.022	-0.049	0.144	-0.012	-0.086	-0.131	0.028	-0.056	0.072	-0.005	-0.337	-0.005	0.045	0.123	-0.123	0.101	-0.047	0.055	0.329	-0.232	0.032	-0.179	-0.185
GFCF_PC	-0.329	0.252	0.196	-0.638	0.340	-0.056	0.277	0.289	0.058	0.572	**1**	0.813	0.505	0.439	0.561	0.525	0.333	0.495	0.454	0.287	0.320	-0.276	0.500	0.607	0.562	0.272	-0.015	-0.079	0.291	-0.027	-0.293	-0.155	0.022	-0.056	-0.058	-0.076	-0.482	-0.048	0.097	0.127	-0.138	0.069	-0.031	-0.050	0.198	-0.090	0.074	-0.219	-0.113
PROD	-0.267	0.381	-0.132	-0.687	0.403	-0.193	0.284	0.341	0.130	0.595	0.813	**1**	0.509	0.463	0.681	0.525	0.309	0.567	0.386	0.374	0.237	-0.227	0.462	0.602	0.509	0.171	-0.024	-0.017	0.338	0.017	-0.271	-0.091	0.017	0.040	0.048	-0.027	-0.503	-0.021	0.046	0.181	-0.180	0.002	-0.014	0.077	0.316	-0.237	0.140	-0.052	0.044
RnD_GDP	-0.126	0.143	0.143	-0.363	0.367	-0.161	-0.080	0.229	-0.001	0.233	0.505	0.509	**1**	0.868	0.424	0.421	0.317	0.353	0.413	0.393	0.275	-0.231	0.361	0.431	0.375	0.067	-0.028	-0.036	0.234	0.030	-0.218	-0.101	0.179	0.025	-0.104	-0.025	-0.154	-0.016	0.018	0.182	0.010	0.165	-0.151	-0.035	0.177	-0.087	-0.069	-0.091	-0.030
RnD_EMP	-0.018	0.175	0.099	-0.324	0.281	-0.211	-0.017	0.249	0.106	0.219	0.439	0.463	0.868	**1**	0.360	0.327	0.270	0.208	0.462	0.441	0.319	-0.189	0.518	0.416	0.272	0.074	0.055	0.044	0.222	0.182	-0.017	-0.006	0.246	0.045	-0.042	0.051	-0.134	0.061	-0.072	0.051	0.034	0.245	-0.130	-0.019	0.203	-0.111	-0.071	-0.068	-0.110
MM_Ac	-0.181	0.311	0.020	-0.609	0.628	-0.132	0.020	0.129	0.105	0.410	0.561	0.681	0.424	0.360	**1**	0.731	0.275	0.425	0.143	0.436	0.019	-0.197	0.385	0.516	0.478	0.059	0.083	0.096	0.612	0.072	-0.215	-0.121	-0.040	0.050	0.059	0.102	-0.245	0.043	-0.071	0.236	-0.039	-0.053	-0.074	-0.071	0.167	-0.059	-0.049	-0.050	-0.115
Avg_bus	-0.266	0.268	0.250	-0.569	0.606	0.012	-0.085	0.131	0.106	0.312	0.525	0.525	0.421	0.327	0.731	**1**	0.362	0.287	0.110	0.201	0.007	-0.378	0.391	0.625	0.730	0.147	-0.056	-0.069	0.687	-0.062	-0.268	-0.151	-0.108	-0.175	-0.253	-0.065	-0.254	-0.079	0.059	0.242	0.057	-0.051	-0.116	-0.210	0.112	0.057	-0.089	-0.163	-0.243
Gov_debt	-0.156	0.059	0.210	-0.299	0.182	0.090	-0.028	0.205	-0.068	0.062	0.333	0.309	0.317	0.270	0.275	0.362	**1**	0.370	0.362	0.056	0.066	-0.356	0.240	0.506	0.437	0.192	0.013	-0.010	0.265	0.031	-0.218	0.076	0.127	0.089	-0.247	0.012	-0.150	0.063	-0.005	-0.002	0.127	-0.134	0.002	0.003	-0.082	0.048	-0.009	-0.125	-0.120
Cur_blc	-0.337	-0.071	-0.019	-0.423	0.307	-0.212	0.039	0.316	-0.060	0.330	0.495	0.567	0.353	0.208	0.425	0.287	0.370	**1**	0.575	0.150	0.368	-0.096	0.250	0.495	0.337	0.264	0.069	0.083	0.194	0.111	-0.321	-0.059	0.170	0.097	0.134	0.081	-0.235	0.146	-0.042	0.135	-0.128	-0.026	-0.003	0.016	0.112	-0.077	0.210	0.094	0.331
Gov_close	-0.150	-0.088	0.195	-0.346	0.102	-0.168	0.035	0.469	-0.040	0.245	0.454	0.386	0.413	0.462	0.143	0.110	0.362	0.575	**1**	0.064	0.708	-0.184	0.479	0.561	0.286	0.414	0.164	0.113	0.088	0.359	-0.159	-0.006	0.411	0.108	0.018	0.110	-0.059	0.253	-0.125	-0.022	-0.042	0.332	-0.099	0.028	0.263	-0.176	0.062	-0.025	0.082
Lab_comp	0.151	0.143	0.040	-0.264	0.303	-0.119	-0.046	0.102	-0.076	0.197	0.287	0.374	0.393	0.441	0.436	0.201	0.056	0.150	0.064	**1**	-0.025	-0.047	0.301	0.081	0.016	-0.325	0.090	0.113	0.224	0.136	-0.114	0.067	0.090	0.123	0.353	0.116	0.020	0.106	-0.147	0.070	0.006	0.097	-0.072	0.017	0.144	-0.098	-0.009	-0.024	-0.014
Union	-0.108	0.046	0.199	-0.195	0.029	-0.195	0.064	0.313	0.071	0.276	0.320	0.237	0.275	0.319	0.019	0.007	0.066	0.368	0.708	-0.025	**1**	0.039	0.328	0.316	0.187	0.377	-0.015	0.000	-0.091	0.093	-0.075	-0.239	0.301	-0.299	0.078	-0.062	-0.117	0.078	0.048	0.064	-0.028	0.369	-0.158	-0.048	0.305	-0.156	-0.047	-0.123	-0.135
ML_barg	0.047	-0.030	-0.363	0.307	-0.048	-0.040	-0.121	-0.285	0.112	-0.046	-0.276	-0.227	-0.231	-0.189	-0.197	-0.378	-0.356	-0.096	-0.184	-0.047	0.039	**1**	-0.357	-0.170	-0.690	-0.097	0.479	0.585	0.107	0.492	0.642	0.408	0.439	0.381	0.571	0.569	0.441	0.489	-0.569	0.078	-0.014	-0.156	0.028	-0.095	-0.120	0.130	0.056	0.165	0.061
SHDI	0.096	0.100	0.243	-0.588	0.219	-0.174	0.353	0.365	0.200	0.390	0.500	0.462	0.361	0.518	0.385	0.391	0.240	0.250	0.479	0.301	0.328	-0.357	**1**	0.525	0.425	0.286	-0.010	-0.034	0.244	0.062	-0.058	-0.122	0.150	-0.148	-0.033	-0.016	-0.356	0.042	0.027	-0.274	0.066	0.321	-0.019	-0.007	0.205	-0.120	0.007	-0.174	-0.282
SC_Org	-0.274	0.222	0.032	-0.557	0.462	-0.074	0.016	0.261	0.162	0.388	0.607	0.602	0.431	0.416	0.516	0.625	0.506	0.495	0.561	0.081	0.316	-0.170	0.525	**1**	0.503	0.405	0.302	0.282	0.657	0.317	0.046	0.241	0.474	0.192	-0.054	0.320	-0.161	0.353	-0.308	0.097	-0.022	0.072	-0.064	-0.093	0.149	-0.035	0.079	-0.036	-0.124
EoC	-0.303	0.207	0.399	-0.549	0.272	0.071	0.160	0.297	-0.003	0.258	0.562	0.509	0.375	0.272	0.478	0.730	0.437	0.337	0.286	0.016	0.187	-0.690	0.425	0.503	**1**	0.193	-0.493	-0.561	0.159	-0.485	-0.659	-0.407	-0.406	-0.555	-0.624	-0.562	-0.638	-0.492	0.573	0.199	0.013	0.110	-0.139	-0.120	0.152	-0.020	-0.060	-0.205	-0.143
Clu	-0.149	0.055	0.278	-0.193	0.127	-0.171	0.144	0.070	0.207	0.349	0.272	0.171	0.067	0.074	0.059	0.147	0.192	0.264	0.414	-0.325	0.377	-0.097	0.286	0.405	0.193	**1**	0.055	0.008	0.060	0.075	0.038	-0.144	0.115	-0.082	-0.284	0.131	0.011	0.176	-0.004	-0.041	0.052	0.161	-0.062	-0.067	0.171	-0.064	0.016	-0.105	-0.174
AT	0.067	-0.079	-0.292	0.073	0.212	-0.033	-0.273	-0.125	0.033	-0.022	-0.015	-0.024	-0.028	0.055	0.083	-0.056	0.013	0.069	0.164	0.090	-0.015	0.479	-0.010	0.302	-0.493	0.055	**1**	0.849	0.527	0.814	0.619	0.678	0.728	0.685	0.587	0.849	0.593	0.814	-0.889	-0.162	-0.057	-0.163	0.159	-0.063	-0.128	0.115	0.109	0.195	0.058
BE	0.091	-0.042	-0.363	0.074	0.165	-0.012	-0.297	-0.044	0.046	-0.049	-0.079	-0.017	-0.036	0.044	0.096	-0.069	-0.010	0.083	0.113	0.113	0.000	0.585	-0.034	0.282	-0.561	0.008	0.849	**1**	0.596	0.879	0.678	0.738	0.789	0.746	0.648	0.914	0.654	0.879	-0.957	-0.099	-0.024	-0.141	0.109	-0.062	-0.099	0.097	0.103	0.225	0.065
DE	-0.110	0.188	-0.069	-0.368	0.561	0.039	-0.271	0.049	0.096	0.144	0.291	0.338	0.234	0.222	0.612	0.687	0.265	0.194	0.088	0.224	-0.091	0.107	0.244	0.657	0.159	0.060	0.527	0.596	**1**	0.559	0.319	0.401	0.462	0.410	0.268	0.596	0.279	0.559	-0.638	0.113	0.055	-0.156	-0.015	-0.215	0.000	0.128	0.010	0.048	-0.161
DK	0.093	-0.075	-0.266	0.034	0.161	-0.046	-0.258	0.004	0.047	-0.012	-0.027	0.017	0.030	0.182	0.072	-0.062	0.031	0.111	0.359	0.136	0.093	0.492	0.062	0.317	-0.485	0.075	0.814	0.879	0.559	**1**	0.646	0.706	0.756	0.713	0.615	0.879	0.621	0.844	-0.920	-0.100	-0.004	-0.036	0.062	-0.062	-0.022	0.050	0.092	0.215	0.073
EL	0.135	-0.004	-0.357	0.284	-0.054	-0.067	-0.058	-0.289	0.286	-0.086	-0.293	-0.271	-0.218	-0.017	-0.215	-0.268	-0.218	-0.321	-0.159	-0.114	-0.075	0.642	-0.058	0.046	-0.659	0.038	0.619	0.678	0.319	0.646	**1**	0.513	0.563	0.520	0.414	0.678	0.421	0.646	-0.716	-0.223	0.067	-0.121	0.123	-0.083	-0.202	0.172	0.076	0.144	-0.135
ES	0.167	-0.024	-0.413	0.160	0.019	0.170	-0.251	-0.116	-0.066	-0.131	-0.155	-0.091	-0.101	-0.006	-0.121	-0.151	0.076	-0.059	-0.006	0.067	-0.239	0.408	-0.122	0.241	-0.407	-0.144	0.678	0.738	0.401	0.706	0.513	**1**	0.622	0.581	0.480	0.738	0.486	0.706	-0.777	-0.087	-0.061	-0.160	0.124	-0.042	-0.162	0.123	0.144	0.285	0.189
FI	0.062	-0.084	-0.235	0.016	0.145	-0.085	-0.253	0.072	0.024	0.028	0.022	0.017	0.179	0.246	-0.040	-0.108	0.127	0.170	0.411	0.090	0.301	0.439	0.150	0.474	-0.406	0.115	0.728	0.789	0.462	0.756	0.563	0.622	**1**	0.629	0.531	0.789	0.537	0.756	-0.828	-0.120	-0.002	0.042	0.041	-0.010	0.008	0.001	0.106	0.138	0.037
FR	0.040	-0.102	-0.445	0.088	0.104	-0.098	-0.227	-0.006	-0.038	-0.056	-0.056	0.040	0.025	0.045	0.050	-0.175	0.089	0.097	0.108	0.123	-0.299	0.381	-0.148	0.192	-0.555	-0.082	0.685	0.746	0.410	0.713	0.520	0.581	0.629	**1**	0.487	0.746	0.494	0.713	-0.784	-0.060	-0.092	-0.178	0.131	0.136	-0.088	-0.028	0.155	0.216	0.179
IT	0.212	-0.075	-0.482	0.005	0.081	-0.051	-0.105	0.011	-0.053	0.072	-0.058	0.048	-0.104	-0.042	0.059	-0.253	-0.247	0.134	0.018	0.353	0.078	0.571	-0.033	-0.054	-0.624	-0.284	0.587	0.648	0.268	0.615	0.414	0.480	0.531	0.487	**1**	0.648	0.383	0.615	-0.686	-0.059	-0.071	-0.056	0.076	0.067	0.041	-0.065	0.066	0.189	0.152
NL	0.107	-0.060	-0.340	0.065	0.196	-0.046	-0.246	-0.110	0.064	-0.005	-0.076	-0.027	-0.025	0.051	0.102	-0.065	0.012	0.081	0.110	0.116	-0.062	0.569	-0.016	0.320	-0.562	0.131	0.849	0.914	0.596	0.879	0.678	0.738	0.789	0.746	0.648	**1**	0.654	0.879	-0.957	-0.083	0.015	-0.121	0.078	-0.046	-0.067	0.068	0.087	0.213	0.045
PT	0.247	-0.163	0.024	0.425	0.056	0.035	-0.560	-0.209	-0.127	-0.337	-0.482	-0.503	-0.154	-0.134	-0.245	-0.254	-0.150	-0.235	-0.059	0.020	-0.117	0.441	-0.356	-0.161	-0.638	0.011	0.593	0.654	0.279	0.621	0.421	0.486	0.537	0.494	0.383	0.654	**1**	0.621	-0.691	-0.066	0.076	-0.071	0.027	-0.075	-0.078	0.092	-0.008	0.175	0.046
SE	0.126	-0.048	-0.280	0.033	0.162	-0.050	-0.283	0.032	0.027	-0.005	-0.048	-0.021	-0.016	0.061	0.043	-0.079	0.063	0.146	0.253	0.106	0.078	0.489	0.042	0.353	-0.492	0.176	0.814	0.879	0.559	0.844	0.646	0.706	0.756	0.713	0.615	0.879	0.621	**1**	-0.920	-0.100	-0.004	-0.036	0.062	-0.062	-0.022	0.050	0.123	0.222	0.061
UK	-0.126	0.048	0.355	-0.280	-0.204	0.020	0.324	0.078	-0.036	0.045	0.097	0.046	0.018	-0.072	-0.071	0.059	-0.005	-0.042	-0.125	-0.147	0.048	-0.569	0.027	-0.308	0.573	-0.004	-0.889	-0.957	-0.638	-0.920	-0.716	-0.777	-0.828	-0.784	-0.886	-0.957	-0.691	-0.920	**1**	0.098	0.005	0.129	-0.096	0.062	0.083	-0.067	-0.103	-0.228	-0.052
CRISIS-1: 9	-0.174	0.230	-0.011	-0.069	0.276	-0.046	-0.214	-0.040	-0.042	0.123	0.127	0.181	0.182	0.051	0.236	0.242	-0.002	0.135	-0.022	0.070	0.064	0.078	-0.274	0.097	0.199	-0.041	-0.162	-0.099	0.113	-0.100	-0.223	-0.087	-0.120	-0.060	-0.059	-0.083	-0.066	-0.100	0.098	**1**	0.440	0.473	-0.816	-0.077	0.149	-0.044	-0.191	-0.052	0.044
CRISIS-2: 0	0.111	-0.031	0.206	0.016	0.048	0.036	-0.046	-0.067	0.010	-0.123	-0.138	-0.180	0.010	0.034	-0.039	0.057	0.127	-0.128	-0.042	0.006	-0.028	-0.014	0.066	-0.022	0.013	0.052	-0.057	-0.024	0.055	-0.004	0.067	-0.061	-0.002	-0.092	-0.071	0.015	0.076	-0.004	0.005	0.440	**1**	0.535	-0.800	-0.161	-0.143	0.182	-0.260	-0.124	-0.156
CRISIS-3: 0	0.208	0.016	0.194	-0.135	0.006	-0.125	0.073	0.202	0.041	0.101	0.069	0.002	0.165	0.245	-0.053	-0.051	-0.134	-0.026	0.332	0.097	0.369	-0.156	0.321	0.072	0.110	0.161	-0.163	-0.141	-0.156	-0.036	-0.121	-0.160	0.042	-0.178	-0.056	-0.121	-0.071	-0.036	0.129	0.473	0.535	**1**	-0.808	-0.075	0.233	-0.096	-0.199	-0.099	-0.030
CRISIS-4:BT	-0.041	-0.101	-0.149	0.077	-0.149	0.054	0.090	-0.031	0.000	-0.047	-0.031	-0.014	-0.151	-0.130	-0.074	-0.116	0.002	-0.003	-0.099	-0.072	-0.158	0.028	-0.019	-0.064	-0.139	-0.062	0.159	0.109	-0.015	0.062	0.123	0.124	0.041	0.131	0.076	0.078	0.027	0.062	-0.096	-0.816	-0.800	-0.808	**1**	0.128	-0.101	-0.015	0.266	0.110	0.055
LIS	0.082	0.025	-0.213	0.044	-0.046	-0.195	0.037	0.059	0.078	0.055	-0.050	0.077	-0.035	-0.019	-0.071	-0.210	0.003	0.016	0.028	0.017	-0.048	-0.095	-0.007	-0.093	-0.120	-0.067	-0.063	-0.062	-0.215	-0.062	-0.083	-0.042	-0.010	0.136	0.067	-0.046	-0.075	-0.062	0.062	-0.077	-0.161	-0.075	0.128	**1**	0.392	-0.831	0.138	0.032	0.071
NED	0.147	0.277	-0.030	-0.280	0.137	-0.279	0.047	0.356	0.027	0.329	0.198	0.316	0.177	0.203	0.167	0.112	-0.082	0.112	0.263	0.144	0.305	-0.120	0.205	0.149	0.152	0.171	-0.128	-0.099	0.000	-0.022	-0.202	-0.162	0.008	-0.088	0.041	-0.067	-0.078	-0.022	0.083	0.149	-0.143	0.233	-0.101	0.392	**1**	-0.837	0.019	-0.090	-0.130
NIS	-0.137	-0.182	0.145	0.144	-0.056	0.264	-0.050	-0.251	-0.063	-0.232	-0.090	-0.237	-0.087	-0.111	-0.059	0.057	0.048	-0.077	-0.176	-0.098	-0.156	0.130	-0.120	-0.035	-0.020	-0.064	0.115	0.097	0.128	0.050	0.172	0.123	0.001	-0.028	-0.065	0.068	0.092	0.050	-0.087	-0.044	0.182	-0.096	-0.015	-0.831	-0.837	**1**	-0.094	0.035	0.035
Rec_DL	-0.084	-0.090	-0.096	-0.006	-0.026	-0.093	0.012	0.085	-0.044	0.032	0.074	0.140	-0.069	-0.071	-0.049	-0.089	-0.009	0.210	0.062	-0.009	-0.047	0.056	0.007	0.079	-0.060	0.016	0.109	0.103	0.010	0.092	0.076	0.144	0.106	0.155	0.066	0.087	-0.008	0.123	-0.103	-0.191	-0.260	-0.199	0.266	0.138	0.019	-0.094	**1**	0.548	0.461
Ret_Tra_4	0.069	-0.171	-0.316	0.136	-0.049	-0.062	-0.133	0.021	-0.045	-0.179	-0.219	-0.052	-0.091	-0.008	-0.050	-0.163	-0.125	0.094	-0.025	-0.024	-0.123	0.165	-0.174	-0.036	-0.205	-0.105	0.195	0.225	0.048	0.215	0.144	0.285	0.138	0.216	0.189	0.213	0.175	0.222	-0.228	-0.052	-0.124	-0.099	0.110	0.032	-0.090	0.035	0.548	**1**	0.747
Ret_Tra_8	0.074	-0.242	-0.289	0.056	-0.152	0.099	-0.016	0.091	-0.147	-0.185	-0.113	0.044	-0.030	-0.110	-0.115	-0.243	-0.120	0.331	0.082	-0.014	-0.135	0.061	-0.282	-0.124	-0.143	-0.174	0.058	0.065	-0.161	0.073	-0.135	0.189	0.037	0.179	0.152	0.045	0.046	0.061	-0.052	0.044	-0.156	-0.030	0.055	0.071	-0.130	0.035	0.461	0.747	**1**

Stepwise analysis of covariance on regional Employment resilience performance by urban-rural typology
Rural regions - Recovery of development level

Summary of the variables selection Rec_DL:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R²	Adjusted R²	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	CRISIS	CRISIS	IN	0,015	0,077	0,067	42,055	-1128,456	-1114,092	0,951
2	Cur_blc / CRISIS	Cur_blc	IN	0,014	0,117	0,104	30,938	-1138,354	-1120,400	0,916
3	MM_Ac / Cur_blc / CRISIS	MM_Ac	IN	0,014	0,134	0,118	27,284	-1141,650	-1120,105	0,905
4	MM_Ac / Cur_blc / Union / CRISIS	Union	IN	0,014	0,154	0,134	23,009	-1145,654	-1120,517	0,892
5	PROD / MM_Ac / Cur_blc / Union / CRISIS	PROD	IN	0,013	0,174	0,152	18,345	-1150,180	-1121,452	0,877

Stepwise analysis of covariance on regional Employment resilience performance by urban-rural typology
Rural regions - Recovery of development level

Goodness of fit statistics (Rec_DL):

Observations	268
Sum of weights	268
DF	260
R²	0,174
Adjusted R²	0,152
MSE	0,013
RMSE	0,115
MAPE	137,585
DW	1,705
Cp	18,345
AIC	-1150,180
SBC	-1121,452
PC	0,877
Press	3,674
Q²	0,121

Analysis of variance (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	7	0,728	0,104	7,825	**<0,0001**
Error	260	3,454	0,013		
Corrected´	267	4,182			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional Employment resilience performance by urban-rural typology
Rural regions - Recovery of development level

Type I Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,082	0,082	6,197	0,013
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,162	0,162	12,196	0,001
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,123	0,123	9,241	0,003
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,146	0,146	10,997	0,001
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	0,000	0,000			
CRISIS	3,000	0,214	0,071	5,380	0,001
Shock	0,000	0,000			

Type II Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,085	0,085	6,408	0,012
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,172	0,172	12,922	0,000
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,185	0,185	13,937	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,098	0,098	7,394	0,007
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	0,000	0,000			
CRISIS	3,000	0,214	0,071	5,380	0,001
Shock	0,000	0,000			

Type III Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,085	0,085	6,408	0,012
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,172	0,172	12,922	0,000
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,185	0,185	13,937	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,098	0,098	7,394	0,007
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	0,000	0,000			
CRISIS	3,000	0,214	0,071	5,380	0,001
Shock	0,000	0,000			

Stepwise analysis of covariance on regional Employment resilience performance by urban-rural typology
Rural regions - Recovery of development level

Model parameters (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,079	0,061	1,292	0,198	-0,041	0,199
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_EMP	0,000	0,000				
Manu_EMP	0,000	0,000				
Const_EMP	0,000	0,000				
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,025	0,013	1,904	0,058	-0,001	0,051
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	-0,001	0,001	-2,401	**0,017**	-0,002	0,000
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,010	0,002	4,609	**<0,0001**	0,006	0,014
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	-0,002	0,001	-2,929	**0,004**	-0,003	-0,001
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	0,000	0,000				
BE	0,000	0,000				
DE	0,000	0,000				
DK	0,000	0,000				
EL	0,000	0,000				
ES	0,000	0,000				
FI	0,000	0,000				
FR	0,000	0,000				
IT	0,000	0,000				
NL	0,000	0,000				
PT	0,000	0,000				
SE	0,000	0,000				
UK	0,000	0,000				
CRISIS-1: 9(	-0,020	0,012	-1,698	0,091	-0,043	0,003
CRISIS-2: 0(	-0,028	0,014	-1,963	0,051	-0,057	0,000
CRISIS-3: 0(	0,000	0,015	0,003	0,998	-0,029	0,029
CRISIS-4:B'	0,048	0,017	2,923	**0,004**	0,016	0,081
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_EMP	0,000	0,000				
Manu_EMP	0,000	0,000				
Const_EMP	0,000	0,000				
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,223	0,117	1,904	0,058	-0,008	0,454
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	-0,291	0,121	-2,401	**0,017**	-0,529	-0,052
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,275	0,060	4,609	**<0,0001**	0,158	0,392
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	-0,192	0,065	-2,929	**0,004**	-0,321	-0,063
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	0,000	0,000				
BE	0,000	0,000				
DE	0,000	0,000				
DK	0,000	0,000				
EL	0,000	0,000				
ES	0,000	0,000				
FI	0,000	0,000				
FR	0,000	0,000				
IT	0,000	0,000				
NL	0,000	0,000				
PT	0,000	0,000				
SE	0,000	0,000				
UK	0,000	0,000				
CRISIS-1: 9(	-0,122	0,072	-1,698	0,091	-0,265	0,020
CRISIS-2: 0(	-0,148	0,075	-1,963	0,051	-0,296	0,000
CRISIS-3: 0(	0,000	0,073	0,003	0,998	-0,143	0,143
CRISIS-4:B'	0,160	0,055	2,923	**0,004**	0,052	0,267
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Stepwise analysis of covariance on regional Employment resilience performance by urban-rural typology
Rural regions - Growth trajectory retention (4 year recovery period)

Summary of the variables selection Ret_Tra_4:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R²	Adjusted R²	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	Pop_work	Pop_work	IN	0,001	0,100	0,096	28,441	-1904,167	-1896,985	0,914
2	Mig_net / Pop_work	Mig_net	IN	0,001	0,132	0,126	19,904	-1912,001	-1901,228	0,888
3	Mig_net / Pop_work / GDP_PC	GDP_PC	IN	0,001	0,147	0,137	17,074	-1914,633	-1900,269	0,879
4	Mig_net / Pop_work / GDP_PC / Cur_blc	Cur_blc	IN	0,001	0,164	0,151	13,590	-1917,990	-1900,035	0,868
5	Mig_net / Pop_work / GDP_PC / GFCF_PC / Cur_blc	GFCF_PC	IN	0,001	0,181	0,166	9,905	-1921,660	-1900,114	0,856
4	Pop_work / GDP_PC / GFCF_PC / Cur_blc	Mig_net	OUT	0,001	0,181	0,169	7,905	-1923,660	-1905,705	0,850

Stepwise analysis of covariance on regional Employment resilience performance by urban-rural typology
Rural regions - Growth trajectory retention (4 year recovery period)

Goodness of fit statistics (Ret_Tra_4):

Observations	268
Sum of weights	268
DF	263
R²	0,181
Adjusted R²	0,169
MSE	0,001
RMSE	0,027
MAPE	276,635
DW	1,465
Cp	7,905
AIC	-1923,660
SBC	-1905,705
PC	0,850
Press	0,210
Q²	0,128

Analysis of variance (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	4	0,044	0,011	14,562	**<0,0001**
Error	263	0,197	0,001		
Corrected'	267	0,241			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional Employment resilience performance by urban-rural typology
Rural regions - Growth trajectory retention (4 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,024	0,024	32,002	0,000
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	1,000	0,007	0,007	9,270	0,003
GFCF_PC	1,000	0,001	0,001	1,865	0,173
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,010	0,010	13,176	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	0,000	0,000			
CRISIS	0,000	0,000			
Shock	0,000	0,000			

Type II Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,017	0,017	22,377	0,000
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	1,000	0,002	0,002	2,437	0,120
GFCF_PC	1,000	0,004	0,004	5,624	0,018
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,010	0,010	13,176	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	0,000	0,000			
CRISIS	0,000	0,000			
Shock	0,000	0,000			

Type III Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,017	0,017	22,377	0,000
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	1,000	0,002	0,002	2,437	0,120
GFCF_PC	1,000	0,004	0,004	5,624	0,018
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,010	0,010	13,176	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	0,000	0,000			
CRISIS	0,000	0,000			
Shock	0,000	0,000			

Stepwise analysis of covariance on regional Employment resilience performance by urban-rural typology
Rural regions - Growth trajectory retention (4 year recovery period)

Model parameters (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,059	0,024	2,432	**0,016**	0,011	0,106
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	-0,141	0,055	-2,561	**0,011**	-0,249	-0,033
Agri_EMP	0,000	0,000				
Manu_EMP	0,000	0,000				
Const_EMP	0,000	0,000				
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	-0,007	0,005	-1,562	0,120	-0,017	0,002
GFCF_PC	-0,006	0,003	-2,203	**0,028**	-0,012	-0,001
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,002	0,001	2,999	**0,003**	0,001	0,003
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	0,000	0,000				
BE	0,000	0,000				
DE	0,000	0,000				
DK	0,000	0,000				
EL	0,000	0,000				
ES	0,000	0,000				
FI	0,000	0,000				
FR	0,000	0,000				
IT	0,000	0,000				
NL	0,000	0,000				
PT	0,000	0,000				
SE	0,000	0,000				
UK	0,000	0,000				
CRISIS-1: 9(	0,000	0,000				
CRISIS-2: 0(	0,000	0,000				
CRISIS-3: 0{	0,000	0,000				
CRISIS-4:B7	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	-0,274	0,107	-2,561	**0,011**	-0,485	-0,063
Agri_EMP	0,000	0,000				
Manu_EMP	0,000	0,000				
Const_EMP	0,000	0,000				
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	-0,109	0,070	-1,562	0,120	-0,247	0,028
GFCF_PC	-0,186	0,084	-2,203	**0,028**	-0,352	-0,020
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,211	0,070	2,999	**0,003**	0,073	0,350
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	0,000	0,000				
BE	0,000	0,000				
DE	0,000	0,000				
DK	0,000	0,000				
EL	0,000	0,000				
ES	0,000	0,000				
FI	0,000	0,000				
FR	0,000	0,000				
IT	0,000	0,000				
NL	0,000	0,000				
PT	0,000	0,000				
SE	0,000	0,000				
UK	0,000	0,000				
CRISIS-1: 9(	0,000	0,000				
CRISIS-2: 0(	0,000	0,000				
CRISIS-3: 0{	0,000	0,000				
CRISIS-4:B7	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Stepwise analysis of covariance on regional Employment resilience performance by urban-rural typology
Rural regions - Growth trajectory retention (8 year recovery period)

Summary of the variables selection Ret_Tra_8:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R²	Adjusted R²	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	Cur_blc	Cur_blc	IN	0,000	0,110	0,105	123,954	-1638,387	-1631,712	0,908
2	Cur_blc / SHDI	SHDI	IN	0,000	0,255	0,248	72,289	-1673,555	-1663,542	0,766
3	Cur_blc / Union / SHDI	Union	IN	0,000	0,307	0,297	55,386	-1686,407	-1673,057	0,720
4	Cur_blc / Union / SHDI / NAT	NAT	IN	0,000	0,420	0,375	37,595	-1699,576	-1646,175	0,676
5	PROD / Cur_blc / Union / SHDI / NAT	PROD	IN	0,000	0,442	0,395	31,697	-1705,413	-1648,674	0,658
6	GDP_PC / PROD / Cur_blc / Union / SHDI / NAT	GDP_PC	IN	0,000	0,467	0,419	24,482	-1712,946	-1652,870	0,634
7	Pop_age / GDP_PC / PROD / Cur_blc / Union / SHDI / NAT	Pop_age	IN	0,000	0,483	0,434	20,371	-1717,518	-1654,105	0,621
8	Pop_age / GDP_PC / GFCF_PC / PROD / Cur_blc / Union / SHDI / NAT	GFCF_PC	IN	0,000	0,494	0,443	18,242	-1720,079	-1653,328	0,613
9	Pop_age / GDP_PC / GFCF_PC / PROD / Cur_blc / Union / SHDI / NAT / Shock	Shock	IN	0,000	0,511	0,455	16,262	-1722,867	-1649,441	0,605
10	Pop_age / Agri_EMP / GDP_PC / GFCF_PC / PROD / Cur_blc / Union / SHDI / NAT / Shock	Agri_EMP	IN	0,000	0,522	0,466	13,961	-1725,890	-1649,126	0,596

Stepwise analysis of covariance on regional Employment resilience performance by urban-rural typology
Rural regions - Growth trajectory retention (8 year recovery period)

Goodness of fit statistics (Ret_Tra_8):

Observations	208
Sum of weights	208
DF	185
R²	0,522
Adjusted R²	0,466
MSE	0,000
RMSE	0,015
MAPE	274,075
DW	2,146
Cp	13,961
AIC	-1725,890
SBC	-1649,126
PC	0,596
Press	0,054
Q²	0,383

Analysis of variance (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	22	0,045	0,002	9,196	**<0,0001**
Error	185	0,042	0,000		
Corrected '	207	0,087			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional Employment resilience performance by urban-rural typology
Rural regions - Growth trajectory retention (8 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,000	0,000	2,094	0,150
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	1,000	0,000	0,000	0,941	0,333
Manu_EMP	0,000	0,000			
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	1,000	0,003	0,003	12,096	0,001
GFCF_PC	1,000	0,000	0,000	0,302	0,583
PROD	1,000	0,007	0,007	31,499	0,000
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,013	0,013	60,006	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,004	0,004	17,418	0,000
ML_barg	0,000	0,000			
SHDI	1,000	0,007	0,007	32,673	0,000
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	12,000	0,008	0,001	3,110	0,000
CRISIS	0,000	0,000			
Shock	2,000	0,002	0,001	3,985	0,020

Type II Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,001	0,001	5,083	0,025
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	1,000	0,001	0,001	4,522	0,035
Manu_EMP	0,000	0,000			
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	1,000	0,001	0,001	4,867	0,029
GFCF_PC	1,000	0,001	0,001	6,563	0,011
PROD	1,000	0,004	0,004	18,355	0,000
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,008	0,008	34,458	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,002	0,002	10,135	0,002
ML_barg	0,000	0,000			
SHDI	1,000	0,007	0,007	29,307	0,000
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	12,000	0,007	0,001	2,531	0,004
CRISIS	0,000	0,000			
Shock	2,000	0,002	0,001	3,985	0,020

Type III Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,001	0,001	5,083	0,025
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	1,000	0,001	0,001	4,522	0,035
Manu_EMP	0,000	0,000			
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	1,000	0,001	0,001	4,867	0,029
GFCF_PC	1,000	0,001	0,001	6,563	0,011
PROD	1,000	0,004	0,004	18,355	0,000
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,008	0,008	34,458	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,002	0,002	10,135	0,002
ML_barg	0,000	0,000			
SHDI	1,000	0,007	0,007	29,307	0,000
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
NAT	12,000	0,007	0,001	2,531	0,004
CRISIS	0,000	0,000			
Shock	2,000	0,002	0,001	3,985	0,020

Stepwise analysis of covariance on regional Employment resilience performance by urban-rural typology
Rural regions - Growth trajectory retention (8 year recovery period)

Model parameters (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,297	0,075	3,982	**<0,0001**	0,150	0,445
Pop_age	0,008	0,004	1,779	0,077	-0,001	0,016
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_EMP	-0,037	0,026	-1,404	0,162	-0,089	0,015
Manu_EMP	0,000	0,000				
Const_EMP	0,000	0,000				
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	-0,007	0,004	-2,003	**0,047**	-0,014	0,000
GFCF_PC	-0,007	0,003	-2,094	**0,038**	-0,013	0,000
PROD	0,010	0,003	3,217	**0,002**	0,004	0,016
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,004	0,001	5,339	**<0,0001**	0,003	0,006
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	-0,001	0,001	-2,514	**0,013**	-0,003	0,000
ML_barg	0,000	0,000				
SHDI	-0,305	0,072	-4,253	**<0,0001**	-0,447	-0,164
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	0,007	0,009	0,734	0,464	-0,011	0,025
BE	0,001	0,010	0,111	0,912	-0,019	0,022
DE	-0,014	0,005	-2,913	**0,004**	-0,024	-0,005
DK	0,063	0,020	3,175	**0,002**	0,024	0,102
EL	-0,011	0,009	-1,236	0,218	-0,028	0,006
ES	-0,017	0,016	-1,091	0,277	-0,049	0,014
FI	0,043	0,021	2,014	**0,045**	0,001	0,085
FR	-0,043	0,019	-2,255	**0,025**	-0,080	-0,005
IT	-0,003	0,005	-0,699	0,485	-0,012	0,006
NL	-0,036	0,013	-2,834	**0,005**	-0,061	-0,011
PT	-0,017	0,011	-1,554	0,122	-0,039	0,005
SE	0,036	0,017	2,121	**0,035**	0,003	0,070
UK	-0,009	0,008	-1,154	0,250	-0,024	0,006
CRISIS-1: 9(	0,000	0,000				
CRISIS-2: 0(	0,000	0,000				
CRISIS-3: 0(	0,000	0,000				
CRISIS-4:B7	0,000	0,000				
LIS	0,001	0,002	0,339	0,735	-0,003	0,005
NED	-0,005	0,002	-2,602	**0,010**	-0,009	-0,001
NIS	0,004	0,002	2,013	**0,046**	0,000	0,009

Standardized coefficients (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,132	0,074	1,779	0,077	-0,014	0,279
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_EMP	-0,196	0,140	-1,404	0,162	-0,472	0,080
Manu_EMP	0,000	0,000				
Const_EMP	0,000	0,000				
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	-0,160	0,080	-2,003	**0,047**	-0,317	-0,002
GFCF_PC	-0,276	0,132	-2,094	**0,038**	-0,535	-0,016
PROD	0,531	0,165	3,217	**0,002**	0,205	0,857
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,513	0,096	5,339	**<0,0001**	0,323	0,703
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	-0,772	0,307	-2,514	**0,013**	-1,378	-0,166
ML_barg	0,000	0,000				
SHDI	-0,658	0,155	-4,253	**<0,0001**	-0,963	-0,353
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
AT	0,097	0,133	0,734	0,464	-0,164	0,359
BE	0,015	0,137	0,111	0,912	-0,256	0,286
DE	-0,419	0,144	-2,913	**0,004**	-0,702	-0,135
DK	0,804	0,253	3,175	**0,002**	0,304	1,304
EL	-0,209	0,169	-1,236	0,218	-0,542	0,124
ES	-0,319	0,292	-1,091	0,277	-0,895	0,258
FI	0,608	0,302	2,014	**0,045**	0,012	1,204
FR	-0,789	0,350	-2,255	**0,025**	-1,480	-0,099
IT	-0,066	0,095	-0,699	0,485	-0,253	0,121
NL	-0,474	0,167	-2,834	**0,005**	-0,804	-0,144
PT	-0,355	0,228	-1,554	0,122	-0,805	0,096
SE	0,465	0,219	2,121	**0,035**	0,033	0,898
UK	-0,110	0,095	-1,154	0,250	-0,298	0,078
CRISIS-1: 9(	0,000	0,000				
CRISIS-2: 0(	0,000	0,000				
CRISIS-3: 0(	0,000	0,000				
CRISIS-4:B7	0,000	0,000				
LIS	0,027	0,080	0,339	0,735	-0,131	0,186
NED	-0,201	0,077	-2,602	**0,010**	-0,353	-0,049
NIS	0,099	0,049	2,013	**0,046**	0,002	0,196

III.e. Analysis of the effect of resilience capabilities on resilience performance of regions in selected countries

III.e.i. RGVA

III.e.i.1. Germany

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
Germany

Settings:
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Model selection: Stepwise
Probability for entry: 0,05 / Probability for removal: 0,1
Covariances: Corrections = Newey West (adjusted)(Lag = 1)
Use least squares means: Yes
Explanation of the variable codes can be found in table 28

Summary statistics (Quantitative data):

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Rec_DL	826	0	826	-0,569	0,509	-0,050	0,096
Ret_Tra_4	826	0	826	-0,110	0,138	-0,007	0,024
Ret_Tra_8	826	95	731	-0,097	0,047	-0,008	0,016
Pop_age	826	0	826	0,571	2,946	1,256	0,389
Mig_net	826	0	826	-23,086	54,935	3,714	6,860
Pop_work	826	0	826	0,408	0,549	0,484	0,032
Agri_GVA	826	0	826	0,000	0,091	0,016	0,015
Manu_GVA	826	0	826	0,034	0,720	0,254	0,098
Const_GVA	826	0	826	0,011	0,179	0,067	0,026
Serv_GVA	826	0	826	0,183	0,782	0,437	0,081
Pub_GVA	826	0	826	0,064	0,568	0,227	0,067
HHI	826	0	826	0,188	0,543	0,238	0,034
GDP_PC	826	0	826	-1,025	5,176	0,145	0,887
GFCF_PC	826	0	826	-0,932	2,552	0,101	0,713
PROD	826	0	826	-1,204	2,481	0,543	0,813
RnD_GDP	826	0	826	0,408	8,410	2,280	1,524
RnD_EMP	826	0	826	0,000	3,720	1,607	0,911
MM_Ac	826	0	826	69,723	192,930	124,457	24,551
Avg_bus	826	0	826	8,968	18,605	14,617	2,328
Gov_debt	826	0	826	-9,400	0,300	-3,224	1,014
Cur_blc	826	0	826	-1,800	6,900	2,045	3,026
Gov_close	826	0	826	Constant	Constant	Constant	Constant
Lab_comp	826	0	826	4007,078	83131,498	32793,881	20302,068
Union	826	0	826	18,832	35,987	24,915	6,188
ML_barg	826	0	826	2,375	2,750	2,460	0,157
SHDI	826	0	826	0,807	0,958	0,875	0,038
SC_Org	826	0	826	0,122	0,200	0,156	0,019
EoC	826	0	826	Constant	Constant	Constant	Constant
Clu	826	0	826	1,500	6,262	2,588	0,839

Number of removed observations: 74

Summary statistics (Qualitative data):

Variable	Categories	Counts	Frequencie	%
CRISIS	1: 90-93	228	228	27,603
	2: 00-03	250	250	30,266
	3: 08-09	295	295	35,714
	4:BTW	53	53	6,416
Urb_1	Urban	222	222	26,877
	Intermedia	416	416	50,363
	Rural	188	188	22,760
Shock	LIS	89	89	10,775
	NED	680	680	82,324
	NIS	57	57	6,901

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
Germany

Correlation matrix:

	Pop_age	Mig_net	Pop_work	Agri_GVA	Manu_GVA	Const_GVA	Serv_GVA	Pub_GVA	HHI	GDP_PC	GFCF_PC	PROD	RnD_GDP	RnD_EMP	MM_Ac	Avg_bus	Gov_debt	Cur_blc	Gov_close	Lab_comp	Union	ML_barg	SHDI	SC_Org	EoC	Clu	1: 90-93	2: 00-03	3: 08-09	4:BTW	Urban	Intermediate	Rural	LIS	NED	NIS	Rec_DL	Ret_Tra_4	Ret_Tra_8
Pop_age	**1**	-0,518	0,564	-0,105	-0,274	-0,186	0,042	0,447	-0,013	-0,099	-0,385	-0,446	-0,023	-0,065	-0,249	-0,224	0,035	0,648		-0,085	-0,580	-0,376	0,462	-0,191		-0,146	-0,295	-0,097	0,567	-0,117	-0,055	-0,009	0,037	-0,111	0,122	-0,030	0,059	0,103	0,314
Mig_net	-0,518	**1**	-0,423	0,119	0,111	0,154	-0,050	-0,190	0,002	0,093	0,279	0,260	-0,009	0,007	0,114	0,059	0,014	-0,480		-0,070	0,586	0,554	-0,505	0,170		0,067	0,396	-0,190	-0,338	0,088	0,047	0,088	-0,083	0,188	-0,015	-0,092	0,049	-0,035	-0,176
Pop_work	0,564	-0,423	**1**	0,001	-0,206	-0,088	0,141	0,165	0,006	-0,098	0,081	-0,268	0,233	0,243	-0,189	-0,184	0,090	0,682		0,163	-0,703	-0,509	0,672	0,035		0,049	-0,372	0,117	0,587	-0,207	-0,155	0,002	0,085	-0,066	-0,037	0,064	-0,044	0,030	0,213
Agri_GVA	-0,105	0,119	0,001	**1**	-0,140	0,484	-0,189	0,016	-0,452	-0,489	-0,083	-0,238	-0,100	-0,174	-0,480	-0,162	0,021	-0,085		-0,298	0,117	0,155	-0,218	0,043		-0,137	0,063	-0,053	-0,058	0,029	-0,543	-0,256	0,469	0,057	-0,086	0,033	0,071	0,024	-0,024
Manu_GVA	-0,274	0,111	-0,206	-0,140	**1**	-0,109	-0,654	-0,596	0,410	0,132	0,076	0,107	0,154	0,119	0,088	0,273	0,084	-0,231		0,004	0,260	0,217	-0,151	0,066		0,174	0,195	0,020	-0,156	-0,028	0,022	-0,040	0,013	0,055	-0,348	0,230	-0,201	-0,141	-0,214
Const_GVA	-0,186	0,154	-0,088	0,484	-0,109	**1**	-0,276	-0,012	-0,532	-0,448	0,032	-0,262	-0,160	-0,222	-0,375	-0,176	0,048	-0,364		-0,263	0,295	0,217	-0,398	0,018		-0,053	0,108	0,000	-0,302	0,119	-0,357	-0,106	0,268	0,178	-0,069	-0,046	0,066	0,043	-0,022
Serv_GVA	0,042	-0,050	0,141	-0,189	-0,654	-0,276	**1**	-0,104	-0,072	0,266	0,161	0,315	0,047	0,144	0,408	0,004	-0,074	0,216		0,329	-0,212	-0,190	0,262	0,032		-0,012	-0,089	0,010	0,177	-0,061	0,363	0,098	-0,266	-0,108	0,311	-0,173	-0,006	-0,037	-0,027
Pub_GVA	0,447	-0,190	0,165	0,016	-0,596	-0,012	-0,104	**1**	-0,199	-0,227	-0,300	-0,381	-0,196	-0,221	-0,366	-0,299	-0,056	0,239		-0,233	-0,268	-0,209	0,110	-0,152		-0,188	-0,235	-0,030	0,146	0,061	-0,209	0,040	0,091	-0,034	0,179	-0,115	0,259	0,229	0,355
HHI	-0,013	0,002	0,006	-0,452	0,410	-0,532	-0,072	-0,199	**1**	0,582	0,135	0,229	0,206	0,226	0,261	0,148	0,036	-0,010		0,181	0,039	0,004	0,038	0,044		0,006	0,043	-0,010	0,003	-0,020	0,288	0,076	-0,210	0,063	-0,254	0,156	-0,204	-0,085	-0,138
GDP_PC	-0,099	0,093	-0,098	-0,489	0,132	-0,448	0,266	-0,227	0,582	**1**	0,295	0,371	0,164	0,224	0,430	0,194	0,042	-0,122		0,235	0,172	0,129	-0,050	0,110		0,131	0,148	-0,088	-0,070	0,009	0,371	0,015	-0,217	0,008	0,001	-0,006	-0,137	-0,089	-0,134
GFCF_PC	-0,385	0,279	0,081	-0,083	0,076	0,032	0,161	-0,300	0,135	0,295	**1**	0,648	0,553	0,651	0,228	0,197	0,044	-0,241		0,456	0,267	0,156	-0,128	0,379		0,187	0,200	-0,103	-0,160	0,042	0,057	0,011	-0,038	0,058	0,022	-0,049	-0,010	-0,006	-0,114
PROD	-0,446	0,260	-0,268	-0,238	0,107	-0,262	0,315	-0,381	0,229	0,371	0,648	**1**	0,439	0,572	0,608	0,254	-0,084	-0,185		0,680	0,230	0,078	-0,037	0,155		-0,075	0,171	-0,091	-0,152	0,046	0,335	0,013	-0,196	-0,044	0,097	-0,049	-0,043	-0,061	-0,131
RnD_GDP	-0,023	-0,009	0,233	-0,100	0,154	-0,160	0,047	-0,196	0,206	0,164	0,553	0,439	**1**	0,921	0,183	0,369	0,072	0,110		0,402	-0,079	-0,056	0,193	0,203		-0,029	0,076	0,076	0,152	-0,175	0,050	0,000	-0,028	0,006	-0,022	0,013	-0,062	-0,002	-0,020
RnD_EMP	-0,065	0,007	0,243	-0,174	0,119	-0,222	0,144	-0,221	0,226	0,224	0,651	0,572	0,921	**1**	0,291	0,340	0,071	0,122		0,527	-0,086	-0,065	0,244	0,229		0,042	0,079	0,058	0,162	-0,173	0,113	0,020	-0,076	-0,032	0,009	0,011	-0,067	-0,009	-0,027
MM_Ac	-0,249	0,114	-0,189	-0,480	0,088	-0,375	0,408	-0,366	0,261	0,430	0,228	0,608	0,183	0,291	**1**	0,162	0,039	-0,045		0,532	0,093	0,077	0,078	-0,008		0,002	0,193	0,003	0,040	-0,132	0,619	0,010	-0,353	0,023	0,122	-0,104	-0,091	-0,078	-0,086
Avg_bus	-0,224	0,059	-0,184	-0,162	0,273	-0,176	0,004	-0,299	0,148	0,194	0,197	0,254	0,369	0,340	0,162	**1**	0,060	-0,097		0,185	0,148	0,169	0,041	0,176		0,367	0,200	0,034	-0,017	-0,120	0,157	-0,042	-0,060	-0,008	-0,050	0,042	-0,079	-0,070	-0,136
Gov_debt	0,035	0,014	0,090	0,021	0,084	0,048	-0,074	-0,056	0,036	0,042	0,044	-0,084	0,072	0,071	0,039	0,060	**1**	0,021		-0,002	0,081	0,253	-0,035	0,008		0,052	0,347	-0,029	0,230	-0,312	0,013	0,010	-0,014	0,036	-0,220	0,145	-0,037	0,037	0,012
Cur_blc	0,648	-0,480	0,682	-0,085	-0,231	-0,364	0,216	0,239	-0,010	-0,122	-0,241	-0,185	0,110	0,122	-0,045	-0,097	0,021	**1**		0,189	-0,896	-0,589	0,890	-0,076		-0,044	-0,449	-0,073	0,856	-0,216	-0,018	0,019	-0,002	-0,322	0,071	0,124	0,046	0,120	0,389
Gov_close																																							
Lab_comp	-0,085	-0,070	0,163	-0,298	0,004	-0,263	0,329	-0,233	0,181	0,235	0,456	0,680	0,402	0,527	0,532	0,185	-0,002	0,189		**1**	-0,193	-0,207	0,328	-0,177		-0,268	-0,052	0,079	0,174	-0,119	0,350	-0,004	-0,193	-0,069	0,024	0,020	-0,106	-0,018	0,027
Union	-0,580	0,586	-0,703	0,117	0,260	0,295	-0,212	-0,268	0,039	0,172	0,267	0,230	-0,079	-0,086	0,093	0,148	0,081	-0,896		-0,193	**1**	0,829	-0,929	0,101		0,083	0,681	-0,209	-0,662	0,133	0,040	-0,032	-0,002	0,298	-0,050	-0,126	0,002	-0,070	-0,336
ML_barg	-0,376	0,554	-0,509	0,155	0,217	0,217	-0,190	-0,209	0,004	0,129	0,156	0,078	-0,056	-0,065	0,077	0,169	0,253	-0,589		-0,207	0,829	**1**	-0,717	0,109		0,167	0,785	-0,232	-0,274	-0,142	0,009	-0,056	0,031	0,268	-0,015	-0,136	0,047	-0,027	-0,205
SHDI	0,462	-0,505	0,672	-0,218	-0,151	-0,398	0,262	0,110	0,038	-0,050	-0,128	-0,037	0,193	0,244	0,078	0,041	-0,035	0,890		0,328	-0,929	-0,717	**1**	-0,008		0,109	-0,526	0,214	0,715	-0,252	0,042	0,012	-0,031	-0,287	0,052	0,119	-0,031	0,053	0,307
SC_Org	-0,191	0,170	0,035	0,043	0,066	0,018	0,032	-0,152	0,044	0,110	0,379	0,155	0,203	0,229	-0,008	0,176	0,008	-0,076		-0,177	0,101	0,109	-0,008	**1**		0,384	0,105	0,018	-0,050	-0,039	-0,214	-0,007	0,124	-0,020	0,028	-0,010	-0,010	-0,050	-0,089
EoC																																							
Clu	-0,146	0,067	0,049	-0,137	0,174	-0,053	-0,012	-0,188	0,006	0,131	0,187	-0,075	-0,029	0,042	0,002	0,367	0,052	-0,044		-0,268	0,083	0,167	0,109	0,384		**1**	0,153	0,060	0,020	-0,131	-0,076	-0,050	0,075	0,002	0,022	-0,018	-0,007	-0,050	-0,063
1: 90-93	-0,295	0,396	-0,372	0,063	0,195	0,108	-0,089	-0,235	0,043	0,148	0,200	0,171	0,076	0,079	0,193	0,200	0,347	-0,449		-0,052	0,681	0,785	-0,526	0,105		0,153	**1**	0,045	0,007	-0,584	0,079	-0,037	-0,020	0,219	0,086	-0,185	0,019	-0,012	-0,159
2: 00-03	-0,097	-0,190	0,117	-0,053	0,020	0,000	0,010	-0,030	-0,010	-0,088	-0,103	-0,091	0,076	0,058	0,003	0,034	-0,029	-0,073		0,079	-0,209	-0,232	0,214	0,018		0,060	0,045	**1**	-0,018	-0,583	-0,028	-0,009	0,022	0,038	0,025	-0,039	-0,152	-0,093	-0,053
3: 08-09	0,567	-0,338	0,587	-0,058	-0,156	-0,302	0,177	0,146	0,003	-0,070	-0,160	-0,152	0,152	0,162	0,040	-0,017	0,230	0,856		0,174	-0,662	-0,274	0,715	-0,050		0,020	0,007	-0,018	**1**	-0,585	0,027	0,008	-0,020	-0,162	0,116	0,002	0,037	0,113	0,334
4:BTW	-0,117	0,088	-0,207	0,029	-0,028	0,119	-0,061	0,061	-0,020	0,009	0,042	0,046	-0,175	-0,173	-0,132	-0,120	-0,312	-0,216		-0,119	0,133	-0,142	-0,252	-0,039		-0,131	-0,584	-0,583	-0,585	**1**	-0,043	0,021	0,011	-0,048	-0,130	0,124	0,054	-0,008	-0,064
Urban	-0,055	0,047	-0,155	-0,543	0,022	-0,357	0,363	-0,209	0,288	0,371	0,057	0,335	0,050	0,113	0,619	0,157	0,013	-0,018		0,350	0,040	0,009	0,042	-0,214		-0,076	0,079	-0,028	0,027	-0,043	**1**	0,380	-0,804	0,003	0,074	-0,057	-0,098	-0,026	-0,074
Intermediate	-0,009	0,088	0,002	-0,256	-0,040	-0,106	0,098	0,040	0,076	0,015	0,011	0,013	0,000	0,020	0,010	-0,042	0,010	0,019		-0,004	-0,032	-0,056	0,012	-0,007		-0,050	-0,037	-0,009	0,008	0,021	0,380	**1**	-0,856	-0,053	0,045	-0,004	-0,006	0,017	-0,011
Rural	0,037	-0,083	0,085	0,469	0,013	0,268	-0,266	0,091	-0,210	-0,217	-0,038	-0,196	-0,028	-0,076	-0,353	-0,060	-0,014	-0,002		-0,193	-0,002	0,031	-0,031	0,124		0,075	-0,020	0,022	-0,020	0,011	-0,804	-0,856	**1**	0,033	-0,070	0,034	0,059	0,003	0,048
LIS	-0,111	0,188	-0,066	0,057	0,055	0,178	-0,108	-0,034	0,063	0,008	0,058	-0,044	0,006	-0,032	0,023	-0,008	0,036	-0,322		-0,069	0,298	0,268	-0,287	-0,020		0,002	0,219	0,038	-0,162	-0,048	0,003	-0,053	0,033	**1**	0,167	-0,676	-0,120	-0,085	-0,120
NED	0,122	-0,015	-0,037	-0,086	-0,348	-0,069	0,311	0,179	-0,254	0,001	0,022	0,097	-0,022	0,009	0,122	-0,050	-0,220	0,071		0,024	-0,050	-0,015	0,052	0,028		0,022	0,086	0,025	0,116	-0,130	0,074	0,045	-0,070	0,167	**1**	-0,840	0,183	0,013	0,065
NIS	-0,030	-0,092	0,064	0,033	0,230	-0,046	-0,173	-0,115	0,156	-0,006	-0,049	-0,049	0,013	0,011	-0,104	0,042	0,145	0,124		0,020	-0,126	-0,136	0,119	-0,010		-0,018	-0,185	-0,039	0,002	0,124	-0,057	-0,004	0,034	-0,676	-0,840	**1**	-0,071	0,037	0,020
Rec_DL	0,059	0,049	-0,044	0,071	-0,201	0,066	-0,006	0,259	-0,204	-0,137	-0,010	-0,043	-0,062	-0,067	-0,091	-0,079	-0,037	0,046		-0,106	0,002	0,047	-0,031	-0,010		-0,007	0,019	-0,152	0,037	0,054	-0,098	-0,006	0,059	-0,120	0,183	-0,071	**1**	0,531	0,469
Ret_Tra_4	0,103	-0,035	0,030	0,024	-0,141	0,043	-0,037	0,229	-0,085	-0,089	-0,006	-0,061	-0,002	-0,009	-0,078	-0,070	0,037	0,120		-0,018	-0,070	-0,027	0,053	-0,050		-0,050	-0,012	-0,093	0,113	-0,008	-0,026	0,017	0,003	-0,085	0,013	0,037	0,531	**1**	0,604
Ret_Tra_8	0,314	-0,176	0,213	-0,024	-0,214	-0,022	-0,027	0,355	-0,138	-0,134	-0,114	-0,131	-0,020	-0,027	-0,086	-0,136	0,012	0,389		0,027	-0,336	-0,205	0,307	-0,089		-0,063	-0,159	-0,053	0,334	-0,064	-0,074	-0,011	0,048	-0,120	0,065	0,020	0,469	0,604	**1**

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
Germany - Recovery of development level

Summary of the variables selection Rec_DL:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya' s PC
1	Pub_GVA	Pub_GVA	IN	0,009	0,067	0,066	90,708	-3929,769	-3920,335	0,938
2	Pub_GVA / Shock	Shock	IN	0,008	0,105	0,102	57,073	-3960,551	-3941,684	0,903
3	Pub_GVA / CRISIS / Shock	CRISIS	IN	0,008	0,138	0,132	31,191	-3985,207	-3952,191	0,877
4	Pub_GVA / GDP_PC / CRISIS / Shock	GDP_PC	IN	0,008	0,151	0,144	20,102	-3996,129	-3958,396	0,865

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
Germany - Recovery of development level

Goodness of fit statistics (Rec_DL):

Observations	826
Sum of weights	826
DF	818
R^2	0,151
Adjusted R^2	0,144
MSE	0,008
RMSE	0,089
MAPE	173,087
DW	1,870
Cp	20,102
AIC	-3996,129
SBC	-3958,396
PC	0,865
Press	6,586
Q^2	0,129

Analysis of variance (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	7	1,145	0,164	20,845	**<0,0001**
Error	818	6,419	0,008		
Corrected'	825	7,564			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
Germany - Recovery of development level

Type I Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,506	0,506	64,510	0,000
HHI	0,000	0,000			
GDP_PC	1,000	0,049	0,049	6,228	0,013
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	3,000	0,251	0,084	10,678	0,000
Clu	0,000	0,000			
CRISIS	2,000	0,339	0,169	21,570	0,000
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type II Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,331	0,331	42,142	0,000
HHI	0,000	0,000			
GDP_PC	1,000	0,101	0,101	12,898	0,000
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	3,000	0,290	0,097	12,307	0,000
Clu	0,000	0,000			
CRISIS	2,000	0,339	0,169	21,570	0,000
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type III Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,331	0,331	42,142	0,000
HHI	0,000	0,000			
GDP_PC	1,000	0,101	0,101	12,898	0,000
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	3,000	0,290	0,097	12,307	0,000
Clu	0,000	0,000			
CRISIS	2,000	0,339	0,169	21,570	0,000
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
Germany - Recovery of development level

Model parameters (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,138	0,014	-9,889	**<0,0001**	-0,165	-0,110
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,325	0,054	6,050	**<0,0001**	0,219	0,430
HHI	0,000	0,000				
GDP_PC	-0,013	0,005	-2,655	**0,008**	-0,023	-0,003
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
1: 90-93	0,021	0,007	2,956	**0,003**	0,007	0,035
2: 00-03	-0,028	0,007	-4,222	**<0,0001**	-0,040	-0,015
3: 08-09	-0,009	0,006	-1,652	0,099	-0,020	0,002
4:BTW	0,016	0,012	1,314	0,189	-0,008	0,039
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	-0,039	0,011	-3,587	**0,000**	-0,060	-0,018
NED	0,029	0,007	4,284	**<0,0001**	0,016	0,042
NIS	0,010	0,010	0,972	0,331	-0,010	0,030

Standardized coefficients (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GV	0,000	0,000				
Const_GV	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,226	0,037	6,050	**<0,0001**	0,153	0,300
HHI	0,000	0,000				
GDP_PC	-0,120	0,045	-2,655	**0,008**	-0,209	-0,031
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMF	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
1: 90-93	0,000	0,000			0,000	0,000
2: 00-03	0,000	0,000			0,000	0,000
3: 08-09	0,000	0,000			0,000	0,000
4:BTW	0,000	0,000				
Urban	0,000	0,000				
Intermedia	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000			0,000	0,000
NED	0,000	0,000			0,000	0,000
NIS	0,000	0,000				

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
Germany - Growth trajectory retention (4 year recovery period)

Summary of the variables selection Ret_Tra_4:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya' s PC
1	Pub_GVA	Pub_GVA	IN	0,001	0,053	0,051	24,712	-6216,208	-6206,775	0,952
2	Pub_GVA / CRISIS	CRISIS	IN	0,001	0,068	0,064	16,723	-6223,970	-6200,387	0,943
3	Const_GVA / Pub_GVA / CRISIS	Const_GVA	IN	0,001	0,073	0,067	14,571	-6226,098	-6197,799	0,941
4	Const_GVA / Pub_GVA / Cur_blc / CRISIS	Cur_blc	IN	0,001	0,078	0,071	12,070	-6228,597	-6195,581	0,938
5	Const_GVA / Pub_GVA / GFCF_PC / Cur_blc / CRISIS	GFCF_PC	IN	0,001	0,083	0,075	9,908	-6230,780	-6193,047	0,935
6	Pop_work / Const_GVA / Pub_GVA / GFCF_PC / Cur_blc / CRISIS	Pop_work	IN	0,001	0,093	0,084	2,492	-6238,321	-6195,871	0,927
5	Pop_work / Const_GVA / Pub_GVA / GFCF_PC / Cur_blc	CRISIS	OUT	0,001	0,087	0,082	1,546	-6239,187	-6210,887	0,926
6	Pop_work / Const_GVA / Pub_GVA / GFCF_PC / Cur_blc / Union	Union	IN	0,001	0,092	0,086	-0,772	-6241,571	-6208,555	0,923

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
Germany - Growth trajectory retention (4 year recovery period)

Goodness of fit statistics (Ret_Tra_4):

Observations	826
Sum of weights	826
DF	819
R^2	0,092
Adjusted R^2	0,086
MSE	0,001
RMSE	0,023
MAPE	243,799
DW	1,844
Cp	-0,772
AIC	-6241,571
SBC	-6208,555
PC	0,923
Press	0,434
Q^2	0,072

Analysis of variance (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	6	0,043	0,007	13,869	**<0,0001**
Error	819	0,425	0,001		
Corrected	825	0,468			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
Germany - Growth trajectory retention (4 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,000	0,000	0,819	0,366
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	1,000	0,001	0,001	1,879	0,171
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,024	0,024	46,572	0,000
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	1,000	0,002	0,002	3,870	0,049
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,013	0,013	25,716	0,000
Gov_close	0,000	0,000			
Lab_comp	1,000	0,002	0,002	4,359	0,037
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type II Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,005	0,005	9,378	0,002
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	1,000	0,006	0,006	10,893	0,001
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,024	0,024	47,104	0,000
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	1,000	0,006	0,006	10,684	0,001
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,013	0,013	25,352	0,000
Gov_close	0,000	0,000			
Lab_comp	1,000	0,002	0,002	4,359	0,037
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type III Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,005	0,005	9,378	0,002
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	1,000	0,006	0,006	10,893	0,001
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,024	0,024	47,104	0,000
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	1,000	0,006	0,006	10,684	0,001
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,013	0,013	25,352	0,000
Gov_close	0,000	0,000			
Lab_comp	1,000	0,002	0,002	4,359	0,037
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
Germany - Growth trajectory retention (4 year recovery period)

Model parameters (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,001	0,028	0,040	0,968	-0,055	0,057
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	-0,122	0,050	-2,441	**0,015**	-0,220	-0,024
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,111	0,037	2,983	**0,003**	0,038	0,184
Serv_GVA	0,000	0,000				
Pub_GVA	0,088	0,019	4,636	**<0,0001**	0,051	0,125
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,004	0,001	3,052	**0,002**	0,002	0,007
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,003	0,001	4,503	**<0,0001**	0,002	0,005
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,001	0,000	1,742	0,082	0,000	0,001
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
1: 90-93	0,000	0,000				
2: 00-03	0,000	0,000				
3: 08-09	0,000	0,000				
4:BTW	0,000	0,000				
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	-0,165	0,067	-2,441	**0,015**	-0,297	-0,032
Agri_GVA	0,000	0,000				
Manu_GV	0,000	0,000				
Const_GV	0,123	0,041	2,983	**0,003**	0,042	0,204
Serv_GVA	0,000	0,000				
Pub_GVA	0,246	0,053	4,636	**<0,0001**	0,142	0,350
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,129	0,042	3,052	**0,002**	0,046	0,211
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,401	0,089	4,503	**<0,0001**	0,226	0,575
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000			0,000	0,000
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
1: 90-93	0,000	0,000				
2: 00-03	0,000	0,000				
3: 08-09	0,000	0,000				
4:BTW	0,000	0,000				
Urban	0,000	0,000				
Intermedia	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
Germany - Growth trajectory retention (8 year recovery period)

Summary of the variables selection Ret_Tra_8:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	Cur_blc	Cur_blc	IN	0,000	0,152	0,150	93,851	-6145,185	-6135,996	0,853
2	Pub_GVA / Cur_blc	Pub_GVA	IN	0,000	0,220	0,217	29,948	-6204,364	-6190,581	0,787
3	Const_GVA / Pub_GVA / Cur_blc	Const_GVA	IN	0,000	0,228	0,225	23,956	-6210,144	-6191,766	0,781
4	Pop_work / Const_GVA / Pub_GVA / Cur_blc	Pop_work	IN	0,000	0,236	0,232	18,263	-6215,712	-6192,740	0,775
5	Pop_work / Const_GVA / Pub_GVA / GFCF_PC / Cur_blc	GFCF_PC	IN	0,000	0,245	0,240	11,334	-6222,595	-6195,028	0,767
6	Pop_work / Manu_GVA / Const_GVA / Pub_GVA / GFCF_PC / Cur_blc	Manu_GVA	IN	0,000	0,250	0,244	8,189	-6225,763	-6193,602	0,764
7	Pop_work / Manu_GVA / Const_GVA / Pub_GVA / GFCF_PC / MM_Ac / Cur_blc	MM_Ac	IN	0,000	0,256	0,248	5,202	-6228,807	-6192,052	0,761
8	Pop_work / Manu_GVA / Const_GVA / Pub_GVA / GFCF_PC / MM_Ac / Cur_blc / SC_Org	SC_Org	IN	0,000	0,260	0,251	3,345	-6230,732	-6189,383	0,759

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
Germany - Growth trajectory retention (8 year recovery period)

Goodness of fit statistics (Ret_Tra_8):

Observations	731
Sum of weights	731
DF	722
R^2	0,260
Adjusted R^2	0,251
MSE	0,000
RMSE	0,014
MAPE	431,119
DW	1,730
Cp	3,345
AIC	-6230,732
SBC	-6189,383
PC	0,759
Press	0,146
Q^2	0,236

Analysis of variance (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	8	0,050	0,006	31,633	**<0,0001**
Error	722	0,142	0,000		
Corrected	730	0,191			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
Germany - Growth trajectory retention (8 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,009	0,009	44,252	0,000
Agri_GVA	0,000	0,000			
Manu_GVA	1,000	0,006	0,006	28,567	0,000
Const_GVA	1,000	0,000	0,000	1,001	0,317
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,014	0,014	73,071	0,000
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	1,000	0,000	0,000	0,835	0,361
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,001	0,001	6,867	0,009
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,019	0,019	94,583	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	1,000	0,001	0,001	3,887	0,049
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type II Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,002	0,002	11,467	0,001
Agri_GVA	0,000	0,000			
Manu_GVA	1,000	0,001	0,001	7,366	0,007
Const_GVA	1,000	0,004	0,004	22,185	0,000
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,013	0,013	65,768	0,000
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	1,000	0,002	0,002	11,623	0,001
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,001	0,001	3,960	0,047
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,019	0,019	97,134	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	1,000	0,001	0,001	3,887	0,049
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type III Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,002	0,002	11,467	0,001
Agri_GVA	0,000	0,000			
Manu_GVA	1,000	0,001	0,001	7,366	0,007
Const_GVA	1,000	0,004	0,004	22,185	0,000
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,013	0,013	65,768	0,000
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	1,000	0,002	0,002	11,623	0,001
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,001	0,001	3,960	0,047
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,019	0,019	97,134	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	1,000	0,001	0,001	3,887	0,049
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
Germany - Growth trajectory retention (8 year recovery period)

Model parameters (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,004	0,018	-0,219	0,827	-0,040	0,032
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	-0,085	0,032	-2,655	**0,008**	-0,148	-0,022
Agri_GVA	0,000	0,000				
Manu_GVA	0,020	0,011	1,803	0,072	-0,002	0,042
Const_GVA	0,115	0,031	3,735	**0,000**	0,055	0,176
Serv_GVA	0,000	0,000				
Pub_GVA	0,093	0,016	5,730	**<0,0001**	0,061	0,125
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,003	0,001	3,075	**0,002**	0,001	0,005
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000	1,545	0,123	0,000	0,000
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,003	0,000	7,785	**<0,0001**	0,002	0,004
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	-0,060	0,034	-1,786	0,074	-0,126	0,006
EoC	0,000	0,000				
Clu	0,000	0,000				
1: 90-93	0,000	0,000				
2: 00-03	0,000	0,000				
3: 08-09	0,000	0,000				
4:BTW	0,000	0,000				
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	-0,168	0,063	-2,655	**0,008**	-0,293	-0,044
Agri_GVA	0,000	0,000				
Manu_GV	0,118	0,066	1,803	0,072	-0,011	0,247
Const_GV	0,188	0,050	3,735	**0,000**	0,089	0,287
Serv_GVA	0,000	0,000				
Pub_GVA	0,377	0,066	5,730	**<0,0001**	0,248	0,507
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,139	0,045	3,075	**0,002**	0,050	0,228
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,081	0,052	1,545	0,123	-0,022	0,184
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,533	0,068	7,785	**<0,0001**	0,398	0,667
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000			0,000	0,000
EoC	0,000	0,000				
Clu	0,000	0,000				
1: 90-93	0,000	0,000				
2: 00-03	0,000	0,000				
3: 08-09	0,000	0,000				
4:BTW	0,000	0,000				
Urban	0,000	0,000				
Intermedia	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

III.e.i.2. United Kingdom

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
United Kingdom

Settings:
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Model selection: Stepwise
Probability for entry: 0,05 / Probability for removal: 0,1
Covariances: Corrections = Newey West (adjusted)(Lag = 1)
Use least squares means: Yes
Explanation of the variable codes can be found in table 28

Summary statistics (Quantitative data):

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Rec_DL	280	0	280	-0,381	0,213	-0,112	0,084
Ret_Tra_4	280	0	280	-0,097	0,083	-0,011	0,025
Ret_Tra_8	280	78	202	-0,072	0,042	-0,011	0,020
Pop_age	280	0	280	0,447	1,555	0,919	0,200
Mig_net	280	0	280	-8,873	13,649	2,736	3,526
Pop_work	280	0	280	0,404	0,667	0,497	0,040
Agri_GVA	280	0	280	0,000	0,177	0,012	0,021
Manu_GVA	280	0	280	0,053	0,503	0,208	0,089
Const_GVA	280	0	280	0,027	0,265	0,088	0,032
Serv_GVA	280	0	280	0,199	0,706	0,443	0,093
Pub_GVA	280	0	280	0,099	0,567	0,249	0,069
HHI	280	0	280	0,178	0,367	0,232	0,026
GDP_PC	280	0	280	-0,912	1,485	-0,164	0,396
GFCF_PC	280	0	280	-1,091	2,356	-0,090	0,664
PROD	280	0	280	-1,192	1,028	-0,336	0,399
RnD_GDP	280	0	280	0,160	14,868	2,220	2,066
RnD_EMP	280	0	280	0,164	2,992	1,442	0,632
MM_Ac	280	0	280	35,180	159,113	105,233	23,484
Avg_bus	280	0	280	7,014	11,319	9,014	1,078
Gov_debt	280	0	280	-10,100	1,400	-3,281	1,984
Cur_blc	280	0	280	-4,200	0,000	-3,534	0,757
Gov_close	280	0	280	Constant	Constant	Constant	Constant
Lab_comp	280	0	280	2062,560	43932,312	16636,908	9517,718
Union	280	0	280	26,959	41,143	33,020	6,219
ML_barg	280	0	280	1,000	1,625	1,292	0,312
SHDI	280	0	280	0,751	0,910	0,830	0,059
SC_Org	280	0	280	0,042	0,062	0,054	0,006
EoC	280	0	280	Constant	Constant	Constant	Constant
Clu	280	0	280	1,095	27,600	3,152	4,753

Number of removed observations: 68

Summary statistics (Qualitative data):

Variable	Categories	Counts	Frequencies	%
CRISIS	1: 90-93	129	129	46,071
	2: 00-03	4	4	1,429
	3: 08-09	132	132	47,143
	4:BTW	15	15	5,357
Urb_1	Urban	195	195	69,643
	Intermedia	59	59	21,071
	Rural	26	26	9,286
Shock	LIS	14	14	5,000
	NED	248	248	88,571
	NIS	18	18	6,429

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
United Kingdom

Correlation matrix:

	Pop_age	Mig_net	Pop_work	Agri_GVA	Manu_GVA	Const_GVA	Serv_GVA	Pub_GVA	HHI	GDP_PC	GFCF_PC	PROD	RnD_GDP	RnD_EMP	MM_Ac	Avg_bus	Gov_debt	Cur_blc	Gov_close	Lab_comp	Union	ML_barg	SHDI	SC_Org	EoC	Clu	1: 90-93	2: 00-03	3: 08-09	4:BTW	Urban	Intermediate	Rural	LIS	NED	NIS	Rec_DL	Ret_Tra_4	Ret_Tra_8
Pop_age	**1**	0,267	0,019	0,285	-0,320	-0,062	0,156	0,145	-0,198	-0,234	-0,182	0,134	-0,142	-0,229	-0,435	-0,262	-0,232	-0,151		-0,050	-0,277	-0,274	0,287	0,213		0,020	-0,275	-0,074	0,135	0,112	-0,365	0,008	0,268	0,007	-0,030	0,018	-0,060	-0,066	-0,082
Mig_net	0,267	**1**	0,097	0,233	-0,330	-0,042	0,228	0,065	0,018	0,150	0,057	0,325	-0,010	0,078	-0,213	-0,216	-0,250	-0,198		0,242	-0,373	-0,369	0,380	0,223		-0,034	-0,364	-0,071	0,169	0,148	-0,232	0,008	0,168	-0,060	-0,188	0,162	-0,087	-0,092	-0,100
Pop_work	0,019	0,097	**1**	0,312	-0,328	0,021	0,274	-0,053	-0,104	0,382	0,434	0,305	0,158	0,088	0,007	-0,435	-0,221	0,036		0,131	-0,185	-0,190	0,281	0,155		0,057	-0,186	0,011	0,087	0,062	-0,309	-0,021	0,244	0,018	-0,022	0,007	0,134	0,101	-0,005
Agri_GVA	0,285	0,233	0,312	**1**	-0,064	0,052	-0,171	-0,012	-0,425	-0,069	0,266	0,144	-0,163	-0,346	-0,535	-0,208	0,078	0,294		-0,317	0,050	0,036	-0,058	0,002		-0,032	-0,060	-0,138	-0,250	0,243	-0,600	-0,134	0,532	-0,045	-0,201	0,164	0,055	-0,085	0,010
Manu_GVA	-0,320	-0,330	-0,328	-0,064	**1**	-0,025	-0,614	-0,427	0,009	-0,189	-0,018	-0,264	0,000	-0,050	-0,036	0,342	0,413	0,376		-0,330	0,424	0,406	-0,485	-0,246		-0,035	0,315	-0,030	-0,382	0,054	0,194	-0,035	-0,124	-0,056	-0,156	0,137	0,022	-0,011	0,003
Const_GVA	-0,062	-0,042	0,021	0,052	-0,025	**1**	-0,367	0,044	-0,341	-0,195	0,238	-0,218	0,198	0,022	0,064	-0,131	0,465	0,366		-0,300	0,501	0,499	-0,476	-0,056		-0,055	0,390	-0,085	-0,448	0,063	-0,107	-0,092	0,137	0,162	-0,097	-0,005	-0,061	-0,127	-0,242
Serv_GVA	0,156	0,228	0,274	-0,171	-0,614	-0,367	**1**	-0,342	-0,007	0,383	-0,111	0,392	0,082	0,197	0,337	-0,204	-0,601	-0,545		0,577	-0,623	-0,603	0,684	0,121		0,124	-0,417	0,146	0,614	-0,172	0,128	0,150	-0,189	-0,006	0,306	-0,216	0,014	0,235	0,238
Pub_GVA	0,145	0,065	-0,053	-0,012	-0,427	0,044	-0,342	**1**	0,288	-0,164	-0,020	-0,133	-0,156	-0,108	-0,280	-0,041	0,041	-0,007		-0,120	0,048	0,049	-0,061	0,180		-0,088	-0,005	-0,078	-0,055	0,061	-0,193	-0,075	0,191	0,018	-0,108	0,069	-0,036	-0,220	-0,192
HHI	-0,198	0,018	-0,104	-0,425	0,009	-0,341	-0,007	0,288	**1**	0,343	-0,081	0,129	0,001	0,167	0,164	0,031	-0,050	-0,152		0,227	-0,058	-0,062	0,069	0,068		-0,006	-0,098	-0,053	0,089	0,020	0,230	0,025	-0,187	-0,062	-0,170	0,150	-0,084	-0,075	-0,044
GDP_PC	-0,234	0,150	0,382	-0,069	-0,189	-0,195	0,383	-0,164	0,343	**1**	0,417	0,410	0,161	0,362	0,265	-0,176	-0,099	-0,112		0,311	-0,091	-0,086	0,168	0,153		0,040	-0,057	0,057	0,121	-0,058	0,025	0,106	-0,084	0,003	0,019	-0,015	-0,060	0,002	0,041
GFCF_PC	-0,182	0,057	0,434	0,266	-0,018	0,238	-0,111	-0,020	-0,081	0,417	**1**	0,304	0,212	0,341	-0,136	-0,135	0,293	0,308		-0,081	0,293	0,289	-0,229	0,212		0,012	0,178	-0,154	-0,374	0,173	-0,248	-0,003	0,187	-0,019	-0,201	0,152	-0,027	-0,001	-0,017
PROD	0,134	0,325	0,305	0,144	-0,264	-0,218	0,392	-0,133	0,129	0,410	0,304	**1**	-0,036	0,182	0,000	-0,335	-0,209	-0,183		0,463	-0,322	-0,325	0,383	0,163		0,044	-0,302	0,002	0,175	0,082	-0,169	0,041	0,102	-0,123	-0,176	0,182	0,023	0,076	0,079
RnD_GDP	-0,142	-0,010	0,158	-0,163	0,000	0,198	0,082	-0,156	0,001	0,161	0,212	-0,036	**1**	0,440	0,351	-0,079	0,131	0,029		0,008	0,124	0,126	-0,090	-0,057		0,651	0,107	-0,025	-0,091	-0,004	0,113	0,025	-0,100	0,049	-0,016	-0,011	-0,043	0,006	-0,206
RnD_EMP	-0,229	0,078	0,088	-0,346	-0,050	0,022	0,197	-0,108	0,167	0,362	0,341	0,182	0,440	**1**	0,442	0,212	-0,062	-0,182		0,555	-0,106	-0,098	0,154	0,052		-0,017	-0,081	-0,057	0,101	0,003	0,236	0,126	-0,255	-0,045	-0,005	-0,030	0,037	0,175	0,093
MM_Ac	-0,435	-0,213	0,007	-0,535	-0,036	0,064	0,337	-0,280	0,164	0,265	-0,136	0,000	0,351	0,442	**1**	-0,017	-0,002	-0,217		0,415	0,003	0,016	0,061	-0,204		0,074	0,102	0,152	0,172	-0,223	0,534	0,180	-0,511	0,082	0,258	-0,222	0,106	0,239	0,146
Avg_bus	-0,262	-0,216	-0,435	-0,208	0,342	-0,131	-0,204	-0,041	0,031	-0,176	-0,135	-0,335	-0,079	0,212	-0,017	**1**	-0,007	-0,073		0,070	-0,024	-0,022	-0,091	-0,467		0,053	-0,013	0,000	0,043	-0,020	0,329	-0,082	-0,195	0,049	0,042	-0,053	0,002	-0,039	0,041
Gov_debt	-0,232	-0,250	-0,221	0,078	0,413	0,465	-0,601	0,041	-0,050	-0,099	0,293	-0,209	0,131	-0,062	-0,002	-0,007	**1**	0,692		-0,545	0,866	0,837	-0,870	-0,008		-0,076	0,614	-0,076	-0,856	0,182	-0,035	-0,054	0,060	-0,053	-0,302	0,239	-0,025	-0,128	-0,211
Cur_blc	-0,151	-0,198	0,036	0,294	0,376	0,366	-0,545	-0,007	-0,152	-0,112	0,308	-0,183	0,029	-0,182	-0,217	-0,073	0,692	**1**		-0,537	0,667	0,614	-0,665	0,049		-0,070	0,401	-0,192	-0,824	0,334	-0,216	-0,188	0,278	0,074	-0,326	0,199	0,111	-0,089	-0,154
Gov_close																																							
Lab_comp	-0,050	0,242	0,131	-0,317	-0,330	-0,300	0,577	-0,120	0,227	0,311	-0,081	0,463	0,008	0,555	0,415	0,070	-0,545	-0,537		**1**	-0,600	-0,585	0,643	0,079		-0,107	-0,467	0,005	0,534	-0,047	0,232	0,050	-0,204	0,009	0,113	-0,085	0,116	0,274	0,283
Union	-0,277	-0,373	-0,185	0,050	0,424	0,501	-0,623	0,048	-0,058	-0,091	0,293	-0,322	0,124	-0,106	0,003	-0,024	0,866	0,667		-0,600	**1**	0,996	-0,978	0,030		-0,067	0,866	0,057	-0,727	-0,106	-0,010	-0,004	0,010	-0,028	-0,035	0,038	-0,067	-0,169	-0,199
ML_barg	-0,274	-0,369	-0,190	0,036	0,406	0,499	-0,603	0,049	-0,062	-0,086	0,289	-0,325	0,126	-0,098	0,016	-0,022	0,837	0,614		-0,585	0,996	**1**	-0,972	0,038		-0,063	0,893	0,087	-0,686	-0,160	-0,001	0,007	-0,004	-0,045	0,005	0,017	-0,095	-0,178	-0,196
SHDI	0,287	0,380	0,281	-0,058	-0,485	-0,476	0,684	-0,061	0,069	0,168	-0,229	0,383	-0,090	0,154	0,061	-0,091	-0,870	-0,665		0,643	-0,978	-0,972	**1**	0,062		0,059	-0,842	-0,045	0,734	0,083	0,009	0,048	-0,037	0,035	0,067	-0,064	0,075	0,190	0,204
SC_Org	0,213	0,223	0,155	0,002	-0,246	-0,056	0,121	0,180	0,068	0,153	0,212	0,163	-0,057	0,052	-0,204	-0,467	-0,008	0,049		0,079	0,030	0,038	0,062	**1**		-0,098	0,043	-0,063	-0,033	0,012	-0,187	-0,011	0,147	-0,010	0,056	-0,036	-0,028	0,006	-0,009
EoC																																							
Clu	0,020	-0,034	0,057	-0,032	-0,035	-0,055	0,124	-0,088	-0,006	0,040	0,012	0,044	0,651	-0,017	0,074	0,053	-0,076	-0,070		-0,107	-0,067	-0,063	0,059	-0,098		**1**	-0,036	0,024	0,080	-0,036	0,077	-0,037	-0,035	0,013	0,064	-0,052	-0,050	-0,070	-0,225
1: 90-93	-0,275	-0,364	-0,186	-0,060	0,315	0,390	-0,417	-0,005	-0,098	-0,057	0,178	-0,302	0,107	-0,081	0,102	-0,013	0,614	0,401		-0,467	0,866	0,893	-0,842	0,043		-0,036	**1**	0,458	-0,333	-0,567	0,104	0,130	-0,158	-0,060	0,258	-0,156	-0,113	-0,163	-0,164
2: 00-03	-0,074	-0,071	0,011	-0,138	-0,030	-0,085	0,146	-0,078	-0,053	0,057	-0,154	0,002	-0,025	-0,057	0,152	0,000	-0,076	-0,192		0,005	0,057	0,087	-0,045	-0,063		0,024	0,458	**1**	0,459	-0,888	0,141	0,214	-0,238	-0,130	0,344	-0,186	-0,034	-0,060	-0,053
3: 08-09	0,135	0,169	0,087	-0,250	-0,382	-0,448	0,614	-0,055	0,089	0,121	-0,374	0,175	-0,091	0,101	0,172	0,043	-0,856	-0,824		0,534	-0,727	-0,686	0,734	-0,033		0,080	-0,333	0,459	**1**	-0,570	0,207	0,215	-0,288	0,030	0,482	-0,357	-0,007	0,107	0,166
4:BTW	0,112	0,148	0,062	0,243	0,054	0,063	-0,172	0,061	0,020	-0,058	0,173	0,082	-0,004	0,003	-0,223	-0,020	0,182	0,334		-0,047	-0,106	-0,160	0,083	0,012		-0,036	-0,567	-0,888	-0,570	**1**	-0,245	-0,288	0,361	0,057	-0,584	0,390	0,089	0,054	0,022
Urban	-0,365	-0,232	-0,309	-0,600	0,194	-0,107	0,128	-0,193	0,230	0,025	-0,248	-0,169	0,113	0,236	0,534	0,329	-0,035	-0,216		0,232	-0,010	-0,001	0,009	-0,187		0,077	0,104	0,141	0,207	-0,245	**1**	0,062	-0,787	0,088	0,252	-0,220	0,010	0,070	0,000
Intermediate	0,008	0,008	-0,021	-0,134	-0,035	-0,092	0,150	-0,075	0,025	0,106	-0,003	0,041	0,025	0,126	0,180	-0,082	-0,054	-0,188		0,050	-0,004	0,007	0,048	-0,011		-0,037	0,130	0,214	0,215	-0,288	0,062	**1**	-0,664	0,107	0,277	-0,247	0,024	0,045	0,079
Rural	0,268	0,168	0,244	0,532	-0,124	0,137	-0,189	0,191	-0,187	-0,084	0,187	0,102	-0,100	-0,255	-0,511	-0,195	0,060	0,278		-0,204	0,010	-0,004	-0,037	0,147		-0,035	-0,158	-0,238	-0,288	0,361	-0,787	-0,664	**1**	-0,132	-0,360	0,318	-0,022	-0,080	-0,049
LIS	0,007	-0,060	0,018	-0,045	-0,056	0,162	-0,006	0,018	-0,062	0,003	-0,019	-0,123	0,049	0,073	0,082	0,049	-0,053	0,074		0,009	-0,028	-0,045	0,035	-0,010		0,013	-0,060	-0,130	0,030	0,057	0,088	0,107	-0,132	**1**	0,429	-0,765	0,079	-0,039	-0,098
NED	-0,030	-0,188	-0,022	-0,201	-0,156	-0,097	0,306	-0,108	-0,170	0,019	-0,201	-0,176	-0,016	-0,005	0,258	0,042	-0,302	-0,326		0,113	-0,035	0,005	0,067	0,056		0,064	0,258	0,344	0,482	-0,584	0,252	0,277	-0,360	0,429	**1**	-0,910	-0,003	-0,003	0,035
NIS	0,018	0,162	0,007	0,164	0,137	-0,005	-0,216	0,069	0,150	-0,015	0,152	0,182	-0,011	-0,030	-0,222	-0,053	0,239	0,199		-0,085	0,038	0,017	-0,064	-0,036		-0,052	-0,156	-0,186	-0,357	0,390	-0,220	-0,247	0,318	-0,765	-0,910	**1**	-0,034	0,020	0,020
Rec_DL	-0,060	-0,087	0,134	0,055	0,022	-0,061	0,014	-0,036	-0,084	-0,060	-0,027	0,023	-0,043	0,037	0,106	0,002	-0,025	0,111		0,116	-0,067	-0,095	0,075	-0,028		-0,050	-0,113	-0,034	-0,007	0,089	0,010	0,024	-0,022	0,079	-0,003	-0,034	**1**	0,522	0,398
Ret_Tra_4	-0,066	-0,092	0,101	-0,085	-0,011	-0,127	0,235	-0,220	-0,075	0,002	-0,001	0,076	0,006	0,175	0,239	-0,039	-0,128	-0,089		0,274	-0,169	-0,178	0,190	0,006		-0,070	-0,163	-0,060	0,107	0,054	0,070	0,045	-0,080	-0,039	-0,003	0,020	0,522	**1**	0,799
Ret_Tra_8	-0,082	-0,100	-0,005	0,010	0,003	-0,242	0,238	-0,192	-0,044	0,041	-0,017	0,079	-0,206	0,093	0,146	0,041	-0,211	-0,154		0,283	-0,199	-0,196	0,204	-0,009		-0,225	-0,164	-0,053	0,166	0,022	0,000	0,079	-0,049	-0,098	0,035	0,020	0,398	0,799	**1**

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
United Kingdom - Recovery of development level

Summary of the variables selection Rec_DL:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	Pop_work	Pop_work	IN	0,007	0,018	0,014	39,403	-1389,290	-1382,020	0,996
2	Pop_work / GDP_PC	GDP_PC	IN	0,007	0,032	0,025	36,767	-1391,436	-1380,532	0,989
3	Pop_work / GDP_PC / MM_Ac	MM_Ac	IN	0,007	0,053	0,043	32,050	-1395,555	-1381,016	0,974
4	Pop_work / GDP_PC / MM_Ac / Cur_blc	Cur_blc	IN	0,007	0,068	0,054	29,380	-1397,888	-1379,714	0,966
5	Pop_work / GDP_PC / MM_Ac / Cur_blc / ML_barg	ML_barg	IN	0,006	0,110	0,093	17,923	-1408,766	-1386,958	0,929
6	Pop_work / GDP_PC / MM_Ac / Cur_blc / Union / ML_barg	Union	IN	0,006	0,150	0,131	7,064	-1419,651	-1394,207	0,894
5	Pop_work / GDP_PC / MM_Ac / Union / ML_barg	Cur_blc	OUT	0,006	0,150	0,134	5,064	-1421,651	-1399,842	0,888
6	Pop_work / GDP_PC / MM_Ac / Lab_comp / Union / ML_barg	Lab_comp	IN	0,006	0,162	0,144	2,971	-1423,879	-1398,436	0,880

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
United Kingdom - Recovery of development level

Goodness of fit statistics (Rec_DL):

Observations	280
Sum of weights	280
DF	273
R^2	0,162
Adjusted R^2	0,144
MSE	0,006
RMSE	0,078
MAPE	156,502
DW	1,514
Cp	2,971
AIC	-1423,879
SBC	-1398,436
PC	0,880
Press	1,799
Q^2	0,086

Analysis of variance (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	6	0,320	0,053	8,826	**<0,0001**
Error	273	1,648	0,006		
Corrected	279	1,968			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
United Kingdom - Recovery of development level

Type I Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,035	0,035	5,828	0,016
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	1,000	0,028	0,028	4,705	0,031
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,041	0,041	6,818	0,010
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	1,000	0,017	0,017	2,772	0,097
Lab_comp	1,000	0,001	0,001	0,097	0,755
Union	1,000	0,198	0,198	32,731	0,000
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type II Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,045	0,045	7,495	0,007
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	1,000	0,054	0,054	9,026	0,003
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,022	0,022	3,612	0,058
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	1,000	0,025	0,025	4,154	0,042
Lab_comp	1,000	0,088	0,088	14,514	0,000
Union	1,000	0,198	0,198	32,731	0,000
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type III Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,045	0,045	7,495	0,007
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	1,000	0,054	0,054	9,026	0,003
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,022	0,022	3,612	0,058
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	1,000	0,025	0,025	4,154	0,042
Lab_comp	1,000	0,088	0,088	14,514	0,000
Union	1,000	0,198	0,198	32,731	0,000
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
United Kingdom - Recovery of development level

Model parameters (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,737	0,245	-3,003	**0,003**	-1,220	-0,254
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,368	0,142	2,592	**0,010**	0,088	0,647
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	-0,041	0,013	-3,186	**0,002**	-0,066	-0,016
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000	1,581	0,115	0,000	0,001
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000	1,874	0,062	0,000	0,000
Union	0,048	0,020	2,341	**0,020**	0,008	0,088
ML_barg	-0,941	0,360	-2,610	**0,010**	-1,650	-0,231
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
1: 90-93	0,000	0,000				
2: 00-03	0,000	0,000				
3: 08-09	0,000	0,000				
4:BTW	0,000	0,000				
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,175	0,067	2,592	**0,010**	0,042	0,307
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	-0,194	0,061	-3,186	**0,002**	-0,313	-0,074
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,128	0,081	1,581	0,115	-0,031	0,288
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000			0,000	0,000
Union	0,000	0,000			0,000	0,000
ML_barg	0,000	0,000			0,000	0,000
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
1: 90-93	0,000	0,000				
2: 00-03	0,000	0,000				
3: 08-09	0,000	0,000				
4:BTW	0,000	0,000				
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
United Kingdom - Growth trajectory retention (4 year recovery period)

Summary of the variables selection Ret_Tra_4:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	Lab_comp	Lab_comp	IN	0,001	0,075	0,072	38,412	-2078,985	-2071,716	0,938
2	Pub_GVA / Lab_comp	Pub_GVA	IN	0,001	0,111	0,104	28,374	-2087,916	-2077,012	0,909
3	Mig_net / Pub_GVA / Lab_comp	Mig_net	IN	0,001	0,132	0,123	23,167	-2092,671	-2078,132	0,893

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
United Kingdom - Growth trajectory retention (4 year recovery period)

Goodness of fit statistics (Ret_Tra_4):

Observations	280
Sum of weights	280
DF	276
R^2	0,132
Adjusted R^2	0,123
MSE	0,001
RMSE	0,024
MAPE	211,661
DW	1,487
Cp	23,167
AIC	-2092,671
SBC	-2078,132
PC	0,893
Press	0,159
Q^2	0,105

Analysis of variance (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	3	0,023	0,008	13,984	**<0,0001**
Error	276	0,154	0,001		
Corrected	279	0,178			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
United Kingdom - Growth trajectory retention (4 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	1,000	0,002	0,002	2,690	0,102
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,008	0,008	14,604	0,000
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	1,000	0,014	0,014	24,658	0,000
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type II Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	1,000	0,004	0,004	6,739	0,010
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,005	0,005	9,516	0,002
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	1,000	0,014	0,014	24,658	0,000
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type III Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	1,000	0,004	0,004	6,739	0,010
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,005	0,005	9,516	0,002
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	1,000	0,014	0,014	24,658	0,000
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
United Kingdom - Growth trajectory retention (4 year recovery period)

Model parameters (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,005	0,007	-0,733	0,464	-0,018	0,008
Pop_age	0,000	0,000				
Mig_net	-0,001	0,000	-2,221	**0,027**	-0,002	0,000
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	-0,064	0,021	-3,019	**0,003**	-0,106	-0,022
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000	5,089	**<0,0001**	0,000	0,000
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
1: 90-93	0,000	0,000				
2: 00-03	0,000	0,000				
3: 08-09	0,000	0,000				
4:BTW	0,000	0,000				
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	-0,151	0,068	-2,221	**0,027**	-0,284	-0,017
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	-0,175	0,058	-3,019	**0,003**	-0,289	-0,061
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000			0,000	0,000
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
1: 90-93	0,000	0,000				
2: 00-03	0,000	0,000				
3: 08-09	0,000	0,000				
4:BTW	0,000	0,000				
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
United Kingdom - Growth trajectory retention (8 year recovery period)

Summary of the variables selection Ret_Tra_8:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	Lab_comp	Lab_comp	IN	0,000	0,080	0,075	29,319	-1584,818	-1578,201	0,938
2	RnD_GDP / Lab_comp	RnD_GDP	IN	0,000	0,123	0,114	20,680	-1592,500	-1582,575	0,903
3	Pub_GVA / RnD_GDP / Lab_comp	Pub_GVA	IN	0,000	0,156	0,143	14,642	-1598,136	-1584,903	0,878
4	Mig_net / Pub_GVA / RnD_GDP / Lab_comp	Mig_net	IN	0,000	0,175	0,159	11,753	-1600,925	-1584,384	0,866

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
United Kingdom - Growth trajectory retention (8 year recovery period)

Goodness of fit statistics (Ret_Tra_8):

Observations	202
Sum of weights	202
DF	197
R^2	0,175
Adjusted R^2	0,159
MSE	0,000
RMSE	0,019
MAPE	238,528
DW	1,674
Cp	11,753
AIC	-1600,925
SBC	-1584,384
PC	0,866
Press	0,073
Q^2	0,130

Analysis of variance (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	4	0,015	0,004	10,480	**<0,0001**
Error	197	0,069	0,000		
Corrected	201	0,084			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
United Kingdom - Growth trajectory retention (8 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	1,000	0,001	0,001	2,398	0,123
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,003	0,003	8,386	0,004
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	1,000	0,004	0,004	11,811	0,001
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	1,000	0,007	0,007	19,324	0,000
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type II Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	1,000	0,002	0,002	4,727	0,031
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,002	0,002	6,854	0,010
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	1,000	0,004	0,004	11,332	0,001
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	1,000	0,007	0,007	19,324	0,000
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type III Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	1,000	0,002	0,002	4,727	0,031
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	1,000	0,002	0,002	6,854	0,010
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	1,000	0,004	0,004	11,332	0,001
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	1,000	0,007	0,007	19,324	0,000
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
United Kingdom - Growth trajectory retention (8 year recovery period)

Model parameters (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,002	0,008	-0,266	0,791	-0,017	0,013
Pop_age	0,000	0,000				
Mig_net	-0,001	0,000	-1,820	0,070	-0,002	0,000
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	-0,048	0,026	-1,817	0,071	-0,100	0,004
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	-0,002	0,001	-3,040	**0,003**	-0,003	-0,001
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000	4,158	**<0,0001**	0,000	0,000
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
1: 90-93	0,000	0,000				
2: 00-03	0,000	0,000				
3: 08-09	0,000	0,000				
4:BTW	0,000	0,000				
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	-0,144	0,079	-1,820	0,070	-0,300	0,012
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	-0,172	0,095	-1,817	0,071	-0,358	0,015
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	-0,219	0,072	-3,040	**0,003**	-0,361	-0,077
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000			0,000	0,000
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
1: 90-93	0,000	0,000				
2: 00-03	0,000	0,000				
3: 08-09	0,000	0,000				
4:BTW	0,000	0,000				
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

III.e.i.3. France

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
France

Settings:
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Model selection: Stepwise
Probability for entry: 0,05 / Probability for removal: 0,1
Covariances: Corrections = Newey West (adjusted)(Lag = 1)
Use least squares means: Yes
Explanation of the variable codes can be found in table 28

Summary statistics (Quantitative data):

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Rec_DL	214	0	214	-0,225	0,087	-0,048	0,055
Ret_Tra_4	214	0	214	-0,061	0,017	-0,010	0,015
Ret_Tra_8	214	64	150	-0,063	0,016	-0,012	0,014
Pop_age	214	0	214	0,407	1,956	0,975	0,299
Mig_net	214	0	214	-9,223	24,742	2,001	5,042
Pop_work	214	0	214	0,265	0,486	0,431	0,038
Agri_GVA	214	0	214	0,000	0,119	0,029	0,021
Manu_GVA	214	0	214	0,044	0,282	0,163	0,051
Const_GVA	214	0	214	0,021	0,142	0,083	0,016
Serv_GVA	214	0	214	0,324	0,762	0,466	0,068
Pub_GVA	214	0	214	0,101	0,344	0,259	0,038
HHI	214	0	214	0,188	0,319	0,219	0,019
GDP_PC	214	0	214	-0,610	4,148	-0,102	0,666
GFCF_PC	214	0	214	-0,703	2,093	0,059	0,655
PROD	214	0	214	-0,996	2,771	0,457	0,709
RnD_GDP	214	0	214	0,230	4,280	1,912	0,975
RnD_EMP	214	0	214	0,381	3,522	1,435	0,742
MM_Ac	214	0	214	57,665	187,935	99,829	29,696
Avg_bus	214	0	214	1,349	4,681	3,315	0,730
Gov_debt	214	0	214	-7,200	-1,400	-6,016	1,449
Cur_blc	214	0	214	-0,800	2,900	0,326	0,878
Gov_close	214	0	214	Constant	Constant	Constant	Constant
Lab_comp	214	0	214	1483,505	271583,24	44777,540	60618,546
Union	214	0	214	7,794	9,827	8,566	0,659
ML_barg	214	0	214	2,500	2,625	2,575	0,061
SHDI	214	0	214	0,730	0,921	0,837	0,039
SC_Org	214	0	214	0,081	0,111	0,097	0,009
EoC	214	0	214	Constant	Constant	Constant	Constant
Clu	214	0	214	0,995	3,123	1,570	0,520

Number of removed observations: 9

Summary statistics (Qualitative data):

Variable	Categories	Counts	Frequencies	%
CRISIS	1: 90-93	82	82	38,318
	2: 00-03	46	46	21,495
	3: 08-09	85	85	39,720
	4:BTW	1	1	0,467
Urb_1	Urban	33	33	15,421
	Intermedia	62	62	28,972
	Rural	119	119	55,607
Shock	LIS	7	7	3,271
	NED	188	188	87,850
	NIS	19	19	8,879

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
France

Correlation matrix:

	Pop_age	Mig_net	Pop_work	Agri_GVA	Manu_GVA	Const_GVA	Serv_GVA	Pub_GVA	HHI	GDP_PC	GFCF_PC	PROD	RnD_GDP	RnD_EMP	MM_Ac	Avg_bus	Gov_debt	Cur_blc	Gov_close	Lab_comp	Union	ML_barg	SHDI	SC_Org	EoC	Clu	1: 90-93	2: 00-03	3: 08-09	4:BTW	Urban	Intermediate	Rural	LIS	NED	NIS	Rec_DL	Ret_Tra_4	Ret_Tra_8
Pop_age	**1**	0,427	-0,058	0,440	-0,202	0,152	-0,301	0,506	-0,149	-0,277	-0,442	-0,444	-0,052	-0,170	-0,674	-0,559	0,076	-0,102		-0,289	-0,233	-0,150	0,092	-0,036		0,169	-0,270	0,041	0,119	0,210	-0,537	-0,451	0,534	-0,085	-0,217	0,183	-0,248	-0,108	0,078
Mig_net	0,427	**1**	-0,166	0,109	-0,178	0,300	-0,107	0,245	-0,113	-0,263	-0,356	-0,390	-0,006	-0,111	-0,487	-0,507	0,160	0,108		-0,300	-0,107	0,038	0,015	0,062		0,131	-0,164	0,201	-0,048	0,076	-0,318	-0,185	0,268	-0,039	-0,100	0,084	-0,077	-0,190	-0,148
Pop_work	-0,058	-0,166	**1**	-0,212	0,161	-0,377	0,109	-0,138	0,215	0,268	0,464	0,369	0,317	0,487	0,357	0,440	-0,058	-0,168		0,508	-0,542	-0,386	0,684	0,155		-0,058	-0,543	0,190	0,380	0,000	0,235	0,016	-0,126	-0,034	0,050	-0,021	-0,301	-0,301	-0,349
Agri_GVA	0,440	0,109	-0,212	**1**	0,066	0,181	-0,566	0,305	-0,600	-0,382	-0,468	-0,448	-0,413	-0,516	-0,562	-0,345	0,175	-0,051		-0,398	-0,010	-0,007	-0,227	-0,322		0,084	-0,033	-0,033	-0,011	0,131	-0,598	-0,399	0,533	-0,179	-0,401	0,348	-0,199	-0,061	0,120
Manu_GVA	-0,202	-0,178	0,161	0,066	**1**	-0,056	-0,641	-0,199	-0,562	-0,229	-0,219	-0,255	-0,205	-0,274	-0,068	0,243	0,093	0,115		-0,319	-0,180	-0,028	0,023	-0,332		0,276	-0,198	0,225	0,034	-0,050	-0,312	-0,099	0,213	-0,056	0,024	0,006	-0,138	-0,077	-0,290
Const_GVA	0,152	0,300	-0,377	0,181	-0,056	**1**	-0,270	0,045	-0,522	-0,533	-0,250	-0,258	0,025	-0,195	-0,453	-0,203	0,073	0,160		-0,314	0,461	0,352	-0,429	0,059		-0,021	0,445	-0,133	-0,351	0,037	-0,350	-0,221	0,305	-0,039	-0,107	0,089	0,166	0,093	0,168
Serv_GVA	-0,301	-0,107	0,109	-0,566	-0,641	-0,270	**1**	-0,514	0,804	0,677	0,646	0,612	0,382	0,576	0,618	0,244	-0,048	-0,019		0,635	0,163	0,069	0,155	0,484		-0,280	0,170	-0,073	-0,054	-0,097	0,679	0,311	-0,521	0,185	0,180	-0,199	0,212	0,101	0,125
Pub_GVA	0,506	0,245	-0,138	0,305	-0,199	0,045	-0,514	**1**	-0,147	-0,476	-0,504	-0,404	-0,197	-0,304	-0,520	-0,488	-0,163	-0,158		-0,364	-0,236	-0,227	-0,006	-0,273		0,097	-0,206	-0,096	0,202	0,153	-0,328	-0,117	0,232	-0,144	-0,092	0,121	-0,157	-0,083	0,016
HHI	-0,149	-0,113	0,215	-0,600	-0,562	-0,522	0,804	-0,147	**1**	0,691	0,540	0,524	0,326	0,547	0,548	0,141	-0,120	-0,117		0,585	-0,080	-0,118	0,295	0,335		-0,154	-0,068	-0,053	0,117	-0,009	0,586	0,264	-0,447	0,156	0,196	-0,197	0,053	0,042	0,051
GDP_PC	-0,277	-0,263	0,268	-0,382	-0,229	-0,533	0,677	-0,476	0,691	**1**	0,617	0,565	0,275	0,467	0,646	0,421	-0,029	0,052		0,558	0,009	0,024	0,241	0,320		-0,208	0,015	0,034	-0,017	-0,047	0,553	0,228	-0,410	0,009	0,104	-0,075	0,148	0,058	-0,006
GFCF_PC	-0,442	-0,356	0,464	-0,468	-0,219	-0,250	0,646	-0,504	0,540	0,617	**1**	0,900	0,502	0,807	0,780	0,675	-0,072	-0,016		0,902	-0,045	-0,046	0,467	0,594		-0,373	-0,030	0,009	0,053	-0,055	0,602	0,183	-0,407	0,040	0,139	-0,112	0,041	-0,068	-0,123
PROD	-0,444	-0,390	0,369	-0,448	-0,255	-0,258	0,612	-0,404	0,524	0,565	0,900	**1**	0,431	0,706	0,756	0,607	-0,063	0,021		0,834	-0,026	-0,015	0,394	0,530		-0,378	-0,012	0,017	0,020	-0,040	0,621	0,213	-0,435	0,020	0,131	-0,098	0,082	-0,067	-0,131
RnD_GDP	-0,052	-0,006	0,317	-0,413	-0,205	0,025	0,382	-0,197	0,326	0,275	0,502	0,431	**1**	0,842	0,307	0,190	-0,213	-0,081		0,505	-0,013	-0,085	0,374	0,543		-0,264	0,035	-0,100	0,095	-0,085	0,329	0,087	-0,215	0,009	0,186	-0,131	0,077	0,031	-0,066
RnD_EMP	-0,170	-0,111	0,487	-0,516	-0,274	-0,195	0,576	-0,304	0,547	0,467	0,807	0,706	0,842	**1**	0,563	0,422	-0,183	-0,154		0,822	-0,247	-0,244	0,652	0,654		-0,349	-0,210	-0,009	0,248	-0,056	0,502	0,145	-0,335	0,036	0,190	-0,145	-0,074	-0,111	-0,160
MM_Ac	-0,674	-0,487	0,357	-0,562	-0,068	-0,453	0,618	-0,520	0,548	0,646	0,780	0,756	0,307	0,563	**1**	0,651	-0,077	0,031		0,685	-0,020	-0,014	0,297	0,332		-0,277	0,001	0,022	0,025	-0,082	0,761	0,387	-0,607	0,055	0,205	-0,163	0,125	0,007	-0,162
Avg_bus	-0,559	-0,507	0,440	-0,345	0,243	-0,203	0,244	-0,488	0,141	0,421	0,675	0,607	0,190	0,422	0,651	**1**	-0,066	0,023		0,563	-0,073	-0,038	0,336	0,326		-0,296	-0,060	0,043	0,042	-0,034	0,395	0,156	-0,288	0,035	0,179	-0,137	0,019	-0,062	-0,159
Gov_debt	0,076	0,160	-0,058	0,175	0,093	0,073	-0,048	-0,163	-0,120	-0,029	-0,072	-0,063	-0,213	-0,183	-0,077	-0,066	**1**	0,665		-0,070	0,165	0,613	-0,198	-0,068		0,113	-0,078	0,730	-0,625	0,162	-0,136	-0,159	0,161	-0,135	-0,544	0,429	-0,219	-0,272	-0,446
Cur_blc	-0,102	0,108	-0,168	-0,051	0,115	0,160	-0,019	-0,158	-0,117	0,052	-0,016	0,021	-0,081	-0,154	0,031	0,023	0,665	**1**		-0,080	0,416	0,860	-0,366	-0,016		0,022	0,243	0,726	-0,843	-0,018	-0,027	-0,064	0,051	-0,375	-0,255	0,326	0,156	-0,202	-0,536
Gov_close																																							
Lab_comp	-0,289	-0,300	0,508	-0,398	-0,319	-0,314	0,635	-0,364	0,585	0,558	0,902	0,834	0,505	0,822	0,685	0,563	-0,070	-0,080		**1**	-0,178	-0,147	0,550	0,514		-0,339	-0,170	0,033	0,146	-0,007	0,534	0,080	-0,313	0,023	0,101	-0,079	-0,107	-0,115	-0,103
Union	-0,233	-0,107	-0,542	-0,010	-0,180	0,461	0,163	-0,236	-0,080	0,009	-0,045	-0,026	-0,013	-0,247	-0,020	-0,073	0,165	0,416		-0,178	**1**	0,794	-0,868	0,021		0,007	0,957	-0,168	-0,771	-0,072	-0,001	-0,008	0,006	0,076	-0,013	-0,022	0,513	0,426	0,452
ML_barg	-0,150	0,038	-0,386	-0,007	-0,028	0,352	0,069	-0,227	-0,118	0,024	-0,046	-0,015	-0,085	-0,244	-0,014	-0,038	0,613	0,860		-0,147	0,794	**1**	-0,695	-0,001		0,050	0,621	0,408	-0,991	0,056	-0,041	-0,072	0,063	-0,160	-0,226	0,220	0,309	0,055	-0,136
SHDI	0,092	0,015	0,684	-0,227	0,023	-0,429	0,155	-0,006	0,295	0,241	0,467	0,394	0,374	0,652	0,297	0,336	-0,198	-0,366		0,550	-0,868	-0,695	**1**	0,326		-0,218	-0,829	0,149	0,678	0,036	0,251	0,062	-0,162	-0,051	0,093	-0,044	-0,417	-0,405	-0,438
SC_Org	-0,036	0,062	0,155	-0,322	-0,332	0,059	0,484	-0,273	0,335	0,320	0,594	0,530	0,543	0,654	0,332	0,326	-0,068	-0,016		0,514	0,021	-0,001	0,326	**1**		-0,324	0,024	-0,040	-0,002	0,021	0,316	-0,013	-0,149	0,075	0,136	-0,124	0,124	-0,037	0,018
EoC																																							
Clu	0,169	0,131	-0,058	0,084	0,276	-0,021	-0,280	0,097	-0,154	-0,208	-0,373	-0,378	-0,264	-0,349	-0,277	-0,296	0,113	0,022		-0,339	0,007	0,050	-0,218	-0,324		**1**	-0,042	0,043	-0,067	0,133	-0,264	-0,068	0,172	0,040	-0,061	0,026	-0,118	0,013	0,034
1: 90-93	-0,270	-0,164	-0,543	-0,033	-0,198	0,445	0,170	-0,206	-0,068	0,015	-0,030	-0,012	0,035	-0,210	0,001	-0,060	-0,078	0,243		-0,170	0,957	0,621	-0,829	0,024		-0,042	**1**	-0,362	-0,584	-0,191	0,033	0,038	-0,039	0,097	0,097	-0,106	0,581	0,535	2,5E+307
2: 00-03	0,041	0,201	0,190	-0,033	0,225	-0,133	-0,073	-0,096	-0,053	0,034	0,009	0,017	-0,100	-0,009	0,022	0,043	0,730	0,726		0,033	-0,168	0,408	0,149	-0,040		0,043	-0,362	**1**	-0,373	-0,198	-0,059	-0,102	0,089	-0,405	-0,334	0,392	-0,231	-0,471	2,9E+307
3: 08-09	0,119	-0,048	0,380	-0,011	0,034	-0,351	-0,054	0,202	0,117	-0,017	0,053	0,020	0,095	0,248	0,025	0,042	-0,625	-0,843		0,146	-0,771	-0,991	0,678	-0,002		-0,067	-0,584	-0,373	**1**	-0,192	0,048	0,079	-0,070	0,129	0,235	-0,213	-0,277	-0,027	2,5E+307
4:BTW	0,210	0,076	0,000	0,131	-0,050	0,037	-0,097	0,153	-0,009	-0,047	-0,055	-0,040	-0,085	-0,056	-0,082	-0,034	0,162	-0,018		-0,007	-0,072	0,056	0,036	0,021		0,133	-0,191	-0,198	-0,192	**1**	-0,055	-0,057	0,061	0,210	-0,092	-0,021	-0,192	-0,197	
Urban	-0,537	-0,318	0,235	-0,598	-0,312	-0,350	0,679	-0,328	0,586	0,553	0,602	0,621	0,329	0,502	0,761	0,395	-0,136	-0,027		0,534	-0,001	-0,041	0,251	0,316		-0,264	0,033	-0,059	0,048	-0,055	**1**	0,689	-0,903	0,040	0,182	-0,141	0,192	-0,031	-0,124
Intermediate	-0,451	-0,185	0,016	-0,399	-0,099	-0,221	0,311	-0,117	0,264	0,228	0,183	0,213	0,087	0,145	0,387	0,156	-0,159	-0,064		0,080	-0,008	-0,072	0,062	-0,013		-0,068	0,038	-0,102	0,079	-0,057	0,689	**1**	-0,932	0,028	0,172	-0,129	0,152	-0,052	-0,110
Rural	0,534	0,268	-0,126	0,533	0,213	0,305	-0,521	0,232	-0,447	-0,410	-0,407	-0,435	-0,215	-0,335	-0,607	-0,288	0,161	0,051		-0,313	0,006	0,063	-0,162	-0,149		0,172	-0,039	0,089	-0,070	0,061	-0,903	-0,932	**1**	-0,036	-0,192	0,147	-0,186	0,046	0,128
LIS	-0,085	-0,039	-0,034	-0,179	-0,056	-0,039	0,185	-0,144	0,156	0,009	0,040	0,020	0,009	0,036	0,055	0,035	-0,135	-0,375		0,023	0,076	-0,160	-0,051	0,075		0,040	0,097	-0,405	0,129	0,210	0,040	0,028	-0,036	**1**	0,660	-0,856	0,053	0,292	0,367
NED	-0,217	-0,100	0,050	-0,401	0,024	-0,107	0,180	-0,092	0,196	0,104	0,139	0,131	0,186	0,190	0,205	0,179	-0,544	-0,255		0,101	-0,013	-0,226	0,093	0,136		-0,061	0,097	-0,334	0,235	-0,092	0,182	0,172	-0,192	0,660	**1**	-0,953	0,259	0,264	0,238
NIS	0,183	0,084	-0,021	0,348	0,006	0,089	-0,199	0,121	-0,197	-0,075	-0,112	-0,098	-0,131	-0,145	-0,163	-0,137	0,429	0,326		-0,079	-0,022	0,220	-0,044	-0,124		0,026	-0,106	0,392	-0,213	-0,021	-0,141	-0,129	0,147	-0,856	-0,953	**1**	-0,199	-0,299	-0,298
Rec_DL	-0,248	-0,077	-0,301	-0,199	-0,138	0,166	0,212	-0,157	0,053	0,148	0,041	0,082	0,077	-0,074	0,125	0,019	-0,219	0,156		-0,107	0,513	0,309	-0,417	0,124		-0,118	0,581	-0,231	-0,277	-0,192	0,192	0,152	-0,186	0,053	0,259	-0,199	**1**	0,480	0,257
Ret_Tra_4	-0,108	-0,190	-0,301	-0,061	-0,077	0,093	0,101	-0,083	0,042	0,058	-0,068	-0,067	0,031	-0,111	0,007	-0,062	-0,272	-0,202		-0,115	0,426	0,055	-0,405	-0,037		0,013	0,535	-0,471	-0,027	-0,197	-0,031	-0,052	0,046	0,292	0,264	-0,299	0,480	**1**	0,760
Ret_Tra_8	0,078	-0,148	-0,349	0,120	-0,290	0,168	0,125	0,016	0,051	-0,006	-0,123	-0,131	-0,066	-0,160	-0,162	-0,159	-0,446	-0,536		-0,103	0,452	-0,136	-0,438	0,018		0,034	2,5E+307	2,9E+307	2,5E+307		-0,124	-0,110	0,128	0,367	0,238	-0,298	0,257	0,760	**1**

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
France - Recovery of development level

Summary of the variables selection Rec_DL:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	CRISIS	CRISIS	IN	0,002	0,347	0,338	35,294	-1329,191	-1315,727	0,678
2	CRISIS / Shock	Shock	IN	0,002	0,412	0,398	15,120	-1347,782	-1327,587	0,621
3	GDP_PC / CRISIS / Shock	GDP_PC	IN	0,002	0,423	0,407	13,074	-1349,808	-1326,246	0,616
4	GDP_PC / Lab_comp / CRISIS / Shock	Lab_comp	IN	0,002	0,439	0,419	9,464	-1353,518	-1326,590	0,605
5	GDP_PC / PROD / Lab_comp / CRISIS / Shock	PROD	IN	0,002	0,455	0,433	5,481	-1357,779	-1327,486	0,593
6	Serv_GVA / GDP_PC / PROD / Lab_comp / CRISIS / Shock	Serv_GVA	IN	0,002	0,467	0,443	3,123	-1360,459	-1326,800	0,586
5	Serv_GVA / PROD / Lab_comp / CRISIS / Shock	GDP_PC	OUT	0,002	0,467	0,446	1,123	-1362,459	-1332,166	0,580

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
France - Recovery of development level

Goodness of fit statistics (Rec_DL):

Observations	214
Sum of weights	214
DF	205
R^2	0,467
Adjusted R^2	0,446
MSE	0,002
RMSE	0,041
MAPE	126,304
DW	1,974
Cp	1,123
AIC	-1362,459
SBC	-1332,166
PC	0,580
Press	0,373
Q^2	0,412

Analysis of variance (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	8	0,296	0,037	22,411	**<0,0001**
Error	205	0,338	0,002		
Corrected	213	0,634			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
France - Recovery of development level

Type I Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	1,000	0,029	0,029	17,324	0,000
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,002	0,002	1,428	0,233
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	1,000	0,098	0,098	59,520	0,000
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	3,000	0,125	0,042	25,202	0,000
Clu	0,000	0,000			
CRISIS	2,000	0,040	0,020	12,038	0,000
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type II Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	1,000	0,007	0,007	4,533	0,034
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,010	0,010	5,821	0,017
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	1,000	0,026	0,026	15,690	0,000
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	3,000	0,115	0,038	23,216	0,000
Clu	0,000	0,000			
CRISIS	2,000	0,040	0,020	12,038	0,000
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type III Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	1,000	0,007	0,007	4,533	0,034
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,010	0,010	5,821	0,017
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	1,000	0,026	0,026	15,690	0,000
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	3,000	0,115	0,038	23,216	0,000
Clu	0,000	0,000			
CRISIS	2,000	0,040	0,020	12,038	0,000
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
France - Recovery of development level

Model parameters (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,152	0,034	-4,525	**<0,0001**	-0,218	-0,086
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,145	0,075	1,937	0,054	-0,003	0,292
Pub_GVA	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,018	0,007	2,660	**0,008**	0,005	0,032
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000	-4,330	**<0,0001**	0,000	0,000
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
1: 90-93	0,050	0,005	10,427	**<0,0001**	0,040	0,059
2: 00-03	-0,006	0,006	-0,870	0,385	-0,018	0,007
3: 08-09	-0,001	0,005	-0,232	0,817	-0,010	0,008
4:BTW	-0,043	0,009	-4,729	**<0,0001**	-0,061	-0,025
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	-0,042	0,007	-5,696	**<0,0001**	-0,057	-0,028
NED	0,032	0,005	5,898	**<0,0001**	0,022	0,043
NIS	0,010	0,008	1,248	0,213	-0,006	0,025

Standardized coefficients (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,181	0,093	1,937	0,054	-0,003	0,365
Pub_GVA	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,236	0,089	2,660	**0,008**	0,061	0,411
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000			0,000	0,000
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
1: 90-93	0,000	0,000			0,000	0,000
2: 00-03	0,000	0,000			0,000	0,000
3: 08-09	0,000	0,000			0,000	0,000
4:BTW	0,000	0,000				
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000			0,000	0,000
NED	0,000	0,000			0,000	0,000
NIS	0,000	0,000				

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
France - Growth trajectory retention (4 year recovery period)

Summary of the variables selection Ret_Tra_4:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	CRISIS	CRISIS	IN	0,000	0,412	0,403	26,531	-1906,330	-1892,866	0,611
2	CRISIS / Shock	Shock	IN	0,000	0,438	0,425	20,056	-1912,195	-1891,999	0,594
3	Gov_debt / CRISIS / Shock	Gov_debt	IN	0,000	0,458	0,442	14,212	-1917,891	-1894,329	0,579
4	Const_GVA / Gov_debt / CRISIS / Shock	Const_GVA	IN	0,000	0,471	0,453	11,000	-1921,162	-1894,234	0,570
5	Const_GVA / Gov_debt / CRISIS / Urb_1 / Shock	Urb_1	IN	0,000	0,500	0,478	3,478	-1929,297	-1895,637	0,549
6	Agri_GVA / Const_GVA / Gov_debt / CRISIS / Urb_1 / Shock	Agri_GVA	IN	0,000	0,514	0,490	0,105	-1933,200	-1896,174	0,539
7	Agri_GVA / Const_GVA / GFCF_PC / Gov_debt / CRISIS / Urb_1 / Shock	GFCF_PC	IN	0,000	0,524	0,498	-1,725	-1935,510	-1895,118	0,533

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
France - Growth trajectory retention (4 year recovery period)

Goodness of fit statistics (Ret_Tra_4):

Observations	214
Sum of weights	214
DF	202
R^2	0,524
Adjusted R^2	0,498
MSE	0,000
RMSE	0,011
MAPE	268,765
DW	1,766
Cp	-1,725
AIC	-1935,510
SBC	-1895,118
PC	0,533
Press	0,025
Q^2	0,463

Analysis of variance (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	11	0,025	0,002	20,185	**<0,0001**
Error	202	0,023	0,000		
Corrected	213	0,047			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
France - Growth trajectory retention (4 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	1,000	0,000	0,000	1,591	0,209
Manu_GVA	0,000	0,000			
Const_GVA	1,000	0,001	0,001	4,741	0,031
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	1,000	0,000	0,000	3,461	0,064
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,003	0,003	30,666	0,000
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	3,000	0,017	0,006	52,155	0,000
Clu	2,000	0,002	0,001	7,152	0,001
CRISIS	2,000	0,001	0,001	5,401	0,005
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type II Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	1,000	0,001	0,001	7,343	0,007
Manu_GVA	0,000	0,000			
Const_GVA	1,000	0,001	0,001	12,794	0,000
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	1,000	0,000	0,000	4,110	0,044
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,002	0,002	15,556	0,000
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	3,000	0,017	0,006	49,505	0,000
Clu	2,000	0,002	0,001	7,889	0,001
CRISIS	2,000	0,001	0,001	5,401	0,005
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type III Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	1,000	0,001	0,001	7,343	0,007
Manu_GVA	0,000	0,000			
Const_GVA	1,000	0,001	0,001	12,794	0,000
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	1,000	0,000	0,000	4,110	0,044
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	1,000	0,002	0,002	15,556	0,000
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	3,000	0,017	0,006	49,505	0,000
Clu	2,000	0,002	0,001	7,889	0,001
CRISIS	2,000	0,001	0,001	5,401	0,005
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
France - Growth trajectory retention (4 year recovery period)

Model parameters (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,034	0,009	3,693	**0,000**	0,016	0,052
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	-0,138	0,057	-2,409	**0,017**	-0,250	-0,025
Manu_GVA	0,000	0,000				
Const_GVA	-0,205	0,063	-3,279	**0,001**	-0,329	-0,082
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	-0,003	0,002	-1,617	0,107	-0,007	0,001
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,008	0,001	5,654	**<0,0001**	0,005	0,011
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
1: 90-93	0,027	0,001	24,156	**<0,0001**	0,025	0,030
2: 00-03	-0,017	0,004	-4,705	**<0,0001**	-0,024	-0,010
3: 08-09	0,021	0,002	10,246	**<0,0001**	0,017	0,025
4:BTW	-0,031	0,002	-15,384	**<0,0001**	-0,035	-0,027
Urban	-0,001	0,002	-0,626	0,532	-0,005	0,003
Intermediate	-0,003	0,001	-2,512	**0,013**	-0,006	-0,001
Rural	0,004	0,001	3,000	**0,003**	0,002	0,007
LIS	-0,012	0,003	-3,940	**0,000**	-0,018	-0,006
NED	0,011	0,003	3,547	**0,000**	0,005	0,017
NIS	0,001	0,002	0,746	0,457	-0,002	0,005

Standardized coefficients (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	-0,191	0,079	-2,409	**0,017**	-0,348	-0,035
Manu_GVA	0,000	0,000				
Const_GVA	-0,218	0,066	-3,279	**0,001**	-0,349	-0,087
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	-0,137	0,085	-1,617	0,107	-0,305	0,030
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,773	0,137	5,654	**<0,0001**	0,504	1,043
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
1: 90-93	0,000	0,000			0,000	0,000
2: 00-03	0,000	0,000			0,000	0,000
3: 08-09	0,000	0,000			0,000	0,000
4:BTW	0,000	0,000				
Urban	0,000	0,000			0,000	0,000
Intermediate	0,000	0,000			0,000	0,000
Rural	0,000	0,000				
LIS	0,000	0,000			0,000	0,000
NED	0,000	0,000			0,000	0,000
NIS	0,000	0,000				

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
France - Growth trajectory retention (8 year recovery period)

Summary of the variables selection Ret_Tra_8:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	CRISIS	CRISIS	IN	0,000	0,480	0,473	31,259	-1366,492	-1357,460	0,542
2	Pop_age / CRISIS	Pop_age	IN	0,000	0,534	0,525	14,872	-1381,117	-1369,074	0,491
3	Pop_age / CRISIS / Shock	Shock	IN	0,000	0,560	0,545	10,215	-1385,632	-1367,568	0,477
4	Pop_age / RnD_GDP / CRISIS / Shock	RnD_GDP	IN	0,000	0,573	0,555	7,882	-1388,083	-1367,009	0,469
5	Pop_age / RnD_GDP / Lab_comp / CRISIS / Shock	Lab_comp	IN	0,000	0,586	0,565	5,509	-1390,713	-1366,627	0,461

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
France - Growth trajectory retention (8 year recovery period)

Goodness of fit statistics (Ret_Tra_8):

Observations	150
Sum of weights	150
DF	142
R^2	0,586
Adjusted R^2	0,565
MSE	0,000
RMSE	0,009
MAPE	192,013
DW	1,518
Cp	5,509
AIC	-1390,713
SBC	-1366,627
PC	0,461
Press	0,014
Q^2	0,535

Analysis of variance (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	7	0,018	0,003	28,688	**<0,0001**
Error	142	0,013	0,000		
Corrected	149	0,031			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
France - Growth trajectory retention (8 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,000	0,000	2,070	0,152
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	1,000	0,000	0,000	1,142	0,287
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	1,000	0,000	0,000	1,358	0,246
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	2,000	0,017	0,008	94,652	0,000
Clu	0,000	0,000			
CRISIS	2,000	0,001	0,000	3,473	0,034
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type II Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,002	0,002	22,356	0,000
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	1,000	0,001	0,001	8,661	0,004
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	1,000	0,000	0,000	4,451	0,037
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	2,000	0,013	0,006	72,188	0,000
Clu	0,000	0,000			
CRISIS	2,000	0,001	0,000	3,473	0,034
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type III Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,002	0,002	22,356	0,000
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	1,000	0,001	0,001	8,661	0,004
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	1,000	0,000	0,000	4,451	0,037
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	2,000	0,013	0,006	72,188	0,000
Clu	0,000	0,000			
CRISIS	2,000	0,001	0,000	3,473	0,034
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
France - Growth trajectory retention (8 year recovery period)

Model parameters (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,020	0,004	-4,805	**<0,0001**	-0,028	-0,012
Pop_age	0,014	0,004	3,674	**0,000**	0,007	0,022
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	-0,003	0,001	-2,282	**0,024**	-0,006	0,000
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000	1,464	0,145	0,000	0,000
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
1: 90-93	0,008	0,002	3,933	**0,000**	0,004	0,012
2: 00-03	-0,016	0,002	-7,331	**<0,0001**	-0,020	-0,011
3: 08-09	0,000	0,000				
4:BTW	0,004	0,002	2,342	**0,021**	0,001	0,007
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,007	0,002	2,935	**0,004**	0,002	0,012
NED	-0,001	0,002	-0,448	0,655	-0,004	0,003
NIS	-0,006	0,003	-2,361	**0,020**	-0,011	-0,001

Standardized coefficients (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,287	0,078	3,674	**0,000**	0,133	0,442
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	-0,205	0,090	-2,282	**0,024**	-0,383	-0,027
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000			0,000	0,000
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
1: 90-93	0,000	0,000			0,000	0,000
2: 00-03	0,000	0,000			0,000	0,000
3: 08-09	0,000	0,000				
4:BTW	0,000	0,000				
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000			0,000	0,000
NED	0,000	0,000			0,000	0,000
NIS	0,000	0,000				

III.e.i.4. Italy

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
Italy

Settings:
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Model selection: Stepwise
Probability for entry: 0,05 / Probability for removal: 0,1
Covariances: Corrections = Newey West (adjusted)(Lag = 1)
Use least squares means: Yes
Explanation of the variable codes can be found in table 28

Summary statistics (Quantitative data):

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Rec_DL	172	0	172	-0,405	0,106	-0,103	0,083
Ret_Tra_4	172	0	172	-0,107	0,022	-0,012	0,020
Ret_Tra_8	172	42	130	-0,074	0,014	-0,014	0,015
Pop_age	172	0	172	0,424	2,625	1,331	0,474
Mig_net	172	0	172	-27,218	30,899	2,156	7,705
Pop_work	172	0	172	0,320	0,488	0,411	0,044
Agri_GVA	172	0	172	0,001	0,132	0,035	0,023
Manu_GVA	172	0	172	0,050	0,404	0,208	0,084
Const_GVA	172	0	172	0,036	0,217	0,077	0,026
Serv_GVA	172	0	172	0,310	0,662	0,486	0,064
Pub_GVA	172	0	172	0,062	0,394	0,194	0,071
HHI	172	0	172	0,187	0,283	0,224	0,019
GDP_PC	172	0	172	-0,938	1,625	0,003	0,518
GFCF_PC	172	0	172	-1,310	1,936	-0,149	0,627
PROD	172	0	172	-1,196	1,081	-0,043	0,589
RnD_GDP	172	0	172	0,253	1,960	1,025	0,376
RnD_EMP	172	0	172	0,000	2,359	0,883	0,504
MM_Ac	172	0	172	37,148	151,113	90,137	28,517
Avg_bus	172	0	172	2,550	4,362	3,581	0,609
Gov_debt	172	0	172	-11,100	-1,500	-7,673	2,965
Cur_blc	172	0	172	-2,800	2,000	-2,019	0,951
Gov_close	172	0	172	Constant	Constant	Constant	Constant
Lab_comp	172	0	172	1066,192	134579,34	36880,418	31405,824
Union	172	0	172	33,087	39,824	36,826	2,146
ML_barg	172	0	172	2,500	4,750	3,618	0,989
SHDI	172	0	172	0,739	0,894	0,812	0,045
SC_Org	172	0	172	0,041	0,152	0,070	0,025
EoC	172	0	172	Constant	Constant	Constant	Constant
Clu	172	0	172	0,360	2,451	0,947	0,450

Summary statistics (Qualitative data):

Variable	Categories	Counts	Frequencies	%
CRISIS	1: 90-93	94	94	54,651
	2: 00-03	9	9	5,233
	3: 08-09	56	56	32,558
	4:BTW	13	13	7,558
Urb_1	Urban	45	45	26,163
	Intermedia	90	90	52,326
	Rural	37	37	21,512
Shock	LIS	15	15	8,721
	NED	132	132	76,744
	NIS	25	25	14,535

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
Italy

Correlation matrix:

	Pop_age	Mig_net	Pop_work	Agri_GVA	Manu_GVA	Const_GVA	Serv_GVA	Pub_GVA	HHI	GDP_PC	GFCF_PC	PROD	RnD_GDP	RnD_EMP	MM_Ac	Avg_bus	Gov_debt	Cur_blc	Gov_close	Lab_comp	Union	ML_barg	SHDI	SC_Org	EoC	Clu	1: 90-93	2: 00-03	3: 08-09	4:BTW	Urban	Intermediate	Rural	LIS	NED	NIS	Rec_DL	Ret_Tra_4	Ret_Tra_8
Pop_age	**1**	0,313	0,553	-0,181	0,181	-0,397	0,133	-0,130	0,084	0,307	0,329	0,292	0,436	0,412	0,319	0,476	0,307	0,051		0,079	-0,329	-0,167	0,607	0,322		0,483	-0,244	-0,038	0,265	0,013	-0,136	-0,025	0,092	0,163	0,200	-0,211	0,272	0,196	0,335
Mig_net	0,313	**1**	0,471	-0,128	0,258	-0,054	0,064	-0,302	0,095	0,319	0,331	0,147	0,095	0,136	0,295	0,457	0,107	-0,023		0,174	-0,098	-0,038	0,282	0,327		0,380	-0,078	-0,039	0,080	0,015	-0,027	0,142	-0,077	0,018	0,059	-0,048	0,136	0,116	0,083
Pop_work	0,553	0,471	**1**	-0,371	0,576	-0,255	0,181	-0,632	0,200	0,719	0,786	0,650	0,448	0,423	0,652	0,876	0,059	-0,079		0,434	-0,073	0,037	0,517	0,463		0,568	-0,015	-0,045	0,128	-0,047	-0,100	0,075	0,007	0,065	0,157	-0,137	0,223	0,168	0,296
Agri_GVA	-0,181	-0,128	-0,371	**1**	-0,393	0,147	-0,322	0,373	-0,639	-0,452	-0,294	-0,346	-0,294	-0,234	-0,576	-0,413	0,121	0,185		-0,181	-0,098	-0,116	-0,140	-0,283		-0,248	-0,127	0,034	-0,114	0,127	-0,449	-0,167	0,360	0,001	-0,158	0,108	-0,218	-0,207	-0,251
Manu_GVA	0,181	0,258	0,576	-0,393	**1**	-0,298	-0,285	-0,691	0,252	0,567	0,461	0,585	0,386	0,232	0,504	0,683	-0,094	-0,126		0,391	0,105	0,203	0,165	0,324		0,298	0,188	0,118	-0,002	-0,151	0,065	0,097	-0,100	-0,192	-0,044	0,118	0,219	0,094	0,184
Const_GVA	-0,397	-0,054	-0,255	0,147	-0,298	**1**	-0,202	0,123	-0,306	-0,300	-0,020	-0,197	-0,351	-0,360	-0,346	-0,334	-0,253	0,027		-0,255	0,287	0,102	-0,405	-0,138		-0,016	0,024	-0,189	-0,331	0,232	-0,260	-0,124	0,226	0,163	-0,053	-0,038	-0,192	-0,145	-0,158
Serv_GVA	0,133	0,064	0,181	-0,322	-0,285	-0,202	**1**	-0,385	0,360	0,393	0,223	0,282	0,136	-0,053	0,401	0,165	-0,302	-0,184		0,039	0,291	0,228	-0,096	0,034		0,069	0,299	-0,069	-0,050	-0,128	0,346	0,126	-0,275	0,086	0,207	-0,181	0,102	0,137	0,073
Pub_GVA	-0,130	-0,302	-0,632	0,373	-0,691	0,123	-0,385	**1**	-0,303	-0,769	-0,643	-0,762	-0,355	-0,018	-0,644	-0,702	0,436	0,244		-0,346	-0,460	-0,445	0,085	-0,272		-0,328	-0,460	-0,020	0,206	0,169	-0,146	-0,129	0,166	0,091	-0,063	0,002	-0,210	-0,114	-0,155
HHI	0,084	0,095	0,200	-0,639	0,252	-0,306	0,360	-0,303	**1**	0,396	0,196	0,305	0,180	0,120	0,498	0,288	-0,126	-0,109		0,263	0,119	0,061	0,017	0,295		-0,055	0,105	-0,067	-0,019	-0,030	0,430	0,108	-0,310	-0,064	-0,088	0,089	0,145	0,223	0,231
GDP_PC	0,307	0,319	0,719	-0,452	0,567	-0,300	0,393	-0,769	0,396	**1**	0,733	0,771	0,390	0,231	0,717	0,764	-0,198	-0,139		0,341	0,215	0,272	0,195	0,377		0,459	0,236	-0,014	-0,044	-0,112	0,151	0,072	-0,131	0,035	0,181	-0,139	0,265	0,176	0,187
GFCF_PC	0,329	0,331	0,786	-0,294	0,461	-0,020	0,223	-0,643	0,196	0,733	**1**	0,712	0,333	0,216	0,546	0,742	-0,156	-0,083		0,329	0,177	0,214	0,202	0,352		0,561	0,115	-0,156	-0,147	0,065	-0,130	-0,041	0,100	0,147	0,103	-0,137	0,126	0,133	0,171
PROD	0,292	0,147	0,650	-0,346	0,585	-0,197	0,282	-0,762	0,305	0,771	0,712	**1**	0,559	0,254	0,625	0,758	-0,378	-0,273		0,447	0,391	0,436	0,054	0,322		0,291	0,402	0,036	-0,120	-0,187	0,081	0,038	-0,070	0,008	0,204	-0,144	0,268	0,182	0,274
RnD_GDP	0,436	0,095	0,448	-0,294	0,386	-0,351	0,136	-0,355	0,180	0,390	0,333	0,559	**1**	0,636	0,604	0,605	-0,044	-0,230		0,423	-0,004	0,086	0,328	0,097		0,116	0,128	0,092	0,223	-0,230	0,080	0,038	-0,070	-0,107	0,186	-0,079	0,264	0,262	0,360
RnD_EMP	0,412	0,136	0,423	-0,234	0,232	-0,360	-0,053	-0,018	0,120	0,231	0,216	0,254	0,636	**1**	0,413	0,492	0,507	0,010		0,526	-0,571	-0,486	0,769	0,257		0,106	-0,403	0,020	0,570	-0,079	0,044	-0,007	-0,020	-0,018	0,072	-0,042	0,132	0,314	0,304
MM_Ac	0,319	0,295	0,652	-0,576	0,504	-0,346	0,401	-0,644	0,498	0,717	0,546	0,625	0,604	0,413	**1**	0,746	-0,114	-0,176		0,526	0,090	0,101	0,267	0,310		0,222	0,145	0,006	0,136	-0,164	0,313	0,094	-0,236	-0,056	0,120	-0,057	0,316	0,305	0,295
Avg_bus	0,476	0,457	0,876	-0,413	0,683	-0,334	0,165	-0,702	0,288	0,764	0,742	0,758	0,605	0,492	0,746	**1**	-0,022	-0,147		0,562	0,007	0,106	0,430	0,490		0,468	0,092	0,004	0,151	-0,139	0,025	0,063	-0,055	-0,009	0,159	-0,105	0,272	0,221	0,269
Gov_debt	0,307	0,107	0,059	0,121	-0,094	-0,253	-0,302	0,436	-0,126	-0,198	-0,156	-0,378	-0,044	0,507	-0,114	-0,022	**1**	0,618		0,155	-0,972	-0,786	0,761	0,019		0,058	-0,880	-0,018	0,348	0,341	-0,155	-0,082	0,140	0,077	-0,279	0,157	-0,043	-0,074	-0,085
Cur_blc	0,051	-0,023	-0,079	0,185	-0,126	0,027	-0,184	0,244	-0,109	-0,139	-0,083	-0,273	-0,230	0,010	-0,176	-0,147	0,618	**1**		-0,055	-0,516	-0,532	0,232	-0,093		0,078	-0,665	-0,072	-0,213	0,539	-0,202	-0,207	0,248	-0,010	-0,485	0,337	-0,028	-0,280	-0,283
Gov_close																																							
Lab_comp	0,079	0,174	0,434	-0,181	0,391	-0,255	0,039	-0,346	0,263	0,341	0,329	0,447	0,423	0,526	0,526	0,562	0,155	-0,055		**1**	-0,185	-0,140	0,385	0,127		-0,281	-0,076	0,050	0,248	-0,108	0,132	0,014	-0,083	-0,084	-0,003	0,040	0,188	0,218	0,233
Union	-0,329	-0,098	-0,073	-0,098	0,105	0,287	0,291	-0,460	0,119	0,215	0,177	0,391	-0,004	-0,571	0,090	0,007	-0,972	-0,516		-0,185	**1**	0,833	-0,805	-0,006		-0,027	0,843	-0,033	-0,474	-0,233	0,130	0,081	-0,126	-0,034	0,244	-0,152	0,053	0,043	0,037
ML_barg	-0,167	-0,038	0,037	-0,116	0,203	0,102	0,228	-0,445	0,061	0,272	0,214	0,436	0,086	-0,486	0,101	0,106	-0,786	-0,532		-0,140	0,833	**1**	-0,641	0,017		0,029	0,806	0,066	-0,439	-0,263	0,097	0,173	-0,167	0,073	0,426	-0,326	0,114	-0,003	0,025
SHDI	0,607	0,282	0,517	-0,140	0,165	-0,405	-0,096	0,085	0,017	0,195	0,202	0,054	0,328	0,769	0,267	0,430	0,761	0,232		0,385	-0,805	-0,641	**1**	0,201		0,299	-0,652	-0,048	0,614	0,068	-0,100	0,024	0,040	0,129	0,088	-0,118	0,135	0,197	0,291
SC_Org	0,322	0,327	0,463	-0,283	0,324	-0,138	0,034	-0,272	0,295	0,377	0,352	0,322	0,097	0,257	0,310	0,490	0,019	-0,093		0,127	-0,006	0,017	0,201	**1**		0,380	0,035	0,054	0,099	-0,094	0,063	0,042	-0,063	0,016	0,003	-0,009	0,123	0,168	0,128
EoC																																							
Clu	0,483	0,380	0,568	-0,248	0,298	-0,016	0,069	-0,328	-0,055	0,459	0,561	0,291	0,116	0,106	0,222	0,468	0,058	0,078		-0,281	-0,027	0,029	0,299	0,380		**1**	-0,093	-0,140	0,016	0,094	-0,230	-0,026	0,145	0,194	0,155	-0,194	0,166	0,046	0,136
1: 90-93	-0,244	-0,078	-0,015	-0,127	0,188	0,024	0,299	-0,460	0,105	0,236	0,115	0,402	0,128	-0,403	0,145	0,092	-0,880	-0,665		-0,076	0,843	0,806	-0,652	0,035		-0,093	**1**	0,384	-0,114	-0,665	0,216	0,172	-0,233	-0,274	0,286	-0,072	0,123	0,034	0,041
2: 00-03	-0,038	-0,039	-0,045	0,034	0,118	-0,189	-0,069	-0,020	-0,067	-0,014	-0,156	0,036	0,092	0,020	0,006	0,004	-0,018	-0,072		0,050	-0,033	0,066	-0,048	0,054		-0,140	0,384	**1**	0,392	-0,783	0,075	0,066	-0,085	-0,620	-0,101	0,350	0,194	-0,213	-0,191
3: 08-09	0,265	0,080	0,128	-0,114	-0,002	-0,331	-0,050	0,206	-0,019	-0,044	-0,147	-0,120	0,223	0,570	0,136	0,151	0,348	-0,213		0,248	-0,474	-0,439	0,614	0,099		0,016	-0,114	0,392	**1**	-0,614	0,101	0,072	-0,103	-0,136	0,306	-0,149	0,218	0,277	0,344
4:BTW	0,013	0,015	-0,047	0,127	-0,151	0,232	-0,128	0,169	-0,030	-0,112	0,065	-0,187	-0,230	-0,079	-0,164	-0,139	0,341	0,539		-0,108	-0,233	-0,263	0,068	-0,094		0,094	-0,665	-0,783	-0,614	**1**	-0,211	-0,165	0,225	0,448	-0,306	0,007	-0,259	-0,101	-0,099
Urban	-0,136	-0,027	-0,100	-0,449	0,065	-0,260	0,346	-0,146	0,430	0,151	-0,130	0,081	0,080	0,044	0,313	0,025	-0,155	-0,202		0,132	0,130	0,097	-0,100	0,063		-0,230	0,216	0,075	0,101	-0,211	**1**	0,364	-0,795	-0,115	0,047	0,020	0,050	0,125	0,046
Intermediate	-0,025	0,142	0,075	-0,167	0,097	-0,124	0,126	-0,129	0,108	0,072	-0,041	0,038	0,038	-0,007	0,094	0,063	-0,082	-0,207		0,014	0,081	0,173	0,024	0,042		-0,026	0,172	0,066	0,072	-0,165	0,364	**1**	-0,853	-0,044	0,110	-0,056	0,061	0,101	-0,009
Rural	0,092	-0,077	0,007	0,360	-0,100	0,226	-0,275	0,166	-0,310	-0,131	0,100	-0,070	-0,070	-0,020	-0,236	-0,055	0,140	0,248		-0,083	-0,126	-0,167	0,040	-0,063		0,145	-0,233	-0,085	-0,103	0,225	-0,795	-0,853	**1**	0,093	-0,098	0,025	-0,068	-0,135	-0,020
LIS	0,163	0,018	0,065	0,001	-0,192	0,163	0,086	0,091	-0,064	0,035	0,147	0,008	-0,107	-0,018	-0,056	-0,009	0,077	-0,010		-0,084	-0,034	0,073	0,129	0,016		0,194	-0,274	-0,620	-0,136	0,448	-0,115	-0,044	0,093	**1**	0,523	-0,811	-0,011	0,197	0,235
NED	0,200	0,059	0,157	-0,158	-0,044	-0,053	0,207	-0,063	-0,088	0,181	0,103	0,204	0,186	0,072	0,120	0,159	-0,279	-0,485		-0,003	0,244	0,426	0,088	0,003		0,155	0,286	-0,101	0,306	-0,306	0,047	0,110	-0,098	0,523	**1**	-0,922	0,245	0,307	0,288
NIS	-0,211	-0,048	-0,137	0,108	0,118	-0,038	-0,181	0,002	0,089	-0,139	-0,137	-0,144	-0,079	-0,042	-0,057	-0,105	0,157	0,337		0,040	-0,152	-0,326	-0,118	-0,009		-0,194	-0,072	0,350	-0,149	0,007	0,020	-0,056	0,025	-0,811	-0,922	**1**	-0,163	-0,300	-0,297
Rec_DL	0,272	0,136	0,223	-0,218	0,219	-0,192	0,102	-0,210	0,145	0,265	0,126	0,268	0,264	0,132	0,316	0,272	-0,043	-0,028		0,188	0,053	0,114	0,135	0,123		0,166	0,123	0,194	0,218	-0,259	0,050	0,061	-0,068	-0,011	0,245	-0,163	**1**	0,498	0,546
Ret_Tra_4	0,196	0,116	0,168	-0,207	0,094	-0,145	0,137	-0,114	0,223	0,176	0,133	0,182	0,262	0,314	0,305	0,221	-0,074	-0,280		0,218	0,043	-0,003	0,197	0,168		0,046	0,034	-0,213	0,277	-0,101	0,125	0,101	-0,135	0,197	0,307	-0,300	0,498	**1**	0,687
Ret_Tra_8	0,335	0,083	0,296	-0,251	0,184	-0,158	0,073	-0,155	0,231	0,187	0,171	0,274	0,360	0,304	0,295	0,269	-0,085	-0,283		0,233	0,037	0,025	0,291	0,128		0,136	0,041	-0,191	0,344	-0,099	0,046	-0,009	-0,020	0,235	0,288	-0,297	0,546	0,687	**1**

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
Italy - Recovery of development level

Summary of the variables selection Rec_DL:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	MM_Ac	MM_Ac	IN	0,006	0,100	0,095	27,053	-870,847	-864,552	0,921
2	MM_Ac / Shock	Shock	IN	0,006	0,159	0,144	18,292	-878,485	-865,895	0,881
3	MM_Ac / Cur_blc / Shock	Cur_blc	IN	0,006	0,196	0,177	12,257	-884,238	-868,500	0,852

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
Italy - Recovery of development level

Goodness of fit statistics (Rec_DL):

Observations	172
Sum of weights	172
DF	167
R^2	0,196
Adjusted R^2	0,177
MSE	0,006
RMSE	0,075
MAPE	159,454
DW	1,391
Cp	12,257
AIC	-884,238
SBC	-868,500
PC	0,852
Press	1,019
Q^2	0,138

Analysis of variance (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	4	0,231	0,058	10,172	**<0,0001**
Error	167	0,950	0,006		
Corrected	171	1,181			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
Italy - Recovery of development level

Type I Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,118	0,118	20,760	0,000
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,001	0,001	0,160	0,690
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	2,000	0,112	0,056	9,885	0,000
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type II Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,097	0,097	17,001	0,000
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,044	0,044	7,700	0,006
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	2,000	0,112	0,056	9,885	0,000
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type III Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,097	0,097	17,001	0,000
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,044	0,044	7,700	0,006
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	2,000	0,112	0,056	9,885	0,000
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
Italy - Recovery of development level

Model parameters (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,172	0,025	-6,898	**<0,0001**	-0,222	-0,123
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,001	0,000	3,367	**0,001**	0,000	0,001
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,020	0,008	2,451	**0,015**	0,004	0,037
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
1: 90-93	0,000	0,000				
2: 00-03	0,000	0,000				
3: 08-09	0,000	0,000				
4:BTW	0,000	0,000				
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	-0,038	0,016	-2,479	**0,014**	-0,069	-0,008
NED	0,050	0,011	4,424	**<0,0001**	0,028	0,073
NIS	-0,012	0,015	-0,810	0,419	-0,041	0,017

Standardized coefficients (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,292	0,087	3,367	**0,001**	0,121	0,464
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,234	0,095	2,451	**0,015**	0,046	0,423
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
1: 90-93	0,000	0,000				
2: 00-03	0,000	0,000				
3: 08-09	0,000	0,000				
4:BTW	0,000	0,000				
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000			0,000	0,000
NED	0,000	0,000			0,000	0,000
NIS	0,000	0,000				

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
Italy - Growth trajectory retention (4 year recovery period)

Summary of the variables selection Ret_Tra_4:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	CRISIS	CRISIS	IN	0,000	0,267	0,254	5,743	-1389,789	-1377,199	0,768
2	MM_Ac / CRISIS	MM_Ac	IN	0,000	0,308	0,291	-1,654	-1397,585	-1381,847	0,734

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
Italy - Growth trajectory retention (4 year recovery period)

Goodness of fit statistics (Ret_Tra_4):

Observations	172
Sum of weights	172
DF	167
R^2	0,308
Adjusted R^2	0,291
MSE	0,000
RMSE	0,017
MAPE	163,154
DW	1,624
Cp	-1,654
AIC	-1397,585
SBC	-1381,847
PC	0,734
Press	0,052
Q^2	0,253

Analysis of variance (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	4	0,021	0,005	18,556	**<0,0001**
Error	167	0,048	0,000		
Corrected	171	0,069			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
Italy - Growth trajectory retention (4 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,006	0,006	22,475	0,000
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	3,000	0,015	0,005	17,249	0,000
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type II Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,003	0,003	9,787	0,002
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	3,000	0,015	0,005	17,249	0,000
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type III Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,003	0,003	9,787	0,002
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	3,000	0,015	0,005	17,249	0,000
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
Italy - Growth trajectory retention (4 year recovery period)

Model parameters (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,034	0,005	-7,322	**<0,0001**	-0,043	-0,025
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000	3,184	**0,002**	0,000	0,000
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
1: 90-93	0,008	0,003	2,671	**0,008**	0,002	0,014
2: 00-03	-0,028	0,006	-4,788	**<0,0001**	-0,039	-0,016
3: 08-09	0,016	0,003	6,472	**<0,0001**	0,011	0,021
4:BTW	0,004	0,004	0,904	0,367	-0,004	0,012
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,208	0,065	3,184	**0,002**	0,079	0,338
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
1: 90-93	0,000	0,000			0,000	0,000
2: 00-03	0,000	0,000			0,000	0,000
3: 08-09	0,000	0,000			0,000	0,000
4:BTW	0,000	0,000				
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
Italy - Growth trajectory retention (8 year recovery period)

Summary of the variables selection Ret_Tra_8:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	CRISIS	CRISIS	IN	0,000	0,293	0,276	26,814	-1127,259	-1115,789	0,752
2	Pop_age / CRISIS	Pop_age	IN	0,000	0,368	0,347	13,116	-1139,751	-1125,413	0,683
3	Pop_age / HHI / CRISIS	HHI	IN	0,000	0,389	0,364	10,691	-1142,146	-1124,941	0,670

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
Italy - Growth trajectory retention (8 year recovery period)

Goodness of fit statistics (Ret_Tra_8):

Observations	130
Sum of weights	130
DF	124
R^2	0,389
Adjusted R^2	0,364
MSE	0,000
RMSE	0,012
MAPE	212,108
DW	1,607
Cp	10,691
AIC	-1142,146
SBC	-1124,941
PC	0,670
Press	0,020
Q^2	0,324

Analysis of variance (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	5	0,012	0,002	15,768	**<0,0001**
Error	124	0,018	0,000		
Corrected	129	0,030			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
Italy - Growth trajectory retention (8 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,003	0,003	22,762	0,000
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	1,000	0,001	0,001	7,395	0,007
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	3,000	0,007	0,002	16,228	0,000
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type II Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,002	0,002	12,570	0,001
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	1,000	0,001	0,001	4,264	0,041
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	3,000	0,007	0,002	16,228	0,000
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type III Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,002	0,002	12,570	0,001
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_GVA	0,000	0,000			
Manu_GVA	0,000	0,000			
Const_GVA	0,000	0,000			
Serv_GVA	0,000	0,000			
Pub_GVA	0,000	0,000			
HHI	1,000	0,001	0,001	4,264	0,041
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	3,000	0,007	0,002	16,228	0,000
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Stepwise analysis of covariance on regional RGVA resilience performance for selected countries
Italy - Growth trajectory retention (8 year recovery period)

Model parameters (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,054	0,016	-3,475	**0,001**	-0,085	-0,023
Pop_age	0,008	0,003	2,764	**0,007**	0,002	0,014
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	0,114	0,064	1,797	0,075	-0,012	0,240
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
1: 90-93	0,004	0,002	1,936	0,055	0,000	0,008
2: 00-03	-0,018	0,004	-4,571	**<0,0001**	-0,026	-0,010
3: 08-09	0,016	0,002	7,047	**<0,0001**	0,011	0,020
4:BTW	-0,002	0,004	-0,496	0,621	-0,009	0,005
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,258	0,093	2,764	**0,007**	0,073	0,442
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_GVA	0,000	0,000				
Manu_GVA	0,000	0,000				
Const_GVA	0,000	0,000				
Serv_GVA	0,000	0,000				
Pub_GVA	0,000	0,000				
HHI	0,149	0,083	1,797	0,075	-0,015	0,313
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
1: 90-93	0,000	0,000			0,000	0,000
2: 00-03	0,000	0,000			0,000	0,000
3: 08-09	0,000	0,000			0,000	0,000
4:BTW	0,000	0,000				
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

III.e.ii. Employment

III.e.ii.1. Germany

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
Germany

Settings:
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Model selection: Stepwise
Probability for entry: 0,05 / Probability for removal: 0,1
Covariances: Corrections = Newey West (adjusted)(Lag = 1)
Use least squares means: Yes
Explanation of the variable codes can be found in table 28

Summary statistics (Quantitative data):

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Rec_DL	359	0	359	-0,357	0,128	-0,114	0,076
Ret_Tra_4	359	0	359	-0,061	0,036	-0,008	0,016
Ret_Tra_8	359	18	341	-0,053	0,021	-0,013	0,012
Pop_age	359	0	359	0,264	1,941	1,041	0,214
Mig_net	359	0	359	-16,024	54,935	6,881	7,863
Pop_work	359	0	359	0,408	0,533	0,465	0,030
Agri_EMP	359	0	359	0,001	0,164	0,033	0,030
Manu_EMP	359	0	359	0,090	0,582	0,286	0,097
Const_EMP	359	0	359	0,019	0,195	0,080	0,032
Serv_EMP	359	0	359	0,188	0,648	0,338	0,071
Pub_EMP	359	0	359	0,111	0,437	0,263	0,058
HHI	359	0	359	0,184	0,543	0,243	0,045
GDP_PC	359	0	359	-0,966	5,017	0,240	0,957
GFCF_PC	359	0	359	-0,790	2,279	0,348	0,549
PROD	359	0	359	-1,204	2,481	0,616	0,768
RnD_GDP	359	0	359	0,381	8,410	2,219	1,553
RnD_EMP	359	0	359	0,000	3,649	1,551	0,891
MM_Ac	359	0	359	69,723	192,930	124,872	24,463
Avg_bus	359	0	359	8,968	18,605	14,860	2,239
Gov_debt	359	0	359	-9,400	0,000	-2,992	1,376
Cur_blc	359	0	359	-1,800	6,600	-0,535	1,856
Gov_close	359	0	359	Constant	Constant	Constant	Constant
Lab_comp	359	0	359	4007,078	82867,154	29057,560	17157,477
Union	359	0	359	17,968	35,987	30,666	4,945
ML_barg	359	0	359	2,375	2,750	2,593	0,185
SHDI	359	0	359	0,807	0,930	0,840	0,029
SC_Org	359	0	359	0,123	0,200	0,156	0,019
EoC	359	0	359	Constant	Constant	Constant	Constant
Clu	359	0	359	1,500	6,262	2,617	0,845

Number of removed observations: 30

Summary statistics (Qualitative data):

Variable	Categories	Counts	Frequencies	%
CRISIS	1: 90-93	240	240	66,852
	2: 00-03	60	60	16,713
	3: 08-09	16	16	4,457
	4:BTW	43	43	11,978
Urb_1	Urban	104	104	28,969
	Intermedia	172	172	47,911
	Rural	83	83	23,120
Shock	LIS	71	71	19,777
	NED	222	222	61,838
	NIS	66	66	18,384

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
Germany

Correlation matrix:

	Pop_age	Mig_net	Pop_work	Agri_EMP	Manu_EMP	Const_EMP	Serv_EMP	Pub_EMP	HHI	GDP_PC	GFCF_PC	PROD	RnD_GDP	RnD_EMP	MM_Ac	Avg_bus	Gov_debt	Cur_blc	Gov_close	Lab_comp	Union	ML_barg	SHDI	SC_Org	EoC	Clu	CRISIS-1: 90-93	CRISIS-2: 00-03	CRISIS-3: 08-09	CRISIS-4:BTW	Urban	Intermediate	Rural	LIS	NED	NIS	Rec_DL	Ret_Tra_4	Ret_Tra_8
Pop_age	**1**	-0,456	0,274	-0,356	-0,089	-0,035	0,180	0,131	0,047	0,077	-0,180	-0,220	0,013	-0,045	-0,111	-0,078	0,139	0,344		-0,002	-0,408	-0,230	0,328	-0,041		-0,069	-0,193	0,155	0,160	-0,009	0,009	-0,099	0,058	0,035	-0,245	0,146	0,075	0,134	0,208
Mig_net	-0,456	**1**	-0,318	0,221	0,055	-0,134	-0,078	-0,035	-0,017	0,017	0,277	0,350	0,043	0,087	0,098	-0,061	-0,038	-0,321		-0,083	0,562	0,479	-0,436	0,267		0,056	0,389	-0,216	-0,034	-0,110	-0,029	0,110	-0,054	0,101	0,427	-0,342	-0,156	-0,197	-0,310
Pop_work	0,274	-0,318	**1**	0,121	-0,098	0,348	0,032	-0,129	-0,011	-0,123	0,353	-0,314	0,247	0,248	-0,212	-0,105	0,125	0,318		0,143	-0,563	-0,382	0,511	0,101		0,062	-0,374	0,268	0,107	0,058	-0,162	-0,038	0,116	-0,131	-0,565	0,450	-0,001	0,124	0,128
Agri_EMP	-0,356	0,221	0,121	**1**	-0,243	0,503	-0,355	0,051	-0,372	-0,465	0,212	-0,201	-0,107	-0,114	-0,453	-0,162	-0,095	-0,238		-0,242	0,136	0,031	-0,226	0,165		0,120	-0,046	-0,121	-0,189	0,132	-0,505	-0,147	0,381	-0,163	-0,093	0,150	0,065	0,050	0,009
Manu_EMP	-0,089	0,055	-0,098	-0,243	**1**	-0,407	-0,545	-0,662	0,591	0,127	-0,115	0,159	0,215	0,214	0,186	0,382	-0,049	0,253		0,150	0,036	0,164	0,202	0,056		0,176	0,128	0,063	0,193	-0,153	0,125	-0,001	-0,071	0,324	-0,101	-0,104	-0,117	-0,129	-0,161
Const_EMP	-0,035	-0,134	0,348	0,503	-0,407	**1**	-0,229	0,151	-0,527	-0,620	-0,063	-0,575	-0,206	-0,286	-0,475	-0,345	0,135	-0,289		-0,290	-0,218	-0,326	-0,081	-0,171		-0,101	-0,330	0,092	-0,253	0,217	-0,383	-0,084	0,271	-0,487	-0,384	0,518	-0,001	0,141	0,146
Serv_EMP	0,180	-0,078	0,032	-0,355	-0,545	-0,229	**1**	-0,001	-0,113	0,451	0,200	0,277	0,008	0,058	0,403	-0,045	0,004	-0,018		0,226	0,022	-0,016	-0,012	0,028		-0,091	0,053	-0,042	0,011	-0,015	0,421	0,140	-0,329	-0,022	0,229	-0,143	0,042	0,020	0,038
Pub_EMP	0,131	-0,035	-0,129	0,051	-0,662	0,151	-0,001	**1**	-0,372	-0,182	-0,125	-0,185	-0,201	-0,214	-0,310	-0,312	0,050	-0,120		-0,243	-0,037	-0,092	-0,162	-0,117		-0,189	-0,073	-0,044	-0,100	0,088	-0,254	-0,049	0,176	-0,164	0,149	-0,014	0,113	0,088	0,135
HHI	0,047	-0,017	-0,011	-0,372	0,591	-0,527	-0,113	-0,372	**1**	0,547	0,031	0,286	0,273	0,284	0,271	0,213	-0,094	0,219		0,231	-0,001	0,086	0,152	0,051		-0,039	0,086	0,095	0,131	-0,125	0,281	0,084	-0,213	0,293	-0,111	-0,081	-0,082	-0,039	-0,062
GDP_PC	0,077	0,017	-0,123	-0,465	0,127	-0,620	0,451	-0,182	0,547	**1**	0,177	0,375	0,165	0,217	0,443	0,189	-0,022	-0,027		0,203	0,254	0,267	-0,068	0,124		0,092	0,273	-0,030	0,102	-0,165	0,374	0,048	-0,243	0,186	0,194	-0,230	-0,153	-0,092	-0,095
GFCF_PC	-0,180	0,277	0,353	0,212	-0,115	-0,063	0,200	-0,125	0,031	0,177	**1**	0,418	0,526	0,606	0,114	0,103	0,025	-0,247		0,305	0,310	0,250	-0,210	0,327		0,122	0,211	-0,134	-0,012	-0,054	0,013	0,035	-0,030	-0,133	0,132	-0,018	-0,131	-0,079	-0,184
PROD	-0,220	0,350	-0,314	-0,201	0,159	-0,575	0,277	-0,185	0,286	0,375	0,418	**1**	0,401	0,537	0,641	0,254	-0,179	0,015		0,618	0,370	0,301	-0,105	0,092		-0,174	0,314	-0,238	0,079	-0,095	0,379	0,050	-0,247	0,286	0,450	-0,455	0,104	-0,028	-0,107
RnD_GDP	0,013	0,043	0,247	-0,107	0,215	-0,206	0,008	-0,201	0,273	0,165	0,526	0,401	**1**	0,910	0,159	0,395	0,044	0,155		0,321	-0,022	0,038	0,156	0,183		-0,076	0,087	0,050	0,162	-0,117	0,081	0,060	-0,084	0,132	-0,018	-0,058	-0,021	-0,012	-0,057
RnD_EMP	-0,045	0,087	0,248	-0,114	0,214	-0,286	0,058	-0,214	0,284	0,217	0,606	0,537	0,910	**1**	0,293	0,381	0,020	0,183		0,439	0,025	0,101	0,190	0,236		0,005	0,132	0,000	0,166	-0,122	0,125	0,048	-0,102	0,175	0,058	-0,132	0,019	-0,004	-0,066
MM_Ac	-0,111	0,098	-0,212	-0,453	0,186	-0,475	0,403	-0,310	0,271	0,443	0,114	0,641	0,159	0,293	**1**	0,162	0,020	0,087		0,564	0,185	0,210	0,068	-0,044		-0,057	0,242	-0,106	0,164	-0,137	0,653	0,033	-0,392	0,185	0,222	-0,248	0,080	0,074	-0,010
Avg_bus	-0,078	-0,061	-0,105	-0,162	0,382	-0,345	-0,045	-0,312	0,213	0,189	0,103	0,254	0,395	0,381	0,162	**1**	-0,082	0,125		0,205	0,110	0,101	0,128	0,136		0,331	0,150	-0,084	0,084	-0,072	0,152	0,009	-0,092	0,221	0,185	-0,242	-0,091	-0,212	-0,157
Gov_debt	0,139	-0,038	0,125	-0,095	-0,049	0,135	0,004	0,050	-0,094	-0,022	0,025	-0,179	0,044	0,020	0,020	-0,082	**1**	-0,117		-0,007	0,104	0,277	-0,115	-0,097		-0,067	0,391	0,304	0,341	-0,439	0,018	-0,026	0,006	-0,217	-0,144	0,212	-0,150	0,083	0,017
Cur_blc	0,344	-0,321	0,318	-0,238	0,253	-0,289	-0,018	-0,120	0,219	-0,027	-0,247	0,015	0,155	0,183	0,087	0,125	-0,117	**1**		0,264	-0,745	-0,438	0,863	0,034		0,008	-0,379	0,060	0,315	0,082	0,099	-0,008	-0,051	0,519	-0,199	-0,142	0,369	0,167	0,276
Gov_close																																							
Lab_comp	-0,002	-0,083	0,143	-0,242	0,150	-0,290	0,226	-0,243	0,231	0,203	0,305	0,618	0,321	0,439	0,564	0,205	-0,007	0,264		**1**	-0,092	0,013	0,283	-0,298		-0,340	0,049	0,047	0,237	-0,118	0,400	-0,010	-0,221	0,204	-0,015	-0,098	0,126	0,114	-0,023
Union	-0,408	0,562	-0,563	0,136	0,036	-0,218	0,022	-0,037	-0,001	0,254	0,310	0,370	-0,022	0,025	0,185	0,110	0,104	-0,745		-0,092	**1**	0,822	-0,862	0,152		0,113	0,739	-0,259	-0,041	-0,278	0,070	0,028	-0,058	-0,087	0,529	-0,310	-0,320	-0,210	-0,353
ML_barg	-0,230	0,479	-0,382	0,031	0,164	-0,326	-0,016	-0,092	0,086	0,267	0,250	0,301	0,038	0,101	0,210	0,101	0,277	-0,438		0,013	0,822	**1**	-0,624	0,121		0,128	0,763	-0,105	0,223	-0,435	0,116	0,008	-0,071	0,010	0,391	-0,269	-0,275	-0,128	-0,242
SHDI	0,328	-0,436	0,511	-0,226	0,202	-0,081	-0,012	-0,162	0,152	-0,068	-0,210	-0,105	0,156	0,190	0,068	0,128	-0,115	0,863		0,283	-0,862	-0,624	**1**	-0,021		0,115	-0,518	0,250	0,233	0,104	0,066	-0,017	-0,027	0,317	-0,390	0,094	0,262	0,118	0,207
SC_Org	-0,041	0,267	0,101	0,165	0,056	-0,171	0,028	-0,117	0,051	0,124	0,327	0,092	0,183	0,236	-0,044	0,136	-0,097	0,034		-0,298	0,152	0,121	-0,021	**1**		0,378	0,096	-0,174	-0,067	0,040	-0,196	0,007	0,107	0,160	0,203	-0,222	-0,033	-0,104	-0,092
EoC																																							
Clu	-0,069	0,056	0,062	0,120	0,176	-0,101	-0,091	-0,189	-0,039	0,092	0,122	-0,174	-0,076	0,005	-0,057	0,331	-0,067	0,008		-0,340	0,113	0,128	0,115	0,378		**1**	0,102	-0,035	0,014	-0,045	-0,137	-0,047	0,108	0,094	0,121	-0,131	-0,211	-0,271	-0,175
CRISIS-1: 90	-0,193	0,389	-0,374	-0,046	0,128	-0,330	0,053	-0,073	0,086	0,273	0,211	0,314	0,087	0,132	0,242	0,150	0,391	-0,379		0,049	0,739	0,763	-0,518	0,096		0,102	**1**	0,252	0,579	-0,818	0,141	0,031	-0,100	0,015	0,359	-0,249	-0,289	-0,098	-0,193
CRISIS-2: 00	0,155	-0,216	0,268	-0,121	0,063	0,092	-0,042	-0,044	0,095	-0,030	-0,134	-0,238	0,050	0,000	-0,106	-0,084	0,304	0,060		0,047	-0,259	-0,105	0,250	-0,174		-0,035	0,252	**1**	0,580	-0,724	-0,029	0,005	0,013	-0,087	-0,409	0,322	-0,145	0,074	0,180
CRISIS-3: 08	0,160	-0,034	0,107	-0,189	0,193	-0,253	0,011	-0,100	0,131	0,102	-0,012	0,079	0,162	0,166	0,164	0,084	0,341	0,315		0,237	-0,041	0,223	0,233	-0,067		0,014	0,579	0,580	**1**	-0,856	0,161	0,032	-0,112	0,208	-0,056	-0,073	-0,038	0,097	0,055
CRISIS-4:BT	-0,009	-0,110	0,058	0,132	-0,153	0,217	-0,015	0,088	-0,125	-0,165	-0,054	-0,095	-0,117	-0,122	-0,137	-0,072	-0,439	0,082		-0,118	-0,278	-0,435	0,104	0,040		-0,045	-0,818	-0,724	-0,856	**1**	-0,113	-0,028	0,083	-0,036	-0,008	0,024	0,226	-0,008	0,023
Urban	0,009	-0,029	-0,162	-0,505	0,125	-0,383	0,421	-0,254	0,281	0,374	0,013	0,379	0,081	0,125	0,653	0,152	0,018	0,099		0,400	0,070	0,116	0,066	-0,196		-0,137	0,141	-0,029	0,161	-0,113	**1**	0,374	-0,807	0,167	0,133	-0,179	0,006	0,059	0,006
Intermediate	-0,099	0,110	-0,038	-0,147	-0,001	-0,084	0,140	-0,049	0,084	0,048	0,035	0,050	0,060	0,048	0,033	0,009	-0,026	-0,008		-0,010	0,028	0,008	-0,017	0,007		-0,047	0,031	0,005	0,032	-0,028	0,374	**1**	-0,850	0,105	0,147	-0,155	-0,018	-0,025	0,001
Rural	0,058	-0,054	0,116	0,381	-0,071	0,271	-0,329	0,176	-0,213	-0,243	-0,030	-0,247	-0,084	-0,102	-0,392	-0,092	0,006	-0,051		-0,221	-0,058	-0,071	-0,027	0,107		0,108	-0,100	0,013	-0,112	0,083	-0,807	-0,850	**1**	-0,162	-0,169	0,200	0,008	-0,017	-0,004
LIS	0,035	0,101	-0,131	-0,163	0,324	-0,487	-0,022	-0,164	0,293	0,186	-0,133	0,286	0,132	0,175	0,185	0,221	-0,217	0,519		0,204	-0,087	0,010	0,317	0,160		0,094	0,015	-0,087	0,208	-0,036	0,167	0,105	-0,162	**1**	0,368	-0,779	0,124	-0,020	-0,045
NED	-0,245	0,427	-0,565	-0,093	-0,101	-0,384	0,229	0,149	-0,111	0,194	0,132	0,450	-0,018	0,058	0,222	0,185	-0,144	-0,199		-0,015	0,529	0,391	-0,390	0,203		0,121	0,359	-0,409	-0,056	-0,008	0,133	0,147	-0,169	0,368	**1**	-0,869	-0,018	-0,216	-0,293
NIS	0,146	-0,342	0,450	0,150	-0,104	0,518	-0,143	-0,014	-0,081	-0,230	-0,018	-0,455	-0,058	-0,132	-0,248	-0,242	0,212	-0,142		-0,098	-0,310	-0,269	0,094	-0,222		-0,131	-0,249	0,322	-0,073	0,024	-0,179	-0,155	0,200	-0,779	-0,869	**1**	-0,054	0,156	0,222
Rec_DL	0,075	-0,156	-0,001	0,065	-0,117	-0,001	0,042	0,113	-0,082	-0,153	-0,131	0,104	-0,021	0,019	0,080	-0,091	-0,150	0,369		0,126	-0,320	-0,275	0,262	-0,033		-0,211	-0,289	-0,145	-0,038	0,226	0,006	-0,018	0,008	0,124	-0,018	-0,054	**1**	0,687	0,684
Ret_Tra_4	0,134	-0,197	0,124	0,050	-0,129	0,141	0,020	0,088	-0,039	-0,092	-0,079	-0,028	-0,012	-0,004	0,074	-0,212	0,083	0,167		0,114	-0,210	-0,128	0,118	-0,104		-0,271	-0,098	0,074	0,097	-0,008	0,059	-0,025	-0,017	-0,020	-0,216	0,156	0,687	**1**	0,780
Ret_Tra_8	0,208	-0,310	0,128	0,009	-0,161	0,146	0,038	0,135	-0,062	-0,095	-0,184	-0,107	-0,057	-0,066	-0,010	-0,157	0,017	0,276		-0,023	-0,353	-0,242	0,207	-0,092		-0,175	-0,193	0,180	0,055	0,023	0,006	0,001	-0,004	-0,045	-0,293	0,222	0,684	0,780	**1**

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
Germany - Recovery of development level

Summary of the variables selection Rec_DL:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R²	Adjusted R²	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	Cur_blc	Cur_blc	IN	0,005	0,136	0,134	83,022	-1903,988	-1896,221	0,873
2	Manu_EMP / Cur_blc	Manu_EMP	IN	0,005	0,184	0,179	61,004	-1922,234	-1910,584	0,830
3	Manu_EMP / Cur_blc / Clu	Clu	IN	0,005	0,215	0,209	47,036	-1934,354	-1918,821	0,802
4	Pop_work / Manu_EMP / Cur_blc / Clu	Pop_work	IN	0,004	0,239	0,230	37,125	-1943,261	-1923,844	0,783
5	Pop_work / Agri_EMP / Manu_EMP / Cur_blc / Clu	Agri_EMP	IN	0,004	0,270	0,260	23,207	-1956,374	-1933,074	0,755
6	Pop_work / Agri_EMP / Manu_EMP / MM_Ac / Cur_blc / Clu	MM_Ac	IN	0,004	0,284	0,272	18,214	-1961,221	-1934,038	0,745
7	Pop_work / Agri_EMP / Manu_EMP / MM_Ac / Cur_blc / Clu / CRISIS	CRISIS	IN	0,004	0,310	0,292	11,160	-1968,361	-1929,528	0,730

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
Germany - Recovery of development level

Goodness of fit statistics (Rec_DL):

Observations	359
Sum of weights	359
DF	349
R²	0,310
Adjusted R²	0,292
MSE	0,004
RMSE	0,064
MAPE	282,017
DW	1,677
Cp	11,160
AIC	-1968,361
SBC	-1929,528
PC	0,730
Press	1,486
Q²	0,273

Analysis of variance (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	9	0,633	0,070	17,395	**<0,0001**
Error	349	1,412	0,004		
Corrected	358	2,045			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
Germany - Recovery of development level

Type I Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,000	0,000	**0,000**	0,983
Agri_EMP	1,000	0,009	0,009	2,156	0,143
Manu_EMP	1,000	0,023	0,023	5,628	0,018
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,035	0,035	8,697	0,003
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,444	0,444	109,819	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	1,000	0,070	0,070	17,240	0,000
EoC	3,000	0,053	0,018	4,337	0,005
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type II Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,057	0,057	14,201	0,000
Agri_EMP	1,000	0,084	0,084	20,693	0,000
Manu_EMP	1,000	0,047	0,047	11,537	0,001
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,040	0,040	9,955	0,002
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,119	0,119	29,452	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	1,000	0,053	0,053	13,145	0,000
EoC	3,000	0,053	0,018	4,337	0,005
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type III Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,057	0,057	14,201	0,000
Agri_EMP	1,000	0,084	0,084	20,693	0,000
Manu_EMP	1,000	0,047	0,047	11,537	0,001
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,040	0,040	9,955	0,002
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,119	0,119	29,452	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	1,000	0,053	0,053	13,145	0,000
EoC	3,000	0,053	0,018	4,337	0,005
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
Germany - Recovery of development level

Model parameters (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,150	0,080	1,883	0,061	-0,007	0,308
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	-0,537	0,153	-3,515	**0,000**	-0,837	-0,236
Agri_EMP	0,622	0,126	4,935	**<0,0001**	0,374	0,869
Manu_EMP	-0,131	0,038	-3,468	**0,001**	-0,205	-0,057
Const_EMP	0,000	0,000				
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,001	0,000	3,154	**0,002**	0,000	0,001
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,017	0,003	6,047	**<0,0001**	0,012	0,023
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	-0,015	0,005	-3,138	**0,002**	-0,025	-0,006
CRISIS-1: 9(	-0,023	0,009	-2,491	**0,013**	-0,042	-0,005
CRISIS-2: 0(	-0,005	0,008	-0,591	0,555	-0,021	0,011
CRISIS-3: 0(	0,009	0,016	0,595	0,552	-0,021	0,040
CRISIS-4:B′	0,019	0,009	2,145	**0,033**	0,002	0,037
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	-0,214	0,061	-3,515	**0,000**	-0,334	-0,094
Agri_EMP	0,244	0,050	4,935	**<0,0001**	0,147	0,342
Manu_EMP	-0,168	0,049	-3,468	**0,001**	-0,264	-0,073
Const_EMP	0,000	0,000				
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,170	0,054	3,154	**0,002**	0,064	0,276
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,429	0,071	6,047	**<0,0001**	0,290	0,569
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000			0,000	0,000
CRISIS-1: 9(	0,000	0,000			0,000	0,000
CRISIS-2: 0(	0,000	0,000			0,000	0,000
CRISIS-3: 0(	0,000	0,000			0,000	0,000
CRISIS-4:B′	0,000	0,000				
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
Germany - Growth trajectory retention (4 year recovery period)

Summary of the variables selection Ret_Tra_4:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R²	Adjusted R²	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	Clu	Clu	IN	0,000	0,073	0,071	47,671	-2996,361	-2988,595	0,937
2	Mig_net / Clu	Mig_net	IN	0,000	0,106	0,101	35,276	-3007,431	-2995,781	0,909
3	Mig_net / Avg_bus / Clu	Avg_bus	IN	0,000	0,128	0,120	28,076	-3014,039	-2998,506	0,892
4	Mig_net / Avg_bus / Cur_blc / Clu	Cur_blc	IN	0,000	0,145	0,136	22,351	-3019,431	-3000,014	0,879
5	Mig_net / Agri_EMP / Avg_bus / Cur_blc / Clu	Agri_EMP	IN	0,000	0,160	0,148	17,834	-3023,786	-3000,487	0,868
6	Mig_net / Agri_EMP / MM_Ac / Avg_bus / Cur_blc / Clu	MM_Ac	IN	0,000	0,189	0,175	7,298	-3034,340	-3007,156	0,843

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
Germany - Growth trajectory retention (4 year recovery period)

Goodness of fit statistics (Ret_Tra_4):

Observations	359
Sum of weights	359
DF	352
R²	0,189
Adjusted R²	0,175
MSE	0,000
RMSE	0,014
MAPE	227,858
DW	1,671
Cp	7,298
AIC	-3034,340
SBC	-3007,156
PC	0,843
Press	0,076
Q²	0,159

Analysis of variance (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	6	0,017	0,003	13,694	**<0,0001**
Error	352	0,074	0,000		
Corrected '	358	0,091			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
Germany - Growth trajectory retention (4 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	1,000	0,004	0,004	16,825	0,000
Pop_work	0,000	0,000			
Agri_EMP	1,000	0,001	0,001	4,029	0,045
Manu_EMP	0,000	0,000			
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,002	0,002	11,356	0,001
Avg_bus	1,000	0,005	0,005	23,224	0,000
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,002	0,002	8,709	0,003
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	1,000	0,004	0,004	18,020	0,000
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type II Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	1,000	0,003	0,003	16,271	0,000
Pop_work	0,000	0,000			
Agri_EMP	1,000	0,003	0,003	15,080	0,000
Manu_EMP	0,000	0,000			
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,003	0,003	12,526	0,000
Avg_bus	1,000	0,002	0,002	10,093	0,002
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,002	0,002	9,229	0,003
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	1,000	0,004	0,004	18,020	0,000
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type III Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	1,000	0,003	0,003	16,271	0,000
Pop_work	0,000	0,000			
Agri_EMP	1,000	0,003	0,003	15,080	0,000
Manu_EMP	0,000	0,000			
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,003	0,003	12,526	0,000
Avg_bus	1,000	0,002	0,002	10,093	0,002
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,002	0,002	9,229	0,003
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	1,000	0,004	0,004	18,020	0,000
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
Germany - Growth trajectory retention (4 year recovery period)

Model parameters (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,004	0,007	0,545	0,586	-0,010	0,017
Pop_age	0,000	0,000				
Mig_net	0,000	0,000	-3,506	**0,001**	-0,001	0,000
Pop_work	0,000	0,000				
Agri_EMP	0,120	0,028	4,279	**<0,0001**	0,065	0,175
Manu_EMP	0,000	0,000				
Const_EMP	0,000	0,000				
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000	3,071	**0,002**	0,000	0,000
Avg_bus	-0,001	0,000	-3,739	**0,000**	-0,002	-0,001
Gov_debt	0,000	0,000				
Cur_blc	0,001	0,000	3,253	**0,001**	0,001	0,002
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	-0,004	0,001	-4,234	**<0,0001**	-0,006	-0,002
CRISIS-1: 9	0,000	0,000				
CRISIS-2: 0	0,000	0,000				
CRISIS-3: 0	0,000	0,000				
CRISIS-4:B′	0,000	0,000				
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	-0,213	0,061	-3,506	**0,001**	-0,333	-0,094
Pop_work	0,000	0,000				
Agri_EMP	0,224	0,052	4,279	**<0,0001**	0,121	0,327
Manu_EMP	0,000	0,000				
Const_EMP	0,000	0,000				
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,197	0,064	3,071	**0,002**	0,071	0,324
Avg_bus	-0,167	0,045	-3,739	**0,000**	-0,255	-0,079
Gov_debt	0,000	0,000				
Cur_blc	0,157	0,048	3,253	**0,001**	0,062	0,252
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000			0,000	0,000
CRISIS-1: 9	0,000	0,000				
CRISIS-2: 0	0,000	0,000				
CRISIS-3: 0	0,000	0,000				
CRISIS-4:B′	0,000	0,000				
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
Germany - Growth trajectory retention (8 year recovery period)

Summary of the variables selection Ret_Tra_8:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R²	Adjusted R²	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	Union	Union	IN	0,000	0,124	0,122	86,133	-3059,111	-3051,447	0,886
2	Mig_net / Union	Mig_net	IN	0,000	0,144	0,139	78,496	-3064,968	-3053,472	0,871
3	Mig_net / Union / Clu	Clu	IN	0,000	0,163	0,155	71,578	-3070,402	-3055,075	0,857
4	Mig_net / Cur_blc / Union / Clu	Cur_blc	IN	0,000	0,177	0,167	66,712	-3074,239	-3055,079	0,847
5	Mig_net / Cur_blc / Union / SHDI / Clu	SHDI	IN	0,000	0,203	0,191	56,399	-3082,963	-3059,972	0,826
4	Mig_net / Cur_blc / Union / SHDI	Clu	OUT	0,000	0,203	0,193	54,399	-3084,963	-3065,804	0,821
5	Mig_net / MM_Ac / Cur_blc / Union / SHDI	MM_Ac	IN	0,000	0,215	0,203	50,424	-3088,291	-3065,300	0,813
6	Mig_net / Const_EMP / MM_Ac / Cur_blc / Union / SHDI	Const_EMP	IN	0,000	0,235	0,221	42,588	-3095,248	-3068,425	0,797
7	Pop_age / Mig_net / Const_EMP / MM_Ac / Cur_blc / Union / SHDI	Pop_age	IN	0,000	0,250	0,234	37,493	-3099,857	-3069,202	0,786
8	Pop_age / Mig_net / Agri_EMP / Const_EMP / MM_Ac / Cur_blc / Union / SHDI	Agri_EMP	IN	0,000	0,263	0,245	33,050	-3103,973	-3069,486	0,777
9	Pop_age / Mig_net / Agri_EMP / Const_EMP / MM_Ac / Cur_blc / Lab_comp / Union / SHDI	Lab_comp	IN	0,000	0,278	0,259	27,762	-3109,026	-3070,707	0,765
8	Pop_age / Mig_net / Agri_EMP / Const_EMP / MM_Ac / Cur_blc / Lab_comp / SHDI	Union	OUT	0,000	0,278	0,261	25,762	-3111,026	-3076,539	0,761

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
Germany - Growth trajectory retention (8 year recovery period)

Goodness of fit statistics (Ret_Tra_8):

Observations	341
Sum of weights	341
DF	332
R²	0,278
Adjusted R²	0,261
MSE	0,000
RMSE	0,010
MAPE	1476,490
DW	1,486
Cp	25,762
AIC	-3111,026
SBC	-3076,539
PC	0,761
Press	0,043
Q²	0,114

Analysis of variance (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	8	0,014	0,002	16,005	**<0,0001**
Error	332	0,035	0,000		
Corrected	340	0,049			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
Germany - Growth trajectory retention (8 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,002	0,002	19,986	0,000
Mig_net	1,000	0,003	0,003	27,286	0,000
Pop_work	0,000	0,000			
Agri_EMP	1,000	0,000	0,000	4,429	0,036
Manu_EMP	0,000	0,000			
Const_EMP	1,000	0,000	0,000	1,338	0,248
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,001	0,001	6,787	0,010
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,004	0,004	35,884	0,000
Gov_close	1,000	0,001	0,001	5,455	0,020
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,001	0,001	13,671	0,000
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type II Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,001	0,001	11,196	0,001
Mig_net	1,000	0,001	0,001	8,289	0,004
Pop_work	0,000	0,000			
Agri_EMP	1,000	0,001	0,001	8,480	0,004
Manu_EMP	0,000	0,000			
Const_EMP	1,000	0,000	0,000	3,684	0,056
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,002	0,002	22,754	0,000
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,002	0,002	22,143	0,000
Gov_close	1,000	0,001	0,001	6,938	0,009
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,001	0,001	13,671	0,000
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type III Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,001	0,001	11,196	0,001
Mig_net	1,000	0,001	0,001	8,289	0,004
Pop_work	0,000	0,000			
Agri_EMP	1,000	0,001	0,001	8,480	0,004
Manu_EMP	0,000	0,000			
Const_EMP	1,000	0,000	0,000	3,684	0,056
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,002	0,002	22,754	0,000
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,002	0,002	22,143	0,000
Gov_close	1,000	0,001	0,001	6,938	0,009
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	1,000	0,001	0,001	13,671	0,000
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
Germany - Growth trajectory retention (8 year recovery period)

Model parameters (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,092	0,162	0,565	0,572	-0,227	0,411
Pop_age	0,012	0,004	2,778	**0,006**	0,003	0,020
Mig_net	0,000	0,000	-1,721	0,086	-0,001	0,000
Pop_work	0,000	0,000				
Agri_EMP	0,080	0,036	2,218	**0,027**	0,009	0,151
Manu_EMP	0,000	0,000				
Const_EMP	0,061	0,070	0,865	0,388	-0,078	0,199
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000	3,414	**0,001**	0,000	0,000
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,005	0,001	3,158	**0,002**	0,002	0,007
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000	-1,616	0,107	0,000	0,000
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	-0,161	0,196	-0,823	0,411	-0,546	0,224
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
CRISIS-1: 9	0,000	0,000				
CRISIS-2: 0	0,000	0,000				
CRISIS-3: 0	0,000	0,000				
CRISIS-4:B	0,000	0,000				
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,192	0,069	2,778	**0,006**	0,056	0,327
Mig_net	-0,176	0,102	-1,721	0,086	-0,378	0,025
Pop_work	0,000	0,000				
Agri_EMP	0,201	0,091	2,218	**0,027**	0,023	0,379
Manu_EMP	0,000	0,000				
Const_EMP	0,165	0,191	0,865	0,388	-0,210	0,540
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,335	0,098	3,414	**0,001**	0,142	0,528
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,443	0,140	3,158	**0,002**	0,167	0,718
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000			0,000	0,000
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000			0,000	0,000
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
CRISIS-1: 9	0,000	0,000				
CRISIS-2: 0	0,000	0,000				
CRISIS-3: 0	0,000	0,000				
CRISIS-4:B	0,000	0,000				
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

III.e.ii.2. United Kingdom

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
United Kingdom

Settings:
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Model selection: Stepwise
Probability for entry: 0,05 / Probability for removal: 0,1
Covariances: Corrections = Newey West (adjusted)(Lag = 1)
Use least squares means: Yes
Explanation of the variable codes can be found in table 28

Summary statistics (Quantitative data):

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Rec_DL	249	0	249	-0,393	0,899	-0,120	0,112
Ret_Tra_4	249	0	249	-0,182	0,139	-0,009	0,031
Ret_Tra_8	249	73	176	-0,058	0,042	-0,009	0,019
Pop_age	249	0	249	0,316	1,597	0,901	0,200
Mig_net	249	0	249	-5,214	14,401	2,670	3,376
Pop_work	249	0	249	0,404	0,671	0,494	0,043
Agri_EMP	249	0	249	0,000	0,244	0,024	0,037
Manu_EMP	249	0	249	0,039	0,476	0,158	0,077
Const_EMP	249	0	249	0,033	0,210	0,086	0,028
Serv_EMP	249	0	249	0,281	0,642	0,451	0,074
Pub_EMP	249	0	249	0,152	0,463	0,282	0,063
HHI	249	0	249	0,178	0,356	0,235	0,027
GDP_PC	249	0	249	-0,980	1,502	-0,168	0,428
GFCF_PC	249	0	249	-1,220	1,978	-0,245	0,680
PROD	249	0	249	-1,165	1,538	-0,405	0,439
RnD_GDP	249	0	249	0,170	14,258	2,141	1,854
RnD_EMP	249	0	249	0,164	3,009	1,400	0,611
MM_Ac	249	0	249	35,180	159,113	105,484	23,862
Avg_bus	249	0	249	7,014	11,319	9,009	1,086
Gov_debt	249	0	249	-10,100	1,400	-5,414	3,725
Cur_blc	249	0	249	-4,200	0,000	-2,266	1,143
Gov_close	249	0	249	Constant	Constant	Constant	Constant
Lab_comp	249	0	249	2188,723	40961,943	15060,035	7942,888
Union	249	0	249	26,959	41,143	34,183	6,253
ML_barg	249	0	249	1,000	1,625	1,346	0,311
SHDI	249	0	249	0,751	0,912	0,826	0,054
SC_Org	249	0	249	0,042	0,062	0,054	0,006
EoC	249	0	249	Constant	Constant	Constant	Constant
Clu	249	0	249	1,095	27,600	3,345	5,262

Number of removed observations: 63

Summary statistics (Qualitative data):

Variable	Categories	Counts	Frequencies	%
CRISIS	1: 90-93	137	137	55,020
	2: 00-03	3	3	1,205
	3: 08-09	95	95	38,153
	4:BTW	14	14	5,622
Urb_1	Urban	179	179	71,888
	Intermedia	47	47	18,876
	Rural	23	23	9,237
Shock	LIS	26	26	10,442
	NED	211	211	84,739
	NIS	12	12	4,819

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
United Kingdom

Correlation matrix:

	Pop_age	Mig_net	Pop_work	Agri_EMP	Manu_EMP	Const_EMP	Serv_EMP	Pub_EMP	HHI	GDP_PC	GFCF_PC	PROD	RnD_GDP	RnD_EMP	MM_Ac	Avg_bus	Gov_debt	Cur_blc	Gov_close	Lab_comp	Union	ML_barg	SHDI	SC_Org	EoC	Clu	CRISIS-1: 90-93	CRISIS-2: 00-03	CRISIS-3: 08-09	CRISIS-4:BTW	Urban	Intermediate	Rural	LIS	NED	NIS	Rec_DL	Ret_Tra_4	Ret_Tra_8
Pop_age	**1**	0,197	-0,080	0,290	-0,261	0,030	-0,187	0,354	-0,155	-0,269	-0,227	-0,085	-0,199	-0,225	-0,387	-0,184	-0,234	-0,236		-0,046	-0,240	-0,235	0,245	0,235		-0,071	-0,181	0,042	0,219	-0,030	-0,286	0,015	0,204	0,036	0,061	-0,069	-0,129	-0,010	0,039
Mig_net	0,197	**1**	0,230	0,266	-0,469	-0,064	0,116	0,308	0,054	0,184	0,166	0,267	-0,034	-0,025	-0,231	-0,300	-0,264	-0,257		0,173	-0,360	-0,359	0,381	0,268		-0,045	-0,365	-0,157	0,141	0,194	-0,205	-0,002	0,153	0,150	-0,033	-0,064	0,288	0,036	0,130
Pop_work	-0,080	0,230	**1**	0,235	-0,256	-0,012	0,310	-0,182	-0,123	0,375	0,542	0,284	0,124	0,058	-0,019	-0,410	-0,103	-0,125		0,078	-0,170	-0,172	0,249	0,168		-0,044	-0,168	0,005	0,050	0,077	-0,303	-0,049	0,255	0,117	-0,134	0,035	0,124	-0,194	-0,280
Agri_EMP	0,290	0,266	0,235	**1**	-0,118	0,106	-0,378	-0,042	-0,246	-0,062	0,185	0,115	-0,166	-0,349	-0,605	-0,225	0,127	0,039		-0,346	0,051	0,042	-0,089	0,164		-0,065	-0,015	-0,055	-0,145	0,116	-0,771	-0,260	0,730	0,251	-0,252	0,047	0,003	-0,161	-0,041
Manu_EMP	-0,261	-0,469	-0,256	-0,118	**1**	0,023	-0,543	-0,523	-0,066	-0,285	-0,132	-0,106	0,027	-0,053	0,068	0,303	0,448	0,421		-0,307	0,514	0,510	-0,562	-0,343		-0,024	0,442	0,047	-0,354	-0,080	0,135	0,036	-0,122	-0,153	-0,001	0,093	-0,276	-0,012	-0,063
Const_EMP	0,030	-0,064	-0,012	0,106	0,023	**1**	-0,218	-0,271	-0,258	-0,133	0,132	0,055	0,079	-0,036	-0,078	-0,054	0,221	0,093		-0,186	0,277	0,288	-0,275	-0,008		-0,027	0,224	0,006	-0,168	-0,043	-0,116	-0,039	0,110	-0,080	-0,253	0,247	-0,222	-0,261	-0,086
Serv_EMP	-0,187	0,116	0,310	-0,378	-0,543	-0,218	**1**	-0,191	0,119	0,512	0,181	0,169	0,252	0,315	0,504	-0,267	-0,197	-0,131		0,394	-0,248	-0,257	0,345	0,147		0,072	-0,219	-0,021	0,150	0,056	0,267	0,171	-0,301	0,008	-0,033	0,021	0,113	0,077	-0,065
Pub_EMP	0,354	0,308	-0,182	-0,042	-0,523	-0,271	-0,191	**1**	0,196	-0,156	-0,216	-0,159	-0,264	-0,085	-0,285	0,097	-0,484	-0,421		0,195	-0,485	-0,470	0,452	0,153		-0,005	-0,371	-0,003	0,413	-0,015	0,022	-0,074	0,028	0,065	0,295	-0,272	0,299	0,131	0,236
HHI	-0,155	0,054	-0,123	-0,246	-0,066	-0,258	0,119	0,196	**1**	0,329	-0,090	0,100	-0,001	0,184	0,176	0,004	-0,068	-0,117		0,271	-0,119	-0,125	0,116	0,062		-0,054	-0,144	-0,086	0,047	0,089	0,247	0,029	-0,201	0,103	0,029	-0,085	0,187	0,194	0,119
GDP_PC	-0,269	0,184	0,375	-0,062	-0,285	-0,133	0,512	-0,156	0,329	**1**	0,522	0,458	0,094	0,308	0,177	-0,187	0,015	-0,022		0,268	-0,088	-0,108	0,150	0,145		-0,038	-0,176	-0,159	-0,078	0,208	0,019	0,088	-0,067	0,126	-0,182	0,068	0,067	-0,017	-0,058
GFCF_PC	-0,227	0,166	0,542	0,185	-0,132	0,132	0,181	-0,216	-0,090	0,522	**1**	0,460	0,153	0,380	-0,145	-0,137	0,190	0,157		0,021	0,138	0,123	-0,077	0,223		-0,049	0,041	-0,126	-0,228	0,151	-0,215	0,047	0,132	0,122	-0,199	0,084	-0,006	-0,199	-0,116
PROD	-0,085	0,267	0,284	0,115	-0,106	0,055	0,169	-0,159	0,100	0,458	0,460	**1**	-0,047	0,155	0,005	-0,309	0,292	0,157		0,224	0,039	-0,006	0,016	0,176		-0,109	-0,168	-0,176	-0,336	0,369	-0,099	0,018	0,063	0,247	-0,323	0,106	0,081	0,050	0,106
RnD_GDP	-0,199	-0,034	0,124	-0,166	0,027	0,079	0,252	-0,264	-0,001	0,094	0,153	-0,047	**1**	0,440	0,374	-0,093	0,177	0,197		-0,015	0,191	0,191	-0,146	-0,055		0,558	0,165	-0,022	-0,155	-0,005	0,143	0,011	-0,113	-0,046	-0,006	0,033	-0,084	0,013	-0,150
RnD_EMP	-0,225	-0,025	0,058	-0,349	-0,053	-0,036	0,315	-0,085	0,184	0,308	0,380	0,155	0,440	**1**	0,466	0,248	-0,074	-0,051		0,564	-0,079	-0,076	0,133	0,013		-0,034	-0,071	-0,082	0,049	0,039	0,294	0,056	-0,253	-0,018	0,034	-0,016	-0,003	0,164	0,008
MM_Ac	-0,387	-0,231	-0,019	-0,605	0,068	-0,078	0,504	-0,285	0,176	0,177	-0,145	0,005	0,374	0,466	**1**	-0,011	-0,012	0,027		0,424	0,012	0,018	0,059	-0,231		0,072	0,059	0,037	0,046	-0,077	0,558	0,160	-0,512	-0,156	0,037	0,065	0,035	0,274	-0,054
Avg_bus	-0,184	-0,300	-0,410	-0,225	0,303	-0,054	-0,267	0,097	0,004	-0,187	-0,137	-0,309	-0,093	0,248	-0,011	**1**	-0,099	-0,064		0,108	-0,017	-0,004	-0,087	-0,477		0,070	0,035	0,030	0,109	-0,100	0,286	-0,049	-0,184	-0,092	0,181	-0,088	0,022	0,126	0,187
Gov_debt	-0,234	-0,264	-0,103	0,127	0,448	0,221	-0,197	-0,484	-0,068	0,015	0,190	0,292	0,177	-0,074	-0,012	-0,099	**1**	0,882		-0,506	0,862	0,819	-0,857	0,028		0,007	0,574	-0,139	-0,922	0,241	-0,079	-0,018	0,070	0,134	-0,345	0,192	-0,362	-0,189	-0,237
Cur_blc	-0,236	-0,257	-0,125	0,039	0,421	0,093	-0,131	-0,421	-0,117	-0,022	0,157	0,157	0,197	-0,051	0,027	-0,064	0,882	**1**		-0,500	0,858	0,817	-0,838	0,025		0,029	0,625	-0,140	-0,841	0,156	-0,001	0,045	-0,027	-0,032	-0,124	0,117	-0,327	-0,198	-0,242
Gov_close																																							
Lab_comp	-0,046	0,173	0,078	-0,346	-0,307	-0,186	0,394	0,195	0,271	0,268	0,021	0,224	-0,015	0,564	0,424	0,108	-0,506	-0,500		**1**	-0,577	-0,567	0,613	0,062		-0,176	-0,485	-0,055	0,420	0,070	0,297	-0,031	-0,203	0,052	0,072	-0,088	0,246	0,301	0,202
Union	-0,240	-0,360	-0,170	0,051	0,514	0,277	-0,248	-0,485	-0,119	-0,088	0,138	0,039	0,191	-0,079	0,012	-0,017	0,862	0,858		-0,577	**1**	0,994	-0,978	-0,009		0,035	0,877	0,112	-0,700	-0,167	-0,035	0,073	-0,018	-0,160	-0,090	0,168	-0,481	-0,243	-0,321
ML_barg	-0,235	-0,359	-0,172	0,042	0,510	0,288	-0,257	-0,470	-0,125	-0,108	0,123	-0,006	0,191	-0,076	0,018	-0,004	0,819	0,817		-0,567	0,994	**1**	-0,971	-0,015		0,039	0,910	0,160	-0,644	-0,237	-0,031	0,073	-0,021	-0,204	-0,052	0,164	-0,494	-0,250	-0,330
SHDI	0,245	0,381	0,249	-0,089	-0,562	-0,275	0,345	0,452	0,116	0,150	-0,077	0,016	-0,146	0,133	0,059	-0,087	-0,857	-0,838		0,613	-0,978	-0,971	**1**	0,098		-0,039	-0,850	-0,094	0,700	0,144	0,059	-0,015	-0,035	0,132	0,111	-0,167	0,455	0,228	0,247
SC_Org	0,235	0,268	0,168	0,164	-0,343	-0,008	0,147	0,153	0,062	0,145	0,223	0,176	-0,055	0,013	-0,231	-0,477	0,028	0,025		0,062	-0,009	-0,015	0,098	**1**		-0,110	-0,026	-0,022	-0,037	0,046	-0,191	-0,027	0,159	0,091	-0,050	-0,015	-0,071	-0,151	-0,141
EoC																																							
Clu	-0,071	-0,045	-0,044	-0,065	-0,024	-0,027	0,072	-0,005	-0,054	-0,038	-0,049	-0,109	0,558	-0,034	0,072	0,070	0,007	0,029		-0,176	0,035	0,039	-0,039	-0,110		**1**	0,052	0,036	0,007	-0,049	0,088	-0,031	-0,047	-0,025	0,075	-0,044	0,065	0,029	0,034
CRISIS-1: 90	-0,181	-0,365	-0,168	-0,015	0,442	0,224	-0,219	-0,371	-0,144	-0,176	0,041	-0,168	0,165	-0,071	0,059	0,035	0,574	0,625		-0,485	0,877	0,910	-0,850	-0,026		0,052	**1**	0,504	-0,301	-0,606	-0,011	0,066	-0,031	-0,413	0,114	0,158	-0,498	-0,221	-0,323
CRISIS-2: 00	0,042	-0,157	0,005	-0,055	0,047	0,006	-0,021	-0,003	-0,086	-0,159	-0,126	-0,176	-0,022	-0,082	0,037	0,030	-0,139	-0,140		-0,055	0,112	0,160	-0,094	-0,022		0,036	0,504	**1**	0,476	-0,906	-0,051	-0,028	0,055	-0,499	0,240	0,111	-0,249	-0,035	-0,113
CRISIS-3: 08	0,219	0,141	0,050	-0,145	-0,354	-0,168	0,150	0,413	0,047	-0,078	-0,228	-0,336	-0,155	0,049	0,046	0,109	-0,922	-0,841		0,420	-0,700	-0,644	0,700	-0,037		0,007	-0,301	0,476	**1**	-0,561	0,067	0,016	-0,060	-0,298	0,389	-0,127	0,207	0,159	0,184
CRISIS-4:BT	-0,030	0,194	0,077	0,116	-0,080	-0,043	0,056	-0,015	0,089	0,208	0,151	0,369	-0,005	0,039	-0,077	-0,100	0,241	0,156		0,070	-0,167	-0,237	0,144	0,046		-0,049	-0,606	-0,906	-0,561	**1**	-0,021	-0,045	0,043	0,596	-0,385	-0,055	0,266	0,055	0,138
Urban	-0,286	-0,205	-0,303	-0,771	0,135	-0,116	0,267	0,022	0,247	0,019	-0,215	-0,099	0,143	0,294	0,558	0,286	-0,079	-0,001		0,297	-0,035	-0,031	0,059	-0,191		0,088	-0,011	-0,051	0,067	-0,021	**1**	0,095	-0,802	-0,157	0,175	-0,044	0,109	0,194	0,052
Intermediate	0,015	-0,002	-0,049	-0,260	0,036	-0,039	0,171	-0,074	0,029	0,088	0,047	0,018	0,011	0,056	0,160	-0,049	-0,018	0,045		-0,031	0,073	0,073	-0,015	-0,027		-0,031	0,066	-0,028	0,016	-0,045	0,095	**1**	-0,671	-0,087	0,256	-0,149	-0,012	0,083	-0,027
Rural	0,204	0,153	0,255	0,730	-0,122	0,110	-0,301	0,028	-0,201	-0,067	0,132	0,063	-0,113	-0,253	-0,512	-0,184	0,070	-0,027		-0,203	-0,018	-0,021	-0,035	0,159		-0,047	-0,031	0,055	-0,060	0,043	-0,802	-0,671	**1**	0,169	-0,284	0,123	-0,074	-0,194	-0,022
LIS	0,036	0,150	0,117	0,251	-0,153	-0,080	0,008	0,065	0,103	0,126	0,122	0,247	-0,046	-0,018	-0,156	-0,092	0,134	-0,032		0,052	-0,160	-0,204	0,132	0,091		-0,025	-0,413	-0,499	-0,298	0,596	-0,157	-0,087	0,169	**1**	0,017	-0,615	0,137	0,056	0,155
NED	0,061	-0,033	-0,134	-0,252	-0,001	-0,253	-0,033	0,295	0,029	-0,182	-0,199	-0,323	-0,006	0,034	0,037	0,181	-0,345	-0,124		0,072	-0,090	-0,052	0,111	-0,050		0,075	0,114	0,240	0,389	-0,385	0,175	0,256	-0,284	0,017	**1**	-0,799	0,015	0,103	0,079
NIS	-0,069	-0,064	0,035	0,047	0,093	0,247	0,021	-0,272	-0,085	0,068	0,084	0,106	0,033	-0,016	0,065	-0,088	0,192	0,117		-0,088	0,168	0,164	-0,167	-0,015		-0,044	0,158	0,111	-0,127	-0,055	-0,044	-0,149	0,123	-0,615	-0,799	**1**	-0,094	-0,115	-0,149
Rec_DL	-0,129	0,288	0,124	0,003	-0,276	-0,222	0,113	0,299	0,187	0,067	-0,006	0,081	-0,084	-0,003	0,035	0,022	-0,362	-0,327		0,246	-0,481	-0,494	0,455	-0,071		0,065	-0,498	-0,249	0,207	0,266	0,109	-0,012	-0,074	0,137	0,015	-0,094	**1**	0,433	0,485
Ret_Tra_4	-0,010	0,036	-0,194	-0,161	-0,012	-0,261	0,077	0,131	0,194	-0,017	-0,199	0,050	0,013	0,164	0,274	0,126	-0,189	-0,198		0,301	-0,243	-0,250	0,228	-0,151		0,029	-0,221	-0,035	0,159	0,055	0,194	0,083	-0,194	0,056	0,103	-0,115	0,433	**1**	0,688
Ret_Tra_8	0,039	0,130	-0,280	-0,041	-0,063	-0,086	-0,065	0,236	0,119	-0,058	-0,116	0,106	-0,150	0,008	-0,054	0,187	-0,237	-0,242		0,202	-0,321	-0,330	0,247	-0,141		0,034	-0,323	-0,113	0,184	0,138	0,052	-0,027	-0,022	0,155	0,079	-0,149	0,485	0,688	**1**

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
United Kingdom - Recovery of development level

Summary of the variables selection Rec_DL:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	ML_barg	ML_barg	IN	0,009	0,244	0,241	78,354	-1157,516	-1150,481	0,768
2	Pop_age / ML_barg	Pop_age	IN	0,009	0,308	0,302	53,133	-1177,413	-1166,861	0,709
3	Pop_age / ML_barg / CRISIS	CRISIS	IN	0,008	0,346	0,332	42,811	-1185,530	-1164,425	0,686
4	Pop_age / Pub_EMP / ML_barg / CRISIS	Pub_EMP	IN	0,008	0,370	0,354	34,495	-1192,884	-1168,261	0,666
5	Pop_age / Agri_EMP / Pub_EMP / ML_barg / CRISIS	Agri_EMP	IN	0,008	0,383	0,365	31,065	-1195,952	-1167,812	0,658
6	Pop_age / Agri_EMP / Pub_EMP / ML_barg / CRISIS / Urb_1	Urb_1	IN	0,008	0,408	0,386	24,081	-1202,531	-1167,356	0,641

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
United Kingdom - Recovery of development level

Goodness of fit statistics (Rec_DL):

Observations	249
Sum of weights	249
DF	239
R^2	0,408
Adjusted R^2	0,386
MSE	0,008
RMSE	0,088
MAPE	133,691
DW	2,018
Cp	24,081
AIC	-1202,531
SBC	-1167,356
PC	0,641
Press	2,488
Q^2	0,198

Analysis of variance (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	9	1,267	0,141	18,330	**<0,0001**
Error	239	1,836	0,008		
Corrected	248	3,104			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
United Kingdom - Recovery of development level

Type I Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,052	0,052	6,731	0,010
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	1,000	0,005	0,005	0,710	0,400
Manu_EMP	0,000	0,000			
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	1,000	0,448	0,448	58,273	0,000
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,573	0,573	74,560	0,000
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	3,000	0,110	0,037	4,775	0,003
Clu	2,000	0,080	0,040	5,186	0,006
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type II Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,263	0,263	34,239	0,000
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	1,000	0,111	0,111	14,421	0,000
Manu_EMP	0,000	0,000			
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	1,000	0,094	0,094	12,207	0,001
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,091	0,091	11,874	0,001
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	3,000	0,089	0,030	3,875	0,010
Clu	2,000	0,080	0,040	5,186	0,006
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type III Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,263	0,263	34,239	0,000
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	1,000	0,111	0,111	14,421	0,000
Manu_EMP	0,000	0,000			
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	1,000	0,094	0,094	12,207	0,001
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,091	0,091	11,874	0,001
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	3,000	0,089	0,030	3,875	0,010
Clu	2,000	0,080	0,040	5,186	0,006
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
United Kingdom - Recovery of development level

Model parameters (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,522	0,111	4,721	**<0,0001**	0,304	0,740
Pop_age	-0,188	0,090	-2,097	**0,037**	-0,365	-0,011
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_EMP	0,982	0,801	1,225	0,222	-0,597	2,560
Manu_EMP	0,000	0,000				
Const_EMP	0,000	0,000				
Serv_EMP	0,000	0,000				
Pub_EMP	0,373	0,172	2,172	**0,031**	0,035	0,712
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	-0,510	0,078	-6,518	**<0,0001**	-0,665	-0,356
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
CRISIS-1: 9(	0,154	0,033	4,639	**<0,0001**	0,089	0,220
CRISIS-2: 0(	-0,103	0,055	-1,884	0,061	-0,211	0,005
CRISIS-3: 0(	-0,063	0,022	-2,875	**0,004**	-0,107	-0,020
CRISIS-4:B′	0,012	0,031	0,396	0,692	-0,048	0,073
Urban	0,038	0,021	1,808	0,072	-0,003	0,079
Intermediate	0,025	0,010	2,462	**0,015**	0,005	0,046
Rural	-0,063	0,027	-2,371	**0,019**	-0,116	-0,011
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	-0,337	0,161	-2,097	**0,037**	-0,654	-0,020
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_EMP	0,321	0,263	1,225	0,222	-0,196	0,839
Manu_EMP	0,000	0,000				
Const_EMP	0,000	0,000				
Serv_EMP	0,000	0,000				
Pub_EMP	0,211	0,097	2,172	**0,031**	0,020	0,403
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000			0,000	0,000
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
CRISIS-1: 9(	0,000	0,000			0,000	0,000
CRISIS-2: 0(	0,000	0,000			0,000	0,000
CRISIS-3: 0(	0,000	0,000			0,000	0,000
CRISIS-4:B′	0,000	0,000				
Urban	0,000	0,000			0,000	0,000
Intermediate	0,000	0,000			0,000	0,000
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
United Kingdom - Growth trajectory retention (4 year recovery period)

Summary of the variables selection Ret_Tra_4:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R²	Adjusted R²	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	Lab_comp	Lab_comp	IN	0,001	0,091	0,087	40,083	-1754,694	-1747,660	0,924
2	Pop_work / Lab_comp	Pop_work	IN	0,001	0,138	0,131	27,112	-1766,127	-1755,574	0,883
3	Pop_work / Const_EMP / Lab_comp	Const_EMP	IN	0,001	0,182	0,172	15,574	-1776,930	-1762,860	0,845
4	Pop_work / Const_EMP / MM_Ac / Lab_comp	MM_Ac	IN	0,001	0,204	0,191	10,562	-1781,830	-1764,242	0,829
5	Pop_work / Const_EMP / MM_Ac / Lab_comp / ML_barg	ML_barg	IN	0,001	0,226	0,210	5,659	-1786,814	-1765,709	0,812
4	Pop_work / Const_EMP / MM_Ac / ML_barg	Lab_comp	OUT	0,001	0,226	0,213	3,659	-1788,814	-1771,227	0,806
5	Pop_work / Const_EMP / PROD / MM_Ac / ML_barg	PROD	IN	0,001	0,240	0,224	1,362	-1791,263	-1770,158	0,798
6	Pop_work / Const_EMP / Serv_EMP / PROD / MM_Ac / ML_barg	Serv_EMP	IN	0,001	0,255	0,237	-1,550	-1794,448	-1769,826	0,788

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
United Kingdom - Growth trajectory retention (4 year recovery period)

Goodness of fit statistics (Ret_Tra_4):

Observations	249
Sum of weights	249
DF	242
R²	0,255
Adjusted R²	0,237
MSE	0,001
RMSE	0,027
MAPE	291,498
DW	1,835
Cp	-1,550
AIC	-1794,448
SBC	-1769,826
PC	0,788
Press	0,197
Q²	0,161

Analysis of variance (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	6	0,060	0,010	13,830	**<0,0001**
Error	242	0,175	0,001		
Corrected	248	0,234			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
United Kingdom - Growth trajectory retention (4 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,009	0,009	12,287	0,001
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	1,000	0,016	0,016	22,479	0,000
Serv_EMP	1,000	0,002	0,002	2,478	0,117
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,003	0,003	4,460	0,036
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,014	0,014	19,866	0,000
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,015	0,015	21,334	0,000
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type II Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,010	0,010	13,420	0,000
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	1,000	0,008	0,008	11,564	0,001
Serv_EMP	1,000	0,004	0,004	5,092	0,025
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,004	0,004	5,507	0,020
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,014	0,014	19,260	0,000
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,015	0,015	21,334	0,000
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type III Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,010	0,010	13,420	0,000
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	1,000	0,008	0,008	11,564	0,001
Serv_EMP	1,000	0,004	0,004	5,092	0,025
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,004	0,004	5,507	0,020
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	1,000	0,014	0,014	19,260	0,000
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,015	0,015	21,334	0,000
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
United Kingdom - Growth trajectory retention (4 year recovery period)

Model parameters (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,116	0,040	2,919	**0,004**	0,038	0,195
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	-0,163	0,077	-2,119	**0,035**	-0,315	-0,011
Agri_EMP	0,000	0,000				
Manu_EMP	0,000	0,000				
Const_EMP	-0,224	0,112	-2,003	**0,046**	-0,444	-0,004
Serv_EMP	-0,069	0,041	-1,667	0,097	-0,150	0,013
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,010	0,005	1,904	0,058	0,000	0,021
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000	2,867	**0,005**	0,000	0,001
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	-0,026	0,011	-2,458	**0,015**	-0,047	-0,005
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
CRISIS-1: 9(	0,000	0,000				
CRISIS-2: 0(	0,000	0,000				
CRISIS-3: 0(	0,000	0,000				
CRISIS-4:B´	0,000	0,000				
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	-0,228	0,108	-2,119	**0,035**	-0,440	-0,016
Agri_EMP	0,000	0,000				
Manu_EMP	0,000	0,000				
Const_EMP	-0,201	0,100	-2,003	**0,046**	-0,398	-0,003
Serv_EMP	-0,165	0,099	-1,667	0,097	-0,360	0,030
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,145	0,076	1,904	0,058	-0,005	0,295
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,332	0,116	2,867	**0,005**	0,104	0,559
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000			0,000	0,000
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
CRISIS-1: 9(	0,000	0,000				
CRISIS-2: 0(	0,000	0,000				
CRISIS-3: 0(	0,000	0,000				
CRISIS-4:B´	0,000	0,000				
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
United Kingdom - Growth trajectory retention (8 year recovery period)

Summary of the variables selection Ret_Tra_8:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	ML_barg	ML_barg	IN	0,000	0,109	0,104	19,622	-1413,122	-1406,781	0,912
2	Pop_work / ML_barg	Pop_work	IN	0,000	0,220	0,211	-2,238	-1434,526	-1425,014	0,807

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
United Kingdom - Growth trajectory retention (8 year recovery period)

Goodness of fit statistics (Ret_Tra_8):

Observations	176
Sum of weights	176
DF	173
R^2	0,220
Adjusted R^2	0,211
MSE	0,000
RMSE	0,017
MAPE	238,728
DW	1,721
Cp	-2,238
AIC	-1434,526
SBC	-1425,014
PC	0,807
Press	0,051
Q^2	0,185

Analysis of variance (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	2	0,014	0,007	24,365	**<0,0001**
Error	173	0,049	0,000		
Corrected	175	0,063			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
United Kingdom - Growth trajectory retention (8 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,005	0,005	17,422	0,000
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,009	0,009	31,308	0,000
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type II Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,007	0,007	24,604	0,000
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,009	0,009	31,308	0,000
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type III Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,007	0,007	24,604	0,000
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,009	0,009	31,308	0,000
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
United Kingdom - Growth trajectory retention (8 year recovery period)

Model parameters (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,099	0,020	4,854	**<0,0001**	0,059	0,139
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	-0,136	0,039	-3,490	**0,001**	-0,212	-0,059
Agri_EMP	0,000	0,000				
Manu_EMP	0,000	0,000				
Const_EMP	0,000	0,000				
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	-0,028	0,006	-4,860	**<0,0001**	-0,039	-0,017
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
CRISIS-1: 9(	0,000	0,000				
CRISIS-2: 0(	0,000	0,000				
CRISIS-3: 0:	0,000	0,000				
CRISIS-4:B´	0,000	0,000				
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	-0,337	0,097	-3,490	**0,001**	-0,527	-0,146
Agri_EMP	0,000	0,000				
Manu_EMP	0,000	0,000				
Const_EMP	0,000	0,000				
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000			0,000	0,000
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
CRISIS-1: 9(	0,000	0,000				
CRISIS-2: 0(	0,000	0,000				
CRISIS-3: 0:	0,000	0,000				
CRISIS-4:B´	0,000	0,000				
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

III.e.ii.3. Italy

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
Italy

Settings:
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Model selection: Stepwise
Probability for entry: 0,05 / Probability for removal: 0,1
Covariances: Corrections = Newey West (adjusted)(Lag = 1)
Use least squares means: Yes
Explanation of the variable codes can be found in table 28

Summary statistics (Quantitative data):

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Rec_DL	199	0	199	-0,453	0,129	-0,108	0,096
Ret_Tra_4	199	0	199	-0,051	0,051	-0,003	0,018
Ret_Tra_8	199	72	127	-0,040	0,040	0,001	0,015
Pop_age	199	0	199	0,248	2,642	1,330	0,525
Mig_net	199	0	199	-18,814	21,819	2,667	5,207
Pop_work	199	0	199	0,320	0,471	0,408	0,044
Agri_EMP	199	0	199	0,003	0,280	0,079	0,063
Manu_EM	199	0	199	0,065	0,470	0,206	0,095
Const_EM	199	0	199	0,034	0,149	0,080	0,020
Serv_EMP	199	0	199	0,195	0,555	0,353	0,058
Pub_EMP	199	0	199	0,152	0,448	0,283	0,058
HHI	199	0	199	0,188	0,281	0,223	0,018
GDP_PC	199	0	199	-0,949	1,625	-0,025	0,503
GFCF_PC	199	0	199	-1,396	1,427	-0,221	0,572
PROD	199	0	199	-1,310	1,195	-0,153	0,587
RnD_GDP	199	0	199	0,397	1,840	1,022	0,367
RnD_EMP	199	0	199	0,000	2,007	0,868	0,505
MM_Ac	199	0	199	37,148	151,113	89,420	28,336
Avg_bus	199	0	199	2,550	4,362	3,563	0,605
Gov_debt	199	0	199	-11,100	-1,500	-7,280	2,928
Cur_blc	199	0	199	-2,800	3,000	-0,542	1,543
Gov_close	199	0	199	Constant	Constant	Constant	Constant
Lab_comp	199	0	199	1088,920	134579,34	36535,483	31439,365
Union	199	0	199	33,087	39,824	36,555	2,177
ML_barg	199	0	199	2,500	4,750	3,570	1,028
SHDI	199	0	199	0,741	0,892	0,817	0,045
SC_Org	199	0	199	0,041	0,152	0,069	0,024
EoC	199	0	199	Constant	Constant	Constant	Constant
Clu	199	0	199	0,360	2,451	0,913	0,410

Summary statistics (Qualitative data):

Variable	Categories	Counts	Frequencies	%
CRISIS	1: 90-93	94	94	47,236
	2: 00-03	8	8	4,020
	3: 08-09	63	63	31,658
	4:BTW	34	34	17,085
Urb_1	Urban	56	56	28,141
	Intermedia	106	106	53,266
	Rural	37	37	18,593
Shock	LIS	64	64	32,161
	NED	104	104	52,261
	NIS	31	31	15,578

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
Italy

Correlation matrix:

	Pop_age	Mig_net	Pop_work	Agri_EMP	Manu_EMP	Const_EMP	Serv_EMP	Pub_EMP	HHI	GDP_PC	GFCF_PC	PROD	RnD_GDP	RnD_EMP	MM_Ac	Avg_bus	Gov_debt	Cur_blc	Gov_close	Lab_comp	Union	ML_barg	SHDI	SC_Org	EoC	Clu	CRISIS-1: 90-93	CRISIS-2: 00-03	CRISIS-3: 08-09	CRISIS-4:BTW	Urban	Intermediate	Rural	LIS	NED	NIS	Rec_DL	Ret_Tra_4	Ret_Tra_8
Pop_age	**1**	0,337	0,553	-0,512	0,196	-0,229	0,422	-0,110	0,126	0,361	0,347	0,404	0,429	0,346	0,324	0,488	0,137	-0,017		0,065	-0,161	-0,048	0,502	0,258		0,502	0,064	0,197	0,395	-0,269	-0,105	0,033	0,039	-0,157	0,396	-0,172	0,199	-0,052	0,351
Mig_net	0,337	**1**	0,532	-0,489	0,373	0,025	0,278	-0,367	0,175	0,430	0,417	0,435	0,437	0,378	0,393	0,500	0,187	-0,197		0,310	-0,191	-0,043	0,473	0,106		0,297	-0,006	0,001	0,191	-0,084	-0,017	0,112	-0,064	-0,089	0,052	0,020	0,092	-0,043	0,095
Pop_work	0,553	0,532	**1**	-0,650	0,583	-0,313	0,405	-0,545	0,266	0,703	0,788	0,633	0,515	0,437	0,668	0,866	0,091	-0,119		0,487	-0,141	-0,051	0,610	0,420		0,575	0,042	0,111	0,312	-0,195	-0,077	0,093	-0,017	-0,104	0,238	-0,097	0,204	-0,033	0,161
Agri_EMP	-0,512	-0,489	-0,650	**1**	-0,548	0,319	-0,607	0,310	-0,498	-0,651	-0,452	-0,545	-0,544	-0,487	-0,726	-0,700	-0,207	0,022		-0,426	0,251	0,020	-0,576	-0,233		-0,383	-0,082	-0,174	-0,403	0,274	-0,333	-0,175	0,309	0,253	-0,311	0,055	-0,298	0,050	-0,243
Manu_EMP	0,196	0,373	0,583	-0,548	**1**	-0,361	-0,119	-0,797	0,324	0,585	0,491	0,551	0,365	0,094	0,564	0,680	-0,128	0,074		0,327	0,117	0,152	0,161	0,218		0,417	0,150	0,026	-0,029	-0,069	0,054	0,160	-0,137	-0,147	-0,089	0,151	0,256	0,131	0,119
Const_EMP	-0,229	0,025	-0,313	0,319	-0,361	**1**	-0,215	0,116	-0,381	-0,455	-0,233	-0,427	-0,315	-0,053	-0,432	-0,402	0,201	-0,238		-0,193	-0,210	-0,220	-0,010	-0,235		-0,161	-0,198	-0,061	0,040	0,097	-0,289	-0,055	0,204	0,243	-0,046	-0,119	-0,281	-0,208	-0,234
Serv_EMP	0,422	0,278	0,405	-0,607	-0,119	-0,215	**1**	-0,074	0,367	0,416	0,268	0,200	0,289	0,449	0,478	0,354	0,274	-0,136		0,265	-0,329	-0,178	0,538	0,205		0,181	-0,036	0,141	0,458	-0,231	0,300	0,019	-0,186	-0,147	0,393	-0,176	0,136	-0,079	0,201
Pub_EMP	-0,110	-0,367	-0,545	0,310	-0,797	0,116	-0,074	**1**	-0,227	-0,510	-0,499	-0,363	-0,189	-0,057	-0,464	-0,568	0,090	0,073		-0,273	-0,061	-0,016	-0,173	-0,228		-0,392	-0,053	0,026	0,012	0,013	0,072	-0,072	0,006	0,030	0,106	-0,090	-0,135	-0,118	-0,020
HHI	0,126	0,175	0,266	-0,498	0,324	-0,381	0,367	-0,227	**1**	0,495	0,286	0,369	0,242	0,100	0,540	0,351	-0,094	0,075		0,291	0,085	0,139	0,068	0,218		0,073	0,155	0,040	0,038	-0,105	0,381	0,059	-0,260	-0,152	0,049	0,061	0,063	0,052	0,143
GDP_PC	0,361	0,430	0,703	-0,651	0,585	-0,455	0,416	-0,510	0,495	**1**	0,707	0,733	0,464	0,215	0,721	0,775	-0,223	0,210		0,360	0,201	0,248	0,245	0,348		0,527	0,241	0,050	0,087	-0,173	0,134	0,098	-0,143	-0,252	0,238	-0,006	0,289	0,149	0,190
GFCF_PC	0,347	0,417	0,788	-0,452	0,491	-0,233	0,268	-0,499	0,286	0,707	**1**	0,690	0,397	0,215	0,543	0,753	-0,213	0,027		0,382	0,197	0,119	0,265	0,330		0,565	0,112	-0,035	0,065	-0,075	-0,096	0,106	-0,015	-0,026	0,201	-0,121	0,192	0,075	0,059
PROD	0,404	0,435	0,633	-0,545	0,551	-0,427	0,200	-0,363	0,369	0,733	0,690	**1**	0,610	0,333	0,597	0,766	-0,319	0,194		0,472	0,313	0,315	0,150	0,318		0,355	0,335	0,090	0,079	-0,227	0,060	0,003	-0,037	-0,210	0,215	-0,016	0,276	0,150	0,305
RnD_GDP	0,429	0,437	0,515	-0,544	0,365	-0,315	0,289	-0,189	0,242	0,464	0,397	0,610	**1**	0,610	0,615	0,633	0,032	-0,022		0,436	-0,042	-0,004	0,374	0,034		0,199	0,099	0,106	0,246	-0,191	0,050	-0,038	-0,004	-0,153	0,286	-0,099	0,187	-0,041	0,200
RnD_EMP	0,346	0,378	0,437	-0,487	0,094	-0,053	0,449	-0,057	0,100	0,215	0,215	0,333	0,610	**1**	0,413	0,436	0,490	-0,479		0,562	-0,523	-0,482	0,712	0,207		0,040	-0,246	0,119	0,559	-0,167	0,065	-0,067	0,007	-0,069	0,199	-0,092	-0,021	-0,306	-0,033
MM_Ac	0,324	0,393	0,668	-0,726	0,564	-0,432	0,478	-0,464	0,540	0,721	0,543	0,597	0,615	0,413	**1**	0,749	-0,039	-0,016		0,560	-0,006	0,080	0,343	0,306		0,278	0,162	0,117	0,243	-0,225	0,287	0,091	-0,227	-0,204	0,228	-0,029	0,229	0,023	0,119
Avg_bus	0,488	0,500	0,866	-0,700	0,680	-0,402	0,354	-0,568	0,351	0,775	0,753	0,766	0,633	0,436	0,749	**1**	-0,049	0,027		0,580	0,010	0,120	0,447	0,433		0,539	0,202	0,146	0,256	-0,259	0,023	0,067	-0,058	-0,220	0,237	-0,025	0,292	0,008	0,204
Gov_debt	0,137	0,187	0,091	-0,207	-0,128	0,201	0,274	0,090	-0,094	-0,223	-0,213	-0,319	0,032	0,490	-0,039	-0,049	**1**	-0,430		0,235	-0,965	-0,732	0,749	-0,074		-0,131	-0,686	-0,082	0,252	0,248	-0,015	0,001	0,008	0,261	-0,060	-0,121	-0,050	-0,347	-0,202
Cur_blc	-0,017	-0,197	-0,119	0,022	0,074	-0,238	-0,136	0,073	0,075	0,210	0,027	0,194	-0,022	-0,479	-0,016	0,027	-0,430	**1**		-0,220	0,496	0,648	-0,448	-0,099		0,095	0,328	-0,049	-0,489	0,074	0,019	-0,009	-0,006	-0,257	0,142	0,062	0,363	0,392	0,371
Gov_close																																								
Lab_comp	0,065	0,310	0,487	-0,426	0,327	-0,193	0,265	-0,273	0,291	0,360	0,382	0,472	0,436	0,562	0,560	0,580	0,235	-0,220		**1**	-0,249	-0,159	0,443	0,138		-0,199	-0,044	0,082	0,305	-0,141	0,162	-0,032	-0,073	-0,103	0,023	0,048	0,086	-0,097	0,022
Union	-0,161	-0,191	-0,141	0,251	0,117	-0,210	-0,329	-0,061	0,085	0,201	0,197	0,313	-0,042	-0,523	-0,006	0,010	-0,965	0,496		-0,249	**1**	0,730	-0,784	0,027		0,102	0,611	-0,017	-0,362	-0,132	0,005	0,012	-0,011	-0,227	0,011	0,132	0,090	0,396	0,236
ML_barg	-0,048	-0,043	-0,051	0,020	0,152	-0,220	-0,178	-0,016	0,139	0,248	0,119	0,315	-0,004	-0,482	0,080	0,120	-0,732	0,648		-0,159	0,730	**1**	-0,608	0,033		0,068	0,817	0,255	-0,207	-0,384	0,054	0,033	-0,053	-0,421	0,040	0,233	0,112	0,379	0,294
SHDI	0,502	0,473	0,610	-0,576	0,161	-0,010	0,538	-0,173	0,068	0,245	0,265	0,150	0,374	0,712	0,343	0,447	0,749	-0,448		0,443	-0,784	-0,608	**1**	0,167		0,243	-0,449	0,017	0,538	-0,027	-0,008	0,074	-0,044	0,027	0,221	-0,167	0,067	-0,305	0,000
SC_Org	0,258	0,106	0,420	-0,233	0,218	-0,235	0,205	-0,228	0,218	0,348	0,330	0,318	0,034	0,207	0,306	0,433	-0,074	-0,099		0,138	0,027	0,033	0,167	**1**		0,388	0,113	0,084	0,139	-0,143	-0,002	0,073	-0,047	-0,027	0,175	-0,102	0,074	0,062	0,076
EoC																																								
Clu	0,502	0,297	0,575	-0,383	0,417	-0,161	0,181	-0,392	0,073	0,527	0,565	0,355	0,199	0,040	0,278	0,539	-0,131	0,095		-0,199	0,102	0,068	0,243	0,388		**1**	0,079	0,011	0,072	-0,075	-0,196	0,064	0,071	-0,082	0,225	-0,102	0,250	0,111	0,246
CRISIS-1: 90	0,064	-0,006	0,042	-0,082	0,150	-0,198	-0,036	-0,053	0,155	0,241	0,112	0,335	0,099	-0,246	0,162	0,202	-0,686	0,328		-0,044	0,611	0,817	-0,449	0,113		0,079	**1**	0,643	0,251	-0,795	0,093	0,028	-0,072	-0,423	0,119	0,180	0,103	0,306	0,314
CRISIS-2: 00	0,197	0,001	0,111	-0,174	0,026	-0,061	0,141	0,026	0,040	0,050	-0,035	0,090	0,106	0,119	0,117	0,146	-0,082	-0,049		0,082	-0,017	0,255	0,017	0,084		0,011	0,643	**1**	0,632	-0,896	0,076	-0,015	-0,034	-0,216	0,147	0,033	0,083	0,037	0,107
CRISIS-3: 08	0,395	0,191	0,312	-0,403	-0,029	0,040	0,458	0,012	0,038	0,087	0,065	0,079	0,246	0,559	0,243	0,256	0,252	-0,489		0,305	-0,362	-0,207	0,538	0,139		0,072	0,251	0,632	**1**	-0,761	0,122	0,047	-0,102	-0,250	0,273	-0,031	-0,028	-0,199	0,018
CRISIS-4:BT	-0,269	-0,084	-0,195	0,274	-0,069	0,097	-0,231	0,013	-0,105	-0,173	-0,075	-0,227	-0,191	-0,167	-0,225	-0,259	0,248	0,074		-0,141	-0,132	-0,384	-0,027	-0,143		-0,075	-0,795	-0,896	-0,761	**1**	-0,123	-0,031	0,092	0,385	-0,226	-0,085	-0,063	-0,071	-0,205
Urban	-0,105	-0,017	-0,077	-0,333	0,054	-0,289	0,300	0,072	0,381	0,134	-0,096	0,060	0,050	0,065	0,287	0,023	-0,015	0,019		0,162	0,005	0,054	-0,008	-0,002		-0,196	0,093	0,076	0,122	-0,123	**1**	0,292	-0,773	-0,145	0,010	0,083	0,036	-0,013	-0,013
Intermediate	0,033	0,112	0,093	-0,175	0,160	-0,055	0,019	-0,072	0,059	0,098	0,106	0,003	-0,038	-0,067	0,091	0,067	0,001	-0,009		-0,032	0,012	0,033	0,074	0,073		0,064	0,028	-0,015	0,047	-0,031	0,292	**1**	-0,832	-0,101	-0,020	0,076	-0,076	-0,092	-0,068
Rural	0,039	-0,064	-0,017	0,309	-0,137	0,204	-0,186	0,006	-0,260	-0,143	-0,015	-0,037	-0,004	0,007	-0,227	-0,058	0,008	-0,006		-0,073	-0,011	-0,053	-0,044	-0,047		0,071	-0,072	-0,034	-0,102	0,092	-0,773	-0,832	**1**	0,151	0,007	-0,098	0,029	0,068	0,053
LIS	-0,157	-0,089	-0,104	0,253	-0,147	0,243	-0,147	0,030	-0,152	-0,252	-0,026	-0,210	-0,153	-0,069	-0,204	-0,220	0,261	-0,257		-0,103	-0,227	-0,421	0,027	-0,027		-0,082	-0,423	-0,216	-0,250	0,385	-0,145	-0,101	0,151	**1**	0,193	-0,746	-0,144	-0,132	-0,214
NED	0,396	0,052	0,238	-0,311	-0,089	-0,046	0,393	0,106	0,049	0,238	0,201	0,215	0,286	0,199	0,228	0,237	-0,060	0,142		0,023	0,011	0,040	0,221	0,175		0,225	0,119	0,147	0,273	-0,226	0,010	-0,020	0,007	0,193	**1**	-0,796	0,162	-0,024	0,187
NIS	-0,172	0,020	-0,097	0,055	0,151	-0,119	-0,176	-0,090	0,061	-0,006	-0,121	-0,016	-0,099	-0,092	-0,029	-0,025	-0,121	0,062		0,048	0,132	0,233	-0,167	-0,102		-0,102	0,180	0,033	-0,031	-0,085	0,083	0,076	-0,098	-0,746	-0,796	**1**	-0,021	0,098	0,004
Rec_DL	0,199	0,092	0,204	-0,298	0,256	-0,281	0,136	-0,135	0,063	0,289	0,192	0,276	0,187	-0,021	0,229	0,292	-0,050	0,363		0,086	0,090	0,112	0,067	0,074		0,250	0,103	0,083	-0,028	-0,063	0,036	-0,076	0,029	-0,144	0,162	-0,021	**1**	0,544	0,582
Ret_Tra_4	-0,052	-0,043	-0,033	0,050	0,131	-0,208	-0,079	-0,118	0,052	0,149	0,075	0,150	-0,041	-0,306	0,023	0,008	-0,347	0,392		-0,097	0,396	0,379	-0,305	0,062		0,111	0,306	0,037	-0,199	-0,071	-0,013	-0,092	0,068	-0,132	-0,024	0,098	0,544	**1**	0,683
Ret_Tra_8	0,351	0,095	0,161	-0,243	0,119	-0,234	0,201	-0,020	0,143	0,190	0,059	0,305	0,200	-0,033	0,119	0,204	-0,202	0,371		0,022	0,236	0,294	0,000	0,076		0,246	0,314	0,107	0,018	-0,205	-0,013	-0,068	0,053	-0,214	0,187	0,004	0,582	0,683	**1**

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
Italy - Recovery of development level

Summary of the variables selection Rec_DL:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	Cur_blc	Cur_blc	IN	0,008	0,132	0,128	54,786	-955,834	-949,248	0,886
2	Agri_EMP / Cur_blc	Agri_EMP	IN	0,007	0,226	0,218	29,843	-976,547	-966,667	0,798
3	Agri_EMP / Cur_blc / ML_barg	ML_barg	IN	0,007	0,251	0,240	24,434	-981,276	-968,103	0,779
4	Agri_EMP / Avg_bus / Cur_blc / ML_barg	Avg_bus	IN	0,007	0,268	0,253	21,666	-983,730	-967,264	0,770

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
Italy - Recovery of development level

Goodness of fit statistics (Rec_DL):

Observations	199
Sum of weights	199
DF	194
R^2	0,268
Adjusted R^2	0,253
MSE	0,007
RMSE	0,083
MAPE	188,213
DW	1,820
Cp	21,666
AIC	-983,730
SBC	-967,264
PC	0,770
Press	1,446
Q^2	0,215

Analysis of variance (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	4	0,494	0,123	17,748	**<0,0001**
Error	194	1,349	0,007		
Corrected '	198	1,843			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
Italy - Recovery of development level

Type I Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	1,000	0,163	0,163	23,492	0,000
Manu_EMP	0,000	0,000			
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	1,000	0,025	0,025	3,631	0,058
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,244	0,244	35,041	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,061	0,061	8,827	0,003
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type II Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	1,000	0,028	0,028	4,058	0,045
Manu_EMP	0,000	0,000			
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	1,000	0,031	0,031	4,391	0,037
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,288	0,288	41,352	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,061	0,061	8,827	0,003
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type III Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	1,000	0,028	0,028	4,058	0,045
Manu_EMP	0,000	0,000			
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	1,000	0,031	0,031	4,391	0,037
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,288	0,288	41,352	0,000
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,061	0,061	8,827	0,003
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
Italy - Recovery of development level

Model parameters (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,092	0,072	-1,276	0,203	-0,233	0,050
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_EMP	-0,268	0,186	-1,439	0,152	-0,636	0,099
Manu_EMP	0,000	0,000				
Const_EMP	0,000	0,000				
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,029	0,013	2,214	**0,028**	0,003	0,056
Gov_debt	0,000	0,000				
Cur_blc	0,033	0,008	4,225	**<0,0001**	0,017	0,048
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	-0,023	0,012	-1,990	**0,048**	-0,046	0,000
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
CRISIS-1: 9(	0,000	0,000				
CRISIS-2: 0(	0,000	0,000				
CRISIS-3: 0(	0,000	0,000				
CRISIS-4:B´	0,000	0,000				
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_EMP	-0,175	0,122	-1,439	0,152	-0,416	0,065
Manu_EMP	0,000	0,000				
Const_EMP	0,000	0,000				
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,184	0,083	2,214	**0,028**	0,020	0,348
Gov_debt	0,000	0,000				
Cur_blc	0,521	0,123	4,225	**<0,0001**	0,278	0,764
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000			0,000	0,000
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
CRISIS-1: 9(	0,000	0,000				
CRISIS-2: 0(	0,000	0,000				
CRISIS-3: 0(	0,000	0,000				
CRISIS-4:B´	0,000	0,000				
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
Italy - Growth trajectory retention (4 year recovery period)

Summary of the variables selection Ret_Tra_4:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	Union	Union	IN	0,000	0,157	0,153	34,499	-1633,120	-1626,533	0,860
2	Cur_blc / Union	Cur_blc	IN	0,000	0,208	0,200	22,642	-1643,513	-1633,633	0,816

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
Italy - Growth trajectory retention (4 year recovery period)

Goodness of fit statistics (Ret_Tra_4):

Observations	199
Sum of weights	199
DF	196
R^2	0,208
Adjusted R^2	0,200
MSE	0,000
RMSE	0,016
MAPE	176,631
DW	1,753
Cp	22,642
AIC	-1643,513
SBC	-1633,633
PC	0,816
Press	0,052
Q^2	0,181

Analysis of variance (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	2	0,013	0,007	25,730	**<0,0001**
Error	196	0,050	0,000		
Corrected	198	0,063			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
Italy - Growth trajectory retention (4 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,010	0,010	38,121	0,000
Gov_close	0,000	0,000			
Lab_comp	1,000	0,003	0,003	13,339	0,000
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type II Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,003	0,003	12,595	0,000
Gov_close	0,000	0,000			
Lab_comp	1,000	0,003	0,003	13,339	0,000
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type III Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,003	0,003	12,595	0,000
Gov_close	0,000	0,000			
Lab_comp	1,000	0,003	0,003	13,339	0,000
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
Italy - Growth trajectory retention (4 year recovery period)

Model parameters (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,081	0,027	-3,035	**0,003**	-0,134	-0,028
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_EMP	0,000	0,000				
Manu_EMP	0,000	0,000				
Const_EMP	0,000	0,000				
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,003	0,001	3,004	**0,003**	0,001	0,005
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,002	0,001	3,017	**0,003**	0,001	0,004
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
CRISIS-1: 9(	0,000	0,000				
CRISIS-2: 0(	0,000	0,000				
CRISIS-3: 0(	0,000	0,000				
CRISIS-4:B'	0,000	0,000				
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_EMP	0,000	0,000				
Manu_EMP	0,000	0,000				
Const_EMP	0,000	0,000				
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,260	0,087	3,004	**0,003**	0,089	0,430
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000			0,000	0,000
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
CRISIS-1: 9(	0,000	0,000				
CRISIS-2: 0(	0,000	0,000				
CRISIS-3: 0(	0,000	0,000				
CRISIS-4:B'	0,000	0,000				
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
Italy - Growth trajectory retention (8 year recovery period)

Summary of the variables selection Ret_Tra_8:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	Cur_blc	Cur_blc	IN	0,000	0,137	0,131	24,879	-1090,608	-1084,920	0,890
2	Pop_age / Cur_blc	Pop_age	IN	0,000	0,201	0,188	15,931	-1098,376	-1089,844	0,837
3	Pop_age / Cur_blc / Union	Union	IN	0,000	0,245	0,227	10,389	-1103,571	-1092,194	0,804

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
Italy - Growth trajectory retention (8 year recovery period)

Goodness of fit statistics (Ret_Tra_8):

Observations	127
Sum of weights	127
DF	123
R^2	0,245
Adjusted R^2	0,227
MSE	0,000
RMSE	0,013
MAPE	2049,494
DW	1,692
Cp	10,389
AIC	-1103,571
SBC	-1092,194
PC	0,804
Press	0,022
Q^2	0,188

Analysis of variance (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	3	0,007	0,002	13,324	**<0,0001**
Error	123	0,020	0,000		
Corrected '	126	0,027			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
Italy - Growth trajectory retention (8 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,003	0,003	20,026	0,000
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,002	0,002	12,777	0,001
Gov_close	0,000	0,000			
Lab_comp	1,000	0,001	0,001	7,169	0,008
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type II Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,002	0,002	10,706	0,001
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,002	0,002	11,109	0,001
Gov_close	0,000	0,000			
Lab_comp	1,000	0,001	0,001	7,169	0,008
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type III Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	1,000	0,002	0,002	10,706	0,001
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	0,000	0,000			
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	1,000	0,002	0,002	11,109	0,001
Gov_close	0,000	0,000			
Lab_comp	1,000	0,001	0,001	7,169	0,008
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
Italy - Growth trajectory retention (8 year recovery period)

Model parameters (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,075	0,031	-2,438	**0,016**	-0,136	-0,014
Pop_age	0,007	0,003	2,544	**0,012**	0,002	0,013
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_EMP	0,000	0,000				
Manu_EMP	0,000	0,000				
Const_EMP	0,000	0,000				
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,003	0,001	2,288	**0,024**	0,000	0,005
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,002	0,001	2,129	**0,035**	0,000	0,003
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
CRISIS-1: 9	0,000	0,000				
CRISIS-2: 0	0,000	0,000				
CRISIS-3: 0	0,000	0,000				
CRISIS-4:B′	0,000	0,000				
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,268	0,105	2,544	**0,012**	0,060	0,477
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_EMP	0,000	0,000				
Manu_EMP	0,000	0,000				
Const_EMP	0,000	0,000				
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,274	0,120	2,288	**0,024**	0,037	0,511
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000			0,000	0,000
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
CRISIS-1: 9	0,000	0,000				
CRISIS-2: 0	0,000	0,000				
CRISIS-3: 0	0,000	0,000				
CRISIS-4:B′	0,000	0,000				
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

III.e.ii.4. Spain

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
Spain

Settings:
Constraints: Sum(ai)=0
Confidence interval (%): 95
Tolerance: 0,0001
Model selection: Stepwise
Probability for entry: 0,05 / Probability for removal: 0,1
Covariances: Corrections = Newey West (adjusted)(Lag = 1)
Use least squares means: Yes
Explanation of the variable codes can be found in table 28

Summary statistics (Quantitative data):

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Rec_DL	80	0	80	-0,645	0,260	-0,087	0,160
Ret_Tra_4	80	0	80	-0,105	0,083	0,011	0,036
Ret_Tra_8	80	6	74	-0,113	0,058	0,003	0,031
Pop_age	80	0	80	0,181	2,408	0,916	0,443
Mig_net	80	0	80	-12,213	52,407	4,516	9,077
Pop_work	80	0	80	0,339	0,545	0,401	0,039
Agri_EMP	80	0	80	0,000	0,395	0,116	0,089
Manu_EMP	80	0	80	0,022	0,337	0,148	0,080
Const_EMP	80	0	80	0,047	0,294	0,112	0,044
Serv_EMP	80	0	80	0,236	0,569	0,353	0,067
Pub_EMP	80	0	80	0,144	0,576	0,270	0,083
HHI	80	0	80	0,175	0,364	0,222	0,044
GDP_PC	80	0	80	-1,097	0,429	-0,449	0,327
GFCF_PC	80	0	80	-1,746	0,065	-0,812	0,451
PROD	80	0	80	-1,590	0,494	-0,685	0,490
RnD_GDP	80	0	80	0,000	1,672	0,767	0,350
RnD_EMP	80	0	80	0,000	1,666	0,670	0,329
MM_Ac	80	0	80	24,795	124,170	55,964	19,627
Avg_bus	80	0	80	3,096	5,019	3,932	0,418
Gov_debt	80	0	80	-4,900	0,000	-3,831	1,443
Cur_blc	80	0	80	-9,300	-1,000	-3,769	1,554
Gov_close	80	0	80	Constant	Constant	Constant	Constant
Lab_comp	80	0	80	430,021	79843,355	18829,493	17442,971
Union	80	0	80	12,930	18,100	16,715	1,689
ML_barg	80	0	80	2,625	2,875	2,823	0,093
SHDI	80	0	80	0,723	0,866	0,775	0,034
SC_Org	80	0	80	0,089	0,175	0,119	0,016
EoC	80	0	80	Constant	Constant	Constant	Constant
Clu	80	0	80	0,477	31,000	3,024	7,307

Summary statistics (Qualitative data):

Variable	Categories	Counts	Frequencies	%
CRISIS	1: 90-93	53	53	66,250
	2: 00-03	9	9	11,250
	3: 08-09	5	5	6,250
	4:BTW	13	13	16,250
Urb_1	Urban	18	18	22,500
	Intermedia	45	45	56,250
	Rural	17	17	21,250
Shock	LIS	25	25	31,250
	NED	26	26	32,500
	NIS	29	29	36,250

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
Spain

Correlation matrix:

	Pop_age	Mig_net	Pop_work	Agri_EMP	Manu_EMP	Const_EMP	Serv_EMP	Pub_EMP	HHI	GDP_PC	GFCF_PC	PROD	RnD_GDP	RnD_EMP	MM_Ac	Avg_bus	Gov_debt	Cur_blc	Gov_close	Lab_comp	Union	ML_barg	SHDI	SC_Org	EoC	Clu	CRISIS-1: 90-93	CRISIS-2: 00-03	CRISIS-3: 08-09	CRISIS-4:BTW	Urban	Intermediate	Rural	LIS	NED	NIS	Rec_DL	Ret_Tra_4	Ret_Tra_8
Pop_age	**1**	-0,056	0,199	0,467	0,109	-0,048	-0,426	-0,241	-0,444	0,056	0,267	-0,132	0,208	0,545	-0,202	0,123	0,279	-0,087		0,043	0,112	-0,321	0,596	-0,134		-0,256	-0,364	-0,106	-0,135	0,267	-0,539	-0,371	0,535	0,061	-0,118	0,033	0,016	-0,012	-0,021
Mig_net	-0,056	**1**	0,530	-0,311	-0,010	0,251	0,382	-0,096	0,194	0,374	0,229	-0,046	-0,082	0,059	0,155	0,121	0,261	-0,232		0,221	0,142	-0,361	0,226	0,266		-0,077	-0,081	0,329	0,209	-0,140	0,004	0,076	-0,052	-0,090	-0,067	0,089	-0,302	-0,361	-0,262
Pop_work	0,199	0,530	**1**	-0,266	0,069	0,270	0,398	-0,243	0,073	0,488	0,396	0,210	0,330	0,501	0,251	0,471	0,139	-0,512		0,457	0,256	-0,440	0,590	0,231		-0,181	-0,117	0,145	0,321	-0,092	-0,043	-0,049	0,055	-0,079	0,031	0,027	-0,229	-0,173	-0,127
Agri_EMP	0,467	-0,311	-0,266	**1**	-0,053	-0,195	-0,589	-0,450	-0,603	-0,308	-0,108	-0,498	0,055	0,108	-0,378	-0,229	0,047	0,150		-0,012	-0,319	0,115	-0,066	-0,258		-0,299	-0,161	-0,215	-0,265	0,242	-0,549	-0,299	0,492	-0,101	-0,386	0,279	-0,012	0,080	0,054
Manu_EMP	0,109	-0,010	0,069	-0,053	**1**	-0,396	-0,273	-0,473	-0,404	0,507	0,275	0,312	0,600	0,268	0,452	0,524	-0,165	0,277		0,130	0,190	0,311	0,111	0,387		-0,344	0,066	-0,171	-0,201	0,090	0,217	0,133	-0,205	-0,184	0,119	0,037	0,048	-0,002	0,019
Const_EMP	-0,048	0,251	0,270	-0,195	-0,396	**1**	0,196	-0,102	0,015	-0,225	0,222	-0,075	-0,200	-0,069	-0,306	0,052	0,126	-0,162		0,078	-0,373	-0,170	-0,088	0,096		-0,185	-0,001	0,128	0,138	-0,088	-0,348	-0,051	0,221	0,231	-0,188	-0,023	0,305	0,252	0,294
Serv_EMP	-0,426	0,382	0,398	-0,589	-0,273	0,196	**1**	-0,009	0,383	0,120	0,208	0,360	-0,106	-0,099	0,212	0,143	-0,213	-0,245		0,175	0,200	-0,011	-0,079	0,005		-0,124	0,215	0,134	0,332	-0,262	0,409	0,254	-0,387	-0,146	0,082	0,036	-0,140	0,031	0,101
Pub_EMP	-0,241	-0,096	-0,243	-0,450	-0,473	-0,102	-0,009	**1**	0,723	-0,132	-0,433	-0,012	-0,444	-0,258	-0,034	-0,399	0,211	-0,145		-0,294	0,200	-0,323	0,074	-0,149		0,850	-0,061	0,220	0,138	-0,090	0,241	0,018	-0,141	0,279	0,336	-0,352	-0,085	-0,244	-0,322
HHI	-0,444	0,194	0,073	-0,603	-0,404	0,015	0,383	0,723	**1**	0,106	-0,185	0,225	-0,514	-0,478	0,110	-0,192	0,010	-0,143		-0,315	0,194	-0,156	-0,116	0,042		0,782	0,139	0,267	0,258	-0,247	0,300	0,079	-0,214	0,103	0,255	-0,205	-0,131	-0,095	-0,124
GDP_PC	0,056	0,374	0,488	-0,308	0,507	-0,225	0,120	-0,132	0,106	**1**	0,415	0,449	0,452	0,363	0,537	0,576	0,031	-0,070		0,366	0,307	-0,092	0,418	0,369		-0,002	-0,017	0,128	0,095	-0,067	0,264	0,116	-0,219	-0,051	0,200	-0,086	-0,167	-0,217	-0,217
GFCF_PC	0,267	0,229	0,396	-0,108	0,275	0,222	0,208	-0,433	-0,185	0,415	**1**	0,446	0,302	0,324	0,111	0,518	-0,042	0,034		0,121	-0,296	0,085	0,159	0,212		-0,425	-0,242	-0,280	-0,183	0,281	-0,203	-0,058	0,147	-0,140	-0,113	0,144	0,207	0,292	0,317
PROD	-0,132	-0,046	0,210	-0,498	0,312	-0,075	0,360	-0,012	0,225	0,449	0,446	**1**	0,385	0,129	0,406	0,665	-0,467	0,102		-0,013	0,250	0,389	-0,040	0,294		-0,057	0,396	-0,039	0,165	-0,242	0,401	-0,025	-0,200	-0,088	0,419	-0,191	0,137	0,309	0,286
RnD_GDP	0,208	-0,082	0,330	0,055	0,600	-0,200	-0,106	-0,444	-0,514	0,452	0,302	0,385	**1**	0,746	0,405	0,685	-0,218	-0,057		0,538	0,111	0,153	0,358	0,236		-0,474	0,122	-0,055	0,088	-0,071	0,131	-0,060	-0,031	-0,292	0,061	0,131	-0,097	-0,041	0,065
RnD_EMP	0,545	0,059	0,501	0,108	0,268	-0,069	-0,099	-0,258	-0,478	0,363	0,324	0,129	0,746	**1**	0,185	0,467	0,145	-0,323		0,548	0,166	-0,311	0,745	0,010		-0,362	-0,213	-0,029	0,087	0,092	-0,199	-0,196	0,236	-0,117	0,005	0,064	-0,158	-0,230	-0,223
MM_Ac	-0,202	0,155	0,251	-0,378	0,452	-0,306	0,212	-0,034	0,110	0,537	0,111	0,406	0,405	0,185	**1**	0,335	-0,157	-0,040		0,320	0,342	0,095	0,148	0,198		0,015	0,179	0,120	0,164	-0,186	0,495	0,136	-0,357	-0,059	0,344	-0,164	-0,184	-0,097	-0,164
Avg_bus	0,123	0,121	0,471	-0,229	0,524	0,052	0,143	-0,399	-0,192	0,576	0,518	0,665	0,685	0,467	0,335	**1**	-0,206	0,162		0,286	0,181	0,257	0,212	0,459		-0,423	0,211	-0,021	0,004	-0,102	0,177	-0,176	0,020	-0,065	0,259	-0,112	0,140	0,166	0,253
Gov_debt	0,279	0,261	0,139	0,047	-0,165	0,126	-0,213	0,211	0,010	0,031	-0,042	-0,467	-0,218	0,145	-0,157	-0,206	**1**	-0,029		0,138	-0,031	-0,717	0,505	-0,069		0,158	-0,672	0,202	-0,362	0,388	-0,284	-0,134	0,241	0,436	-0,094	-0,194	0,007	-0,409	-0,581
Cur_blc	-0,087	-0,232	-0,512	0,150	0,277	-0,162	-0,245	-0,145	-0,143	-0,070	0,034	0,102	-0,057	-0,323	-0,040	0,162	-0,029	**1**		-0,189	-0,178	0,627	-0,522	0,080		-0,168	0,050	-0,266	-0,716	0,294	0,082	-0,051	-0,011	0,142	0,038	-0,103	0,343	0,202	0,448
Gov_close																																							
Lab_comp	0,043	0,221	0,457	-0,012	0,130	0,078	0,175	-0,294	-0,315	0,366	0,121	-0,013	0,538	0,548	0,320	0,286	0,138	-0,189		**1**	0,130	-0,206	0,389	-0,056		-0,313	-0,108	0,137	0,109	-0,027	0,137	0,120	-0,152	-0,164	-0,128	0,167	-0,265	-0,275	-0,278
Union	0,112	0,142	0,256	-0,319	0,190	-0,373	0,200	0,200	0,194	0,307	-0,296	0,250	0,111	0,166	0,342	0,181	-0,031	-0,178		0,130	**1**	-0,187	0,415	0,043		0,145	0,239	0,282	0,315	-0,322	0,401	0,110	-0,289	-0,038	0,449	-0,237	-0,392	-0,338	-0,338
ML_barg	-0,321	-0,361	-0,440	0,115	0,311	-0,170	-0,011	-0,323	-0,156	-0,092	0,085	0,389	0,153	-0,311	0,095	0,257	-0,717	0,627		-0,206	-0,187	**1**	-0,763	0,133		-0,263	0,548	-0,281	-0,194	-0,121	0,242	0,054	-0,165	-0,220	0,098	0,069	0,245	0,471	0,586
SHDI	0,596	0,226	0,590	-0,066	0,111	-0,088	-0,079	0,074	-0,116	0,418	0,159	-0,040	0,358	0,745	0,148	0,212	0,505	-0,522		0,389	0,415	-0,763	**1**	-0,047		0,011	-0,474	0,127	0,133	0,157	-0,181	-0,116	0,174	0,069	0,047	-0,066	-0,253	-0,423	-0,502
SC_Org	-0,134	0,266	0,231	-0,258	0,387	0,096	0,005	-0,149	0,042	0,369	0,212	0,294	0,236	0,010	0,198	0,459	-0,069	0,080		-0,056	0,043	0,133	-0,047	**1**		-0,041	0,200	0,129	0,068	-0,169	0,147	0,108	-0,150	0,043	0,229	-0,156	0,130	0,076	0,120
EoC																																							
Clu	-0,256	-0,077	-0,181	-0,299	-0,344	-0,185	-0,124	0,850	0,782	-0,002	-0,425	-0,057	-0,474	-0,362	0,015	-0,423	0,158	-0,168		-0,313	0,145	-0,263	0,011	-0,041		**1**	-0,027	0,217	0,163	-0,114	0,147	0,088	-0,137	0,143	0,219	-0,207	-0,154	-0,213	-0,337
CRISIS-1: 90	-0,364	-0,081	-0,117	-0,161	0,066	-0,001	0,215	-0,061	0,139	-0,017	-0,242	0,396	0,122	-0,213	0,179	0,211	-0,672	0,050		-0,108	0,239	0,548	-0,474	0,200		-0,027	**1**	0,474	0,605	-0,871	0,361	0,102	-0,262	-0,201	0,229	-0,017	-0,186	0,118	0,204
CRISIS-2: 00	-0,106	0,329	0,145	-0,215	-0,171	0,128	0,134	0,220	0,267	0,128	-0,280	-0,039	-0,055	-0,029	0,120	-0,021	0,202	-0,266		0,137	0,282	-0,281	0,127	0,129		0,217	0,474	**1**	0,651	-0,802	0,183	0,130	-0,184	0,053	0,082	-0,077	-0,412	-0,356	-0,438
CRISIS-3: 08	-0,135	0,209	0,321	-0,265	-0,201	0,138	0,332	0,138	0,258	0,095	-0,183	0,165	0,088	0,087	0,164	0,004	-0,362	-0,716		0,109	0,315	-0,194	0,133	0,068		0,163	0,605	0,651	**1**	-0,855	0,208	0,160	-0,217	-0,210	0,120	0,050	-0,437	-0,140	
CRISIS-4:BT	0,267	-0,140	-0,092	0,242	0,090	-0,088	-0,262	-0,090	-0,247	-0,067	0,281	-0,242	-0,071	0,092	-0,186	-0,102	0,388	0,294		-0,027	-0,322	-0,121	0,157	-0,169		-0,114	-0,871	-0,802	-0,855	**1**	-0,316	-0,149	0,268	0,151	-0,185	0,020	0,378	0,109	0,071
Urban	-0,539	0,004	-0,043	-0,549	0,217	-0,348	0,409	0,241	0,300	0,264	-0,203	0,401	0,131	-0,199	0,495	0,177	-0,284	0,082		0,137	0,401	0,242	-0,181	0,147		0,147	0,361	0,183	0,208	-0,316	**1**	0,390	-0,795	-0,045	0,411	-0,211	-0,177	-0,095	-0,109
Intermediate	-0,371	0,076	-0,049	-0,299	0,133	-0,051	0,254	0,018	0,079	0,116	-0,058	-0,025	-0,060	-0,196	0,136	-0,176	-0,134	-0,051		0,120	0,110	0,054	-0,116	0,108		0,088	0,102	0,130	0,160	-0,149	0,390	**1**	-0,868	-0,124	-0,036	0,092	-0,034	-0,031	-0,109
Rural	0,535	-0,052	0,055	0,492	-0,205	0,221	-0,387	-0,141	-0,214	-0,219	0,147	-0,200	-0,031	0,236	-0,357	0,020	0,241	-0,011		-0,152	-0,289	-0,165	0,174	-0,150		-0,137	-0,262	-0,184	-0,217	0,268	-0,795	-0,868	**1**	0,106	-0,198	0,053	0,117	0,071	0,132
LIS	0,061	-0,090	-0,079	-0,101	-0,184	0,231	-0,146	0,279	0,103	-0,051	-0,140	-0,088	-0,292	-0,117	-0,059	-0,065	0,436	0,142		-0,164	-0,038	-0,220	0,069	0,043		0,143	-0,201	0,053	-0,210	0,151	-0,045	-0,124	0,106	**1**	0,531	-0,873	0,404	0,084	-0,177
NED	-0,118	-0,067	0,031	-0,386	0,119	-0,188	0,082	0,336	0,255	0,200	-0,113	0,419	0,061	0,005	0,344	0,259	-0,094	0,038		-0,128	0,449	0,098	0,047	0,229		0,219	0,229	0,082	0,120	-0,185	0,411	-0,036	-0,198	0,531	**1**	-0,876	0,080	-0,001	-0,139
NIS	0,033	0,089	0,027	0,279	0,037	-0,023	0,036	-0,352	-0,205	-0,086	0,144	-0,191	0,131	0,064	-0,164	-0,112	-0,194	-0,103		0,167	-0,237	0,069	-0,066	-0,156		-0,207	-0,017	-0,077	0,050	0,020	-0,211	0,092	0,053	-0,873	-0,876	**1**	-0,275	-0,047	0,183
Rec_DL	0,016	-0,302	-0,229	-0,012	0,048	0,305	-0,140	-0,085	-0,131	-0,167	0,207	0,137	-0,097	-0,158	-0,184	0,140	0,007	0,343		-0,265	-0,392	0,245	-0,253	0,130		-0,154	-0,186	-0,412	-0,437	0,378	-0,177	-0,034	0,117	0,404	0,080	-0,275	**1**	0,667	0,518
Ret_Tra_4	-0,012	-0,361	-0,173	0,080	-0,002	0,252	0,031	-0,244	-0,095	-0,217	0,292	0,309	-0,041	-0,230	-0,097	0,166	-0,409	0,202		-0,275	-0,338	0,471	-0,423	0,076		-0,213	0,118	-0,356	-0,140	0,109	-0,095	-0,031	0,071	0,084	-0,001	-0,047	0,667	**1**	0,843
Ret_Tra_8	-0,021	-0,262	-0,127	0,054	0,019	0,294	0,101	-0,322	-0,124	-0,217	0,317	0,286	0,065	-0,223	-0,164	0,253	-0,581	0,448		-0,278	-0,338	0,586	-0,502	0,120		-0,337	0,204	-0,438		0,071	-0,109	-0,109	0,132	-0,177	-0,139	0,183	0,518	0,843	**1**

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
Spain - Recovery of development level

Summary of the variables selection Rec_DL:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R²	Adjusted R²	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	CRISIS	CRISIS	IN	0,020	0,234	0,204	54,788	-307,553	-298,025	0,847
2	CRISIS / Shock	Shock	IN	0,016	0,421	0,382	27,812	-325,963	-311,671	0,673
3	Const_EMP / CRISIS / Shock	Const_EMP	IN	0,014	0,483	0,441	19,499	-333,074	-316,400	0,616
4	Const_EMP / PROD / CRISIS / Shock	PROD	IN	0,014	0,518	0,471	15,845	-336,547	-317,491	0,590
5	Pop_work / Const_EMP / PROD / CRISIS / Shock	Pop_work	IN	0,013	0,553	0,503	11,981	-340,649	-319,211	0,560

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
Spain - Recovery of development level

Goodness of fit statistics (Rec_DL):

Observations	80
Sum of weights	80
DF	71
R²	0,553
Adjusted R²	0,503
MSE	0,013
RMSE	0,113
MAPE	191,360
DW	1,946
Cp	11,981
AIC	-340,649
SBC	-319,211
PC	0,560
Press	1,239
Q²	0,387

Analysis of variance (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	8	1,118	0,140	10,982	**<0,0001**
Error	71	0,904	0,013		
Corrected	79	2,022			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
Spain - Recovery of development level

Type I Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,106	0,106	8,301	0,005
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	1,000	0,293	0,293	23,015	0,000
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,122	0,122	9,575	0,003
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	3,000	0,444	0,148	11,620	0,000
Clu	0,000	0,000			
CRISIS	2,000	0,154	0,077	6,051	0,004
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type II Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,072	0,072	5,627	0,020
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	1,000	0,137	0,137	10,789	0,002
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,113	0,113	8,909	0,004
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	3,000	0,330	0,110	8,632	0,000
Clu	0,000	0,000			
CRISIS	2,000	0,154	0,077	6,051	0,004
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type III Sum of Squares analysis (Rec_DL):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	1,000	0,072	0,072	5,627	0,020
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	1,000	0,137	0,137	10,789	0,002
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	0,000	0,000			
PROD	1,000	0,113	0,113	8,909	0,004
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	3,000	0,330	0,110	8,632	0,000
Clu	0,000	0,000			
CRISIS	2,000	0,154	0,077	6,051	0,004
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
Spain - Recovery of development level

Model parameters (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	0,258	0,195	1,325	0,189	-0,130	0,646
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	-1,037	0,415	-2,498	**0,015**	-1,865	-0,210
Agri_EMP	0,000	0,000				
Manu_EMP	0,000	0,000				
Const_EMP	1,198	0,382	3,136	**0,002**	0,436	1,960
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,106	0,038	2,768	**0,007**	0,030	0,182
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
CRISIS-1: 9(	0,005	0,027	0,185	0,854	-0,048	0,058
CRISIS-2: 0(	-0,099	0,053	-1,860	0,067	-0,206	0,007
CRISIS-3: 0(	-0,052	0,057	-0,914	0,364	-0,165	0,061
CRISIS-4:B′	0,146	0,028	5,184	**<0,0001**	0,090	0,203
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,080	0,032	2,515	**0,014**	0,017	0,144
NED	-0,032	0,027	-1,173	0,245	-0,085	0,022
NIS	-0,048	0,018	-2,692	**0,009**	-0,084	-0,013

Standardized coefficients (Rec_DL):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	-0,250	0,100	-2,498	**0,015**	-0,450	-0,051
Agri_EMP	0,000	0,000				
Manu_EMP	0,000	0,000				
Const_EMP	0,333	0,106	3,136	**0,002**	0,121	0,545
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,000	0,000				
PROD	0,324	0,117	2,768	**0,007**	0,091	0,557
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
CRISIS-1: 9(	0,000	0,000			0,000	0,000
CRISIS-2: 0(	0,000	0,000			0,000	0,000
CRISIS-3: 0(	0,000	0,000			0,000	0,000
CRISIS-4:B′	0,000	0,000				
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000			0,000	0,000
NED	0,000	0,000			0,000	0,000
NIS	0,000	0,000				

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
Spain - Growth trajectory retention (4 year recovery period)

Summary of the variables selection Ret_Tra_4:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R^2	Adjusted R^2	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
1	ML_barg	ML_barg	IN	0,001	0,222	0,212	83,231	-548,969	-544,205	0,818
2	Const_EMP / ML_barg	Const_EMI	IN	0,001	0,336	0,318	61,943	-559,619	-552,473	0,716
3	Mig_net / Const_EMP / ML_barg	Mig_net	IN	0,001	0,415	0,392	47,792	-567,737	-558,209	0,647
4	Mig_net / Const_EMP / GFCF_PC / ML_barg	GFCF_PC	IN	0,001	0,478	0,450	36,819	-574,907	-562,997	0,592
5	Mig_net / Const_EMP / GFCF_PC / RnD_EMP / ML_barg	RnD_EMP	IN	0,001	0,512	0,479	31,936	-578,236	-563,944	0,568

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
Spain - Growth trajectory retention (4 year recovery period)

Goodness of fit statistics (Ret_Tra_4):

Observations	80
Sum of weights	80
DF	74
R^2	0,512
Adjusted R^2	0,479
MSE	0,001
RMSE	0,026
MAPE	151,461
DW	1,530
Cp	31,936
AIC	-578,236
SBC	-563,944
PC	0,568
Press	0,062
Q^2	0,394

Analysis of variance (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	5	0,052	0,010	15,506	**<0,0001**
Error	74	0,050	0,001		
Corrected '	79	0,102			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
Spain - Growth trajectory retention (4 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	1,000	0,013	0,013	19,795	0,000
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	1,000	0,013	0,013	19,055	0,000
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	1,000	0,011	0,011	16,270	0,000
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	1,000	0,010	0,010	14,526	0,000
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,005	0,005	7,885	0,006
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type II Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	1,000	0,013	0,013	19,381	0,000
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	1,000	0,008	0,008	12,114	0,001
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	1,000	0,010	0,010	14,257	0,000
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	1,000	0,003	0,003	5,097	0,027
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,005	0,005	7,885	0,006
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type III Sum of Squares analysis (Ret_Tra_4):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	1,000	0,013	0,013	19,381	0,000
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	1,000	0,008	0,008	12,114	0,001
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	0,000	0,000			
GFCF_PC	1,000	0,010	0,010	14,257	0,000
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	1,000	0,003	0,003	5,097	0,027
MM_Ac	0,000	0,000			
Avg_bus	0,000	0,000			
Gov_debt	0,000	0,000			
Cur_blc	0,000	0,000			
Gov_close	0,000	0,000			
Lab_comp	0,000	0,000			
Union	1,000	0,005	0,005	7,885	0,006
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	0,000	0,000			
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
Spain - Growth trajectory retention (4 year recovery period)

Model parameters (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,274	0,126	-2,181	**0,032**	-0,524	-0,024
Pop_age	0,000	0,000				
Mig_net	-0,002	0,000	-3,615	**0,001**	-0,003	-0,001
Pop_work	0,000	0,000				
Agri_EMP	0,000	0,000				
Manu_EMP	0,000	0,000				
Const_EMP	0,248	0,041	6,118	**<0,0001**	0,167	0,329
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,029	0,008	3,590	**0,001**	0,013	0,045
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	-0,024	0,011	-2,251	**0,027**	-0,045	-0,003
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,108	0,042	2,544	**0,013**	0,023	0,192
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
CRISIS-1: 9(	0,000	0,000				
CRISIS-2: 0(	0,000	0,000				
CRISIS-3: 0(	0,000	0,000				
CRISIS-4:B′	0,000	0,000				
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Ret_Tra_4):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	-0,409	0,113	-3,615	**0,001**	-0,634	-0,183
Pop_work	0,000	0,000				
Agri_EMP	0,000	0,000				
Manu_EMP	0,000	0,000				
Const_EMP	0,307	0,050	6,118	**<0,0001**	0,207	0,406
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	0,000	0,000				
GFCF_PC	0,364	0,101	3,590	**0,001**	0,162	0,566
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	-0,217	0,096	-2,251	**0,027**	-0,409	-0,025
MM_Ac	0,000	0,000				
Avg_bus	0,000	0,000				
Gov_debt	0,000	0,000				
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000				
Union	0,000	0,000				
ML_barg	0,000	0,000			0,000	0,000
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
CRISIS-1: 9(	0,000	0,000				
CRISIS-2: 0(	0,000	0,000				
CRISIS-3: 0(	0,000	0,000				
CRISIS-4:B′	0,000	0,000				
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
Spain - Growth trajectory retention (8 year recovery period)

Summary of the variables selection Ret_Tra_8:

Nbr. of variables	Variables	Variable IN/OUT	Status	MSE	R²	Adjusted R²	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya' s PC
1	CRISIS	CRISIS	IN	0,001	0,412	0,395	57,969	-548,864	-541,952	0,638
2	Const_EMP / CRISIS	Const_EMP	IN	0,000	0,525	0,504	35,831	-562,605	-553,389	0,530
3	Const_EMP / Gov_debt / CRISIS	Gov_debt	IN	0,000	0,607	0,584	20,195	-574,678	-563,158	0,450
4	Const_EMP / Gov_debt / Lab_comp / CRISIS	Lab_comp	IN	0,000	0,632	0,605	16,875	-577,509	-563,685	0,433
5	Const_EMP / Avg_bus / Gov_debt / Lab_comp / CRISIS	Avg_bus	IN	0,000	0,659	0,628	13,040	-581,196	-565,068	0,412
6	Const_EMP / GDP_PC / Avg_bus / Gov_debt / Lab_comp / CRISIS	GDP_PC	IN	0,000	0,683	0,649	9,955	-584,536	-566,104	0,394

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
Spain - Growth trajectory retention (8 year recovery period)

Goodness of fit statistics (Ret_Tra_8):

Observations	74
Sum of weights	74
DF	66
R²	0,683
Adjusted R²	0,649
MSE	0,000
RMSE	0,018
MAPE	224,225
DW	1,990
Cp	9,955
AIC	-584,536
SBC	-566,104
PC	0,394
Press	0,029
Q²	0,578

Analysis of variance (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	7	0,048	0,007	20,286	**<0,0001**
Error	66	0,022	0,000		
Corrected	73	0,070			

Computed against model Y=Mean(Y)

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
Spain - Growth trajectory retention (8 year recovery period)

Type I Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	1,000	0,006	0,006	17,963	0,000
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	1,000	0,002	0,002	4,517	0,037
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	1,000	0,013	0,013	39,266	0,000
Gov_debt	1,000	0,015	0,015	46,145	0,000
Cur_blc	0,000	0,000			
Gov_close	1,000	0,003	0,003	7,913	0,006
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	2,000	0,009	0,004	13,098	0,000
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type II Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	1,000	0,006	0,006	18,751	0,000
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	1,000	0,002	0,002	4,939	0,030
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	1,000	0,004	0,004	10,579	0,002
Gov_debt	1,000	0,007	0,007	19,731	0,000
Cur_blc	0,000	0,000			
Gov_close	1,000	0,002	0,002	7,123	0,010
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	2,000	0,009	0,004	13,098	0,000
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Type III Sum of Squares analysis (Ret_Tra_8):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Pop_age	0,000	0,000			
Mig_net	0,000	0,000			
Pop_work	0,000	0,000			
Agri_EMP	0,000	0,000			
Manu_EMP	0,000	0,000			
Const_EMP	1,000	0,006	0,006	18,751	0,000
Serv_EMP	0,000	0,000			
Pub_EMP	0,000	0,000			
HHI	0,000	0,000			
GDP_PC	1,000	0,002	0,002	4,939	0,030
GFCF_PC	0,000	0,000			
PROD	0,000	0,000			
RnD_GDP	0,000	0,000			
RnD_EMP	0,000	0,000			
MM_Ac	0,000	0,000			
Avg_bus	1,000	0,004	0,004	10,579	0,002
Gov_debt	1,000	0,007	0,007	19,731	0,000
Cur_blc	0,000	0,000			
Gov_close	1,000	0,002	0,002	7,123	0,010
Lab_comp	0,000	0,000			
Union	0,000	0,000			
ML_barg	0,000	0,000			
SHDI	0,000	0,000			
SC_Org	0,000	0,000			
EoC	2,000	0,009	0,004	13,098	0,000
Clu	0,000	0,000			
CRISIS	0,000	0,000			
Urb_1	0,000	0,000	0,000	**<0,0001**	0,000
Shock	0,000	0,000	0,000	**<0,0001**	0,000

Stepwise analysis of covariance on regional Employment resilience performance for selected countries
Spain - Growth trajectory retention (8 year recovery period)

Model parameters (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-0,179	0,039	-4,598	**<0,0001**	-0,257	-0,101
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_EMP	0,000	0,000				
Manu_EMP	0,000	0,000				
Const_EMP	0,233	0,052	4,462	**<0,0001**	0,129	0,337
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	-0,021	0,010	-2,147	**0,035**	-0,041	-0,001
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,025	0,009	2,854	**0,006**	0,007	0,042
Gov_debt	-0,019	0,004	-4,401	**<0,0001**	-0,028	-0,011
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000	-2,677	**0,009**	0,000	0,000
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
CRISIS-1: 9(	-0,028	0,010	-2,834	**0,006**	-0,048	-0,008
CRISIS-2: 0(	-0,001	0,012	-0,116	0,908	-0,026	0,023
CRISIS-3: 0(	0,000	0,000				
CRISIS-4:B'	0,015	0,003	5,059	**<0,0001**	0,009	0,021
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Standardized coefficients (Ret_Tra_8):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Pop_age	0,000	0,000				
Mig_net	0,000	0,000				
Pop_work	0,000	0,000				
Agri_EMP	0,000	0,000				
Manu_EMP	0,000	0,000				
Const_EMP	0,335	0,075	4,462	**<0,0001**	0,185	0,485
Serv_EMP	0,000	0,000				
Pub_EMP	0,000	0,000				
HHI	0,000	0,000				
GDP_PC	-0,230	0,107	-2,147	**0,035**	-0,445	-0,016
GFCF_PC	0,000	0,000				
PROD	0,000	0,000				
RnD_GDP	0,000	0,000				
RnD_EMP	0,000	0,000				
MM_Ac	0,000	0,000				
Avg_bus	0,335	0,117	2,854	**0,006**	0,101	0,569
Gov_debt	-0,907	0,206	-4,401	**<0,0001**	-1,318	-0,495
Cur_blc	0,000	0,000				
Gov_close	0,000	0,000				
Lab_comp	0,000	0,000			0,000	0,000
Union	0,000	0,000				
ML_barg	0,000	0,000				
SHDI	0,000	0,000				
SC_Org	0,000	0,000				
EoC	0,000	0,000				
Clu	0,000	0,000				
CRISIS-1: 9(	0,000	0,000			0,000	0,000
CRISIS-2: 0(	0,000	0,000			0,000	0,000
CRISIS-3: 0(	0,000	0,000				
CRISIS-4:B'	0,000	0,000				
Urban	0,000	0,000				
Intermediate	0,000	0,000				
Rural	0,000	0,000				
LIS	0,000	0,000				
NED	0,000	0,000				
NIS	0,000	0,000				

Andreas Hummler

Regional Economic Resilience in Europe: 1988-2018

Résumé

L'analyse de la performance de la résilience économique régionale en réponse aux chocs économiques est au cœur de cette analyse. Après une discussion sur le concept de résilience, une nouvelle méthodologie pour mesurer la résilience économique régionale est proposée. Cette approche est basée sur deux dimensions : le rétablissement du niveau de développement et le maintien de la trajectoire de croissance post-choc. Cette méthodologie est utilisée dans une analyse des régions des pays de l'UE15 allant de 1988 à 2018. Les mesures obtenues sont ensuite utilisées dans une analyse quantitative exploratoire de diverses approches et hypothèses sur les facteurs explicatifs de la performance de résilience régionale. Les résultats de l'analyse sont ensuite placés dans le contexte de la discussion théorique. Des conclusions sont ainsi tirées en ce qui concerne les recherches futures, la valeur des différentes approches de la résilience et les implications politiques potentielles.

Résumé en anglais

At the core of this investigation is the analysis of regional economic resilience performance in response to economic shocks. Following a discussion on the origins and theory behind the concept of economic resilience, a novel methodology to measure regional economic resilience is proposed. This approach is based on two dimensions: the recovery of the development level and the retention of the post-shock growth trajectory. This methodology is used in a large-N analysis of the NUTS 3 regions in the EU15 countries for a timeseries from 1988-2018. The resulting measurements are subsequently used in an explorative quantitative analysis of diverse approaches and hypotheses on the explanatory factors of regional resilience performance. The results of this investigation are then put into the context of the theoretical discussion. Thereby conclusions are drawn with regards to future research, the value of different approaches to resilience, and potential policy implications.