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Structural Change and Macroeconomic Policies in Developing Countries

Jala Emad Youssef Erian

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UNIVERSITÉ PARIS 1 PANTHÉON-SORBONNE

Institut d'études du développement de la Sorbonne (IEDES)

UMR Développement et Sociétés

École doctorale d'économie

Thèse pour l'obtention du titre de Docteur en Sciences Économiques

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**Le changement structurel et les politiques macroéconomiques dans les
pays en voie de développement**

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PhD Thesis for the Degree of Doctor of Philosophy in Economics

Prepared and publicly defended on December 15, 2023 by

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Structural Change and Macroeconomic Policies in Developing Countries

Jala Emad Youssef

Abstract

Structural change takes place when resources flow to activities operating at higher productivity levels. However, successful structural change has not been universal in all developing countries, and it remains confined to some countries (mainly in Asia). To that effect, the main objective of this thesis is to study the policy drivers of structural change and resource allocation in developing countries. Two kinds of policies are identified as promoting the movement of resources towards the most productive sectors, namely macroeconomic policies and structural policies. On a related note, many developing countries resorted to the International Monetary Fund (IMF) in several incidents of their development trajectory. This IMF lending affect their choice of policies and thereby their structural change path. In this respect, the thesis consists of three interrelated empirical chapters based on cross-country analysis. This first chapter examines the policy determinants (structural policies and macroeconomic stabilization ones) of structural change using the Arellano Bond and the pooled mean group estimators. The second chapter studies the role of macroeconomic conditions in promoting the within-sector structural change using the fixed effects model, the multilevel mixed effects model and the two-stage least squares estimator. The third chapter analyzes the economic and political determinants of IMF loans and their impact on economic growth using the Heckman two-stage selection procedure and the local projection method. The main findings show that most structural policies enhance structural change over the long run. Furthermore, countercyclical macroeconomic policies and a competitive exchange rate enhance structural change. Finally, most IMF loans exert a negative effect on the trend component of GDP, confirming that such loans can stabilize the economies in the short term without improving the long run steady growth.

Keywords: Structural Change, Macroeconomic Policies, Structural Policies, Developing Countries, Resource Allocation.

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General Introduction

“It is impossible to attain high rates of growth of per capita or per worker product without commensurate substantial shifts in the shares of various sectors” (Kuznets, 1979).

The shift in sectors shares that Kuznets refers to is known as structural change. Since the work of Lewis (1954) and Kuznets (1955), it is widely agreed that structural change is a key element of economic development and social prosperity. Structural change tends to occur when resources shift from traditional and typically low productive activities to modern and more productive ones. In fact, accumulation and productivity growth usually take place in modern sectors and hence, economy wide growth largely depends on resources reallocation from traditional to modern sectors (McMillan et al., 2016). When labor and other resources move to the more productive sectors, the economy can grow even if there is no productivity growth within sectors. This kind of structural change enhancing growth is an important contributor to economic growth (McMillan et al., 2014). On a more disaggregated front, structural change can also take place within the sectors and this involves a reallocation of resources between the firms (Szirmai & Foster-Mcgregor, 2021). The literature usually relies on aggregate sectoral shifts to capture structural change trends. Yet, the availability of rich datasets on the firm level allows having a closer understanding on how this process takes place.

Successful structural change has not been universal in all developing countries, and it remains confined to some countries (mainly in Asia). This can partially explain some developing countries prolonged periods of low economic growth (Diao et al., 2017). In fact, structural change is important for developing countries since productivity differentials between the sectors are particularly pronounced relative to developed countries and this undermines their development trajectory. With the development progress, this structural heterogeneity between the sectors tends to decrease and productivity levels tend to converge (Monga & Lin, 2019; UNCTAD, 2017). In this context, it is important to identify the policy drivers of successful structural change in developing countries.¹

An important stylized fact that motivates this thesis relates to the persistence of inequality patterns in the world economy along with a divergence of income between developed and developing countries (Monga & Lin, 2019; Ocampo, 2020). According to Ocampo (2020), these divergences are due to several international asymmetries including among others: (i) the different levels of domestic financial development and the extent of stability of the exter-

¹Throughout this thesis, developing countries are particularly defined according to income: low and middle income countries (according to the World Bank income classification).

nal financing; (ii) the macroeconomic asymmetries which determine countries capability to undertake countercyclical policies (and developing countries tendencies to adopt procyclical policies due to, among others, the dependence on volatile external financing); and (iii) the high costs of entry to the productive and technologically dynamic activities.

In this respect, countries positions in the world hierarchy affect their access to economic opportunities. Accordingly, economic development would rely on implementing a structural transformation process and undertaking the suitable macroeconomic policies to foster this transformation process, all while considering the limitations imposed by the country's position in the world hierarchy. Indeed, the episodes of development convergence have been usually associated with the reallocation of labor from the least productive sectors to the most productive ones (Ocampo, 2020).

The efficiency of the production structure and the structural change requires appropriate macroeconomic policies. The choice of policies that would drive the structural change process in developing countries is a heated debate in both the literature and policy making. With most of the existing literature focusing on developed countries, there is still no consensus on underlying supportive policies for structural change in developing countries.

This thesis identifies two types of policies which can promote the movement of resources from low to high productive sectors. The first group of policies that this thesis considers as a driver of structural change is the macroeconomic policies (fiscal, monetary and exchange rate policies). These policies could act as an institutional foundation for structural change. For instance, they should provide pro-investment and pro-employment creation macroeconomic conditions which would thereby facilitate structural change since labor movement to productive sectors depend on investment decisions (Nissanke, 2019). Indeed, the position of macroeconomic policies in development is a debatable issue. The conventional views about macroeconomic policies suggest that they should be exclusively concerned with stabilization objectives. In contrast, other views suggest that these policies can ensure sound macroeconomic fundamentals while also being concerned with development objectives including the process of structural change.

Macroeconomic policies can promote structural change if they ensure macroeconomic stability while coming up with policy space for countercyclical policies (Aghion et al., 2014; Ocampo, 2011). For instance, structural change depends on firms' capacity in investing in innovative and growth enhancing activities and these latter depend on firms' access to finance.

In this respect, countercyclical policies would reduce aggregate volatility and make developing countries less vulnerable to exogenous shocks, and this would accordingly allow firms to preserve their productive and innovative investments over the business cycle (Aghion et al., 2014; Aghion & Marinescu, 2007). Furthermore, the exchange rate policy is also crucial for the structural change process. In fact, the exchange rate policy could be perceived as a tool of industrial policy (Guzman et al., 2018). Indeed, maintaining a competitive and stable exchange rate is a proactive policy to diversify the production sector. This relates to the externalities generated by the development of tradable sectors which would thereby enhance exports diversification, employment creation and structural change. Furthermore, a competitive exchange rate would help avoiding macroeconomic instability related to the terms of trade fluctuations and capital account volatility and this is indeed crucial for the structural change process in developing (Ocampo, 2020). Finally, it is also important to mention that not only the proactive macroeconomic policies pursued by the governments (such as fiscal, monetary and exchange rate policies) can affect the structural change, but also the business cycle. For instance, the business cycle fluctuations can also affect productivity enhancing reallocation. The literature suggests that downturns can still be productivity enhancing and this is known as the cleansing effect of the recession.

The thesis also studies the impact of a second group of policies on structural change, the structural policies. Following Kouamé and Tapsoba (2019), structural policies could be defined as: “Government policies aiming to address market failures and to reduce or remove impediments to the efficient allocation of resources”. Structural rigidities preventing resources allocation within and across the sectors can explain the persistent inter-sectoral productivity gaps across and within countries (Konté et al., 2022). Therefore, structural policies are supposed to improve inter and intra sectoral allocative efficiency by eliminating market rigidities, correcting market failures, and removing the impediments to the efficient allocation of resources (Gersbach, 2004; Kouamé & Tapsoba, 2019; Pichelmann & Roeger, 2004; Solow, 2004).

To that effect, the thesis considers the impact of several structural policies on structural change, including competition, trade, finance, labor and macroeconomic institutions. First, competition enhances the reallocation process by removing barriers to entry and exit and supporting the creation of new enterprises. In fact, misallocation of resources can arise from structural rigidities preventing an efficient allocation of resources. Frictions driving cross-country differences in allocative efficiency include among others, barriers to entry, market power and monopoly power. The enforcement of a competition policy is supposed to increase

competition in markets, deter anticompetitive practices, reduce markups, and thereby generate allocative, dynamic, and productive efficiency (Konté et al., 2022). Second, trade is an important determinant of structural change in both the theoretical and the empirical literature. Trade liberalization is expected to lead to a reallocation of resources since resources would move to the sectors where a country has a comparative advantage (Szirmai & Foster-Mcgregor, 2021). Third, financial policy affects the process of reallocation of resources as follows. Firms access to finance determines their expansion decision and thereby this would determine the possibility of hiring new workers. This suggests that credit allocation across firms and sectors will determine how much structural change can occur and how much resulting growth the economy can benefit from (Kharroubi & Silva, 2019). Fourth, regarding labor policy, structural change indeed requires well-functioning labor markets. Labor regulations are not supposed to protect jobs in existing industries but rather to protect employment and encourage labor mobility. Finally, macroeconomic institutions (like fiscal rules, inflation targeting and central bank transparency) are important for structural change since they endorse macroeconomic stability and also improve the implementation of other structural policies.

While studying the policy drivers of structural change, the issue of industrial policies and more broadly the state and interventionist policies cannot be ignored. The role of industrial policies has been a debatable issue in both the academic literature as well as the policy literature. Proponents of industrial policy would argue that targeted government interventions can help directing economic activities away from commodity dependence (Vrolijk, 2021). In this respect, some views suggest that several East Asian countries witnessed successful structural change experiences while adopting interventionist approaches including trade and industrial policies to coordinate private investments in targeted sectors. In contrast, industrial policy opponents would argue that it would distort markets and harm economic growth. Two phases related to the development of industrial policies in the world economy can be distinguished as follows. The first phase related to the development of industrial policies took place in the 1960s and 1970s. In this phase, industrial policies gained relative popularity and import substitution industrialization policies were undertaken to promote certain industries through tariffs and subsidies. Some views can argue that these policies did not implement linkages with foreign markets, did not account for the comparative advantages of economies and thereby did not succeed to foster industrial development (Higuchi & Shimada, 2019). The second phase related to the development of industrial policies took place since the 1980s. In this phase, the world economy shifted away from interventionist industrial policies and new policies started emerging. In contrast with older policies, the new

policies involved less state direct intervention and did not view a scope for active policies in supporting specific sectors. These new policies acknowledged market forces and their role in driving reallocation, countries' specialization and more broadly industrial development, all in line with comparative advantages (Rodrik, 2005; Szirmai & Foster-Mcgregor, 2021).

While acknowledging that these interventionist policies can have important linkages with structural change, it is also important to recognize the practical challenges to analyze them. Indeed, interventionist policies are very difficult to define, to quantify and to assess, especially in a context of cross-country analysis and this explains the scarce empirical literature in this regard. This is why this thesis considers a specific type of structural policies as previously explained due to data availability constraints. Furthermore, the thesis time coverage corroborates with the second phase of the policies development where less state interventionist policies gained more popularity. The thesis also tries to shed the light on interventionist policies in Chapter 1 using a novel database on public development banks as well as another database on exports promotion agencies. Although both can be considered as indirect proxies, they still provide a useful quantification in the context of cross-countries literature. Ocampo (2020) particularly advocates for public development banks being a mechanism that can finance innovative activities and thereby promote industrialization.

Within the context of the discussion on the linkages between structural change and macroeconomic policies, it is also important to highlight that many developing countries heavily resorted to the International Monetary Fund (IMF) in several incidents of their development trajectory. Indeed, development progress is not solely determined by the international financial institutions adjustment programs. However, developing countries reliance on the latter institutions lending should have had an impact on their choice of policies and thereby affected their structural change path. Accordingly, with this lens of structural change and resource allocation, the thesis would tackle the impact of the IMF loans on economic growth. For instance, it is important to analyze the extent to which the IMF reform programs are concerned with structural and allocation issues in developing countries, or they rather exclusively focus on adjusting short term macroeconomic imbalances. Ideally, structural adjustment programs should be aiming at a better allocation of resources. In practice, macroeconomic management in developing countries is challenging since their structural characteristics can make them face a trade-off between macroeconomic stabilization and development objectives related to the allocation of resources and broader structural problems. In the 1980s and 1990s, it seems that economic management was rather dominated by the objective restoring macroeconomic stability and correcting macroeconomic

imbalances. Short-run macroeconomic stabilization policies recommended by the IMF in their adjustment programs were largely implemented leaving little room for other essential structural policies (Nissanke, 2019). This suggests that structural reforms were relatively delayed which resulted in lack of markets contestability, lack of equal jobs and severe inequalities.

• The Thesis Objective and Value Added

Against this background, the main objective of this thesis is to study the drivers of structural change and resources allocation in developing countries, including macroeconomic stabilization policies and structural policies. Three interrelated empirical pieces of assessment are offered, and they are based on cross-country analysis. The chapters complement each other in terms of their focus on different types of policies, their different ways in measuring structural change (from an aggregate perspective versus a disaggregated perspective) and the different disaggregation levels of the data used (macro, sectoral and firm level data). The first chapter provides a comprehensive overview on the impact of the different policies (macroeconomic versus structural policies) on the structural change on the country level (from an aggregate perspective). The second chapter focuses particularly on the macroeconomic policies and studies their role in promoting the structural change on the sectoral level (from an disaggregate perspective). The third chapter analyzes the impact of the IMF loans on economic growth. Indeed, the IMF loans affect developing countries choice of policies and thereby their structural change path. The remaining of this introduction section describes each chapter main objective, the cross cutting contributions of the thesis and an overview on the main findings.

The first chapter analyzes the policy determinants of structural change in developing countries. The chapter makes several contributions to the literature. First, it investigates the role of both structural and macroeconomic stabilization policies in driving structural change. It provides accordingly a comprehensive overview on the different policies impact since most previous empirical work has addressed the role of these policies separately. Second, the chapter proposes a large set of novel measurements to capture the policies that are likely to influence structural change. These measurements relate to structural policies (anti-monopoly policy, financial policy, labor policy, trade policy and macroeconomic institutions) and macroeconomic policies (exchange rate management, fiscal and monetary policies). Finally, the empirical work relies on two different estimators as follows. The Arellano Bond estimator introduces a dynamic effect and controls for potential endogeneity. In addition, the

pooled mean group estimator (PMG) helps distinguishing between the short and long run impacts of the policies on structural change within the same estimation framework and accounts for the cross-country heterogeneity. The chapter uses different measures of structural change on the country level (the term resulting from the productivity growth decomposition, value-added shares by sector and an export concentration index).

The second chapter explores the role of macroeconomic conditions - fiscal, monetary and exchange rate policies as well as business cycle fluctuations – in promoting sectoral structural change in developing countries. The chapter contributes to the literature that uses growth-accounting techniques at the firm level while applying them on macroeconomic questions as follows. First, the chapter relies on the World Bank Enterprise Surveys (WBES) firm level data in order to compute the structural change on the sectoral level in a large group of developing countries. Second, the chapter investigates the role of different macroeconomic conditions in driving the within-sector structural change. It thus includes data at two levels: the macroeconomic conditions at the country level and the structural change at the sector level. The fiscal, monetary, and exchange rate policies are accounted for in different ways: tools (decided by policy makers to achieve certain policy objectives) and outcomes (consequences of the tools and giving an indication on macroeconomic performance). Furthermore, the chapter computes some macroeconomic indicators (real exchange rate, business cycle fluctuations, fiscal and monetary policies cyclical measures) at the sector-level using among others input output tables from the EORA database as well as sectoral trade flows data. Finally, the empirical work relies on a fixed effects model with clustered standard errors to merge sector-level data with macro data as well as two alternative methods for robustness checks which are the multilevel mixed effects model and an instrumental variable approach.

The third chapter analyzes the economic and political determinants of IMF loans in developing countries and the impact of these loans on economic growth. Compared to the existing literature, the main contribution of the chapter is threefold. First, the chapter relies on the IMF Monitoring of Fund Agreements (MONA) database along with international political economy factors to analyze IMF lending determinants through a Heckman two-stage selection procedure. Second, the predicted values of the determinants of IMF lending are used as instruments to explain the consequences of this lending on economic growth. This helps considering several issues that arise in the literature on the consequences of IMF programs including the endogeneity treatment and the selection problem. The chapter also investigates how the domestic political regime of the recipient country would affect the outcomes of these loans. Third, the chapter studies the dynamic effects of IMF loans on economic

growth using the local projection method.

Some cross cutting contributions of this thesis are important to highlight. First, the thesis offers three interrelated empirical chapters. The chapters rely on various empirical methodologies that suit both the chapters objectives as well as their data structure. These methodologies include: the dynamic panel Arellano Bond, the dynamic heterogeneous panel, the fixed effects with clustered standard errors, the multilevel mixed effects model, the two-stage least squares (2SLS) regression, the Heckman selection procedure, and the local projection technique. Second, relative to the existing literature, this thesis tries to provide a comprehensive cross-country analysis in terms of the large number of low and middle income countries included in the analysis of each chapter (to the extent allowed by the data availability of course). Indeed, a limitation of this cross-country approach is that it does not allow analyzing the rich national contexts and their respective particularities. The thesis focuses on the 1990s till most recent since this period allows having the largest sample of developing countries. Furthermore, developing countries undertook important policy reforms in this period and they were affected by globalization and became more integrated to the world. Hence, it is important to study the implications of this context on economic transformation.

Another cross cutting contribution of this thesis relates to the measurements of structural change and policies. Structural change is measured in this thesis in different ways from a production structure perspective. Other definitions of structural change, which do not relate to the production structure, go beyond the scope of this thesis and could be perhaps areas for future research.² Two groups of structural change measures that relate to the production structure are accordingly considered. The first group of structural change measures that this thesis accounts for are the ones on the country level from an aggregate perspective. In this respect, the measures considered are the commonly used ones in the literature: the sectoral value added shares and the term resulting from a country productivity growth decomposition using sector level data (following McMillan and Rodrik (2011) and McMillan et al. (2014) seminal work). Furthermore, given that the structural change relates to the production structure of the economy, this in turn gets reflected on the exports structure. For instance, mature industrialized economies usually produce diversified goods and services

²Martins (2019) mentioned other broader definitions for structural change which go beyond changes in economic structures including changes in other aspects of the society: spatial reorganization of the population, demographic change and urbanization (see for example Gollin et al. (2016) who study the linkages between urbanization and industrialization. They show that in the case of resource dependent countries, urbanization tends to be concentrated in consumption cities where the economies consist primarily of non-tradable services. In contrast, production cities are more dependent on manufacturing in industrialized countries.

whereas developing countries exports structure is usually limited (UNCTAD, 2017). This is also consistent with the work of (Imbs & Wacziarg, 2003). This is why structural change is also measured in this thesis as export concentration following Rougier (2016). It is important to clarify that the literature usually relies on these aggregate measures to capture structural change trends. Yet, the availability of rich datasets on the firm level allows having a closer understanding on how the structural change process takes place. This is why this thesis considers measuring structural change from a disaggregated perspective using the term resulting from a sector productivity decomposition using firm level data (following Olley and Pakes (1996) methodology). As per the policies data, macroeconomic stabilization policies are usually straightforward to quantify relative to structural policies, in terms of both the policies themselves and their subsequent outcomes. In contrast, structural policies are more difficult to assess and to measure, especially in the case of developing countries. Reflecting on these data limitations, the thesis proposes a large set of novel measurements from different sources to capture structural policies covering several areas (antimonopoly policy, financial policy, labor policy, trade policy and macroeconomic institutions). Reflecting on all these structural change and policies measurements, it is important to mention that this thesis combines data on different levels in the different chapters: the macro/country level (policies and IMF lending data); the sectoral level (employment, value added, and tariffs data); and the firm level data (in the second chapter).

• An Overview on the Thesis Main Findings

In terms of findings, the first chapter (which analyzes the policy determinants of structural change) empirical findings show that competition laws and countercyclical fiscal policies matter for the structural change term. Furthermore, the other measures of structural change (value added and employment shares; exports concentration) results indicate deindustrialization trends since structural policies tended to increase the share of services in value added whereas a similar effect on manufacturing could not be found and they highlight the importance of countercyclical policies and undervalued currencies. Finally, the pooled mean group (PMG) results show that structural policies improve structural change over the long run, yet their effect is mostly insignificant over the short run. This is in line with the literature on structural policies suggesting that they usually take time to materialize and their impact over the short run is rather inconclusive.

The main takeaway from the first chapter findings is that a reasonable policy mix of structural and macroeconomic policies is needed to navigate a development path towards

structural change. Despite being costly on the short run, structural policies can help developing countries achieve an efficient allocation of resources. These results confirm that structural policies are essential, and that macroeconomic stability is necessary but not sufficient to drive structural change in developing countries. Developing countries can consider a developmental approach of macroeconomic policies through countercyclical policies.

The thesis also offers an overview on the overall trends of structural change trends in developing countries. Structural change pace seems broadly modest in developing countries but differs across regions. The aggregate measures show that the within-sector productivity improvements have been the main driver of productivity growth in only two regions, East Asia and Sub-Saharan Africa. Furthermore, structural change has been growth reducing in the Middle East and North Africa (MENA) and Latin America. The disaggregated measure also confirms the same patterns of the limited structural change contribution to productivity relative to the within component across the different sectors. This could be explained by developing countries specialization in traditional sectors away from the most productive which hamper the efficient allocation of resources.

An important takeaway that this thesis sheds the light on relates to the premature deindustrialization trends in developing countries and the capacity of the services sector of acting as an alternative engine of growth. A relatively recent feature of the reallocation process in developing countries is the premature deindustrialization. This issue was initially highlighted by Rodrik (2005) and it relates to the decline of the share of manufacturing in employment and GDP at lower income levels earlier than what typically happened in developed countries (Ocampo, 2020). This decline in the manufacturing sector has been compensated by an increase in the services sector. At this development phase of the world economy, it is important to recognize that the Asian experience of structural transformation through manufacturing is not the only path and there could be other sustainable paths and the services sector can act as an alternative engine of growth. Manufacturing is still important but probably less powerful than in the past (Szirmai & Foster-Mcgregor, 2021).

The second chapter studies how the macroeconomic conditions could possibly leverage structural change at the sectoral level. The main findings related to the macroeconomic tools show that high policy rates can undermine structural change. On the macroeconomic outcomes front, a competitive exchange rate and countercyclical macroeconomic policies enhance structural change. Moreover, the business cycle downturns foster structural change. The results hold with the sectoral measurements of macroeconomic conditions. The exten-

sions show that the policy rate significantly reduces the within-sector structural change in contexts of political instability. The exchange rate regime and the corporate tax rate have a significant impact on the within-sector structural change in democratic and politically stable economies. The real effective exchange rate (REER) volatility and a more flexible exchange rate regime significantly reduce the structural change in resource rich economies. Finally, the robustness checks suggest that the baseline results do not change after using a different estimation methodology (the multilevel mixed effects model) and after controlling for endogeneity (using an instrumental-variable approach).

The findings of the second chapter suggest that a sound use of macroeconomic policies could help developing countries accelerate their structural change process. In this respect, three issues stemming from the findings could be highlighted. First, macroeconomic stability should not be compromised. At the same time, an exclusive focus on stability could be insufficient and countercyclical policies matter for structural change. Indeed, adopting a countercyclical stance is a critical choice for policy makers. Countercyclical policies are difficult to implement since they require fiscal discipline and a strong institutional setup (Niskanen, 2019). Furthermore, policies stance can be also associated with economic or political pressures or both which may undermine the adoption of countercyclical policies (Ocampo, 2020). Second, an active exchange rate policy can help inducing structural change. Having a competitive and stable exchange rate is usually perceived as an essential issue for macroeconomic stability, However, beyond its central role in macroeconomic stability, the exchange rate policy should be also perceived as a tool of industrial policy that would help diversifying the production structure. The exchange rate policy could accordingly have dual intertwined objectives: macroeconomic stability and structural change (Guzman et al., 2018). Third, downturns were found to have a cleansing effect on reallocation patterns. Indeed, this paper findings do not promote for downturns, they rather show the silver lining for the difficult times. Recessions can be considered as times of productivity enhancing reallocation since they could be a low cost time for reallocation and this would free up resources for the more productive uses (Foster et al., 2016; Van den bosch & Vanormelingen, 2022).

The third chapter empirically analyzes the economic and political determinants of IMF lending in low- and middle-income countries and the impact of these loans on economic growth. The main findings show that economic and political proximity to the IMF major shareholders matter for the likelihood of obtaining an IMF non-concessional loan. Furthermore, most of the loans exert a negative effect on the trend component of GDP, confirming that such loans can stabilize the economies in the short term without improving the long

run steady growth. The analysis of the dynamic effects of loans using local projections also confirm the same findings. Finally, democratic regimes compared to autocratic ones were found to improve the effects of most of these loans on economic growth, pointing out the importance of institutions in the effectiveness of IMF loans.

Overall, the findings of the third chapter point out to an important discussion on the differentiated impact of IMF loans on growth over the short run compared to the long run. To that effect, some arguments suggest that IMF loans could reduce economic growth over the short run since they compress aggregate demand. In contrast, other views suggest that IMF loans help restoring macroeconomic stability which would thereby improve growth on the short run. As per the long run, some claims argue that the IMF lending would be beneficial for long run growth even if it entails some short run costs. This chapter findings show that this is not the case and IMF loans do not seem to improve growth over the long run.

Furthermore, within the context of the discussion on the differentiated impact of loans over the short and long run and the linkages between these loans and politics, the chapter highlights the problem of “time inconsistency”. Low- and middle-income countries are usually faced with this latter problem where short-term objectives can be preferred at the expense of long run ones. This can indeed reduce the likelihood of undertaking reforms with long run objectives and can also lead to suboptimal macroeconomic outcomes. However, the existence of a democratic and accountable political regime can help resolving this problem.

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Chapter 1

Policy Determinants of Structural Change in Developing Countries

Abstract

This paper analyzes the policy determinants of structural change in developing countries, including structural policies (antimonopoly policy, financial policy, labor policy, trade policy and macroeconomic institutions) and macroeconomic stabilization ones (exchange rate management, fiscal and monetary policies). The paper relies on two different estimators as follows. The Arellano Bond estimator introduces a dynamic effect and controls for potential endogeneity. In addition, the pooled mean group estimator helps distinguishing between the short and long run impacts of the policies on structural change within the same estimation framework and accounts for the cross-country heterogeneity. Results show that competition laws and countercyclical fiscal policies matter for the structural change term. As per the results using the other measures of structural change (value added and employment shares; export concentration), they indicate deindustrialization trends since structural policies tended to increase the share of services in value added whereas a similar effect on manufacturing could not be found and they highlight the importance of countercyclical policies and undervalued currencies. Finally, the PMG results show that structural policies improve structural change over the long run, yet their effect is mostly insignificant over the short run.

Keywords: Structural Change, Developing Countries, Macroeconomic Policies, Structural Policies, Pooled Mean Group Estimator.

JEL Classification: L16, O11, O23, O24

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1.1 Introduction

Structural change tends to occur when resources shift from traditional and typically low productive activities to modern and more productive ones, with higher productivity growth (Lewis, 1954; McMillan et al., 2016). Countries that have experienced such growth-enhancing productivity were more likely to witness sustained economic growth and economic development (Lopes et al., 2017). However, not all developing countries were able to achieve structural change. The different patterns of structural change can largely explain the variation of total labor productivity growth among developing countries. For instance, some Asian countries have experienced a successful structural change whereas the pace of the latter in other developing countries was slow which explain their prolonged periods of low and volatile economic growth (Diao et al., 2017).

In this context, it is important to identify the drivers of successful structural change in developing countries. With most of the existing literature focusing on developed countries, there is still no consensus on underlying supportive policies for structural change in developing countries. Two types of policies can be considered to promote the movement of resources from low to high productive sectors. On the one hand, macroeconomic policies (such as exchange rate management, fiscal and monetary policies) should provide pro-investment macro conditions since labor movement to productive sectors depend on investment decisions. Initially, macroeconomic stability was thought to be a necessary yet insufficient prerequisite to accelerate structural change (Ayadi et al., 2020; Cusolito & Maloney, 2018; Lopes et al., 2017; UNECA, 2016; Zaki et al., 2020). Hence, developing countries can adopt a developmental approach for macroeconomic stabilization policies to make them induce structural change. This entails going beyond macroeconomic stability and undertaking countercyclical policies that help facing challenges related to external financing and fluctuations in commodity prices (Ocampo, 2011). On the other hand, structural rigidities preventing resources allocation within and across sectors can explain the persistent inter-sectoral productivity gaps across and within countries (Konté et al., 2022). Therefore, structural policies (such as antimonopoly, financial, labor, trade and macroeconomic institutions) are supposed to improve inter and intra sectoral allocative efficiency by eliminating market rigidities, correcting market failures, and removing the impediments to the efficient allocation of resources (Gersbach, 2004; Kouamé & Tapsoba, 2019; Pichelmann & Roeger, 2004; Solow, 2004).

Moreover, the literature showed that the impact of structural policies on productivity, economic growth, and employment differed between the short and long runs. Indeed, while

structural policies tend to induce higher growth and productivity as well as better allocative efficiency in the long-term, their short run gains remain uncertain. The latter often hinged on business cycle or initial conditions. These gains are also slow to materialize and face policy implementation hurdles that entail short run costs (Hollweg et al., 2014; IMF, 2019; Swaroop, 2016).

Against this background, this paper explores the policy determinants of structural change in developing countries. The paper makes several contributions to the literature. First, it investigates the role of both structural and macroeconomic stabilization policies in driving structural change. Most previous empirical work has addressed the role of these policies separately. Second, the paper proposes a large set of novel measurements to capture the policies that are likely to influence structural change. These measurements relate to structural policies (antimonopoly policy, financial policy, labor policy, trade policy and macroeconomic institutions) and macroeconomic policies (exchange rate management, fiscal and monetary policies). Finally, the empirical work relies on two different estimators as follows. The Arellano Bond estimator introduces a dynamic effect and controls for potential endogeneity. In addition, the pooled mean group (PMG) estimator helps distinguishing between the short and long run impacts of the policies on structural change within the same estimation framework and accounts for the cross-country heterogeneity. The paper also uses different measures of structural change (the term resulting from the productivity growth decomposition, value-added shares by sector and export concentration).

Results show that competition laws and countercyclical fiscal policies matter for the structural change term. Furthermore, the other measures of structural change (value added and employment shares; exports concentration) results indicate deindustrialization trends since structural policies tended to increase the share of services in value added whereas a similar effect on manufacturing could not be found and they highlight the importance of countercyclical policies and undervalued currencies. Finally, the PMG results show that structural policies improve structural change over the long run, yet their effect is mostly insignificant over the short run.

The paper is organized as follows. Section 1.2 reviews the literature. Section 1.3 describes the data. Section 1.4 provides some stylized facts related to the patterns of structural change. Section 1.5 is dedicated to the methodology. Section 1.6 analyzes the empirical findings. Section 1.7 concludes and offers policy recommendations.

1.2 Literature Review

This literature review draws on the three following strands of the literature: (i) the determinants of structural change, (ii) the impact of structural policies on macroeconomic outcomes, and (iii) the role of macroeconomic policies in driving development outcomes.

With the recent emphasis on structural change, there is a fast-growing empirical and theoretical literature on the topic. Majority of studies focus on small country samples or short periods of time and there exists few studies on developing countries. This literature dates back to the 1950s and 1960s where early studies shed the light on the relationship between an economy's structure and its income (Chenery, 1960; Kuznets, 1955; Lewis, 1954). Overall, this early literature suggested that structural change is a key characteristic for economic development, and this was confirmed later by actual experiences of developed and emerging economies (Martins, 2019).

On the theoretical front, a number of explanations for the structural change process have been proposed. The theoretical challenge in this literature was to develop extensions to the one sector growth models in order to account for the stylized facts related to structural change (Herrendorf et al., 2014). For instance, the Kuznets facts suggested that economic growth would go hand in hand with shifts in the sectoral structures of output, employment and expenditures. In contrast, the Kaldor facts suggested a balanced growth on the aggregate level. Hence, the challenge is to reconcile the sectoral Kuznets facts with the aggregate Kaldor facts (Boppart, 2014). The multi-sector growth theories focused accordingly on several determinants or driving forces of reallocation of activity across sectors, including changes in real incomes, changes in relative sectoral prices via technological progress, and changes in comparative advantages via international trade. First, income effects are generated by non-homothetic preferences (like Stone-Geary preferences generating non-linear Engel curves). When households' income rises, they tend to spend relatively less on agriculture goods and more on services. Second, the relative sectoral prices explanation goes back to Baumol (1967) work that formulated the cost disease hypothesis (recently generalized by Ngai and Pissarides (2007)). According to Baumol cost disease, economic resources, particularly labor, move from the dynamic sectors characterized by a high rate of technical progress to the stagnant ones. These cross-sector differences in productivity growth will cause changes in relative prices which will accordingly induce structural change. It is worth noting that the recent literature has made considerable efforts to incorporate these two factors (non-homothetic preferences and cross-sector technology differences) in the same

analytical framework (see Boppart (2014)). Third, Matsuyama (2009) is one of the first studies to analyze the impact of trade on structural change, particularly the drop in manufacturing employment. For instance, the fast productivity growth in manufacturing can lead to a decline of the manufacturing labor share in a closed economy as opposed to the manufacturing employment expansion that would result from specialization and competitive advantage (Herrendorf et al., 2014; Neuss, 2019).

This paper contributes to the strand of the literature which analyzes structural change determinants empirically on cross-countries level. This literature remains quite scarce, particularly for developing countries. It uses different proxies to measure structural change: value added shares by sector (Dabla-Norris et al., 2013; Jha & Afrin, 2017), estimates for labor reallocation effect (Konté et al., 2022; Martins, 2019; McMillan et al., 2014; Morsy & Levy, 2020) and export concentration (Rougier, 2016). To our knowledge, there is no study comparing these different measures and indeed, analyzing these measures altogether would provide a deep understanding of the structural change process. Martins (2019) considers sectoral value-added shares somehow misleading since changes in employment lag behind and they are deemed essential for structural change process.

This empirical literature proposes a variety of structural change determinants, ranging from country specific factors or initial conditions, macroeconomic stability and policy variables. In their seminal work, McMillan et al. (2014) study structural change patterns and determinants in 38 developing and high-income countries. Their findings suggest that the latter component played an important role in many high-growth countries whereas it has been growth reducing in Africa and Latin America. Their cross-country regression show that a lower share of natural resources in exports, undervalued real exchange, and flexible labor markets enhance structural change. In the same vein, Martins (2019) uses a panel fixed effects estimator to study the structural change patterns and determinants in 169 countries. Using the Shapley decomposition methodology, his findings suggest that labor reallocations played an important role since the 2000s, yet they remain relatively less important than within productivity contributions. Adding a time dimension (two periods) while analyzing the determinants, his main findings show that the pace of structural change is significantly shaped by human and physical capital. Dabla-Norris et al. (2013) describe some stylized facts on structural change around the world and empirically analyze its determinants using data on real value added by sector in 168 countries over 1970-2010 using both linear and quantile regressions. Their findings suggest that GDP, demographic structure and some policy variables (such as product market reforms, openness to trade, human and physical

capital, and finance) are able to predict such an evolution.

This paper is also close in spirit to the strand of cross-countries empirical literature examining the determinants of sectoral shares in value added (Nickell et al., 2008; Rodrik, 2016). Using a Three-Stage Least Squares (3SLS), Nickell et al. (2008) show that total factor productivity and changes in relative prices of manufacturing and non-manufacturing goods explain the decline in manufacturing shares in the United Kingdom and United States relative to Germany and Japan. In addition, educational attainment largely explains changes in service sector specialization. Rodrik (2016) suggests that developing countries are turning into service economies without going through a sufficient industrialization phase. They are also undergoing a deindustrialization phase earlier than the historical norms. His findings suggest that labor saving technological progress explain these patterns in advanced economies whereas trade and globalization explain them in developing countries. On a related front, Gollin (2018) argues that structural transformation and growth are possible for developing countries even without industrialisation and that there is little evidence in growth theory to suggest that industrialisation is necessary for development. For instance, the theoretical literature suggests that manufacturing would generate knowledge-related externalities. However, this paper argues that these externalities can also arise in services. The services sector has taken many of the beneficial characteristics of the manufacturing sector, including the organisation modes, the standardization and the mass production.

The second strand of the literature to which this paper relates analyzes structural policies impact on economic performance. A large part of this literature suggests that these policies have positive long run effects on growth and employment (see Christiansen et al., 2013; Egert, 2018 on per capita income; Biljanovska and Sandri, 2018 on TFP growth; Dabla-Norris et al. (2016) on productivity growth in developing countries). Three main insights stem from this literature and represent an important motivation for this paper. First, this literature identifies structural policies as an important determinant of labor productivity growth through enhancing reallocation of resources (such as labor) and reducing structural rigidities (Dabla-Norris et al., 2016; Prati et al., 2013). However, most existing studies do not disentangle these policies impact on the two components of labor productivity growth, the structural change and the within productivity improvement. Konté et al. (2022) is one of the first studies to do this differentiation. Using an OLS model and a dynamic panel Arellano-Bond, their findings for a sample of developing countries over 1975-2005 suggest that structural policies affect the within and structural change components differently and they work mostly through the intra-allocative efficiency. Second, most existing studies do not

account for the different approaches of structural policies (liberalization versus government intervention) and they rather focus on liberalization policies. Third, this existing literature is rather inconclusive as to whether structural policies improve economic outcomes and hence, there is no consensus on their impact. According to Babecký and Campos (2011), this variation in findings arises from differences in methods, specification and measurement. Fourth, there exists a large literature on the impact of these policies in advanced economies yet, evidence on developing countries is relatively limited (especially for some structural policies like antimonopoly policy, Prati et al., 2013).

The third strand of literature that this paper accounts for examines the role of macroeconomic policies from a developmental perspective. This literature is scarce and hence, it is an important motivation for this paper to provide a relevant quantification. There is a disagreement on whether macroeconomic policies can serve development objectives. Views in favor of macroeconomic policies development role suggest that macroeconomic stability should not be only perceived in terms of price levels but also in terms of the stability of economic activity and employment (Ocampo, 2011). Furthermore, macroeconomic policies impact on growth can be stronger in developing countries in contrast to developed economies. In developed countries, productivity growth relies mainly on technological innovation. In contrast, developing countries can achieve productivity growth by shifting resources from least productive to most productive sectors. This process depends on investments decisions and resource allocation thereby explaining the relevance of macroeconomic policies (Ocampo & Vos, 2008).

Two proactive macroeconomic policies are worth considering here: countercyclical policies and exchange rate competitiveness. The literature suggested that well-designed macroeconomic policies connected to structural change agenda should go beyond conventional macroeconomic stability. A developmental approach of macroeconomic policies requires mitigating the procyclical effects of financial markets and strengthening domestic financial governance and thereby coming up with policy space for countercyclical policies. Policy cyclicity can be defined as the policy stance in relation to the growth rate of the economy. Sustainable countercyclical policies help facing challenges related to external financing and fluctuations in commodity prices. Domestic policies usually respond procyclically to commodity price volatility (for example by increasing expenditures during booms and reducing spending when prices are down). The implementation of countercyclical fiscal policies in developing countries can be undermined by the lack of finance during recessions, the pressure from markets and possibly the International Monetary Fund (IMF), and the difficulty of justifying austerity policies in good times (Ocampo, 2011; Ocampo & Vos, 2008). These factors altogether

explain why macroeconomic policies in developing countries tend to be procyclical. Procyclical policies are very costly since they can lead to uncertainty in the real economy, inefficient resources allocation in upturns and weaker accumulation of infrastructure and human capital in downturns (Ocampo, 2011; Ocampo & Vos, 2008). On the empirical front, the literature provides evidence that countercyclical policies can enhance growth on the economy wide level (Aghion & Marinescu, 2007) and industry level (Aghion et al., 2014). The exchange rate can be also used to establish links between macroeconomic policies and structural change. Maintaining a competitive exchange rate is a proactive policy to diversify the production sector. An undervaluation of the exchange rate can serve as a partial substitute for production sector development policy or industrial policy. The development effect of exchange rate is related to the externalities generated by the development of tradable sectors which would thereby affect the diversification of exports structure (Islam & Kucera, 2013; Ocampo, 2011).

The above review shows that the literature on structural change determinants in developing countries remains quite scarce. Existing literature uses different proxies to measure structural change. To our knowledge, no study compared these measures. As per structural policies, they mostly improve economic outcomes on the long run and their impact on the short run is rather inconclusive. Finally, the literature advocates for the role of countercyclical policies in driving structural change, though falls short in providing a quantification.

1.3 Data

The analysis of this paper includes 152 low- and middle-income countries over the period 1991-2019 (Table A1 in Annex 1.A).¹ This period allows having the largest sample of developing countries. Furthermore, developing countries undertook important policy reforms in this period and they were affected by globalization and became more integrated to the world. Hence, it is interesting to study the implications of this context on economic transformation. Table A4 in Annex 1.A provides the summary statistics of all the variables used in the empirical analysis of this paper.

- **Structural change data**

This paper uses different measures of structural change: the term resulting from the

¹Low- and middle-income countries are defined according to the World Bank income classification in 1990 and 2019. These are 163 countries. Yet, the paper ends up with 152 countries and 11 countries are excluded since they do not have sufficient observations (American Samoa, Antigua and Barbuda, Dominica, Kiribati, Kosovo, Marshall Islands, Micronesia, Fed. Sts., Samoa, Seychelles, St. Kitts and Nevis, Tuvalu).

productivity growth decomposition, value added shares by sector and export concentration.

The structural change term for a country i in a year t results from the following productivity growth decomposition equation (McMillan & Rodrik, 2011; McMillan et al., 2014).

$$\frac{\Delta P_{it}}{P_{it-k}} = \frac{\sum_{j=1}^n \theta_{ijt-k} \Delta P_{ijt}}{P_{it-k}} + \frac{\sum_{j=1}^n P_{ijt} \Delta \theta_{ijt}}{P_{it-k}} \quad (1.1)$$

Where i is the country, j is the sector, P_t economy wide labor productivity (real value added divided by employment); P_{jt} total labor productivity of sector j ; θ_{jt} share of sector j in total employment; Δ change between $t-k$ and t ($k=5$). The first term in this decomposition exercise is the within component of the productivity growth and the second term is the structural change term. This exercise helps studying the patterns of structural change by region. In addition, the resulting structural change term is used in the cross-country empirical analysis (see section [Econometric Specification](#)).

This decomposition exercise requires data on value-added and employment by sector. The UN Statistics National Accounts are used to get the value added by sector (at constant 2015 prices) and the International Labour Organization (ILO) data for employment by economic activity.² The value added is available for seven sectors as follows: 1. Agriculture, hunting, forestry, fishing; 2. Manufacturing; 3. Mining and utilities; 4. Construction; 5. Wholesale, retail trade, and restaurants and hotels; 6. Transport, storage, and communication; 7. Other activities. Employment is available for fourteen sectors as follows: 1. Agriculture; forestry and fishing; 2. Mining and quarrying; 3. Manufacturing; 4. Utilities; 5. Construction; 6. Wholesale and retail trade; 7. Transport; storage and communication; 8. Accommodation (restaurants and hotels); 9. Financial and insurance activities; 10. Real estate; business and administrative activities; 11. Public administration and defense; compulsory social security; 12. Education; 13. Human health and social work activities; 14. Other services. The employment data is aggregated into seven sectors in order to be matched with the value-added data (Table [A2](#) in Annex [1.A](#)).

It is worth mentioning that several previous studies on structural change used the Groningen Growth and Development Centre (GGDC) 10-Sector Database (for example Diao et al.,

²ILO defines employed as follows: comprise all persons of working age who, during a specified brief period, were in the following categories: a) paid employment (whether at work or with a job but not at work); or b) self-employment (whether at work or with an enterprise but not at work). Data are disaggregated by economic activity, which refers to the main activity of the establishment in which a person worked during the reference period.

2017; Duarte and Restuccia, 2010; Herrendorf et al., 2014; Timmer and de Vries, 2009). This database included sectoral employment and real value-added data for thirty developing countries and nine high-income countries until 2010 and for some countries to 2011 or 2012. The major advantage of this database is that the sectoral employment is obtained from population censuses which allows having a large sample size. In contrast, the limitation of this database is that it has a limited coverage of developing countries. Relative to the GGDC 10-Sector Database, the data used in this paper allows having a very large country coverage and recent time coverage whereas it does not include the informal sector.

In addition to the term resulting from the productivity growth decomposition, structural change is also measured as real value-added shares in agriculture, manufacturing and services (following Dabla-Norris et al., 2013; Jha and Afrin, 2017; Nickell et al., 2008) as well as export concentration (Theil index of export concentration following Rougier, 2016). Export concentration is related to the transformation of an economy’s production structure as follows. Developing countries in early development stages are usually specialized in a narrow range of agricultural or resource-based activities. Hence, structural change through resource reallocation involves a diversification into a balanced domestic production structure and thereby more diversified export structure (IMF, 2014). Indeed, export diversification reduces aggregate volatility since countries specialize in a wider range of less volatile sectors and would make use of a broader range of inputs into production (Henn et al., 2020; Rougier, 2016). Accordingly, diversification is supposed to support growth and economic transformation in developing countries (Giri et al., 2019). The Theil index (overall index) is obtained from the IMF Export Diversification and Quality Database (Henn et al., 2020). Higher values of the index indicate lower diversification. Annex 1.B provides the methodology details of this index.

- **Structural policies data**

Following Kouamé and Tapsoba (2019), structural policies can be defined as follows: “Government policies aiming to address market failures and to reduce or remove impediments to the efficient allocation of resources”. This paper considers structural policies in five areas: antimonopoly policy, financial policy, labor policy, trade policy and macroeconomic institutions. The paper employs a set of novel indices in each area. Table A3 provides detailed definitions and sources for the variables.

First, antimonopoly policy is accounted for from *de jure* and *de facto* perspectives as follows. On the *de jure* front, the age of competition law is used (using Petersen (2013) data

and our compiled dataset) or competition law dummy (taking the value 1 if the country has a competition law and zero otherwise). On the *de facto* front, the Economist Intelligence Unit competition indices are used.

Second, financial policy is accounted for on the domestic, international and public fronts. Abiad et al. (2010) domestic financial reforms index and Svirydzenka (2016) index of financial development are used to account for the domestic financial policy. Abiad et al. (2010) index includes seven dimensions of financial sector policy and along each dimension, a country is given a score from zero to three, with zero corresponding to the highest degree of repression and three indicating full liberalization (see full details on the dimensions in Table A3 in Annex 1.A). Svirydzenka (2016) index assesses the financial development in terms of depth, access, and efficiency (see full details on the dimensions in Table A3 in Annex 1.A). The *de jure* financial integration index of Fernandez et al. (2016) is used to account for the international finance front and it reports the presence or the absence of capital controls. The public finance is accounted for using the public development banks database by mandate of the Institute of New Structural Economics (and transformed to age and dummies variables). This database qualifies an entity as a public development according to the following criteria: (i) a stand-alone entity with a separate legal status; (ii) fund-reflow-seeking financial instruments as the main products and services; (iii) funding sources go beyond periodic budgetary transfers; (iv) proactive public policy-oriented mandate; and (v) government steering of corporate strategies.

Third, for the labor policy, the paper considers the index of the labor market regulations (sub-index of the economic freedom index, Fraser Institute).³ It provides a reasonable coverage of different aspects of labor market regulations, and it is available for a large group of countries during a large time period. Indeed, this index suffer from several limitations. For instance, Aleksynska and Cazes (2014) argued that the index includes different ingredients without a sufficient justification for the choice of these ingredients. Furthermore, some other important aspects related to labor markets regulations are not accounted for, including workers protection, safety, health, and social security provisions. In addition, the index aggregates altogether *de jure* and *de facto* aspects of labor market regulations. Finally, the World Economic Forum Global Competitiveness Report (GCR) sub-indices on which this index is based are survey based and hence, these indices reflect the surveyed business com-

³This index is based on four sub-indices and they come from the World Bank Doing Business and the World Economic Forum Global Competitiveness Report (GCR) as follows: Hiring regulations and minimum wage (World Bank Doing Business); hiring and firing regulations (GCR World Economic Forum); centralized collective bargaining (GCR World Economic Forum); and hours regulations (World Bank Doing Business).

munity interests.

Fourth, regarding trade policy, several indices are constructed to reflect the enforcement and depth of content of preferential trade agreements using the World Bank deep trade agreements database (see Annex 1.C for methodology details of these indices). The export promotion agencies age and dummy (using the survey data on export promotion agencies of Lederman et al., 2010; Olarreaga et al., 2019), the WTO membership (CEPII gravity dataset), and the simple mean applied tariff (World Development Indicators, World Bank) are also used.

Finally, macroeconomic institutions are accounted for using fiscal rules from the IMF Fiscal Rules Dataset, the presence of inflation targeting from the IMF Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER) and the central bank transparency index of Dincer and Eichengreen (2014).

- **Macroeconomic policies data**

The macroeconomic policies are analyzed as follows. Macroeconomic outcomes include the fiscal deficit from the IMF Fiscal Monitor database, the inflation from the World Development Indicators of the World Bank, and the exchange rate misalignment (an overvaluation index, CEPII EQCHANGE database) (Table A3 in Annex 1.A).

This paper complements the literature advocating for the importance of countercyclical policies in enhancing structural change by providing a relevant quantification. Following Frankel et al. (2013), cyclicity is measured as the correlation between the cyclical components of real government expenditure or real government primary expenditure and real GDP on a 20-year rolling window (to introduce a time dimension to correlation coefficients by country). The cyclical components are estimated using the Hodrick–Prescott Filter. A positive (negative) correlation indicates procyclical (countercyclical) fiscal policy. Real government expenditure is defined as general government expenditure deflated by the GDP deflator. A similar definition applies for real government primary expenditures.

- **Other Controls**

The rest of the determinants of structural change (measuring the structural characteristics of the countries) and other macroeconomic controls (human capital, physical investment, GDP per capita, and share of raw material exports in total exports) are obtained from

the World Development Indicators of the World Bank, Penn World Tables (version 10.0) and the World Integrated Trade Solutions (WITS, World Bank). Barro and Lee educational attainment dataset for schooling and ILO data for skilled labor (as percentage of total labor) are also used.

1.4 Stylized Facts

This section provides an overview on structural change patterns in the selected group of low and middle income countries over 1991-2019.

Sectoral value added and employment are the most common production related measures of structural change (Herrendorf et al., 2014).⁴ Figure 1.1 depicts the average sectoral shares of value added and employment. The following conclusions can be drawn. First, structural change pace differs across regions. Yet, all regions witnessed resources reallocation away from agriculture and its share in value added and employment declined. This reallocation process is well evidenced in the literature (Figures 1.2 and 1.3 also confirm that when GDP per capita increases, the shares of employment and value added in agriculture decreases while the share of employment in industry and services increase (Herrendorf et al., 2014)). With the development process, workers migrate to cities to find opportunities in the industry or services sectors instead of agriculture (Bustos et al., 2016). Second, the value-added share of agriculture is considerably lower than its respective employment share in all regions. This can explain the large disparities in living standards across countries. Agriculture productivity in developing countries is much lower than developed countries. Yet, developing countries continue to devote a large share of employment to this sector (Caselli, 2005; Herrendorf et al., 2014). Agriculture employment share remains relatively important in East Asia, South Asia, and Sub-Saharan Africa. In Asian countries, agriculture can be the largest employer but not necessarily the largest sector in terms of value added (Briones & Felipe, 2013). Third, the typical structural change path entails a reallocation from agriculture to industry and subsequently to services. Yet, some developing countries followed a different path with a shift from agriculture directly to services without witnessing much industrialization. This seems to be the case in most of the regions where industry share in employment and value added remained somehow unchanged, despite the decline in the respective shares in agriculture. Structural change path of developing countries, with this leap of industrialization or man-

⁴Another common measure for structural change is the final consumption expenditures. However, the paper focuses on production measures of structural change. Consumption measures of structural change can exhibit different patterns other than production ones (Herrendorf et al., 2014).

ufacturing phase and whether services can substitute manufacturing, is debatable. On the one hand, manufacturing can be essential for inducing structural change given its increasing returns to scale, tradability and linkages with agriculture and services. On the other hand, services still induce structural change, especially those related to innovation and knowledge (Martins, 2019).

[Figure 1.1 about here]

[Figures 1.2 and 1.3 about here]

Ideally, the labor moving out of agriculture should be directed to sectors with productivity levels above than the average. Sectors with rising employment shares are those with a relative labor productivity above than zero. This does not seem to be the case in several regions (Figure 1.4). Labor moved to retail and accommodation sector in all regions while the sector's productivity is below the economy wide average. The same applies on construction in East Asia, MENA and South Asia. In addition, labor moved to other services sector yet this sector productivity level is only marginally higher than the economy wide average (especially in Europe and Latin America).

[Figure 1.4 about here]

Sectoral productivity provides evidence on the pace of structural change by region as follows (Figure 1.5). First, agriculture has the lowest productivity levels in all regions whereas mining and utilities has the highest levels (by noticeable margins, similar to Martins, 2019 findings).⁵ Second, developing countries exhibit large differences among sectors productivity (except for Latin America). These productivity gaps remain large after excluding mining and utilities sector. On a positive note, these gaps suggest that workers reallocation from low to high productivity sectors can induce labor productivity on the economy wide level (Doemeland & Schiffbauer, 2016). Yet, the employment generation potential of some high productivity sectors can be limited given their capital intensity and their limited capacity to absorb labor (Martins, 2019).

⁵This high productivity in the mining sector would raise questions on its role in driving the overall productivity dynamics in a certain country. In order to understand to what extent the mining sector would drive the structural change term for each country, Figure D1 in Annex 1.D shows the structural change term that includes all sectors and versus another structural change term that excludes the mining sector for each country on average. It seems that for most countries both structural change terms have the same sign with slight differences in values.

[Figure 1.5 about here]

These productivity gaps are indeed a sign of underdevelopment, and they diminish as a result of economic growth. Figure 1.6 confirms this and shows that the relationship between the coefficient of variation of the log of sectoral productivities and the average labor productivity is negative. This confirms the role of structural change in inducing convergence and that the reallocation from low productivity to high productivity sectors should raise economy wide productivity (Dabla-Norris et al., 2013; McMillan et al., 2014).

[Figure 1.6 about here]

Figure 1.7 reveals the following conclusions on the reallocation process in different regions. First, productivity growth on average has been largely increasing in East Asia and to a lower extent in Sub-Saharan Africa across the three studied periods. In both cases, the within-sector productivity improvements have been the main driver of this performance. Second, the structural change component has been relatively important in driving productivity in East Asia relative to other regions. Third, in Sub-Saharan Africa, structural change contribution has been increasing across the different periods. It is also coinciding with an increase in manufacturing productivity making these countries less vulnerable to commodity price shocks. Fourth, productivity growth declined in Europe in the most recent period (2011-2019), possibly due the global financial crisis. Fifth, the structural change contribution to productivity growth in MENA and Latin America is negative. This could be related to the fact that displaced workers might have ended up moving to less productive activities on average (for example informal activities) (Martins, 2019; McMillan et al., 2014).

[Figure 1.7 about here]

1.5 Econometric Specification

Drawing on the existing literature (Dabla-Norris et al., 2013; Marouani & Mouelhi, 2016; Martins, 2019; McMillan & Rodrik, 2011), this paper studies the fundamental determinants and the policy determinants (structural and macroeconomic policies) of structural change in developing countries over 1991-2019. As a baseline, the following Arellano-Bond dynamic panel regression is estimated to introduce some dynamic effects and to control for potential endogeneity:

$$SC_{it} = \beta_0 + \beta_1 SC_{it-1} + \beta_2 X_{it} + \beta_3 Policy_{it} + \nu_t + \varepsilon_{it} \quad (1.2)$$

The dependent variable (SC_{it}) is the structural change term for a country i in a year t (see Section 1.3 on data).⁶ An important value added of this paper consists in using different measurements for this structural change term. Hence, different specifications are undertaken for the different structural change measurements: the term resulting from the productivity growth decomposition (see equation 1.1), and as a robustness check the real value-added shares in manufacturing and services (Dabla-Norris et al., 2013; Jha & Afrin, 2017; Nickell et al., 2008) and an export concentration (Theil index, Rougier, 2016).

Regarding explanatory variables, $Policy_{it}$ represent the set of macroeconomic and structural policies. For instance, the paper considers structural policies in five areas (anti-monopoly policy, financial policy, labor policy, trade policy and macroeconomic institutions) and macroeconomic outcomes (section 1.3 data). Moreover, the set of controls (X_{it}) measures the structural characteristics of each country and it includes: a measure of human capital (human capital index, human capital is of vital importance since employment dynamics play the central role in inducing structural change), a measure of physical capital (investment as percentage of GDP), the initial share of agriculture in total employment (it increases the potential to benefit from reallocation), the GDP per capita (following the theoretical literature on structural change determinants) and the share of raw material exports in total exports (resource rich countries have limited incentives to diversify their economies). ν_t is the year fixed effect and ε_{it} is the discrepancy term. All variables are taken in logarithmic transformation.

The use of lagged dependent variable as a regressor may violate the exogeneity assumption if this lagged dependent variable is correlated with the error term. To overcome this, the Arellano-Bond technique controls for potential endogeneity and the individual effects will be accounted for using the first difference. The instruments in this case are the lagged values of variables in the original model. It accounts for individual effects through differencing the data.

As an extension, the paper considers a dynamic heterogeneous panel. Traditional static

⁶The way structural change is measured here is suitable for the purposes of this paper. Martins (2019) also clarified that some broader definitions for structural change go beyond changes in economic structures since they can include changes in other aspects of the society: spatial reorganization of the population and demographic change. However, these measurements are beyond the scope of this paper.

panel models may not capture the dynamic structure of our data. These estimators only deal with structural heterogeneity through fixed and random effects. They impose homogeneous slope coefficients across countries even in case of subnational variations. The GMM estimator used as a baseline (the Arellano Bond) introduces dynamic effects and controls for potential endogeneity but unlike the dynamic heterogeneous panel, it does not capture the convergence to the long run equilibrium. Another advantage of the dynamic heterogeneous panel is the possibility of estimating the short- and long-run effects of the explanatory variables within the same estimation framework without the need to decompose the trend and transitory components of dependent and independent variables (Loayaza & Ranci re, 2006; Samargandi et al., 2015).

Following Samargandi et al. (2015) and Aksoy (2019), the paper examines both the long- and short-term effects of policies on structural change in developing countries (Table A1 in Annex 1.A) over the period 1991-2019. The dynamic heterogeneous panel regression can be incorporated into an error correction using the autoregressive distributed lag ARDL (p,q) model, where p is the lag of dependent variable and q is the lag of independent variables ⁷ as follows:

$$\Delta SC_{it} = \sum_{j=1}^{p-1} \gamma_i^j \Delta SC_{it-j} + \sum_{j=0}^{q-1} \delta_i^j \Delta X_{it-j} + \phi_i [SC_{it-1} - (\beta_0^i + \beta_1^i X_{it})] + \varepsilon_{it} \quad (1.3)$$

Where γ short run coefficients of lagged dependent variables; δ short run coefficients of lagged independent variables; β long run coefficients; ϕ coefficient of the speed of adjustment to the long run equilibrium. A negative and significant ϕ confirms the long run relationship between the dependent and independent variables and represents the evidence of cointegration between them.

Equation 1.3 can be estimated by three alternative estimators: mean group (MG), pooled mean group (PMG) and dynamic fixed effects estimator (DFE) (Pesaran et al., 1999). The panel ARDL has the following main advantages: First, as previously explained, the effects of structural policies over the short and long run can differ. These estimators account for this differentiation and the short and long coefficients can be estimated with a dataset with large country and time dimensions. Second, it can be used with variables with different orders of integration. Third, PMG and MG estimators can provide consistent coefficients despite

⁷Regarding the lag structure of ARDL, Loayaza and Ranci re (2006) argued that in case there is no interest in analyzing the short-term parameters, it is recommended to impose a common lag structure across countries according to data limitations. Hence, we impose the following lag structure (1, 1, 1, 1).

the possible presence of endogeneity since they include lags of dependent and independent variables. They can therefore mitigate the problem of reverse causality (Aksoy, 2019; Samargandi et al., 2015).

The PMG estimator is relevant to this paper analysis. It allows the short run coefficients (including intercepts, speed of adjustment and error variances) to be heterogeneous by country whereas long run coefficients are homogeneous across countries. It is expected that our sample is homogeneous in the linkages between structural policies and structural change over the long run. Yet, over the short run, there is country-specific heterogeneity given that the short-run adjustment to the policies could possibly depend on country-specific characteristics such as the local laws and regulations, the policy regimes and the market imperfections. The choice among the three estimators (PMG, MG and DFE) represents a trade-off between consistency and efficiency. For the purpose of this paper, the PMG would be a reasonable choice on that front. A formal test is undertaken to choose among the three estimators which is the Hausman test. It examines the validity of the long run homogeneity assumption (and the efficiency of the PMG estimator against the MG and the DFE). Finally, the conditions for obtaining a consistent and efficient PMG estimator are as follows. First, the coefficient of the error correction term should be negative and not lower than -1. Second, the time and countries dimensions, T and N , should be large to use the dynamic panel technique. In addition, the time dimension must be large enough to estimate the model for each group separately (Aksoy, 2019; Samargandi et al., 2015).

A final extension relates to analyzing the role of politics on the policies implementation, and thereby on the structural change process. In order to introduce some heterogeneity related to political democracy, a dummy variable is calculated and it takes the value of 1 if a country in a certain year has a democracy score higher than the median of the sample and 0 otherwise. The democracy scores are obtained from the V-Dem 13 database. Afterwards, separate regressions are undertaken for the group of countries with a democracy score higher than the median versus the group of countries with a democracy score lower than the median.

1.6 Empirical Findings

As previously explained, this paper studies the fundamental and the policy determinants of structural change in developing countries. The paper uses three different measures for structural change: the term resulting from the productivity growth decomposition (where positive values would productivity growth enhancing), and as a robustness check value-added

shares by sector and exports concentration. The Arellano Bond dynamic panel specifications serve as a baseline (Tables 1.1 - 1.7). Afterwards, as an extension, the long- and short-term effects of structural policies and macroeconomic policies on structural change are examined using a dynamic heterogeneous panel (Tables 1.8 to 1.11).

1.6.1 Baseline Results: Arellano-Bond Dynamic Panel Results

Table 1.1 analyzes the fundamental determinants which measure the structural characteristics of the countries (that could be grouped into proximate determinants: income, cross sector allocation; and distant ones: human and physical capital, and raw material exports) and underlying the structural change process. The following conclusions can be drawn. The human capital index exerts a positive and significant effect on structural change (column 5). This results highlights the important role of employment dynamism and a well-educated and skilled labor force in enabling the structural change process. This is in line with Martins (2019) and Dabla-Norris et al. (2013) findings. Results also show that physical capital (measured by investment as a percentage of GDP) exert a negative and counter-intuitive effect on structural change. The initial agriculture employment share (at t-5 since productivity growth is measured between t and t-5) exerts a positive and significant effect on structural change. This finding provides insights on the mechanisms through which economies can leverage their structural change process. For instance, countries with high employment shares in agriculture can have a large opportunity to benefit from employment reallocation. The raw material exports share in total exports share exerts a negative and significant effect on structural change. This is related to the fact that economies with a comparative advantage in natural resources can be disadvantaged when it comes to economic transformation. They can have limited incentives to diversify their production structure. Finally, The GDP per capita exerts a positive and significant effect on structural change, thereby confirming the income effect that is well established in the theoretical literature on structural change determinants.

[Table 1.1 about here]

Tables 1.2 to 1.4 analyze the policy determinants⁸ of structural change (when the latter

⁸Table A5 in Annex 1.A displays the correlation matrix for the different structural policies in order to understand which set of policies are undertaken together. Furthermore, Table A6 in Annex 1.A shows the principal component analysis (PCA) for the different structural policies. Indeed, the first component has the largest Eigenvalue (larger than one and thereby fulfilling the Kaiser criterion) and it explains around 31 percent of the data variation. For each type of structural policy (competition, financial, trade, and labor policies), it would be important to consider the variable with the largest loading to the first component. This PCA exercise has been useful for our choice of variables in addition to practical reasons related to data availability of each variable.

is measured as the resulting term from the productivity growth decomposition described in equation 1.1. A positive value of this term indicates that structural change is enhancing productivity growth). Table 1.4 also discusses these determinants for the within component of the productivity growth. Results of the Arellano Bond regressions are broadly satisfactory since the lagged dependent variable is positive and statistically significant. Furthermore, the Arellano Bond test results indicate that there is no significant evidence of serial autocorrelation in the first-differenced errors at order 2.

The results in Table 1.4⁹ indicate that competition law exerts a positive and significant effect on the structural change term. For instance, competition law would increase the structural change by 0.6 percent. The mechanism through which competition can enhance the reallocation process include removing the barriers to entry and exit and supporting the creation of new enterprises. In fact, the misallocation of resources can arise from structural rigidities preventing an efficient allocation of resources. Frictions driving cross-country differences in allocative efficiency include among others, barriers to entry, market power and monopoly power. The enforcement of an antimonopoly policy is supposed to enhance the competitive environment for the firms, increase competition in markets, deter anticompetitive practices, reduce markups and the distortions that discourage firms from enhancing their productivity or hinder the allocation of resources towards their most productive uses, and thereby generate allocative, dynamic, and productive efficiency (Konté et al., 2022). Tariffs and labor market flexibility exert a counter-intuitive effects on the structural change term. The financial development exerts an insignificant effect on the structural change term.

As per the macroeconomic outcomes, inflation exerts a negative and significant effect on the structural change term, though with a small magnitude. Inflation has to do with macroeconomic instability and it makes the domestic environment less predictable, can hamper resources allocation decisions and reduce investment (Serven & Montiel, 2006). Inflation would make it difficult to predict relative prices and would hinder the ability of financial markets to allocate resources efficiently. The results also show that the expenditures procyclicality exerts a negative and significant effect on the structural change term. For instance, procyclicality would reduce the structural change by 0.3 percent. The literature has advocated for the importance of countercyclical policies in enhancing structural change in developing

⁹In order to make sure that the results are not driven by the mining sector high productivity, a similar regression has been undertaken while excluding the countries having a large difference between the structural change term that includes all sectors and the structural change term that excludes the mining sector (see footnote 5 and Figure D1) in Annex 1.D. The results remain broadly consistent. These results are not reported to save space but can be furnished upon request.

countries. This paper tries to provide a quantification on that front to complement the literature argument. Countercyclical fiscal policies can help developing countries face the challenges they face from swings of external financing cycles and fluctuations in commodity prices. This would allow firms to preserve their productive and innovative investments over the business cycle which would accordingly enhance the structural change process (Ocampo, 2011).

Tables 1.2 and 1.3 consider the impact of separate structural and macroeconomic policies on the structural change term, respectively. Column 12 in Table 1.2 shows the mix of the different structural policies altogether whereas Column 7 in Table 1.3 shows the impact of the different macroeconomic policies altogether. They both confirm the previous findings of Table 1.4.

As per the results on policies impact on the within component of productivity growth (displayed in Column 2 in Table 1.4), they unexpectedly highlight the importance of macroeconomic policies. Inflation, overvalued currencies and procyclical policies exert a negative and significant effect on the within term (with overvalued currencies having the largest magnitude among them since it would reduce the within term by 5 percent). The finding related to overvalued currencies corroborates with the seminal work of Rodrik (2008) that has a particular focus on developing countries. For instance, a competitive exchange rate enhances the importance of tradable sectors, notably industry, within the production structure. In particular, a competitive exchange rate can be viewed as a type of industrial policy that would help diversifying the production sector and this a challenge that most developing countries suffer from, particularly those dependent on natural resources (Ocampo, 2011, 2020). This is indeed linked to discussions and findings of chapter 2 (which analyzes the impact of the different macroeconomic conditions on the within-sector structural change).

[Tables 1.2 - 1.4 about here]

1.6.2 Extensions and Robustness Checks

Other measures of structural change

Tables 1.5 to 1.7 report results when structural change is measured using value added shares, employment shares and export concentration. It is worth clarifying here that a higher value of the export concentration index indicates higher exports concentration. Hence, a certain policy would improve exports diversification by by reducing this export concentration index.

Tables 1.5 and 1.6 consider the impact of structural and macroeconomic policies on these measures separately whereas Table 1.7 considers the impact of these policies altogether.¹⁰ The Arellano Bond test results indicate that there is no significant evidence of serial autocorrelation in the first-differenced errors at order 2.

The results show that most structural policies exert a positive and significant effect on services shares whereas their effect on manufacturing share is either insignificant or negative. These results point out to an important discussion on deindustrialization in developing countries. To contextualize these results, the analysis of this paper starts in the 1990s when globalization was exerting a significant impact on all developing countries, and this has indeed affected structural change patterns in these countries. The results can be related to the fact that developing countries are mostly turning into services economies without going first through a proper experience of industrialization or eventually undergoing the so-called premature deindustrialization (Rodrik, 2016). The debate on whether advanced services can be a substitute for manufacturing has important implications for developing countries.

The results highlight the importance of two macroeconomic policies, countercyclical policies (which improve all the measures used) and undervalued currencies (which improve most of the measures used).

[Tables 1.5 - 1.7 about here]

Short and long run effects of policies on structural change

Regarding the dynamic heterogeneous panel specification, Tables (Tables 1.8 to 1.11) analyzes the separate impact of the different policies on different measures of structural change. A shortcoming about analyzing the impact of the policies separately is that the regressions can be subject to omitted variables bias. However, unfortunately the PMG is sensitive to missing points and does not converge when policies are considered altogether in the same specification. There are other studies in the literature which consider the impact of policies separately to disentangle their impact (Aksoy, 2019; Konté et al., 2022; Prati et al., 2013).

The tables report the PMG estimator and the Hausman test p-value.¹¹ The latter measures the efficiency and consistency among PMG and MG estimators. In most of the specifications, the Hausman test confirms that PMG estimator is efficient compared to MG. The

¹⁰Tables D2 - D7 in Annex 1.D report the results of the separate policies for each measure of structural change (value added shares, employment shares and export concentration).

¹¹MG and DFE results are not reported to save space. They are available upon request.

PMG estimator is also more relevant to this paper analysis as previously explained in the methodology. In all the specifications, the negative and significant error correction coefficient confirms the existence of a long run relationship between the variables.

Findings from the dynamic heterogeneous panel (the PMG estimator) are particularly important for structural policies since they reflect the path towards the long run equilibrium. Results highlight the importance of some structural policies on the long run as follows. Results of Table 1.8 indicate that the *de jure* index of overall financial restrictions (Fernandez et al. (2016) financial integration index: the 0/1 qualitative indicator denoting the absence (0) or the presence (1) of capital controls) exerts a positive and significant effect on the structural change term over the long run according to the PMG estimator. For instance, the financial integration would increase the structural change by 1 percent over the long run. The role of capital controls is debatable on the theoretical research front as well as on the policy prescriptions front, and they are sometimes perceived as contributing to macroeconomic and financial stability. Ocampo (2011) also justify their use in the case of developing countries as a countercyclical tool to curb external shocks (or volatile capital inflows during booms).

Results of Table 1.8 also show that public development banks (infrastructure mandate) exert a positive and significant effect on the structural change term on the long run. For instance, the financial integration would increase the structural change by 0.4 percent over the long run. This is an interesting finding since the existing literature falls short on providing a quantification for interventionist policies impact in cross countries studies. To our knowledge, this paper is possibly the first to quantify the impact of public development banks on structural change. The literature has been inconclusive on the role of selective government industrial policies in inducing structural transformation. State interventionist policies are sometimes perceived as unnecessary since the private sector will invest in the country's comparative advantage while searching for its own profit. In contrast, other views suggest that markets fall short on some aspects. For instance, East Asian countries witnessed a successful structural change under different international arrangements than those usually prevailing, and they allowed for more state intervention in the form of industrial and trade policies. Many of them tried a variety of policies to encourage investments in exports sectors through tax breaks, export subsidies, import tariff exemptions, and export zones. Significant global crisis (like the 2008 financial crisis and the COVID pandemic) usually reinstate debates around state interventionist policies in comparison to unregulated markets (Commission & Growth, 2008; Salazar-Xirinachs et al., 2014; UNCTAD, 2016). Ocampo (2020) advocates

for public development banks being a mechanism that can finance innovative activities and thereby promote industrialization. This database accordingly allows quantifying the impact of these public development banks on structural change.

Export promotion agencies (measured by the age of agency) exert a positive and significant effect on the structural change term in the long run and no impact in the short run according to the PMG estimator. This is another interesting finding on interventionist policies (in addition to the previous set of findings on public development banks).

Table 1.9 results show the impact of policies on the services value added share. Most of the results are consistent with the results related to the structural change term. Table 1.9 results particularly highlight the importance of macroeconomic institutions in driving the services value added share over the long run, including fiscal rules, inflation targeting and central bank transparency. These macroeconomic institutions endorse macroeconomic stability and also improve the implementation of some structural policies. In fact, fiscal policy success in driving structural transformation depends on the institutional perspective and the results confirm this since fiscal policy from an institutional perspective (measured by fiscal rules) improves services value added share on the long run as per the PMG estimator. Furthermore, central bank transparency and inflation targeting improve the services value added share over the long run as per the PMG estimator. For instance, these institutions reduce the inflationary bias and enhance the credibility of monetary policy. Less stable inflation rates cause inefficient allocation of resources and this why central bank transparency and inflation targeting would lead to higher growth and structural change (Cukierman et al., 1993).

Finally, Table 1.11 results show the impact of policies on the exports concentration index. They particularly highlight that the indices measuring the depth and enforceability of trade agreements reduce exports concentration over the long run. Furthermore, the WTO membership increases the exports concentration over the long run. Similar findings were found when structural change is measured as value added shares: WTO membership reduces services value added share whereas enforceability and depth of trade agreements improve it on the long run (Table 1.9). Two important reflections are worth highlighting here. First, trade has been identified as an important determinant of structural change in the theoretical literature. Trade accelerates the process of structural transformation. For instance, barriers to international trade can impede resource allocation and thereby reduce productivity growth (Dabla-Norris et al., 2016). Furthermore, deeper integration in international trade can increase the pace and extent of industrialization and raise productivity, within

and across sectors. Finally, from a micro perspective, when the labor force is exposed to foreign competition, more productive sectors can experience an increase in their employment share (UNCTAD, 2016). The second important reflection to be highlighted here is that these findings confirm that the membership in WTO can be insufficient and what really matters to improve export diversification is the enforcement of trade agreements (which can be perceived as the de facto application to trade agreements).

A cross cutting conclusion across the different separate structural policies results is that they mostly affect structural change over the long run and not the short run. This is in line with the literature on structural policies suggesting that they usually take time to materialize, and as previously mentioned their impact over the short run is rather inconclusive (Hollweg et al., 2014; IMF, 2019; Swaroop, 2016). In addition, this confirms our earlier assumption that a conventional framework exclusively focusing on macroeconomic stability is insufficient to accelerate the pace of structural change in developing countries.

It is finally worth highlighting that many developing countries macroeconomic policies focus on the objective of stabilization and achieving low inflation instead of focusing on sustained economic growth. Indeed, maintaining macroeconomic stability is a prerequisite for promoting sustained growth with low volatility and granting a path towards structural transformation. Yet, this transformation requires the use of appropriate policies ensuring optimal allocation of resources. Accordingly, for macroeconomic policies to be successful in driving structural change, they must be coupled with relevant structural policies as previously discussed.

[Tables 1.8 - 1.11 about here]

Politics and policies implementation

Table D1 in Annex 1.D provides an interesting extension on how politics can affect the implementation of policies, and thereby the structural change process. The countries democracy scores are obtained from the V-Dem 13 database. Afterwards, the sample is split to two groups: the group of countries with a democracy score higher than the overall democracy median score of the sample and another group with a democracy score lower than the median of the overall sample. Results show that the countercyclicality of fiscal policies exert a significant effect on the structural change term only in the group of countries with a democracy score higher than the median (Columns 4 and 6). This is an interesting finding showing how the political regime can affect the implementation of macroeconomic policies. This

finding corroborates with Alesina et al. (2008) findings suggesting procyclicality of fiscal policy is more pronounced in corrupt regimes. Alesina et al. (2008) argue that procyclical policies are not only undertaken because of the lack of supply of credit but also because of political distortions. For instance, more democratic regimes are expected to have a higher degree of political and economic freedom. This freedom can indeed improve the conduct of discretionary fiscal policy as well as the ability of the economy to adjust and therefore the ability to undertake countercyclical policies (Jalles et al., 2023). Malik and Zaki (2022) also confirm that government efforts to implement macroeconomic reforms will only be effective if the political economy context is taken into account.

[Table D1 in Annex 1.D about here]

1.7 Conclusion

This paper analyzes the policy determinants of structural change in developing countries, including structural policies and macroeconomic stabilization ones. The paper makes several contributions to the literature. First, it investigates the role of both structural and macroeconomic stabilization policies in driving structural change. Most previous empirical work has addressed the role of these policies separately. Second, the paper proposes a large set of novel measurements to capture the policies that are likely to influence structural change. These measurements relate to structural policies (antimonopoly policy, financial policy, labor policy, trade policy and macroeconomic institutions) and macroeconomic policies (exchange rate management, fiscal and monetary policies). Finally, the empirical work relies on two different estimators as follows. As a baseline, the Arellano Bond estimator introduces a dynamic effect and controls for potential endogeneity. As an extension, the pooled mean group estimator helps distinguishing between the short and long run impacts of the policies on structural change within the same estimation framework and accounts for the cross-country heterogeneity. The paper also uses different measures of structural change (the term resulting from the productivity growth decomposition, value-added shares by sector and export concentration).

Results show that the within-sector productivity improvements have been the main driver of productivity growth in only two regions, East Asia and Sub-Saharan Africa. Furthermore, structural change has been growth reducing in the Middle East and North Africa (MENA) and Latin America. As per the empirical findings, the results show that competition laws and countercyclical fiscal policies matter for the structural change term. As per the results

using the other measures of structural change (value added and employment shares; exports concentration), they highlight the importance of countercyclical policies and undervalued currencies. Finally, the PMG results show that structural policies improve structural change over the long run, yet their effect is mostly insignificant over the short run.

Results also indicate some deindustrialization trends since structural policies tended to increase the share of services in value added whereas a similar effect on manufacturing could not be found. Indeed, industrialization-driven growth can be special due to several reasons, including its labor absorption capacity, tradability and the unconditional convergence to advanced technologies. Acknowledging these deindustrialization trends implies thinking of new development strategies and asking whether it would be possible to replicate manufacturing capabilities in inducing structural change in other parts of the economy. Services sectors vary according to their productivity, tradability and skills and not all of them can act as growth poles, though the ones associated with knowledge and innovation can create structural change (Rodrik, 2022; Martins, 2019).

From a policy perspective, macroeconomic stabilization is necessary for developing countries since it makes the domestic environment more predictable and improves resources allocation. However, this macroeconomic stability is not likely to be sufficient. This is why policy makers need to ensure that structural change and long run sustainable growth are not being sacrificed. Accordingly, a reasonable policy mix of structural and macro policies is needed to navigate a development path towards structural change. Despite being costly on the short run, structural policies can help developing countries achieve an efficient allocation of resources which would ensure a sustainable path towards structural change. As per macroeconomic policies, developing countries need to go beyond the conventional stability objectives. They can consider a developmental approach of macroeconomic policies through countercyclical policies. Indeed, the latter policies help facing challenges related to external financing and fluctuations in commodity prices.

Table 1.1: Structural change and fundamental determinants, baseline Arellano Bond dynamic panel

	(1)	(2)	(3)	(4)	(5)
	Struc change (prod decomp)	Struc change (prod decomp)	Struc change (prod decomp)	Struc change (prod decomp)	Struc change (prod decomp)
L. structural change	0.535*** (0.000132)	0.504*** (0.000170)	0.483*** (0.000102)	0.494*** (0.00579)	0.476*** (0.00939)
Human capital	-0.0665*** (0.00921)	-0.0630*** (0.0102)	0.0482*** (0.00741)	0.0171** (0.00670)	0.0125* (0.00706)
Physical capital (Inv percent of GDP)		0.00734*** (0.000681)	0.00590*** (0.000546)	-0.000458 (0.000292)	-0.00113** (0.000446)
Agriculture emp share (initial)			0.451*** (0.00589)	0.396*** (0.00432)	0.398*** (0.00758)
GDP per capita				0.0198*** (0.00157)	0.0178*** (0.00165)
Raw material exp share					-0.00180*** (0.000395)
Constant	0.430*** (0.00612)	0.432*** (0.00683)	0.232*** (0.00837)	0.128*** (0.0172)	0.176*** (0.0189)
Observations	2,594	2,556	2,480	2,462	1,999
Number of countries	114	114	114	113	103
Time fixed effects	Yes	Yes	Yes	Yes	Yes
P-value Arellano Bond test AR(1) in FD errors	0.2929	0.2926	0.2953	0.0771	0.14
P-value Arellano Bond test AR(2) in FD errors	0.3205	0.3209	0.3201	0.3642	0.3693

Notes:

The dependent variable is the structural change term resulting from the productivity growth decomposition (see equation 1.1). All estimations include time fixed effects. Standard errors in parentheses. Statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 1.2: Structural change and structural policies, baseline Arellano Bond dynamic panel

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
L. structural change	0.478*** (0.00955)	0.517 (0.775)	0.479*** (0.0110)	0.644*** (0.0103)	0.407*** (0.0123)	0.470*** (0.0777)	0.478*** (0.0105)	0.467*** (0.00692)	0.474*** (0.00933)	0.499*** (0.00464)	0.444*** (0.0116)	0.446*** (0.00985)
Human capital	0.00845 (0.00726)	-4.571 (7.308)	0.0153** (0.00678)	0.0281*** (0.00732)	-0.00290 (0.0211)	0.00498 (0.0739)	0.00830 (0.00711)	-0.0106 (0.00809)	0.00620 (0.00722)	-0.0204** (0.00913)	0.00534 (0.00682)	-0.00282 (0.00865)
Physical capital	-0.00180*** (0.000401)	0.194 (0.189)	-0.00229*** (0.000586)	0.000416 (0.000442)	-0.00627*** (0.00163)	-0.00455* (0.00234)	-0.00171*** (0.000488)	-0.00433*** (0.000635)	-0.00158*** (0.000478)	-0.00444*** (0.000698)	-0.00160*** (0.000618)	-0.00596*** (0.000891)
Raw material exp share	-0.000961*** (0.000326)	0.0427 (0.0386)	-0.000872 (0.000573)	0.000790*** (0.000238)	0.00290*** (0.000672)	-0.00257*** (0.000516)	-0.000737** (0.000365)	-0.000677 (0.000541)	-0.000952*** (0.000344)	-0.000495* (0.000276)	-0.000428 (0.000384)	-0.00218*** (0.000818)
GDP per capita	0.0145*** (0.00182)	0.284 (0.231)	0.0105*** (0.00172)	0.0157*** (0.00127)	0.0455*** (0.00349)	0.0230*** (0.00661)	0.0149*** (0.00159)	0.0178*** (0.00168)	0.0143*** (0.00140)	0.0142*** (0.00157)	0.0158*** (0.00208)	0.0143*** (0.00166)
Agriculture emp share	0.565*** (0.00969)	9.704 (10.81)	0.570*** (0.0115)	0.451*** (0.0125)	0.438*** (0.0217)	0.578*** (0.0736)	0.561*** (0.0109)	0.625*** (0.0142)	0.577*** (0.0108)	0.628*** (0.00714)	0.559*** (0.0113)	0.616*** (0.0115)
Antimonopoly policy												
Compe law age	0.00236*** (0.000456)											0.00368*** (0.000507)
Freedom to compete		-0.00568 (0.296)										
Financial policy												
Fin development index			0.0165*** (0.00467)									-0.00488 (0.00339)
Domestic credit to priv sec				0.000106*** (1.04e-05)								
Financial reforms index					0.0302*** (0.00258)							
Fin integration index						0.00180 (0.00124)						
Public dev banks							0.000220 (0.000263)					
Labor policy												
Labor market flexibility								-0.00326*** (0.000315)				-0.00385*** (0.000368)
Trade policy												
Exp prom agencies									-0.000641 (0.00111)			
Index enforc trade agreem										-0.00220*** (0.000561)		
Tariffs (applied mean)											0.000558 (0.000351)	0.000315 (0.000432)
Constant	0.181*** (0.0188)	-0.658 (3.193)	0.183*** (0.0189)	0.00905 (0.0157)	-0.0602*** (0.0149)	0.122 (0.0803)	0.183*** (0.0186)	0.161*** (0.0170)	0.188*** (0.0167)	0.149*** (0.0185)	0.179*** (0.0193)	0.216*** (0.0169)
Observations	1,999	653	1,981	1,678	458	1,183	1,999	1,497	1,999	1,422	1,942	1,455
Number of countries	103	31	102	102	60	63	103	99	103	99	102	98
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
P-value AB test AR(1)	0.142	0.3573	0.141	0.000885	0.522	0.0105	0.140	0.00724	0.143	0.00303	0.147	0.0041
P-value AB test AR(2)	0.368	0.3502	0.368	0.234	0.573	0.465	0.373	0.753	0.370	0.535	0.380	0.7417

Table 1.3: Structural change and macroeconomic policies, baseline Arellano Bond dynamic panel

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
L. structural change	0.475*** (0.0103)	0.606*** (0.0229)	0.494*** (0.0109)	0.465*** (0.0131)	0.475*** (0.00745)	0.537*** (0.0236)	0.542*** (0.0523)
Human capital	0.00897 (0.00710)	-0.0442*** (0.0125)	0.00967 (0.00797)	-0.00740 (0.00717)	0.0144** (0.00609)	0.0549 (0.0561)	-0.104 (0.0944)
Physical capital (Inv percent of GDP)	-0.00200*** (0.000445)	-0.00269** (0.00124)	-0.00185*** (0.000409)	0.00174*** (0.000525)	-0.00130** (0.000544)	-0.00145* (0.000817)	-0.00171* (0.000968)
Raw material exp share	-0.000904** (0.000397)	0.000298 (0.000652)	-0.00106*** (0.000322)	-0.000901*** (0.000308)	-0.000407 (0.000297)	-0.00146** (0.000650)	0.000251 (0.000475)
GDP per capita	0.0144*** (0.00189)	0.0232*** (0.00403)	0.0129*** (0.00155)	0.0272*** (0.00227)	0.0101*** (0.00206)	0.0135*** (0.00306)	0.0230*** (0.00627)
Agriculture emp share (initial)	0.568*** (0.00988)	0.490*** (0.0196)	0.581*** (0.0113)	0.642*** (0.0135)	0.575*** (0.00829)	0.510*** (0.0192)	0.519*** (0.0214)
Macroeconomic institutions							
Fiscal rules (budget balance rule age)	0.000502*** (6.18e-05)						
Central bank transparency		0.00124*** (0.000245)					
Inflation targeting			0.00191* (0.00103)				
Macroeconomic outcomes							
Inflation				-0.000329** (0.000139)			-3.50e-05* (1.85e-05)
Procyclicality of expenditures					-0.00215*** (0.000539)		-0.00343*** (0.000896)
Exchange rate misalignment						0.00660*** (0.00142)	0.000143 (0.00128)
Constant	0.187*** (0.0222)	0.0445 (0.0278)	0.149*** (0.0165)	0.0466** (0.0218)	0.187*** (0.0204)	0.101 (0.0624)	0.126* (0.0759)
Observations	1,999	1,004	1,908	1,811	1,864	1,603	1,458
Number of countries	103	69	102	101	101	80	76
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
P-value of AB test AR(1)	0.141	0.0185	0.0636	0.00948	0.156	0.000470	0.0107
P-value of AB test AR(2)	0.372	0.921	0.503	0.341	0.373	0.553	0.9718

Notes:

The dependent variable is the structural change term resulting from the productivity growth decomposition (see equation 1.1). All estimations include time fixed effects. Standard errors in parentheses. Statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 1.4: Productivity growth decomposition components and policies, baseline Arellano Bond dynamic panel

	(1) Struc change (prod decomp)	(2) Within component (prod decomp)
L.dependent	0.450*** (0.0355)	0.641*** (0.0264)
Human capital	-0.0343* (0.0177)	0.449 (0.602)
Physical capital (Inv percent of GDP)	-0.00505*** (0.00159)	0.0426*** (0.0108)
Raw material exp share	-0.000303 (0.000940)	0.00142 (0.00538)
GDP per capita	0.0253*** (0.00567)	0.150*** (0.0434)
Agriculture emp share (initial)	0.566*** (0.0277)	0.855 (0.595)
Compe law age	0.00654*** (0.00132)	-0.0315*** (0.00857)
Financial development index	-0.00680 (0.00494)	-0.0121 (0.0490)
Tariffs (applied mean)	0.00193** (0.000801)	-0.00448 (0.00600)
Labor market flexibility	-0.00423*** (0.000897)	-0.00911* (0.00487)
Inflation	-7.40e-05*** (2.02e-05)	-0.00119*** (0.000176)
Exchange rate misalignment	-0.000853 (0.00136)	-0.0581** (0.0252)
Procyclicality of expenditures	-0.00327*** (0.00110)	-0.0134* (0.00814)
Constant	0.150*** (0.0526)	-1.689** (0.754)
Observations	1,100	1,095
Number of countries	75	75
Time fixed effects	Yes	Yes
P-value AB test AR(1)	0.0506	0
P-value AB test AR(2)	0.861	0.2874

Notes:

The dependent variable in Column 1 is the structural change term and the within term in Column 2, and both result from the productivity growth decomposition (see equation 1.1). All estimations include time fixed effects. Standard errors in parentheses. Statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 1.5: Other measures of structural change and structural policies, baseline Arellano Bond dynamic panel

	(1)	(2)	(3)	(4)	(5)
	Services VA share	Manuf VA share	Services emp share	Manuf emp share	Exp concentration
L. dependent	0.741*** (0.0191)	0.718*** (0.0129)	0.807*** (0.0149)	0.825*** (0.0117)	0.494*** (0.0181)
Human capital	-0.00179 (0.00616)	-0.0134* (0.00689)	-0.00463 (0.00296)	-0.0125*** (0.00267)	-0.105** (0.0495)
Physical capital (Inv percent of GDP)	-0.00195*** (0.000695)	0.00293*** (0.000632)	-0.00151** (0.000635)	0.00204*** (0.000281)	-0.0173*** (0.00386)
Raw material exp share	0.000865** (0.000392)	-0.00235*** (0.000227)	0.000602*** (0.000134)	-0.000505*** (0.000145)	0.00977*** (0.00113)
GDP per capita	-0.0205*** (0.00222)	0.00991*** (0.00270)	0.00416*** (0.00156)	-0.00111** (0.000554)	0.0446*** (0.0102)
Arable land	0.00898*** (0.00206)	-0.00636*** (0.00160)	0.00755*** (0.00193)	0.00415*** (0.000518)	-0.0109 (0.00986)
Compe law age	-0.00322*** (0.000657)	-0.000738 (0.000453)	0.000437* (0.000246)	0.000650* (0.000372)	0.0218*** (0.00251)
Financial development index	0.00954** (0.00372)	-0.00247 (0.00316)	-0.0104*** (0.00226)	-0.00422*** (0.00163)	0.0271 (0.0173)
Labor market flexibility	0.000679 (0.000431)	0.000646* (0.000363)	0.00194*** (0.000243)	0.000169 (0.000129)	-0.0161*** (0.00183)
Tariffs (applied mean)	-0.00278*** (0.000667)	0.000991** (0.000504)	0.000748** (0.000370)	1.64e-05 (0.000253)	0.00539* (0.00305)
Constant	0.258*** (0.0184)	-0.0181 (0.0188)	0.0132 (0.0137)	0.0242*** (0.00490)	0.526*** (0.1000)
Observations	1,546	1,535	1,551	1,551	1,454
Number of countries	98	98	99	99	96
Time fixed effects	Yes	Yes	Yes	Yes	Yes
P-value AB test AR(1)	0.0001	0.0001	0	0	0.0007
P-value AB test AR(2)	0.8599	0.8359	0.2897	0.4648	0.718

Notes:

The dependent variable is the services value added share in Column 1; the manufacturing value added share in Column 2; the services employment share in Column 3; the manufacturing employment share in Column 4 and the exports concentration index in Column 5. All estimations include time fixed effects. Standard errors in parentheses. Statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 1.6: Other measures of structural change and macro policies, baseline Arellano Bond dynamic panel

	(1)	(2)	(3)	(4)	(5)
	Services VA share	Manuf VA share	Services emp share	Manuf emp share	Exp concentration
L. dependent	0.682*** (0.0616)	0.733*** (0.0289)	0.848*** (0.0391)	0.864*** (0.0168)	0.430*** (0.0337)
Human capital	0.0357 (0.0885)	-0.0820* (0.0430)	0.0510 (0.0464)	-0.0123** (0.00574)	-0.255*** (0.0812)
Physical capital (Inv percent of GDP)	0.00142 (0.00127)	0.000645 (0.00140)	-0.00281*** (0.00103)	0.00282*** (0.000540)	-0.0233*** (0.00405)
Raw material exp share	0.000838 (0.000835)	-0.00102*** (0.000341)	6.70e-05 (0.000389)	-0.000928*** (0.000281)	0.0211*** (0.00337)
GDP per capita	-0.0218*** (0.00683)	0.0165*** (0.00487)	0.00737*** (0.00269)	-7.15e-05 (0.00153)	0.0102 (0.0158)
Arable land	0.0112*** (0.00351)	-0.00438** (0.00200)	0.00709*** (0.00257)	-0.00157 (0.00105)	-0.00450 (0.0130)
Exchange rate misalignment	-0.00594*** (0.00183)	-0.00212* (0.00112)	-0.00216* (0.00117)	-0.00209** (0.000915)	0.0283*** (0.00841)
Inflation	8.12e-05*** (2.64e-05)	2.85e-05 (2.23e-05)	-3.53e-05* (2.10e-05)	0.000258** (0.000111)	-0.000523 (0.00107)
Procyclicality of expenditures	-0.00105* (0.000596)	-0.00371*** (0.000746)	-0.000947*** (0.000328)	-0.000904** (0.000401)	0.00630** (0.00292)
Constant	0.250*** (0.0475)	-0.0280 (0.0487)	-0.0466* (0.0281)	0.0239** (0.0115)	0.900*** (0.112)
Observations	1,511	1,497	1,511	1,456	1,189
Number of countries	76	76	76	76	75
Time fixed effects	Yes	Yes	Yes	Yes	Yes
P-value AB test AR(1)	0	0.0001	0	0	0.0018
P-value AB test AR(2)	0.6354	0.5119	0.1384	0.2594	0.3309

Notes:

The dependent variable is the services value added share in Column 1; the manufacturing value added share in Column 2; the services employment share in Column 3; the manufacturing employment share in Column 4 and the exports concentration index in Column 5. All estimations include time fixed effects. Standard errors in parentheses. Statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 1.7: Other measures of structural change and policies, baseline Arellano Bond dynamic panel

	(1)	(2)	(3)	(4)	(5)
	Services VA share	Manuf VA share	Services emp share	Manuf emp share	Exp concentration
L. dependent	0.542*** (0.0787)	0.677*** (0.0240)	0.815*** (0.0404)	0.825*** (0.0168)	0.412*** (0.0276)
Human capital	-0.0108 (0.0139)	-0.0231** (0.0103)	-0.00131 (0.00676)	-0.0175*** (0.00462)	-0.174** (0.0862)
Physical capital (Inv percent of GDP)	0.00280** (0.00117)	0.00313** (0.00138)	-0.00338*** (0.00115)	0.00208*** (0.000771)	-0.0269*** (0.00558)
Raw material exp share	0.00102 (0.000918)	-0.00198*** (0.000431)	0.00107*** (0.000352)	-0.000852*** (0.000270)	0.0220*** (0.00339)
GDP per capita	-0.0256*** (0.00631)	0.0210*** (0.00420)	0.00948*** (0.00314)	0.000381 (0.00128)	0.0127 (0.0243)
Arable land	0.00760*** (0.00228)	-0.00819*** (0.00235)	0.00864*** (0.00285)	0.000679 (0.00119)	0.00341 (0.0148)
Compe law age	-0.00194** (0.000845)	-0.000356 (0.000686)	-0.000116 (0.000444)	0.00189*** (0.000657)	0.0186*** (0.00332)
Financial development index	0.0191*** (0.00517)	-0.00871* (0.00500)	-0.000799 (0.00405)	-0.00158 (0.00315)	0.00762 (0.0243)
Tariffs (applied mean)	-0.00309*** (0.00105)	0.00117 (0.000826)	0.000876 (0.000552)	0.00112*** (0.000427)	0.00818* (0.00456)
Labor market flexibility	-0.000128 (0.000790)	0.000244 (0.000509)	0.000149 (0.000341)	-0.000157 (0.000292)	-0.0152*** (0.00340)
Inflation	8.13e-06 (2.91e-05)	1.58e-05 (2.59e-05)	-7.94e-05*** (2.07e-05)	8.96e-06 (1.46e-05)	-0.00134 (0.00104)
Exchange rate misalignment	-0.00663*** (0.00192)	-0.000498 (0.00115)	-0.00154 (0.00113)	-0.00183** (0.000751)	0.0298*** (0.00964)
Procyclicality of expenditures	-0.00142** (0.000666)	-0.00639*** (0.00123)	-0.00136*** (0.000351)	-0.000954** (0.000458)	0.0116*** (0.00254)
Constant	0.391*** (0.0514)	-0.0889*** (0.0300)	-0.0237 (0.0321)	0.0220** (0.00989)	0.874*** (0.212)
Observations	1,143	1,132	1,143	1,143	1,050
Number of countries	75	75	75	75	73
Time fixed effects	Yes	Yes	Yes	Yes	Yes
P-value AB test AR(1)	0.0003	0.0006	0	0	0.0034
P-value AB test AR(2)	0.7761	0.9229	0.154	0.185	0.4765

Notes:

The dependent variable is the services value added share in Column 1; the manufacturing value added share in Column 2; the services employment share in Column 3; the manufacturing employment share in Column 4 and the exports concentration index in Column 5. All estimations include time fixed effects. Standard errors in parentheses. Statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 1.8: Structural change (productivity growth decomposition) and policies, dynamic heterogeneous panel (pooled mean group)

	Policy long term	D.policy short term	Error correction coefficient	Hausman test (p value)
Antimonopoly policy				
Com law age	0.00457*** (0.000805)	0.0212 (0.0216)	-0.268*** (0.0247)	0.3953
Promotion comp	0.0381*** (0.00740)	-0.0103** (0.00409)	-0.238*** (0.0383)	0.5851
Financial policy				
Financial reforms	0.00466 (0.00389)	-0.00618 (0.0159)	-0.389*** (0.0682)	0.8633
Financial integration	0.0100*** (0.00257)	0.00613 (0.00862)	-0.279*** (0.0371)	0.6492
Public dev banks (infra mandate)	0.00454*** (0.00161)	-0.000577 (0.000355)	-0.253*** (0.0229)	0.0000
Labor policy				
Hiring and firing reg	—	—	—	—
Trade policy				
Exports prom agencies	0.00932*** (0.00185)	0.000334 (0.000399)	-0.261*** (0.0232)	0.0000
Enforceability of trade agreements	—	—	—	—
WTO membership	0.0398*** (0.00265)	-0.00404** (0.00185)	-0.232*** (0.0243)	0.0437
Macro institutions				
Fiscal rules (budget balance age)	0.00250** (0.00108)	-0.000119 (0.00204)	-0.387*** (0.0302)	0.7657
Central bank transparency	—	—	—	—
Inflation targeting	-0.0137* (0.00717)	-0.00236 (0.00216)	-0.369*** (0.0298)	0.9928

Notes:

The dependent variable is the structural change term resulting from the productivity growth decomposition (see equation 1.1). Each line represents a regression. Controls include human capital index and physical capital (investment as percent of GDP). The lag structure is (1,1,1,1). Empty cells are regressions that did not converge.

Standard errors in parentheses.

Statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 1.9: Structural change (services value added share) and policies, dynamic heterogeneous panel (pooled mean group)

	Policy long term	D.policy short term	Error correction coefficient	Hausman test (p value)
Antimonopoly policy				
Comp law age	0.0132*** (0.00173)	-0.000172 (0.000773)	-0.204*** (0.0202)	0.624
Promotion comp	-0.00930*** (0.00190)	0.00273** (0.00112)	-0.181*** (0.0407)	0.3689
Financial policy				
Financial reforms	0.00912*** (0.00255)	0.00916 (0.00564)	-0.427*** (0.0476)	0.8067
Financial integration	0.103*** (0.0112)	-0.00657 (0.00661)	-0.118*** (0.0225)	1.0000
Public dev banks (infra mandate)	0.00271*** (0.000272)	5.15e-06 (0.000128)	-0.217*** (0.0211)	0.0000
Labor policy				
Hiring and firing reg	—	—	—	—
Trade policy				
Exports prom agencies	-0.0725*** (0.00561)	0.00105* (0.000602)	-0.180*** (0.0217)	1.0000
Enforceability of trade agreements (sum)	0.0675*** (0.00533)	0.00179 (0.0139)	-0.218*** (0.0265)	0.8796
Enforceability of trade agreements (depth2)	0.000301 (0.00206)	0.00792 (0.0141)	-0.230*** (0.0300)	0.9864
Enforceability of trade agreements (depth3)	-0.00557*** (0.00147)	0.00951 (0.0127)	-0.252*** (0.0271)	0.9523
WTO membership	-0.00347** (0.00159)	0.000419 (0.00116)	-0.206*** (0.0199)	0.7524
Macro institutions				
Fiscal rules (budget balance age)	0.00137*** (0.000322)	-6.80e-05 (4.71e-05)	-0.211*** (0.0207)	0.1066
Central bank transparency	0.00146*** (0.000386)	-0.000164 (0.000658)	-0.248*** (0.0300)	0.8852
Inflation targeting	0.00627** (0.00308)	-0.000205 (0.000429)	-0.220*** (0.0213)	0.6064

Notes:

The dependent variable is the services value added share. Each line represents a regression. Controls include human capital index and physical capital (investment as percent of GDP). The lag structure is (1,1,1,1). Empty cells are regressions that did not converge.

Standard errors in parentheses.

Statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 1.10: Structural change (manufacturing value added share) and policies, dynamic heterogeneous panel (pooled mean group)

	Policy long term	D.policy short term	Error correction coefficient	Hausman test (p value)
Antimonopoly policy				
Comp law dummy	-0.00649*** (0.00133)	0.000479 (0.000555)	-0.226*** (0.0199)	0.0267
Promotion comp	0.0134* (0.00695)	-0.000589 (0.00213)	-0.132*** (0.0195)	0.1628
Financial policy				
Financial reforms	-0.00470*** (0.00117)	-0.00442 (0.00539)	-0.345*** (0.0442)	0.7813
Financial integration	0.0112*** (0.00377)	-0.0134** (0.00609)	-0.197*** (0.0290)	0.7799
Public dev banks (infra mandate)	0.0442*** (0.00879)	-3.24e-05 (0.000357)	-0.226*** (0.0199)	1
Labor policy				
Hiring and firing reg	—	—	—	—
Trade policy				
Exports prom agencies	0.730** (0.364)	-0.156*** (0.0192)	-0.156*** (0.0192)	1
Enforceability of trade agreements (sum)	-0.0112*** (0.00159)	0.000348 (0.0147)	-0.260*** (0.0272)	0.5507
Enforceability of trade agreements (depth2)	-0.00977*** (0.00148)	0.00109 (0.0145)	-0.259*** (0.0273)	0.5804
Enforceability of trade agreements (depth3)	-0.0101*** (0.00152)	-0.000517 (0.0133)	-0.259*** (0.0273)	0.6116
WTO membership	0.0106*** (0.00165)	0.000245 (0.000671)	-0.153*** (0.0184)	0.0003
Macro institutions				
Fiscal rules (budget balance age)	-0.00103*** (0.000298)	5.56e-05 (3.96e-05)	-0.230*** (0.0200)	0.5212
Central bank transparency	0.00189*** (0.000516)	-0.000544 (0.000493)	-0.180*** (0.0267)	0.9775
Inflation targeting	0.000732 (0.00279)	3.16e-05 (0.000400)	-0.232*** (0.0205)	0.8471

Notes:

The dependent variable is the manufacturing value added share. Each line represents a regression. Controls include human capital index and physical capital (investment as percent of GDP). The lag structure is (1,1,1,1). Empty cells are regressions that did not converge.

Standard errors in parentheses.

Statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 1.11: Structural change (export concentration) and policies, dynamic heterogeneous panel (pooled mean group)

	Policy long term	D.policy short term	Error correction coefficient	Hausman test (p value)
Antimonopoly policy				
Comp law dummy	-0.00291 (0.00476)	0.00660 (0.0154)	-0.359*** (0.0296)	0.0000
Promotion comp	-0.0333** (0.0155)	-0.0174 (0.0166)	-0.303*** (0.0547)	0.9407
Financial policy				
Financial reforms	-0.196*** (0.0156)	0.0484 (0.0296)	-0.393*** (0.0564)	0.2365
Financial integration	0.0621*** (0.00833)	-0.0118 (0.0394)	-0.308*** (0.0363)	0.6121
Public dev banks (infra mandate)	0.00629*** (0.00110)	-2.85e-05 (0.000295)	-0.368*** (0.0286)	0.9826
Labor policy				
Hiring and firing reg	-	-	-	-
Trade policy				
Exports prom agencies	0.0441*** (0.0117)	-0.0114*** (0.00407)	-0.367*** (0.0294)	0.1332
Enforceability of trade agreements (sum)	-0.0655*** (0.00567)	-0.0979 (0.181)	-0.501*** (0.110)	0.6609
Enforceability of trade agreements (depth2)	-0.0616*** (0.00445)	-0.0946 (0.170)	-0.486*** (0.0965)	0.7037
Enforceability of trade agreements (depth3)	-0.130*** (0.0229)	-0.564 (0.666)	-0.419*** (0.0432)	0.7908
WTO membership	0.00755* (0.00427)	0.00191 (0.00470)	-0.370*** (0.0298)	0.9996
Macro institutions				
Fiscal rules (budget balance age)	0.00250** (0.00108)	-0.000119 (0.00204)	-0.387*** (0.0302)	0.7657
Central bank transparency	-0.00622*** (0.00139)	0.00295 (0.00535)	-0.403*** (0.0356)	0.3352
Inflation targeting	-0.0137* (0.00717)	-0.00236 (0.00216)	-0.369*** (0.0298)	0.9928

Notes:

The dependent variable is the export concentration index. Each line represents a regression. Controls include human capital index and physical capital (investment as percent of GDP). The lag structure is (1,1,1,1). Empty cells are regressions that did not converge.

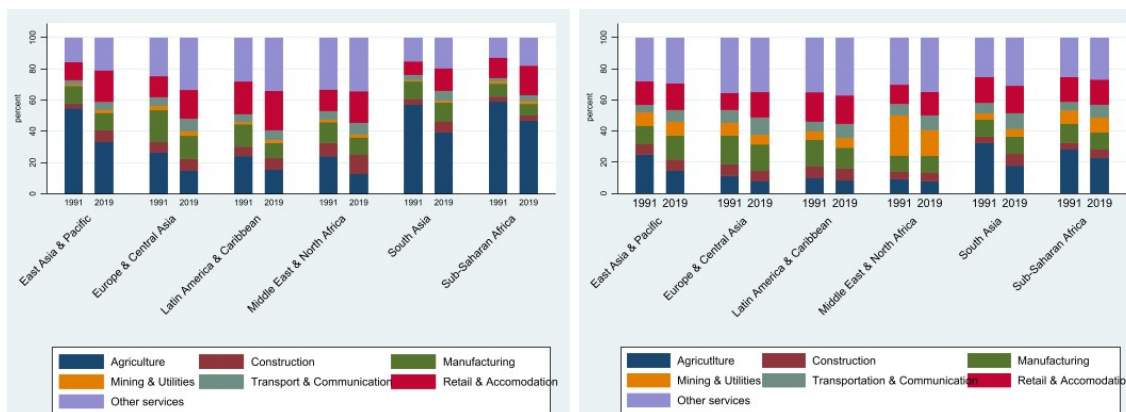
Standard errors in parentheses.

Statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Figure 1.1: Sectoral shares (averages by regions)

(a) Employment

(b) Value Added



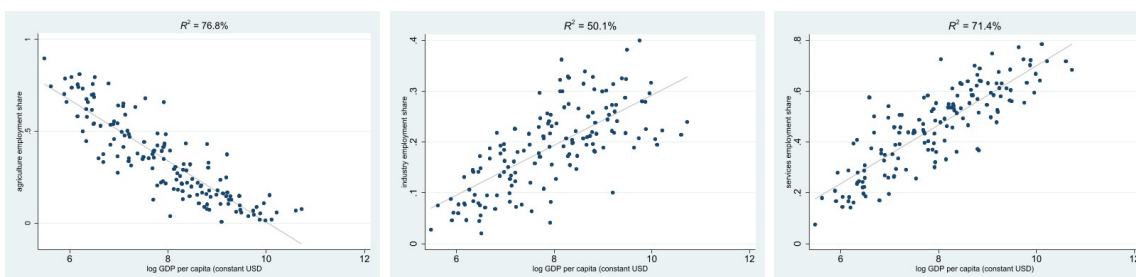
Source: Authors' calculations based on UN Statistics National Accounts data and ILO

Figure 1.2: Employment shares and GDP per capita in developing countries (1991-2019 average)

(a) Agriculture

(b) Industry

(c) Services



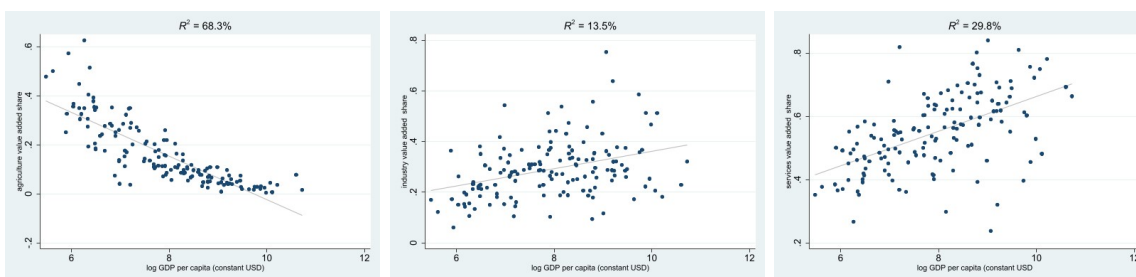
Source: Authors' calculations based on UN Statistics National Accounts and World Development Indicators, World Bank data

Figure 1.3: Value added shares and GDP per capita in developing countries (1991-2019 average)

(a) Agriculture

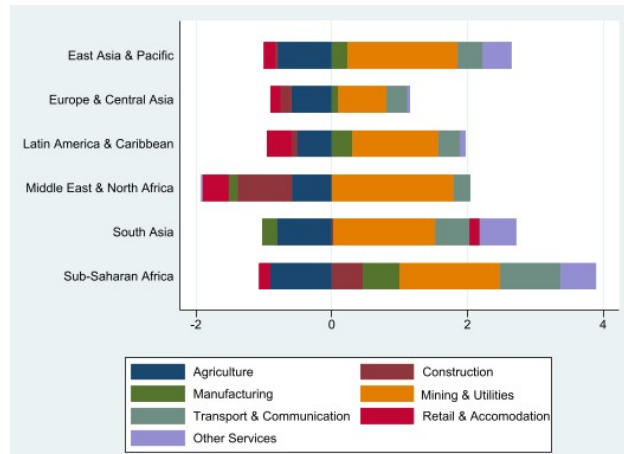
(b) Industry

(c) Services



Source: Authors' calculations based on UN Statistics National Accounts and World Development Indicators, World Bank data

Figure 1.4: Relative sectoral labor productivity (2019)



Source: Authors' calculations based on UN Statistics National Accounts and ILO data

Note: Relative sectoral labor productivity is calculated the log of the ratio of sectoral productivity to the economy wide productivity (Martins, 2019). For instance, if the bar measures 1, then the sector's productivity is 10 times higher than the average (or the economy wide productivity level). If the bar measures -1, then the sector's productivity is a tenth of the average.

Figure 1.5: Productivity by sector in developing countries (average by region)

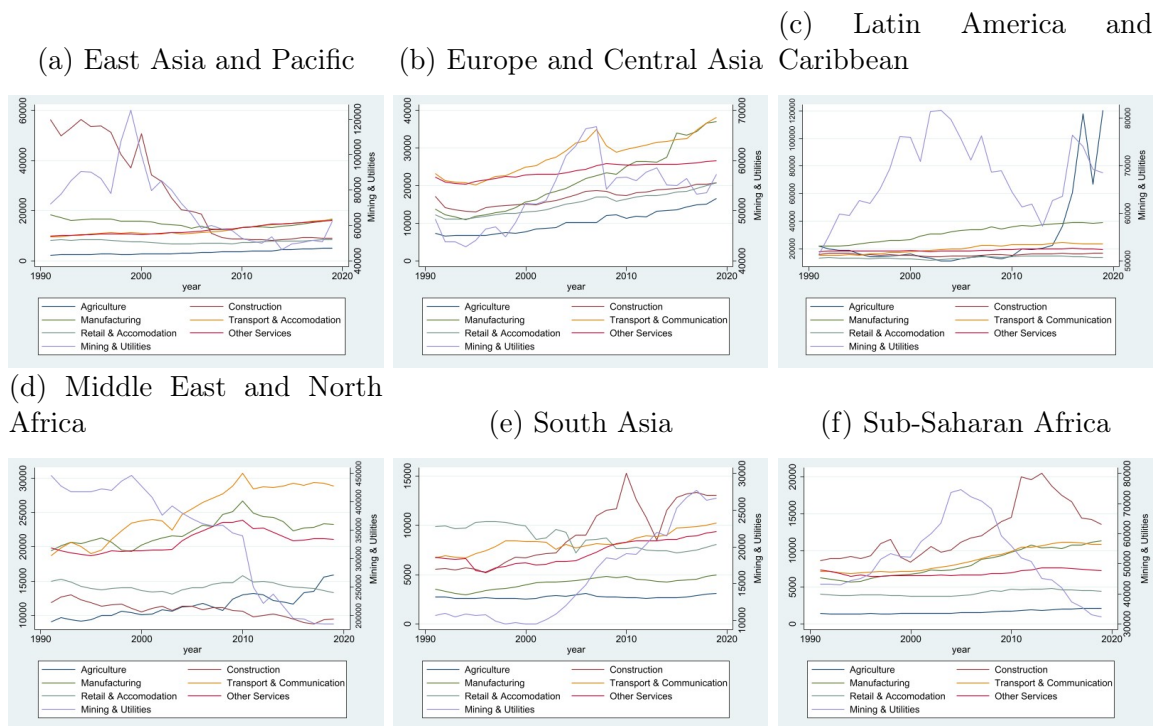
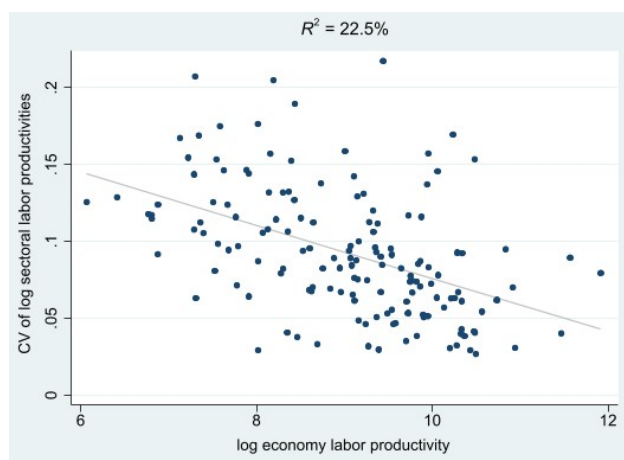
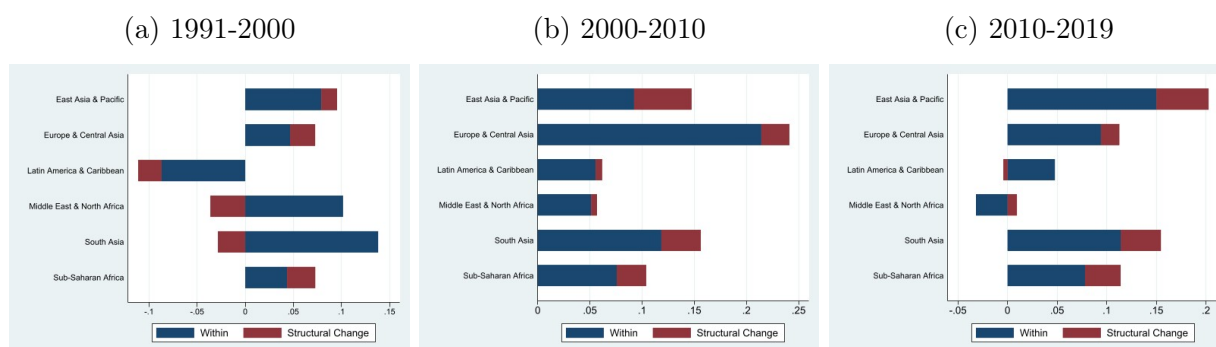


Figure 1.6: Intersectoral productivity gaps and econ wide productivity (2019)



Source: Authors' calculations based on data from UN Statistics National Accounts Note: This plot shows the relationship between the coefficient of variation in log sectoral productivities in each country (Y axis) and the log of the labor productivity of the country in 2019.

Figure 1.7: Productivity growth decomposition (t and t-5, average)



Source: Authors' calculations based on UN Statistics National Accounts and ILO data Note: Details on productivity growth decomposition are elaborated in data and methodology sections (see equation 1.1).

Appendix 1.A Data Description

Table A1: List of Countries

East Asia	Montenegro	Suriname	Comoros
Cambodia	North Macedonia	Uruguay	Congo, Dem. Rep.
China	Poland	Venezuela, RB	Congo, Rep.
Fiji	Portugal	Middle East and North Africa	Cote d'Ivoire
Indonesia	Romania	Algeria	Equatorial Guinea
Korea, Dem. Rep.	Russian Federation	Bahrain	Eritrea
Korea, Rep	Serbia	Djibouti	Eswatini
Lao PDR	Slovak Republic	Egypt, Arab Rep.	Ethiopia
Malaysia	Tajikistan	Iran, Islamic Rep.	Gabon
Mongolia	Turkey	Iraq	Gambia, The
Myanmar	Turkmenistan	Jordan	Ghana
Papua New Guinea	Ukraine	Lebanon	Guinea
Philippines	Uzbekistan	Libya	Guinea-Bissau
Solomon Islands	Latin America	Malta	Kenya
Thailand	Argentina	Morocco	Lesotho
Timor-Leste	Barbados	Oman	Liberia
Tonga	Belize	Saudi Arabia	Madagascar
Vanuatu	Bolivia	Syrian Arab Republic	Malawi
Vietnam	Brazil	Tunisia	Mali
Europe Cent Asia	Chile	West Bank and Gaza	Mauritania
Albania	Colombia	Yemen, Rep.	Mauritius
Armenia	Costa Rica	South Asia	Mozambique
Azerbaijan	Cuba	Afghanistan	Namibia
Belarus	Dominican Republic	Bangladesh	Niger
Bosnia and Herzegovina	Ecuador	Bhutan	Nigeria
Bulgaria	El Salvador	India	Rwanda
Croatia	Grenada	Maldives	Sao Tome and Principe
Cyprus	Guatemala	Nepal	Senegal
Czech Republic	Guyana	Pakistan	Sierra Leone
Estonia	Haiti	Sri Lanka	Somalia
Georgia	Honduras	Sub-Saharan Africa	South Africa
Greece	Jamaica	Angola	South Sudan
Hungary	Mexico	Benin	Sudan
Iceland	Nicaragua	Botswana	Tanzania
Ireland	Panama	Burkina Faso	Togo
Kazakhstan	Paraguay	Burundi	Uganda
Kyrgyz Republic	Peru	Cabo Verde	Zambia
Latvia	Puerto Rico	Cameroon	Zimbabwe
Lithuania	St. Lucia	⁶² Central African Rep	
Moldova	St. Vincent	Chad	

Table A2: Value-added and employment by sector

Employment by economic activity	Value added by sector (constant 2015 prices)
1. Agriculture; forestry and fishing	1. Agriculture, hunting, forestry, fishing
2. Mining and quarrying	3. Mining and utilities
4. Utilities	2. Manufacturing
3. Manufacturing	4. Construction
5. Construction	5. Wholesale, retail trade, and restaurants and hotels
6. Wholesale and retail trade	6. Transport, storage, and communication
8. Accommodation (restaurants and hotels)	
7. Transport; storage and communication	
9. Financial and insurance activities	
10. Real estate; business and administrative activities	
11. Public administration and defense; compulsory social security	7. Other activities
12. Education	
13. Human health and social work activities	
14. Other services.	

Table A3: Policies measurements

Policy area	Sub-area	Variable	Definition/Scale	Source
Antimonopoly Policy	<i>De jure</i>	Competition law, age and dummy		Petersen, 2013 and authors
	<i>De facto</i>	Index of freedom to compete	Ranges between 1 and 5, with 1 being "very low" and 5 being "very high".	The Economist Intelligence Unit
		Index of promotion of competition	Ranges between 1 and 5 with 1 being "very poor" and 5 being "very good". The index accounts for seven dimensions of financial sector policy: (i) credit controls and reserves requirements; (ii) interest rate controls such as ceilings or floors; (iii) entry barriers into the financial system ; (iv) state ownership in the banking sector; (v) financial account restrictions;	The Economist Intelligence Unit
		Domestic financial reforms index	(vi) prudential regulations and supervision of the banking sector; (vii) securities market policy. Along each dimension, a country is given a score from zero to three, with zero corresponding to the highest degree of repression and three indicating full liberalization. Hence, the overall reforms index varies from zero to 21.	Abiad et al. (2010)
	Domestic	Index of financial development	Combination of depth (size and liquidity of markets), access (ability of individuals and companies to access financial services), and efficiency (ability of institutions to provide financial services at low cost and with sustainable revenues, and the level of activity of capital markets).	Svirydzenka (2016)
	International	De jure financial integration index	Ranges between 0 and 1 (higher values indicating more financial development). The capital control dataset of Fernández et al. (2019) reports the presence or the absence of capital controls. It draws on the IMF's AREAER, which contains descriptions of de jure restrictions on capital controls in each of the IMF member countries. This dataset translates the AREAER into 0/1 qualitative indicators denoting the absence or the presence of the control.	Fernández et al., 2019
Finacial Policy	Public	Public development banks by mandate, age or dummy	Mandates: Rural and agricultural development, promoting exports and foreign trade, infrastructure, local government, micro, small, and medium-sized enterprises flexible (mandate not confined to a specific mission).	Institute of New Structural Economics and French Development Agency
Labor Policy		Labor market flexibility index	assesses four areas: minimum wage, hiring and firing practices, collective bargaining, and unemployment benefits. The index is standardized on a 0-10 scale. A higher value represents a more flexible labor market	Fraser Institute
Trade policy		Export promotion agencies, age or dummy	Two rounds of survey data on EPAs (2010 and 2014)	Olarregea et al., 2019 and Lederman et al., 2010
		Indices of trade agreements enforceability and depth WTO membership Tariffs	See Annex 2 for details Dummy variable	Constructed by authors using World Bank Deep Trade Agreements database CEPII gravity dataset WDI

Policy area	Sub-area	Variable	Definition/Scale	Source
Macro institutions	Fiscal rules		The dataset covers four types of rules: budget balance rules, debt rules, expenditure rules, and revenue rules, applying to the central or general government or the public sector. Rules at the subnational level are not included. The dates indicate the year when a rule was implemented.	IMF Fiscal Rules Dataset
	Inflation targeting		A dummy variable taking the value 1 if an inflation targeting framework is in place in a certain country in a specific year. IMF AREAER provides information on inflation targeting frameworks since 2010 and information from Carare and Stone (2006) is used to determine the exact year each country adopted inflation targeting. Dincer and Eichengreen (2014) measure transparency and independence for 120 central banks over 1998-2014. The index is extrapolated to 2015-17 using 2014 data and extrapolated to 1970-97 using 1998 data.	Ha et al (2019) database
	Central bank transparency Eichengreen		For countries not included in the Dincer and Eichengreen data set, the fitted values from an OLS regression of the Dincer-Eichengreen index on the Garriga index are used.	Ha et al (2019) database
Macroeconomic outcomes	Fiscal balance Inflation		The index ranges from 0 to 15 (0=least transparent; 15=most transparent). Net lending/borrowing (also referred as overall balance) (IMF Fiscal Monitor Database)	World Development Indicators, World Bank
	Exchange rate misalignment		Currency misalignments are deduced from the difference between real effective exchange rates and their equilibrium values. Misalignments' values give the magnitude of the real exchange rate adjustment that would restore equilibrium. A negative sign of the misalignment indicates an undervaluation whereas a positive sign indicates an overvaluation of the real effective exchange rate.	CEPII EQCHANGE database

Table A4: Summary Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Productivity growth	3731	0.102	0.24	-0.914	2.922
Within prod. growth	3660	0.082	0.235	-0.914	2.722
Structural change	3667	0.02	0.083	-2.215	0.338
Exports concentration	3528	3.51	1.295	0	6.417
Services value added share	4345	0.546	0.132	0.107	0.869
Manuf. value added share	4331	0.134	0.075	0	0.737
Manuf emp share	4379	0.113	0.064	0.002	0.35
Services emp share	4379	0.456	0.172	0.053	0.85
Competition law age	4408	6.112	9.676	0	60
Freedom to compete	878	2.964	0.871	1	5
Credit to priv sector	3365	35.494	33.615	0.002	304.575
Fin reforms index	1015	12.794	4.314	0.75	21
Fin integration index	1678	0.481	0.413	0	1
Fin development index	4147	0.218	0.157	0	0.853
Public dev banks age (infra)	4408	1.37	8.411	0	82
Labor market flex index	2238	6.308	1.009	2.93	8.25
Tariffs (applied mean)	3386	10.748	8.299	0	105.36
WTO membership	4340	0.654	0.476	0	1
Exp prom agencies age	4408	6.561	12.947	0	82
Enforc of trade agreeme1	2753	20.833	14.161	2	63.292
Enforc of trade agreeme2	2753	0.199	0.136	0.019	0.611
Enforc of trade agreeme3	2753	0.197	0.133	0.019	0.599
Fiscal rules	1675	0.505	0.5	0	1
CB transparency	1513	4.564	2.695	0	14.5
Inf. targeting	3976	0.095	0.293	0	1
Inflation	3699	28.259	421.557	-60.496	23773.132
Procyclicality of expenditures	3496	0.145	0.426	-1	1
Exchange rate misalignment	2754	-0.045	0.187	-0.985	1.395

Table A5: Correlation matrix of structural policies

	Competition law	Freedom to compete	Domestic credit to priv sec	Financial reforms index	Fin development index	Fin integration index	Public dev banks (infra)	Labor market flexib	Tariffs (applied mean)	Exp prom agencies	Index enforc trade agreem
Competition law	1										
Freedom to compete	0.260***	1									
Domestic credit to priv sec	0.423***	0.371***	1								
Financial reforms index	0.358***	0.249***	0.172***	1							
Fin development index	0.532***	0.461***	0.759***	0.302***	1						
Fin integration index	0.031	-0.091**	0.007	-0.443***	0.113***	1					
Public dev banks (infra)	0.152***	-0.178***	0.015	-0.024	0.062***	-0.041*	1				
Labor market flexib	0.379***	0.452***	0.627***	0.473***	0.505***	-0.455***	-0.093***	1			
Tariffs (applied mean)	-0.334***	-0.405***	-0.344***	-0.434***	-0.366***	0.248***	0.134***	-0.503***	1		
Exp prom agencies	0.301***	0.389***	0.250***	0.128***	0.267***	-0.036	0.044***	0.255***	-0.094***	1	
Index enforc trade agreem	0.365***	0.268***	0.322***	0.181***	0.273***	-0.284***	0.021	0.352***	-0.384***	0.230***	1

Notes:

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table A6: Principal components analysis of structural policies

	Comp1	Comp2	Comp3
Competition law	0.259	-0.2899	0.5637
Freedom to compete	0.3751	0.013	0.0541
Domestic credit to priv sec	0.3513	0.4317	-0.0765
Financial reforms index	0.2432	-0.4111	-0.2665
Fin development index	0.3823	0.3497	0.1506
Fin integration index	-0.0636	0.4657	0.3737
Public dev banks (infra)	-0.1096	0.112	0.4674
Labor market flexib	0.4401	0.0621	-0.1394
Tariffs (applied mean)	-0.4302	0.0511	0.1221
Exp prom agencies	0.2281	-0.0961	0.0037
Index enforc trade agreem	0.129	-0.4392	0.4327
Eigenvalue	3.44	2.02317	1.43255
Cumulative proportion	0.3127	0.4967	0.6269

Appendix 1.B Export Concentration Index (Theil Index)

The Theil index can be calculated for groups of exports and can be decomposed additively into within-groups and between-groups components so that the within- and between-groups components add up to the overall index. Accordingly, it would be possible to distinguish an increased diversification happening on the within groups level from that happening across groups (Cadot et al., 2011b)

The first step constitutes in creating dummy variables to define each product as “Traditional,” “New,” or “Non-traded” (Papageorgiou et al., 2015). Traditional products are goods that were exported at the beginning of the sample, and non-traded goods have zero exports for the entire sample. Thus, for each country and product, the dummy values for traditional and non-traded remain constant across all years of our sample. For each country/year/product group, products classified as “new” must have been non-traded in at least the two previous years and then exported in the two following years. Thus, the dummy values for new products may change over time.

The overall Theil index is accordingly a sum of the within and between components (Cadot et al., 2011a). The between Theil index is calculated for each country/year pair is defined as follows:

$$T_B = \sum_{k=0}^1 \frac{n_k}{n} \frac{\mu_k}{\mu} \ln\left(\frac{\mu_k}{\mu}\right) \quad (1.4)$$

Where k represents each group (traditional, new, and non-traded), n_k is the total number of products exported in each group. $\frac{\mu_k}{\mu}$ is the relative mean of exports in each group.

As the within Theil index for each country/year pair is as follows:

$$T_W = \sum_{k=0}^1 \frac{n_k}{n} \frac{\mu_k}{\mu} \left[\frac{1}{n_k} \sum_{i=0}^{n_k} \frac{x_i}{\mu_k} \ln\left(\frac{x_i}{\mu_k}\right) \right] \quad (1.5)$$

$$T_B + T_W = \text{overalltheil} \quad (1.6)$$

Appendix 1.C Indices of Enforceability and Depth of Trade Agreements

Following Ezzat and Zaki (2022) and Guilin et al. (2023), we construct indices reflecting the enforcement and depth of content preferential trade agreements using the World Bank deep trade agreements database. Indices suggested by these papers are calculated on the agreement level. To create indices on the country level, we take the average by country and year of these enforceability indices. The database describes 52 provisions of 279 preferential trade agreements signed between 1958 and 2015. It includes information about legal enforceability of each provision.

The first enforceability index ($Enfo_{it}$) is measured by adding the categorical variables related to the preferential trade agreements (PTA) provisions falling under the current mandate of the WTO ($WTOP_{ijt}$) in addition to those outside the current mandate of the WTO and that are already subject to some form of commitment in WTO agreements - when legally enforceable ($WTOX_{ijt}$). These categorical variables can take three values as follows: 0 if the provision is not mentioned in the agreement or not legally enforceable; 1 if the provision is mentioned, legally enforceable but explicitly excluded by dispute settlement provision; and 2 if the provision is mentioned and legally enforceable.

$$Enfo_{it} = WTOP_{ijt} + WTOX_{ijt} \quad (1.7)$$

Where i is the country, t is the year and j is the agreement

As per the depth indices, a deep trade agreement contains a higher share of legally enforceable items than a shallow one. Depth1 is based on a simple average as a baseline to discriminate the agreements: if a country-pair signs an agreement containing a higher number of legally enforceable items (N^{le}) than the average ($\overline{N^{le}}$) then this agreement is defined as deep.

$$Depth1 = \begin{cases} 1 & \text{if } N^{le} \geq \overline{N^{le}} \\ 0 & \text{otherwise} \end{cases} \quad (1.8)$$

$$Depth2 = \frac{N^{le}}{N^{le} + N^{ne}} \quad (1.9)$$

$$Depth3 = \frac{N^{le}}{\max N} \quad (1.10)$$

Where (N^{le}) the number of non-legally enforceable items and N the total number of provisions (52).

Appendix 1.D Supplementary Results

Table D1: Structural change, policies and democracy, baseline Arellano Bond dynamic panel

	(1) democracy lower than median	(2) democracy higher than median	(3) democracy lower than median	(4) democracy higher than median	(5) democracy lower than median	(6) democracy higher than median
L.dependent	0.468*** (0.0662)	0.417*** (0.0220)	0.242 (0.216)	0.360*** (0.0770)	0.219 (0.229)	0.170* (0.0902)
Human capital	-0.122 (0.168)	-0.0108 (0.0117)	-0.0845 (0.386)	0.0436 (0.149)	0.275 (0.864)	0.106 (0.277)
Physical capital (Inv percent of GDP)	-0.00670** (0.00320)	-0.00195 (0.00121)	0.00421 (0.00403)	0.000911 (0.00187)	-0.00209 (0.00341)	-0.00104 (0.00220)
Raw material exp share	-0.00149 (0.00113)	-3.85e-05 (0.000499)	0.00251 (0.00278)	-0.000498 (0.000693)	-0.000702 (0.00316)	3.90e-05 (0.000880)
GDP per capita	0.0193*** (0.00524)	0.00641 (0.00490)	0.00521 (0.0537)	0.00777 (0.00861)	0.0629*** (0.0210)	0.0145 (0.0112)
Agriculture emp share (initial)	0.370*** (0.0613)	0.464*** (0.0227)	0.164 (0.262)	0.442*** (0.0326)	0.304 (0.437)	0.548*** (0.0366)
Compe law age	-0.00378*** (0.00117)	0.00230*** (0.000866)			-0.000948 (0.00293)	0.00332 (0.00284)
Financial development index	0.00928 (0.0114)	-0.0122** (0.00523)			0.00160 (0.0697)	-0.0318*** (0.00773)
Labor market flexibility	-0.00427*** (0.00138)	0.000293 (0.000559)			-0.00663* (0.00339)	0.000633 (0.000942)
Tariffs (applied mean)	0.00313* (0.00185)	0.000550 (0.000814)			-2.45e-05 (0.00528)	0.00230 (0.00154)
Exchange rate misalignment			-0.00167 (0.0102)	0.000228 (0.00212)	0.00315 (0.0117)	0.000873 (0.00291)
Inflation			-2.22e-05 (0.000134)	-5.31e-05 (3.49e-05)	-3.01e-05 (0.000108)	-3.38e-05 (4.18e-05)
Procyclicality of expenditures			-0.000239 (0.00520)	-0.00387** (0.00160)	0.00276 (0.00609)	-0.00356** (0.00170)
Constant	0.279** (0.139)	0.341*** (0.0382)	0.584 (0.526)	0.330*** (0.121)	0.00472 (0.528)	0.346** (0.174)
Observations	494	961	485	973	350	750
Number of countries	56	73	42	60	38	58
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
P-value AB test AR(1)	0.0975	0.0076	0.7813	0.0183	0.5777	0.2161
P-value AB test AR(2)	0.863	0.5243	0.2189	0.8898	0.2436	0.644

Notes:

The dependent variable is the structural change term resulting from the productivity growth decomposition (see equation 1.1). Columns 1, 3 and 5 display the results for the countries with a democracy score lower than the median whereas Columns 2, 4 and 6 display the results for the countries with a democracy score higher than the median. All estimations include time fixed effects. Standard errors in parentheses. Statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Structural Change and Macroeconomic Policies in Developing Countries

Table D2: Services value added share and structural policies, baseline Arellano Bond dynamic panel

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	Services VA share	Services VA share	Services VA share	Services VA share	Services VA share	Services VA share	Services VA share	Services VA share	Services VA share	Services VA share	Services VA share
L.services VA share	0.764*** (0.0271)	0.802*** (0.0312)	0.739*** (0.0230)	0.500*** (0.0234)	0.668*** (0.0788)	0.749*** (0.0329)	0.773*** (0.0148)	0.810*** (0.0330)	0.800*** (0.0251)	0.774*** (0.0287)	0.744*** (0.0322)
Human capital	0.00111 (0.00542)	-0.0477 (0.0381)	0.00438 (0.00743)	0.00315 (0.0193)	0.157 (0.108)	-0.00273 (0.00554)	-0.00529 (0.00646)	0.00439 (0.00555)	-0.0232*** (0.00696)	0.00183 (0.00546)	0.0101 (0.00690)
Physical capital (Inv percent of GDP)	-0.00296*** (0.000689)	-0.00160* (0.000833)	-0.00170** (0.000819)	-0.0101*** (0.00159)	-0.00285 (0.00198)	-0.00160** (0.000811)	-0.00391*** (0.000627)	-0.00218*** (0.000793)	-0.00120** (0.000500)	-0.00247** (0.000992)	-0.00307*** (0.00102)
Raw material exp share	-0.000717* (0.000399)	-0.000107 (0.000398)	-0.00107*** (0.000352)	-0.00436*** (0.00105)	0.00160** (0.000811)	-0.000493 (0.000352)	-1.23e-05 (0.000418)	-0.000189 (0.000364)	0.00137*** (0.000437)	-0.000136 (0.000348)	-5.86e-05 (0.000422)
GDP per capita	-0.0233*** (0.00256)	-0.0186*** (0.00296)	-0.0239*** (0.00334)	-0.00451 (0.00285)	-0.0124 (0.00809)	-0.0232*** (0.00312)	-0.0226*** (0.00172)	-0.0219*** (0.00279)	-0.0274*** (0.00221)	-0.0224*** (0.00285)	-0.0188*** (0.00337)
Arable land	0.00749*** (0.00197)	0.00615*** (0.00186)	-0.00627*** (0.00159)	0.00492*** (0.00163)	0.00952*** (0.00279)	0.00834*** (0.00220)	0.0117*** (0.00162)	0.00763*** (0.00179)	0.00624*** (0.00195)	0.00884*** (0.00181)	0.0114*** (0.00189)
Antimonopoly policy											
Compe law	0.00200*** (0.000739)										
Financial policy											
Financial development index		0.000952 (0.00485)									
Domestic credit to priv sec (percent of GDP)			0.00824*** (0.000513)								
Financial reforms index				0.00330** (0.00159)							
Financial integration index					0.000766 (0.00112)						
Public dev banks (infra mandate)						0.000244 (0.000172)					
Labor policy											
Labor market flexibility							0.000402 (0.000458)				
Trade policy											
Exports promotion agencies								0.000162** (7.94e-05)			
Index of enforc of trade agreem									0.000984* (0.000570)		
WTO membership										0.00320*** (0.000872)	
Tariffs (applied mean)											-0.000589 (0.000510)
Constant	0.278*** (0.0251)	0.255*** (0.0457)	0.294*** (0.0285)	0.281*** (0.0212)	0.107 (0.0696)	0.278*** (0.0279)	0.261*** (0.0154)	0.238*** (0.0264)	0.300*** (0.0233)	0.258*** (0.0275)	0.234*** (0.0291)
Observations	2.138	2.120	1.737	618	1.263	2.138	1.598	2.138	1.536	2.138	2.043
Number of countries	103	102	102	61	63	103	99	103	99	103	102
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
P-value of AB test AR (1)	6.60e-06	5.21e-06	1.35e-06	0.0283	0.00104	2.22e-05	4.42e-05	7.81e-06	2.29e-08	7.98e-06	1.81e-05
P-value of AB test AR(2)	0.670	0.723	0.390	0.486	0.834	0.645	0.864	0.631	0.0678	0.610	0.787

Notes:

The dependent variable is the services value added share. All estimations include time fixed effects. Standard errors in parentheses. Statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table D3: Services value added share and macro policies, baseline Arellano Bond dynamic panel

	(1)	(2)	(3)	(4)	(5)	(6)
	Services VA share	Services VA share	Services VA share	Services VA share	Services VA share	Services VA share
L.services VA share	0.746*** (0.0263)	0.801*** (0.0364)	0.791*** (0.0335)	0.685*** (0.0167)	0.792*** (0.0257)	0.695*** (0.0552)
Human capital	0.000919 (0.00532)	-0.0225 (0.0194)	0.00828 (0.00622)	-0.00722 (0.00852)	0.0181*** (0.00563)	0.0886 (0.0691)
Physical capital (Inv percent of GDP)	-0.00188** (0.000769)	-0.00295** (0.00122)	-0.00290*** (0.000833)	-0.00289*** (0.00106)	-0.000865 (0.000602)	-0.00163 (0.00136)
Raw material exp share	0.000113 (0.000338)	-0.000309 (0.000653)	-0.000462 (0.000383)	0.000471 (0.000430)	-0.000752 (0.000461)	0.000419 (0.000620)
GDP per capita	-0.0211*** (0.00317)	-0.0132*** (0.00315)	-0.0217*** (0.00312)	-0.0145*** (0.00362)	-0.0302*** (0.00296)	-0.0147** (0.00597)
Arable land	0.00814*** (0.00167)	0.00748*** (0.00198)	0.00720*** (0.00163)	0.00228 (0.00162)	0.00669*** (0.00199)	0.0109*** (0.00315)
Macro institutions						
Fiscal rules	0.000398*** (0.000150)					
Central bank transparency		0.000141 (0.000177)				
Inflation targeting			0.000738 (0.00105)			
Macro outcomes						
Inflation				-0.000123 (0.000172)		
Procyclicality of expenditures					-0.00138*** (0.000472)	
Exchange rate misalignment						-0.000910 (0.00125)
Constant	0.260*** (0.0256)	0.203*** (0.0379)	0.248*** (0.0334)	0.257*** (0.0279)	0.301*** (0.0257)	0.163** (0.0668)
Observations	2,138	1,012	2,126	1,936	1,889	1,723
Number of countries	103	69	102	100	101	80
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
P-value of AB test AR(1)	1.10e-05	1.72e-05	6.43e-06	2.44e-05	1.23e-07	0.000531
P-value of AB test AR(2)	0.626	0.738	0.634	0.751	0.209	0.760

Notes:

The dependent variable is the services value added share. All estimations include time fixed effects. Standard errors in parentheses. Statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

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Table D4: Manufacturing value added shares and structural policies, baseline Arellano Bond dynamic panel

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	Manuf VA share	Manuf VA share	Manuf VA share	Manuf VA share	Manuf VA share	Manuf VA share	Manuf VA share	Manuf VA share	Manuf VA share	Manuf VA share	Manuf VA share
L.manuf VA share	0.757*** (0.00922)	0.773*** (0.0129)	0.695*** (0.0150)	0.584*** (0.0136)	0.803*** (0.0228)	0.756*** (0.0133)	0.742*** (0.0100)	0.754*** (0.0138)	0.715*** (0.00993)	0.771*** (0.0132)	0.742*** (0.0141)
Human capital	-0.0147*** (0.00528)	-0.00994** (0.00506)	-0.00620 (0.00496)	0.0137 (0.0168)	0.00591 (0.0493)	-0.00925* (0.00521)	-0.0185*** (0.00668)	-0.0116** (0.00502)	-0.0138** (0.00574)	-0.0141*** (0.00445)	-0.0114** (0.00564)
Physical capital (Inv percent of GDP)	0.00160** (0.000649)	0.000995 (0.000630)	0.00256*** (0.000603)	0.00374*** (0.000737)	0.00236** (0.00119)	0.00129** (0.000588)	0.00353*** (0.000489)	0.00173*** (0.000616)	0.00176*** (0.000675)	0.00103* (0.000572)	0.00125* (0.000646)
Raw material exp share	-0.00169*** (0.000208)	-0.00160*** (0.000239)	-0.00207*** (0.000190)	-0.00375*** (0.000576)	-0.00337*** (0.000753)	-0.00154*** (0.000192)	-0.00241*** (0.000207)	-0.00161*** (0.000247)	-0.00199*** (0.000199)	-0.00163*** (0.000197)	-0.00148*** (0.000240)
GDP per capita	0.00867*** (0.00264)	0.00737*** (0.00239)	0.0108*** (0.00207)	0.00404 (0.00284)	0.00399 (0.00394)	0.00761*** (0.00210)	0.0106*** (0.00222)	0.00681*** (0.00242)	0.0102*** (0.00189)	0.00852*** (0.00242)	0.0102*** (0.00314)
Arable land	-0.000696 (0.00130)	-0.00232* (0.00124)	0.000368 (0.00178)	-0.00296 (0.00192)	-0.0101*** (0.00247)	-0.00330*** (0.00125)	-0.00605*** (0.00143)	-0.00172 (0.00106)	-0.00496*** (0.00129)	-0.000295 (0.00161)	-0.000496 (0.00155)
Antimonopoly policy											
Compe law	0.000270 (0.000544)										
Financial policy											
Financial development index		0.00168 (0.00364)									
Domestic credit to priv sec (percent of GDP)			-0.000203 (0.000536)								
Financial reforms index				0.00135 (0.00124)							
Financial integration index					0.000514 (0.000916)						
Public dev banks (infra mandate)						0.000197 (0.000142)					
Labor policy											
Labor market flexibility							0.000261 (0.000351)				
Trade policy											
Exports promotion agencies								0.00244*** (0.000517)			
Index of enforc of trade agreem									-0.000975 (0.000793)		
WTO membership										0.00191** (0.000899)	
Tariffs (applied mean)											-0.000170 (0.000340)
Constant	-0.0221 (0.0205)	-0.0117 (0.0175)	-0.0398** (0.0159)	0.0226 (0.0290)	0.0223 (0.0542)	-0.0123 (0.0163)	-0.0212 (0.0149)	-0.0104 (0.0171)	-0.0183 (0.0139)	-0.0248 (0.0177)	-0.0379* (0.0209)
Observations	2,124	2,106	1,723	605	1,252	2,124	1,587	2,124	1,533	2,124	2,029
Number of countries	103	102	102	60	63	103	99	103	99	103	102
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
P-value of AB test AR(1)	5.55e-06	6.00e-06	1.63e-05	0.0246	0.00133	3.86e-06	3.54e-05	5.73e-06	9.91e-06	4.62e-06	7.15e-06
P-value of AB test AR(2)	0.660	0.585	0.467	0.584	0.363	0.664	0.740	0.649	0.314	0.633	0.843

Notes:

The dependent variable is the manufacturing value added share. All estimations include time fixed effects. Standard errors in parentheses. Statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table D5: Manufacturing value added shares and macro policies, baseline Arellano Bond dynamic panel

	(1)	(2)	(3)	(4)	(5)	(6)
	Manuf VA share	Manuf VA share	Manuf VA share	Manuf VA share	Manuf VA share	Manuf VA share
L.manuf VA share	0.766*** (0.0338)	0.756*** (0.0252)	0.761*** (0.0157)	0.742*** (0.0148)	0.683*** (0.0149)	0.797*** (0.0272)
Human capital	-0.00194 (0.0497)	0.0266*** (0.00914)	-0.0109** (0.00509)	-0.0224*** (0.00511)	-0.0108 (0.00665)	-0.0566* (0.0324)
Physical capital (Inv percent of GDP)	0.00792*** (0.00266)	0.000297 (0.000624)	0.00114* (0.000635)	0.00243*** (0.000717)	-0.000866 (0.000619)	0.00335*** (0.00106)
Raw material exp share	-0.00268*** (0.000711)	-0.00101*** (0.000266)	-0.00160*** (0.000214)	-0.00159*** (0.000218)	-0.00135*** (0.000219)	-0.00102*** (0.000196)
GDP per capita	0.0117 (0.00822)	0.00500** (0.00239)	0.00959*** (0.00237)	0.00530* (0.00276)	0.0179*** (0.00293)	-0.00318 (0.00451)
Arable land	-0.00613** (0.00247)	0.00107 (0.00174)	-0.00242* (0.00134)	-0.00140 (0.00132)	-0.00592*** (0.00157)	-0.00138 (0.00217)
Macro institutions						
Fiscal rules	0.000944 (0.000689)					
Central bank transparency		-0.000199 (0.000150)				
Inflation targeting			-0.000117 (0.000535)			
Macro outcomes						
Inflation				0.000250** (0.000104)		
Procyclicality of expenditures					-0.00446*** (0.000608)	
Exchange rate misalignment						-0.00192 (0.00124)
Constant	-0.0621 (0.0826)	-0.0296 (0.0220)	-0.0263 (0.0174)	0.00807 (0.0214)	-0.0692*** (0.0219)	0.0867** (0.0437)
Observations	1,064	1,004	2,112	1,924	1,898	1,709
Number of countries	54	69	102	100	101	80
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
P-value of AB test AR(1)	0.00326	0.00111	6.51e-06	5.37e-05	1.04e-05	4.12e-05
P-value of AB test AR(2)	0.650	0.530	0.672	0.422	0.436	0.747

Notes:

The dependent variable is the manufacturing value added share. All estimations include time fixed effects. Standard errors in parentheses. Statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Structural Change and Macroeconomic Policies in Developing Countries

Table D6: Export concentration and structural policies, baseline Arellano Bond dynamic panel

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	Exp	Exp	Exp	Exp	Exp	Exp	Exp	Exp	Exp	Exp	Exp
	concentration	concentration	concentration	concentration	concentration	concentration	concentration	concentration	concentration	concentration	concentration
L.exp concentration	0.177*** (0.00530)	0.171*** (0.00555)	0.171*** (0.00554)	0.329*** (0.0153)	0.619*** (0.0483)	0.174*** (0.00569)	0.210*** (0.00552)	0.172*** (0.00569)	0.157*** (0.00342)	0.175*** (0.00526)	0.452*** (0.0146)
Human capital	-0.155** (0.0718)	-0.204*** (0.0569)	-0.218*** (0.0673)	-0.237 (0.204)	0.252* (0.152)	-0.210*** (0.0772)	-0.128** (0.0522)	-0.117* (0.0651)	-0.241*** (0.0552)	-0.0613 (0.0726)	-0.0716 (0.0584)
Physical capital (Inv percent of GDP)	-0.0124*** (0.00286)	-0.0136*** (0.00329)	-0.0100*** (0.00309)	-0.00934* (0.00552)	-0.0194** (0.00810)	-0.0148*** (0.00281)	-0.0312*** (0.00380)	-0.0125*** (0.00306)	-0.0176*** (0.00352)	-0.0133*** (0.00328)	-0.00935*** (0.00276)
Raw material exp share	0.00546*** (0.00132)	0.00552*** (0.00139)	0.0105*** (0.00129)	-0.00174 (0.00276)	0.00374 (0.00325)	0.00468*** (0.00130)	0.0109*** (0.00126)	0.00494*** (0.00124)	0.0112*** (0.00133)	0.00327** (0.00129)	0.00992*** (0.00108)
GDP per capita	0.0480*** (0.00745)	0.0520*** (0.00828)	0.0169 (0.0119)	0.0770*** (0.0152)	0.0663*** (0.0165)	0.0434*** (0.00831)	0.0719*** (0.00903)	0.0438*** (0.00897)	0.0410*** (0.00887)	0.0220*** (0.00837)	0.0257*** (0.00730)
Arable land	0.0226*** (0.00701)	0.0300*** (0.00801)	0.00261 (0.00753)	0.0339** (0.0148)	0.0315*** (0.0121)	0.0273*** (0.00766)	-0.00819 (0.00579)	0.0272*** (0.00706)	0.0304*** (0.00670)	0.0239*** (0.00575)	0.00883 (0.00899)
Antimonopoly policy											
Compe law	-0.0174*** (0.00267)										
Financial policy											
Financial development index		0.0359* (0.0209)									
Domestic credit to priv sec (percent of GDP)			-0.0223*** (0.00383)								
Financial reforms index				0.0159** (0.00770)							
Financial integration index					0.0212*** (0.00386)						
Public dev banks (infra mandate)						0.00537*** (0.00160)					
Labor policy											
Labor market flexibility							-0.000417 (0.00156)				
Trade policy											
Exports promotion agencies								-0.00270 (0.00282)			
Index of enforce of trade agreem									0.0252*** (0.00628)		
WTO membership										0.0190*** (0.00289)	
Tariffs (applied mean)											-0.00305 (0.00248)
Constant	0.866*** (0.0740)	0.855*** (0.0712)	1.264*** (0.110)	0.367* (0.208)	-0.206 (0.206)	0.923*** (0.0811)	0.721*** (0.0751)	0.858*** (0.0871)	1.032*** (0.0735)	0.999*** (0.0703)	0.596*** (0.0783)
Observations	1,754	1,740	1,369	618	1,083	1,754	1,505	1,754	1,442	1,754	1,665
Number of countries	100	99	97	61	63	100	97	100	97	100	100
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
P-value of AB test AR(1)	0.00259	0.00279	0.00469	0.0115	0.00245	0.00277	0.00398	0.00288	0.00476	0.00254	0.000340
P-value of AB test AR(2)	0.895	0.918	0.611	0.733	0.700	0.911	0.754	0.896	0.898	0.899	0.628

Notes:

The dependent variable is the export concentration index. All estimations include time fixed effects. Standard errors in parentheses. Statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table D7: Export concentration and macro policies, baseline Arellano Bond dynamic panel

	(1) Exp concentration	(2) Exp concentration	(3) Exp concentration	(4) Exp concentration	(5) Exp concentration	(6) Exp concentration
L.exp concentration	0.221*** (0.0247)	0.121*** (0.00718)	0.184*** (0.00477)	0.326*** (0.0115)	0.147*** (0.00444)	0.195*** (0.0123)
Human capital	0.337 (0.790)	-0.333*** (0.107)	-0.173** (0.0686)	-0.207*** (0.0590)	-0.316*** (0.0527)	-0.232** (0.112)
Physical capital (Inv percent of GDP)	-0.0266** (0.0111)	-0.0322*** (0.00611)	-0.0121*** (0.00326)	-0.0181*** (0.00394)	-0.0219*** (0.00306)	-0.0131*** (0.00430)
Raw material exp share	0.000834 (0.00434)	-0.00343 (0.00209)	0.00580*** (0.00111)	0.0101*** (0.00132)	0.0104*** (0.00138)	0.00891*** (0.00149)
GDP per capita	-0.00485 (0.0613)	0.0348** (0.0171)	0.0321*** (0.00791)	0.0220 (0.0146)	0.0543*** (0.00982)	0.0347*** (0.0106)
Arable land	0.00533 (0.0153)	0.00588 (0.0104)	0.0106* (0.00555)	0.0211*** (0.00767)	0.0265*** (0.00653)	0.00107 (0.0105)
Macro institutions						
Fiscal rules	-0.0117** (0.00522)					
Central bank transparency		0.000849 (0.000939)				
Inflation targeting			0.00135 (0.00341)			
Macro outcomes						
Inflation				0.000437 (0.000468)		
Procyclicality of expenditures					0.00844*** (0.00181)	
Exchange rate misalignment						0.00666 (0.00695)
Constant	0.948 (0.794)	1.296*** (0.120)	1.007*** (0.0727)	0.879*** (0.120)	0.959*** (0.0822)	1.033*** (0.105)
Observations	1,012	1,012	1,746	1,594	1,536	1,422
Number of countries	54	69	99	97	98	79
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
P-value of AB test AR(1)	0.0132	0.0115	0.00223	0.000863	0.00349	0.00350
P-value of AB test AR(2)	0.526	0.00797	0.909	0.709	0.904	0.756

Notes:

The dependent variable is the export concentration index. All estimations include time fixed effects. Standard errors in parentheses. Statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Figure D1: Structural change term: productivity growth decomposition with all sectors and without the mining sector (average by country)



Source: Authors' calculations based on UN Statistics National Accounts and ILO data Note: Details on the productivity growth decomposition and the resulting structural change term are elaborated in data and methodology sections. The productivity growth decomposition is undertaken without the mining sector to compute the structural change without the mining sector (in the blue bars).

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Chapter 2

Streamlining Development into Macroeconomic Conditions: Which Ones Induce Structural Change?

Abstract

This paper aims at studying the role of macroeconomic conditions - fiscal, monetary and exchange rate policies as well as business cycle fluctuations - in promoting the within-sector structural change in developing countries. The paper relies on the World Bank Enterprise Surveys firm-level data to compute the within-sector structural change. Afterwards, it investigates the role of macroeconomic conditions in driving structural change using a fixed effects model with clustered standard errors to merge sector-level data with macro data. The fiscal, monetary, and exchange rate policies are accounted for in different ways: tools (the instruments decided by policy makers to achieve certain policy objectives) and outcomes (consequences of the tools and giving an indication on macroeconomic performance). Furthermore, the paper computes some macroeconomic indicators (real effective exchange rate, business cycle fluctuations, fiscal and monetary policies cyclical measures) at the sector-level using among others input output tables from the EORA database as well as sectoral trade flows data. The empirical findings related to the macroeconomic tools show that high policy rates can undermine structural change. On the macroeconomic outcomes front, a competitive exchange rate and countercyclical macroeconomic policies enhance structural change. Finally, business cycle downturns foster structural change. The robustness checks suggest that the baseline results do not change after using a different estimation methodology (the multilevel mixed effects model) and after controlling for endogeneity.

Keywords: Structural Change, Resource Allocation, Firm-Level Data, Macroeconomic Policies.

JEL Classification: L16, O11, O23, O24

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2.1 Introduction

Many developing countries suffer from having large labor surpluses trapped in low productivity sectors. The engine that would help moving labor towards more productive sectors is known as structural change and this reallocation process is crucial to enable higher aggregate productivity growth (Astorga et al., 2014). The literature usually relies on aggregate sectoral shifts to capture structural change trends. Yet, the availability of rich datasets on the firm level allows having a closer understanding on how this process takes place. In this respect, aggregate productivity does not only depend on the productivity level of each firm but also on how resources are allocated across the different firms (Alfaro et al., 2008; Brown et al., 2018; Hsieh & Klenow, 2009; Restuccia & Rogerson, 2008). Indeed, productivity losses from misallocation can result from distortions that can be acted upon by policies (Restuccia & Rogerson, 2017). For instance, policies are part of producers' external operating environments, and they affect producers' ability to move to a higher position within their industry productivity distribution, their market share and survival responsiveness to productivity differences (Syverson, 2011). However, there is still no consensus on the policy drivers of structural change in developing countries. Structural policies indeed foster structural change, especially on the long run as shown by Marouani et al. (2023), but there is still room for proactive macroeconomic policies to promote structural change and this is what this paper intends to analyze. More broadly, the macroeconomic conditions studied in this paper include proactive macroeconomic policies that could be pursued by the governments (fiscal, monetary and exchange rate policies) as well as business cycle fluctuations.

In this respect, macroeconomic conditions could act as an institutional foundation for structural change. For instance, these conditions should be pro-investment and pro-employment creation which would thereby facilitate structural change (Nissanke, 2019). On a more detailed front, several issues pertaining to the linkages between macroeconomic policies and resource allocation are worth investigating and the existing literature has considered them separately. First, the literature suggested that macroeconomic policies can promote structural change if they ensure macroeconomic stability while coming up with policy space for countercyclical policies (Aghion et al., 2014; Ocampo, 2011). For instance, structural change depends on firms' capacity in investing in innovative and growth enhancing activities which depend on firms' access to finance. To that effect, countercyclical policies would reduce aggregate volatility and make developing countries less vulnerable to exogeneous shocks, and this would accordingly allow firms to preserve their productive and innovative investments over the business cycle (Aghion et al., 2014; Aghion & Marinescu, 2007). Second, the liter-

ature highlights the importance of the exchange rate policy in driving the structural change process (Ocampo, 2011). In fact, a competitive and stable exchange rate could be perceived as a tool of industrial policy since it helps diversifying the production sector (Guzman et al., 2018). This relates to the externalities generated by the development of tradable sectors which would thereby enhance exports diversification, employment creation and structural change. Third, the business cycle can also affect productivity enhancing reallocation. The literature suggests that downturns can still be productivity enhancing and this is known as the cleansing effect of the recession. For instance, recessions can induce the exit of low productive firms which would contribute positively to aggregate productivity growth.

Against this background, this paper explores the role of macroeconomic conditions - fiscal, monetary and exchange rate policies as well as business cycle fluctuations - in promoting the within-sector structural change in developing countries. The paper contributes to the literature that uses growth-accounting techniques at the firm level while applying them on macroeconomic questions as follows. First, this paper relies on the World Bank Enterprise Surveys (WBES) firm level data in order to compute the structural change on the sectoral level in a large group of developing countries following Olley and Pakes (1996) methodology (see also Andrews and Cingano (2014), Bartelsman et al. (2013), and Brown et al. (2018) who adopt this methodology). Second, the paper investigates the role of different macroeconomic conditions in driving the within-sector structural change. It thus includes data at two levels: the macroeconomic conditions at the country level and the structural change at the sector level. The fiscal, monetary, and exchange rate policies are accounted for in different ways: tools (the instruments decided by policy makers to achieve certain policy objectives) and outcomes (consequences of the tools and giving an indication on macroeconomic performance). Furthermore, the paper computes some macroeconomic indicators (real effective exchange rate, business cycle fluctuations, fiscal and monetary policies cyclical measures) at the sector-level using among others input output tables from the EORA database as well as sectoral trade flows data. Finally, the empirical work relies on a fixed effects model with clustered standard errors to merge sector-level data with macro data as well as two alternative methods for robustness checks which are the multilevel mixed effects model and an instrumental variable approach.

The results can be summarized as followed. Regarding the macroeconomic tools, high policy rates can undermine structural change. As per the macroeconomic outcomes front, a competitive exchange rate and countercyclical macroeconomic policies enhance structural change. Moreover, the business cycle downturns foster structural change. The results hold

with the sectoral measurements of macroeconomic conditions. The extensions show that the policy rate significantly reduces the within-sector structural change in contexts of political instability. The exchange rate regime and the corporate tax rate have a significant impact on the within-sector structural change in democratic and politically stable economies. The real effective exchange rate (REER) volatility and a more flexible exchange rate regime significantly reduce the structural change in resource rich economies. Finally, the robustness checks suggest that the baseline results do not change after using a different estimation methodology (the multilevel mixed effects model) and after controlling for endogeneity (using an instrumental-variable approach).

The paper is organized as follows. Section 2.2 reviews the literature. Section 2.3 is dedicated to the methodology. Section 2.4 describes the data and provides a summary of the patterns of structural change in developing countries. Section 2.5 analyzes the empirical findings. Section 2.6 concludes and offers policy recommendations.

2.2 Literature Review

This paper is related to two main strands of the empirical literature on resource allocation¹, namely the literature using firm level data to explain differences in aggregate economic outcomes and the literature on the policy drivers of resource allocation.

The paper is similar to the literature that uses growth-accounting techniques at the firm level while applying them on macroeconomic questions. This growing literature investigates how firms' structure can help explaining differences in aggregate economic outcomes (such as income per capita). The literature initially focused on estimating productivity between firms and soon concluded that it is usually very heterogeneous, even within narrowly defined industries. The main intuition behind this work is that this heterogeneity is possibly associated with a misallocation of resources (Bartelsman et al., 2013). Accordingly, reallocating resources towards highly productive firms can induce aggregate productivity growth. The literature thus shifted from asking why firms in one country are less productive to analyzing how inputs are allocated across these firms (Restuccia & Rogerson, 2013). Using firm level data, the empirical literature aims at quantifying productivity gains resulting from better resource allocation. The seminal work of Olley and Pakes (1996) and Bartelsman et al. (2013) propose a productivity decomposition of industry productivity (weighted average of firm level

¹In this literature, the structural change term is also referred to as resource allocation, see further details below in [Methodology](#) section.

productivity) into an unweighted firm level average and a covariance term or the structural change term (see further details in [Methodology](#) section). They show that changes in this covariance term largely explain the aggregate productivity evolution and the cross-country differences in productivity. In the same vein, using firm level data on the manufacturing sector in China, India and the United States, Hsieh and Klenow (2009) find a large effect of misallocation on total factor productivity.

The second strand of literature that this paper relates to is the one on the policy drivers of allocation of resources. This strand has extensively evaluated the impact of misallocation of resources. Yet, less attention has been attributed to understanding the drivers of allocation of resources. These policy drivers could be grouped into two main groups: macroeconomic policies and structural policies.

Starting with the first group of policy drivers of resource allocation, the macroeconomic policies which are the main focus of this paper, the literature mostly considers the impact of each policy on resource allocation separately. Accordingly, this paper contributes to the literature by studying the impact of different macroeconomic policies on resource allocation. Linking sectoral structural change to aggregate-level macroeconomic performance can occur through several channels but three main issues are highlighted here: the competitiveness of the real exchange rate, the stance and cyclical nature of fiscal and monetary policies and business cycle fluctuations.

Several studies underscore the role of exchange rate competitiveness in inducing structural change. The real exchange rate (RER) can affect employment within and between industries through several channels. First, it would affect the unit labor cost of production in each sector and its depreciation would allow firms to compete in new sectors, which would promote export diversification and import substitution (Astorga et al., 2014). Second, RER movements affect the prices of internationally traded goods. In this context, Klein et al. (2003) decompose RER movements into a cyclical and a trend component to show that such movements affect jobs reallocation. The exchange rate trend affects job creation and destruction in similar magnitudes and hence has an allocative effect but no effect on net employment growth. The appreciation of the exchange rate's cyclical component increases job destruction and reduces net employment growth without having an allocative effect. In the same vein, Gourinchas (1998) studies the effect of real exchange rate movements on job reallocation in the US manufacturing sector. His findings show that appreciations episodes of the exchange rate are associated with significant job churning (excess reallocation). Also, Iasco-Pereira

and Missio (2022) study the linkages between the real exchange rate and structural change at the aggregate and sectoral levels using a dynamic panel model. They measure structural change at the aggregate level using the manufacturing GDP and employment shares as well as the economic complexity index and at the sectoral level as the employment growth in 19 manufacturing sectors. Their findings suggest that a competitive exchange rate promotes structural change and a more diversified production structure.

The literature advocates for the importance of countercyclical macroeconomic policies in promoting structural change in developing countries. However, this assertion has not yet been sufficiently tested empirically in the existing literature. Macroeconomic policies could help push for structural change to the extent that they do not exclusively focus on macroeconomic stability (Nissanke, 2019). One argument put forward is that macroeconomic policies could also support development objectives such as economic diversification and advancing structural change. In this regard, countercyclical policies help countries build sufficient policy space in good times to allow for a countercyclical response in bad times. Sustainable countercyclical policies help facing challenges related to external financing and fluctuations in commodity prices. On the empirical front, the literature provides evidence that countercyclical policies can enhance growth at both on the aggregate (Aghion & Marinescu, 2007) and industry levels (Aghion et al., 2012, 2014). In terms of the specific channels of transmission, a countercyclical fiscal policy will reduce aggregate volatility, and this will accordingly encourage firms to invest in long term innovative and more productive projects. A similar rationale applies to countercyclical monetary policy since it would enhance firms' investments by reducing the amount of liquidity that firms need to hoard to weather liquidity shocks.

On a more detailed front, the impact of monetary policy on resource allocation remains relatively an open question in the literature, especially on the empirical front. On the one hand, an easier (laxer) monetary policy can help stabilizing the aggregate demand facing adverse demand shocks. It would alleviate credit constraints, and this would help productive firms to expand. On the other hand, lax credit standards can slow the competition process since inefficient firms can remain alive within this context. Banerjee et al. (2018) find that interest rate surprises are a significant determinant of the sensitivity of resource allocation to productivity growth at the sectoral level in a sample of ten advanced countries. On the theoretical front, Baqaee et al. (2021) propose a framework to explain how monetary policy can affect the reallocation process. They propose an economy with heterogeneous firms and different markups. The misallocation considered in this case is due to the fact that firms,

with relatively high markups, underproduce relative to firms with low markups. A monetary easing would reallocate resources from the low markup firms to the high markup ones and this would thereby increase the aggregate productivity. The reason behind is that large firms tend to have higher markups and lower pass through of marginal costs to prices. Accordingly, when these firms face an increase in their marginal costs, they would raise their prices by less than their low markup counterparts so that they remain competitive.

As per fiscal policy, Ding et al. (2019) argue that it could affect firms demand and cost directly through government purchase and indirectly through infrastructure and other public goods that would affect firms' sales and demand. They precisely study the impact of fiscal policy volatility on resource misallocation in China. Their findings suggest that fiscal policy volatility increases the dispersion of the marginal revenue product of capital. Skott (2021) offer a theoretical model of fiscal policy for developing countries that are capital constrained and suffering from a structural change problem as follows. In this model, developing countries face a structural change problem since they have a small modern sector along with large amounts of unemployment. The informal sector is also large and suffers from low productivity. Accordingly, economic growth comes from the formal sector and workers would move to the formal sector if there was an opportunity. The private sector needs incentives to invest, and macroeconomic policies would stabilize the demand for the modern sector. In this context, the model implies that a sustained fiscal expansion can lead to a profit squeeze in the modern sector and deindustrialization, which would hold back the structural change. Accordingly, the model suggests that the appropriate fiscal policy, in this case, should aim at stabilizing the demand that is consistent with the target growth rate of the modern sector.

The business cycle can also affect productivity enhancing reallocation. If the resource reallocation during a downturn (or a recession) is productivity enhancing, this is known as the cleansing effect of the recession (that is also similar to the creative destruction concept in Schumpeter's work). Recessions can induce the exit of low productive firms which would contribute positively to aggregate productivity growth. Foster et al. (1998) confirmed this for the US manufacturing. In addition to firms exit, recessions can also cleanse the economy through job losses in firms (Bartelsman et al., 2018; Van den bosch & Vanormelingen, 2022). Accordingly, recessions can make more resources available for production arrangements that are relatively more productive. However, this cleansing effect could be distorted if the recession is negatively affecting firm level productivity. Furthermore, recessions can also slow the matching of unemployed with high productivity firms (sullyng effect, see (Barlevy, 2002)). While studying the impact of business cycle on reallocation, it is also important to differ-

entiate between durables and non-durables. For instance, the demand for durables can be more cyclically sensitive (sensitive to domestic demand) compared to non-durables (Oberfield, 2013).

As per the literature on structural policies impact, it is mostly devoted to macroeconomic aggregates (growth, employment and aggregate productivity). However, the evidence on how these policies affect firms and sectors productivity growth is confined to specific policies and remains quite scarce for developing countries. The literature suggests that product market regulations as well as credit or financial frictions can affect this process of reallocation of resources (Restuccia & Rogerson, 2017). In this respect, there are studies analyzing the impact of a group of structural policies on resource allocation and others focusing on specific ones. Among the former papers, Brown et al. (2018) study the impact of policy measures on resource allocation in four Latin American countries (Chile, Colombia, Mexico and Peru). They adopted a difference in difference approach while following Rajan and Zingales (1998) methodology. Their findings suggest that education, financial regulation and structural reforms improve resource allocation. Similarly, Andrews and Cingano (2014) show that these policy frictions reduce resource allocation through specific channels depending on the policy considered.

Two specific structural policies are worth highlighting here: trade and competition. The linkages between trade and productivity have been extensively studied in the literature. For instance, most productive firms tend to engage in trade (whether importing or exporting). Furthermore, trade liberalization induce the least productive firms to exit and the most productive firms to export (Pavcnik, 2002). In fact, trade liberalization induces changes in relative prices and the reallocation of resources will happen in response to these changes (see a review on the literature on trade liberalization and structural change in Landesmann and Foster-Mcgregor (2021)). The seminal work of Melitz (2003) shows that trade liberalization has a static effect on aggregate productivity by reallocating resources to more productive firms within sectors. Melitz (2003) model suggests that the exposure to trade induces productive firms to enter the export market. It shows that increases in an industry's exposure to trade lead to additional inter-firm reallocations towards more productive firms. Wacziarg and Wallack (2004) is an example of a study using comparable cross-country panel data to analyze the impact of trade liberalization on sectoral structural change in 25 developing countries over 1963 to 1997. Their findings show a weak negative effect of liberalization on inter-sectoral labor shifts at the 1-digit level and increased sectoral structural change at the 3-digit level. It is also worth noting that some studies account for trade by using indicators

on the level of openness and others consider the impact of the trade liberalization events using the Sachs and Warner openness index (Wacziarg & Welch, 2008). The drawback of the latter index is that it does not take account of the depth of liberalization. Other studies analyze the impact of tariffs and protection forms on the allocation of resources. Edmond et al. (2015) study the impact of moving from self sufficiency to opening to trade through calibrating a model on manufacturing data from Taiwan and China. Their findings suggest that trade increases competitive pressures and reduces markups and this would thereby increase TFP. Khandelwal et al. (2013) study the elimination of external quotas on Chinese textile and clothes exports to the United States, European Union, and Canada in 2005. Their findings show that the quota removal is coinciding with substantial reallocation of export activity from incumbents to entrants and that this reallocation is inconsistent with the assignment of quotas by the Chinese government on the basis of firm productivity (since they could be allocated to less productive state owned enterprises).

The above review accordingly shows that there is a growing literature investigating how firms' structure can help explaining differences in aggregate economic outcomes. The literature thus shifted from asking why firms are less productive to analyzing how inputs are allocated across these firms. However, less attention has been devoted to understanding the policy drivers of the allocation of resources, especially in developing countries. Two groups of policies were identified in the literature as promoting the allocation of resources: macroeconomic policies and structural policies. The literature on macroeconomic policies, which represent the focus of this paper, put emphasis on the role of the competitiveness of the exchange rate and countercyclical macroeconomic policies in promoting structural change. Furthermore, the business cycle fluctuations were found to affect the reallocation process.

2.3 Methodology

The methodology of this paper consists of computing structural change at the sector level and studying afterwards how macroeconomic conditions (fiscal, monetary and exchange rate policies as well as business cycle fluctuations) can promote it. The paper focuses on low- and middle- income countries from 2006 to 2021 due to data availability reasons (see further details in [Data](#) section). The list of countries covered in the analysis by group of income is in [Table A1](#) in [Annex 2.A](#).² The paper combines data at different levels as follows: firm level data from the WBES; sectoral level data on tariffs, trade and value added (showing

²The paper analysis accounts for all the low- and middle- income countries in the WBES comprehensive dataset.

interlinkages between the sectors); and country level data on macroeconomic conditions (see further details below in [Data](#) section).

The first step consists of computing the structural change on the sectoral level using the WBES firm level data as following Olley and Pakes (1996) methodology³ (see also Brown et al. (2018); Andrews and Cingano (2014); Bartelsman et al. (2013) who adopt this methodology). The list of sectors is in Table A2 in Annex 2.A. The index of a sector productivity⁴, defined as the weighted average of firm-level (log) productivity ($\Omega_{jit} = \sum_k \theta_{jkit} \omega_{jkit}$), can be decomposed as follows:

$$\Omega_{jit} = \bar{\omega}_{jit} + \sum_k (\theta_{jkit} - \bar{\theta}_{jit}) (\omega_{jkit} - \bar{\omega}_{jit}) \quad (2.1)$$

$$\Omega_{jit} = \textit{within} + \textit{structuralchange} \quad (2.2)$$

Where (Ω_{jit}) is the sector j productivity index in country i at time t , (ω_{jkit}) is the productivity of firm k in sector j in country i at time t , (θ_{jkit}) is the relative size of firm k , and a “bar” over a variable represents the unweighted sector average of the firm-level measure. The Olley Pakes decomposition splits a productivity index of a sector into an unweighted mean productivity (the first term: the within effect) and a covariance term between firm size and firm productivity (the second term: the between/structural change effect). This latter term helps quantifying the productivity gains stemming from reallocation of resources from low to more productive firms. The higher this term the more resources are allocated efficiently to the more productive firms in this particular sector. Following the existing literature, two measures of productivity and associated weights are considered: a measure of labor productivity (sales per worker and value added per worker is used as a robustness check⁵) with employment shares as weights and a measure of total factor productivity (TFP) with output shares as weights.⁶ Estimates of firm level TFP and labor productivity are obtained from

³One drawback of the use of the WBES in this productivity decomposition exercise relates to the non-representativeness of the WBES on the sector level. However, the major advantage of using this dataset is that it provides a large coverage of low- and middle-income countries that is not available in other firm-level datasets.

⁴This paper follows Bartelsman et al. (2013) in undertaking the productivity decomposition on the logarithm of productivity rather than its level.

⁵Value added is calculated in the WBES database as the output (sales) minus the cost of raw materials and intermediate goods used in production. Accordingly, it is only calculated for the manufacturing sectors and not for the services sectors.

⁶Results using TFP are reported in Tables B9 - B11 in Annex 2.B.3. Results with labor productivity are more comprehensive since they include both manufacturing and services whereas TFP calculations are only available for manufacturing.

the WBES dataset “Firm Level TFP Estimates and Factor Ratios” (which follows Olley and Pakes (1996) methodology and estimates a revenue based TFP: TFPR since firms revenues and costs are collected in WBES rather than physical inputs and outputs).

The second step consists of studying the impact of macroeconomic conditions on the within-sector structural change. As a baseline, the following fixed effects regression is undertaken:

$$SC_{jit} = \beta_0 + \beta_1 X_{jit} + \beta_2 Macro_{it} + \gamma_j + \nu_i + \eta_t + \varepsilon_{jit} \quad (2.3)$$

The dependent variable (SC_{jit}) is the structural change term for a sector j in country i in a year t resulting from the productivity decomposition (described above). X_{jit} a set of control variables at the sector average level including the share of firms offering formal training to employees (as an indication on the existence of skilled labor), the share of foreign and private ownerships, the share of young firms (firms with age less than six years), the share of medium size firms (firms employing 50 to 200 employees, following the classification of Kouamé and Tapsoba (2019)), the share of firms that export and import simultaneously (as an indication on the extent of participation in global value chains following Dovis and Zaki (2020)) and the number of firms by sector (as a direct measure for competition). These control variables are obtained from the WBES comprehensive database. Sectoral tariffs are also included as controls. The macroeconomic conditions studied in this paper include macroeconomic policies and business cycle fluctuations. The macroeconomic condition that is added as a control is the indicator for the business cycle.⁷ Macroeconomic policies are usually designed in a way to stabilize the business cycle fluctuations. This is why business cycle fluctuations is a key macroeconomic condition that is supposed to affect the implementation of macroeconomic policies. All variables are taken in logarithmic transformation.

$Macro_{it}$ is the variable of interest and refers to macroeconomic policies. Macroeconomic policies variables represent their 5 years averages. As previously explained, the within-sector structural change is computed using WBES and there are around one to four surveys for each country. This is why it would be interesting to match sectors’ structural change with macroeconomic policies averaged on five years. The macroeconomic policies (fiscal, monetary and exchange rate policies) are accounted for in different ways: tools and outcomes.

⁷Following Bordon et al. (2016), the index of the business cycle is a dummy variable taking the value 1 in each year in which the output gap as percentage of potential output is lower than -1 percent (“bad times”), and 0 otherwise (“good times”). Output gaps and potential output are calculated using the Hodrick-Prescott filter.

The macroeconomic tools are decided by policy makers in order to achieve certain policy objectives and targets and they accordingly represent the levers of control of the macroeconomy (ILO, 2015). As per the macroeconomic outcomes, they can be perceived as the consequences of these tools and they give an indication on macroeconomic performance (Islam & Kucera, 2013). The macroeconomic tools considered in this paper are the tax rate, the policy rate and the exchange rate regime⁸. The macroeconomic outcomes include the standard deviation of the real effective exchange rate (as an indication on the exchange rate volatility), the exchange rate misalignment, the inflation, and the cyclicity of both fiscal and monetary policies. As previously mentioned, while the focus of this paper is on macroeconomic policies, some structural policies (trade and competition policies) are still included in the list of controls (further details are provided later in the next paragraphs). Country, sector and year dummies (ν_i, γ_j, η_t) are included to control for unobserved heterogeneity across sectors. Standard errors are clustered by country given that sector level data are merged with macro level data in the regressions.

The fiscal and monetary policies cyclicity measures by country are not directly observed and have to be inferred. Following Aghion et al. (2014) and Frankel et al. (2013), fiscal policy cyclicity is measured as the correlation between the cyclical component of real GDP or the output gap (representing the country's position in the business cycle) and the cyclical component of real government expenditure on a 5-year window. The cyclical and trend components are estimated using the Hodrick–Prescott Filter. A positive (negative) correlation indicates procyclical (countercyclical) fiscal policy. Real government expenditure is defined as general government expenditure deflated by the GDP deflator. As per monetary policy cyclicity, following Aghion et al. (2012) it represents the sensitivity of the real short term interest rate to the domestic output gap. It is measured as the correlation between the cyclical component of real GDP or the output gap and the real short-term interest (which is the difference between the policy rate and inflation) on a 5-year window. A positive (negative) correlation indicates countercyclical (procyclical) monetary policy since the short-term cost of capital is increasing (decreasing) while the economy is improving (deteriorating).

The computation of the macroeconomic indicators at the sector level represents an important value added of this paper. These macroeconomic indicators at the sector level would

⁸Following Aghion et al. (2009), an index of flexibility of the exchange rate regime is computed in each five year period based on Reinhart and Rogoff (2004) classification (their coarse classification). Ignoring the free fall and the dual market categories, Reinhart and Rogoff (2004) classify exchange rate regimes from the most rigid to the most flexible (1 to 4: fixed, peg, managed float and float). The index of exchange rate regime flexibility is accordingly the 5 years average of this classification.

help introducing some heterogeneity by sector in the macroeconomic conditions measurements (instead of being measured on the country-year level, they would be measured on the sector-country-year level). In this respect, sector specific real effective exchange rate and proxies for business cycle are calculated and the measurements of cyclicity of policies are calculated using sectoral GDP.

Regarding the sector based real effective exchange rate (REER), it follows the methodology of Gourinchas (1998) and Klein et al. (2003). It is constructed by weighting the bilateral real exchange rates by trade shares as follows. First, measures of bilateral real exchange rates are calculated for each origin country relative to each destination trading partner country using nominal exchange rates and relative consumer prices indices (CPIs) of origin and destination countries.

$$REER_{ori,dest,t} = ner_{ori/dest,t} \frac{CPI_{dest,t}}{CPI_{ori,t}} \quad (2.4)$$

Afterwards, the real exchange rate is normalized for each country using 2013 as a base year. Second, sector specific trade weights are constructed based on exports and imports from each sector's trading partners: the shares of a destination country in the origin country exports or imports of that specific sector. Finally, these trade weights are multiplied by the bilateral exchange rates and their sum would represent the sector specific real effective exchange rate.

$$REER_{ori,t,normalized} = \sum_{dest,t} \frac{trade\ flow_{ori,i,t}}{trade\ flow_{dest,i,t}} * REER_{ori,dest,t} \quad (2.5)$$

As per the sectoral proxy of the business cycle, it follows the methodology of Bartelsman et al. (2018) and Bartelsman et al. (1994) and it aims at capturing the exogeneous demand variation. The index for each sector (X_{it}^{OW}) corresponds to an output weighted average of percentage changes in activity of all other sectors that purchase product from that industry as follows:

$$X_{it}^{OW} = \sum_{j \neq i} \frac{\alpha_{ij}}{\sum_{j \neq i} \alpha_{ij}} X_{jt} \quad (2.6)$$

The weight applied to sector j when creating the aggregate index for sector i is the ij th element of the matrix, divided by the sum of the i th row. α_{ij} is the ij th element of the direct requirements matrix.

Furthermore, separate specifications are dedicated to exploring the impact of cyclicity

of fiscal and monetary policy on structural change while calculating the cyclicity measures using sectoral output instead of the overall GDP.

In the same vein, the structural policies that are accounted for as controls are also measured on the sectoral level. Regarding competition policy, the WBES allows measuring it from a de facto sectoral perspective on the average level. As per the trade policy, tariffs are obtained on the sector level (see further details in [Data](#) section).

Some extensions are included in separate specifications in order to account for the following issues: the impact of political instability on macroeconomic policies implementation and the impact of natural resources dependence on the exchange rate policy.

In order to introduce heterogeneity related to political stability and democracy, two dummies are calculated: a dummy that would take the value of 1 if a country in a certain year has a political stability score higher than the median of the overall sample and 0 otherwise, The other dummy would take the value of 1 if a country in a certain year has a democracy score higher than the median of the sample. A similar approach is considered for natural resource dependence: a dummy is calculated based on fuel exports. It would also take the value of 1 if a country in a certain year has fuel exports higher than the median of the overall sample and 0 otherwise. Afterwards, separate regressions are undertaken for the politically stable versus politically unstable groups; the politically stable and democratic versus politically unstable and non-democratic groups; and the natural resource dependent versus the non-natural resource dependent groups.

As robustness checks to the above baseline specifications, two approaches are considered: a multilevel mixed effects modeling approach and a two-stages least squares (2SLS) regression. The multilevel mixed effects model has been selected as it helps undertaking an analysis when nested data exist at more than one level. Indeed, in our analysis of structural change, different sectors in the same country may not be independent since they share similar contextual characteristics and macroeconomic conditions affecting their performance. To that effect, a multilevel mixed effects model suits the structure of the data since it accounts for this clustering effect and helps obtaining correct and efficient estimates (Kouamé & Tapsoba, 2019). The 2SLS approach addresses potential endogeneity challenges.

Following Kouamé and Tapsoba (2019), the estimated multilevel mixed effects model is based on a two-level model where the highest level is the country and the lowest level is the

sector:

Level 1:

$$SC_{jit} = \gamma_{0i} + \gamma_1 X_{jit} + \gamma_2 Macro_{it} + \epsilon_{jit} \quad (2.7)$$

Level 2:

$$\gamma_{0it} = \gamma_{00t} + \mu_{it} \quad (2.8)$$

Combining levels 1 and 2, the model could be written as follows:

$$SC_{jit} = \gamma_{00t} + \gamma_1 X_{jit} + \gamma_2 Macro_{it} + \mu_{it} + \epsilon_{jit} \quad (2.9)$$

$\mu_{it} + \epsilon_{jit}$ are the random part of the model and they are normally distributed. μ_{it} is the country specific error term. Country, year and sector fixed effects are included to account for unobservable heterogeneity among sectors and countries. Standard errors are clustered at the country level.⁹ The multilevel models are estimated in this paper through maximum likelihood.

Finally, this paper considers the potential endogeneity issue that might arise between the macroeconomic conditions and structural change. Therefore, an instrumental variables approach is employed using the following instruments which explain macroeconomic conditions variables: the tariffs of the main trading partner of the country and this partner's institutional quality.

2.4 Data and Stylized Facts

2.4.1 Data

- **Firm-level data: World Bank Enterprise Surveys (WBES)**

The WBES is a collection of enterprise surveys in a large group of developing countries and this indeed an advantage of this dataset that is not available in other firm-level datasets. It offers representative samples (stratified random sampling) of the non-agricultural, non-extractive formal private sector with five or more employees.¹⁰ Surveys are undertaken with a standard questionnaire and standard implementation methodology which allows for comparison across countries. This paper relies on the Firm Level TFP Estimates and Factor

⁹Results are robust when the standard errors are clustered at the country year level.

¹⁰The WBES does not account for the informal sector and this is indeed a limitation of the use of this dataset given the variation in the range of informality in developing countries.

Ratios dataset and the standardized dataset. The latter initially includes 143 countries over 2006 to 2021 with a pseudo-panel structure. After dropping the surveys where the key variables needed for the analysis are not included¹¹ and the high-income countries, the paper focuses on 118 low- and middle-income countries (following the World Bank historical income classification which classifies countries by income on yearly basis).

Table A1 in Annex 2.A shows the list of countries by group of income and their rounds of WBES. Table A2 in Annex 2.A provides a list of the sectors.¹² Table C1 in Annex 2.C provides summary statistics.

- **Country-level data: Macroeconomic conditions**

The macroeconomic policies¹³ are at the country level and they are analyzed in different ways: tools (the instruments decided by policy makers in order to achieve certain policy objectives) and outcomes (consequences of these tools giving an indication on macroeconomic performance). Macroeconomic tools include tax rate from KPMG and Tax Foundation, monetary policy rate¹⁴ and lending rate from the IMF International Financial Statistics and the exchange rate regime classification of Reinhart and Rogoff (2004) (to create the index of the flexibility of the exchange rate regime). Macroeconomic outcomes include the inflation rate from the World Development Indicators of the World Bank, the exchange rate misalignment (an overvaluation index, le Centre d'études prospectives et d'informations internationales (CEPII) EQCHANGE database) and the real effective exchange rate (REER) from Bruegel database (its standard deviation as an indication on the volatility).

The index of the business cycle is calculated using data on real GDP (in local currency) from the World Development Indicators of the World Bank (see footnote 7 on how this index is computed). The fiscal and monetary policies cyclicity measures are calculated using data on real GDP (in local currency), general government total expenditures in local currency and the GDP deflator from the World Economic Outlook of the International Monetary Fund

¹¹Sectors with only one firm are dropped since this does not allow for calculating the productivity decomposition and the resulting covariance/structural change term.

¹²It is important to mention that not all sectors are available for all countries. In addition, the same sector can be available for a country in one survey but not the subsequent ones.

¹³It is also important to mention that it would be interesting to account for the policies reflecting discretionary provisions by the government or banks to some sectors (tax breaks, low interest loans, etc.). However, it is very hard to obtain such data for a large group of countries, especially developing ones.

¹⁴According to the IMF, the policy rate is the main rate used by the central bank to implement or to signal its monetary policy.

(IMF).

The fuel exports as percentage of merchandise exports (used to introduce heterogeneity related to natural resource dependence) is obtained from the World Development Indicators of the World Bank. The political stability index¹⁵ and the democracy index¹⁶ (used to introduce heterogeneity related to politics) are obtained from the World Governance Indicators of the World Bank and the V-Dem 13 database respectively.

- **Sector-level data: Input output tables, trade flows and tariffs**

The paper relies on sectoral data to calculate the sectoral proxy of the business cycle, the real effective exchange rate by sector, and the cyclical measures using sectoral GDP instead of the overall GDP. It is important to note that the WBES follows the ISIC Rev 3.1 classification whereas the other sectoral datasets used in this paper follow different classifications. This is why merging these databases with the WBES requires matching their nomenclatures. Accordingly, a concordance exercise between each of these different classifications and ISIC Rev 3.1 is undertaken.

The sectoral proxy index of the business cycle is calculated using data from the Eora global supply chain database that consists of a multi-region input-output table (MRIO). The relevant matching with the ISIC Rev 3.1 is in Annex Table [A4](#).

The real effective exchange rate by sector is calculated using country level data and sectoral trade data. The country level data include nominal exchange rates from the International Financial Statistics (IFS) of the IMF and consumer price indices from the Global Economic Monitor (GEM) database of the World Bank. As per the trade flows data, the services exports and imports data is obtained from the World Trade Organization (WTO) statistics and it follows the Extended Balance of Payments Services classification (EBOPS 2010) classification. Table [A5](#) provides details on the concordance with ISIC Rev 3.1. The merchandise exports and imports data is obtained from the BACI database of CEPII (see Gaulier and Zignago ([2010](#)) for more details on this database). This database follows the HS02 classification and relevant concordance with ISIC Rev 3.1 classification is used (The

¹⁵This index measures perceptions of the likelihood of political instability and/or politically-motivated violence, including terrorism. Estimate of governance (ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance).

¹⁶It varies from 0 to 1: from low to high

HS02 concordance to ISIC Rev 3 concordance from the World Integrated Trade Solutions (WITS) is used and then the ISIC Rev 3 to ISIC Rev 3.1 concordance from the UN Statistics is used).

Finally, structural policies used as controls are also measured on the sectoral level as follows. Trade policy is measured using tariffs by product. For the manufacturing sectors, the tariffs by product are obtained from the WTO (see Annex Table A3 for details on the matching with ISIC Rev 3.1). As per the services sectors, ad valorem equivalents of restrictions on trade in services are obtained from the AVEs-Services of CEPPII (see Fontagné et al. (2010) for more details on this database). Table A6 provides the relevant concordance with ISIC Rev 3.1. Both product tariffs and ad valorem equivalents of services are merged together in one variable that is considered as tariffs by sector.

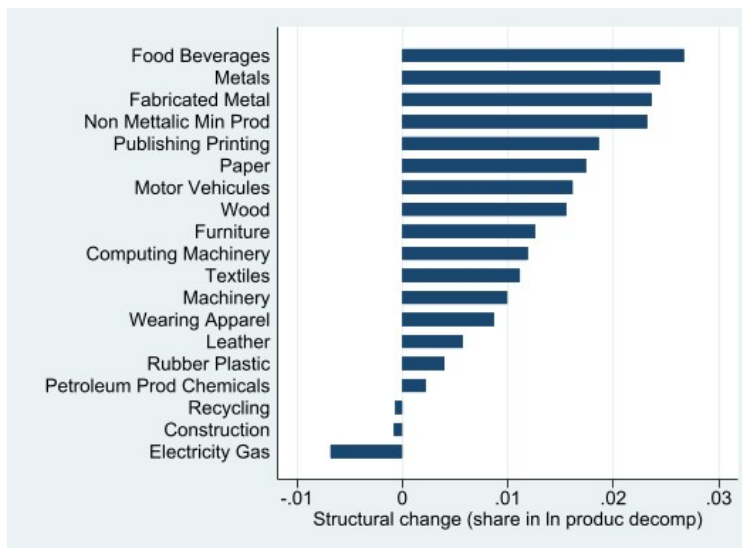
2.4.2 Data Description

This section documents the patterns related to the resource reallocation in developing countries. It also shows the correlation between the macroeconomic conditions studied in this paper and the resource allocation at the sectoral level. As previously mentioned, the sample used in this paper from WBES includes 118 countries and 30 sectors (ISIC Rev 3.1 classification) over 2006-2021 (see the complete list of countries and sectors in annexes A1 and A2). The undertaken productivity decomposition helps analyzing whether these countries witness a productivity-enhancing reallocation in the different sectors (i.e. whether resources are moving towards more productive firms). The decomposition also shows the heterogeneity among the different sectors with regards to the resource allocation patterns.

Figures 2.1 and 2.2 show the share of the structural change (resource allocation or covariance term) in the undertaken (log) labor productivity (sales per worker) decomposition on average by sector across all countries and years in the studied sample. The following conclusions can be drawn. First, sectors indeed have different technologies and hence this is reflected in the heterogeneity in the structural change patterns across the different sectors. Second, the contribution of structural change to productivity is broadly modest relative to the within component contribution across the different sectors. This could be explained by developing countries specialization in traditional sectors away from the most productive which hamper the efficient allocation of resources (Marouani & Mouelhi, 2016). Third, structural change in the land and air transport as well as electricity and gas sectors is on

average negative in the studied sample given that these are heavily regulated sectors and might be suffering from anticompetitive barriers preventing the efficient allocation of resources. Fourth, the traditional manufacturing sectors like food and metals have on average the highest structural change among manufacturing sectors. This could be related to their prevalence in developing countries and their low complexity. Among the high complexity manufacturing, the motor vehicles and computing machinery have the highest structural change on average in the studied sample.

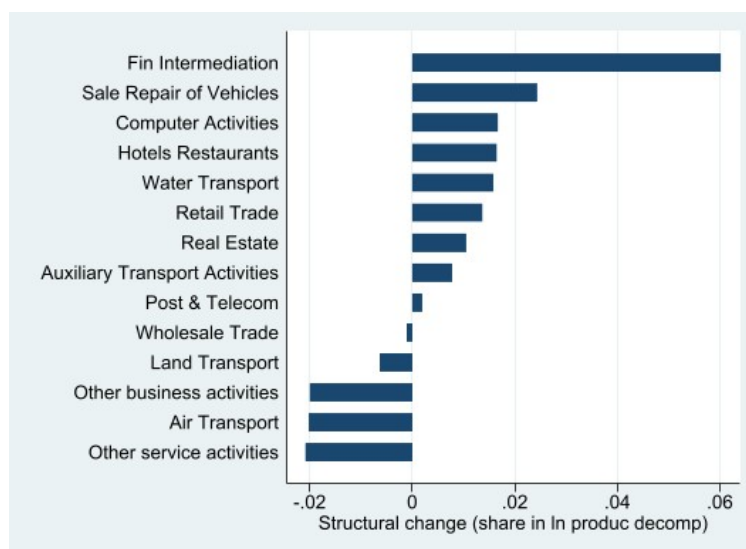
Figure 2.1: Structural change share in labor productivity - manufacturing (percent of total - average all countries and years)



Source: Author's calculation based on WBES data.

Note: The structural change is the term resulting from the productivity decomposition (see equation 2.1). Labor productivity is measured as sales per worker.

Figure 2.2: Structural change share in labor productivity - services (percent of total - average all countries and years)



Source: Author's calculation based on WBES data.

Note: The structural change is the term resulting from the productivity decomposition (see equation 2.1). Labor productivity is measured as sales per worker.

Table 2.1 describes the average of some macroeconomic conditions for sectors where the structural change term is higher than the median of the overall sample in contrast to sectors where the structural change is lower than the median. The table shows that sectors with a structural change higher than the median have better macroeconomic conditions on average than those sectors with structural change lower than the median. For instance, those sectors with higher structural change than the median have on average lower policy rate, lower corporate tax, lower sectoral tariff rate, a more flexible exchange rate regime, lower inflation, less volatile real exchange rate, and a more depreciated sectoral REER.

Table 2.1: Average macroeconomic conditions by median structural change

Structural change	Tariff by sector	Inflation	Policy rate	Tax rate	Exchange rate regime	Exchange rate volatility	REER by sector (exports)	REER by sector (imports)
Lower than median	18.09	6.89	7.55	24.05	1.97	24.20	99.27	108.79
Higher than median	15.76	6.30	7.44	23.32	2.00	10.94	102.99	114.44

Source: Author's calculations based on various sources (see [Data](#) section for further details).

Note: The structural change is the term resulting from the productivity decomposition (see equation 2.1) when labor productivity is measured as sales per worker.

2.5 Empirical Findings

2.5.1 Macroeconomic Conditions Impact on the Within-Sector Structural Change

The baseline fixed effects model results are reported in Tables 2.2 - 2.7. Standard errors are clustered at the country level in order to merge sector level data with macro level data. As previously explained, a productivity decomposition exercise is undertaken (once when labor productivity is measured using sales per worker and once when labor productivity is measured using value added per worker as a robustness check) and the resulting structural change term (the covariance term) from this exercise represent the dependent variables. The higher this covariance term (measuring structural change), the larger the share of employment allocated to productive firms and thereby the more efficient the resource allocation. Findings using the TFP decomposition are in Tables B9 - B11 in Annex 2.B.3. ¹⁷

Table 2.2 shows the findings related to the macroeconomic tools impact on the within-sector structural change whereas Table 2.3 describes the findings related to the macroeconomic outcomes impact on the within-sector structural change. Table 2.4 provides the findings related to the impact

¹⁷Results using the TFP decomposition do not account for the services sectors. This is why the results using the labor productivity decomposition are more comprehensive.

of macroeconomic conditions measured at the sectoral level on the structural change. In these three tables, Column 1 shows the findings when the productivity is measured as sales per worker whereas and Column 2 shows the findings when the productivity is measured as value added per worker as robustness check.

In Tables 2.2 - 2.4, most of the controls are significant and have the expected signs. Foreign ownership increases structural change since foreign-connected firms can better absorb advanced production technology and knowledge available abroad (Kouamé & Tapsoba, 2019). Foreign ownership could be also perceived as more competition on the international front. Similarly, private ownership improves structural change. Relative to state ownership, private ownership is known for improving firms productivity and profitability. Training is a proxy for skilled labor and it enhances structural change since the human capital is at the heart of this structural change process. The share of younger firms (firms with age less than six year) exert a positive and significant effect on structural change. This is consistent with the literature suggesting that young firms usually have higher net job growth rates than old-large firms (Aga et al., 2022). The share of medium sized firms exerts a negative and significant impact on structural change. This is consistent with the literature highlighting the poor performance of small and medium size firms in developing countries (Aterido et al., 2011).

As previously mentioned, while the focus of this paper is macroeconomic policies, some structural policies (competition and trade) are analyzed as controls. Competition, measured by the number of firms (the number of firms represents a direct measure of competition, (see (Youssef & Zaki, 2023) who also use this measure), significantly improves the within-sector structural change. The linkages between competition and productivity have been extensively studied (see Syverson (2011) for a review on this literature). Competition improves productivity on both the within and the structural change fronts. For instance, competition enhances structural change since it helps moving market shares to the most efficient firms (the so called Darwinian selection effect). It also increases efficiency within the firms since increased competition can incentivize firms to take actions that would raise productivity and that they may not take in the absence of competition.

The business cycle proxy (indicating bad times) is included as a control in Tables 2.2 and 2.3 since it is an important macroeconomic condition that would affect the implementation of the policies. The results show that this business cycle proxy significantly increases structural change. This is known as the cleansing effect of the downturns which provides some silver lining to economically painful periods (Bartelsman et al., 2018). For instance, the downturns can induce the exit of low productive firms which would contribute positively to aggregate productivity growth. In addition to firms exit, recessions can also cleanse the economy through job losses in firms. Hence, downturns can make more resources available for production arrangements that are relatively more productive

(Bartelsman et al., 2018; Van den Bosch & Vanormelingen, 2022).

Table 2.2 shows that among other macroeconomic tools, the policy rate is the only tool that exerts a negative and significant effect on the within-sector structural change. For instance, the policy rate would reduce the within-sector structural change by 12 percent. The policy rate is the main tool that the central bank would use to implement or to signal its monetary policy. Indeed, monetary policy affects the reallocation process through alleviating firms borrowing cost and their credit constraints and this would thereby help productive firms expand. In fact, high policy rates are prevalent in developing countries in order to control inflation. This results in crowding out loans to firms, especially small ones that do not have access to capital markets and as previously mentioned access to finance is essential for structural change. Furthermore, fragmented financial markets can lead to keeping high spreads between deposits and loans rates which makes obtaining loans difficult for most firms (Nissanke, 2019). While mentioning the impact of policy rates, it is important to highlight that the effectiveness of monetary policy transmission mechanisms (the extent to which official rates affect market rates) depends on the development of the financial system (Lopes et al., 2017) which might be limited in the case of developing countries. Another theoretical channel through which an expansionary monetary policy (lower policy rates) can affect the reallocation process has been proposed by Guerrieri et al. (2021). Assuming the presence of unemployment and nominal wage rigidities in the model, workers can move from one sector to the other because the probability to find a job is higher in this sector or the real wage is higher. An expansionary monetary policy (lower policy rates) can accordingly encourage the reallocation process by promoting an increase in wages.

The results displayed in Table 2.3 show that overvalued currencies (as shown by the misalignment of the real effective exchange rate) significantly reduce the within-sector structural change (for both cases when productivity is measured as sales per worker with a coefficient of 14 percent and value added per worker with a coefficient of 4.9 percent). This finding is consistent with the seminal work of Rodrik (2008) that has a particular focus on developing countries. For instance, a competitive exchange rate enhances the importance of tradable sectors, notably industry, within the production structure. In this respect, Rodrik (2008) offers two interpretations. First, relative to nontradables, tradables suffer disproportionately from weak institutions that are prevalent in developing countries and this results in misallocation of investments. Second, tradables also suffer disproportionately from market failures which block structural change. In both cases, a competitive exchange rate would act as an industrial policy and an increase in the relative prices of tradables would partially alleviate these distortions and foster structural change. Overall, a competitive exchange rate would help diversify the production structure and this a challenge that most developing countries suffer from, particularly those dependent on natural resources (Guzman et al., 2018). On a related front, the REER volatility (standard deviation) reduces structural change. This corroboration

rates with Aghion et al. (2009) whose findings suggest that exchange rate volatility has a negative impact on productivity growth, especially in countries that are less financially developed. Their theoretical model suggests that excess volatility in exchange rate leads to excess volatility in profits which would thereby reduce the economy wide investment.

The results in Table 2.3 also indicate that the fiscal policy procyclicality index significantly reduces structural change whereas the monetary policy countercyclicality index significantly increases it (the structural change resulting from the sector productivity decomposition of sales per worker and also the one resulting from the sector productivity decomposition of the value added per worker). Developing countries can be particularly vulnerable to exogenous shocks, including commodity prices and external financing swings. In this context, countercyclical policies have been advocated in the literature as policy drivers of structural change in developing countries and this paper findings provides a relevant quantification to this argument. For instance, the dynamism of production structures and the subsequent structural change relate to firms' capacity in investing in innovative and growth enhancing activities. These investments would depend on firms access to finance. Countercyclical policies would accordingly allow firms to preserve their investments over the business cycle (Aghion et al., 2014; Aghion & Marinescu, 2007). In particular, a more countercyclical monetary policy could help firms preserve their investments by reducing the amount of liquidity that they would need in order to face the liquidity shocks when the economy is in downturns (Aghion et al., 2012).

[Tables 2.2 - 2.3 about here]

Finally, the macroeconomic conditions measures on the sectoral level confirm the previous findings (Table 2.4). An increase in the sector specific REER significantly increases structural change (by 10.8 percent when productivity is measured as sales per worker and by 3 percent when productivity is measured as value added per worker). It is worth noting that an increase in this REER index indicates the depreciation of the home currency against the basket of trading partners' currencies. As per the sectoral proxy of the business cycle, the exogenous demand variation or the cyclical shocks enhance the sectoral reallocation of resources.

[Table 2.4 about here]

Tables 2.5 - 2.7 show the impact of the separate macroeconomic conditions on the within-sector structural change when labor productivity is measured as sales per worker. Similar results when labor productivity is measured as value added per worker are reported in Tables B6 - B8 in Annex 2.B.3. These results broadly confirm the previous set of findings where the controls and the variables of interest exert the same expected effects. An additional insight from these findings relates

to the results in Column 1 in Table 2.6 showing that inflation exerts a negative and significant impact on the within-sector structural change. In fact, developing countries suffer from high and volatile inflation and this is likely to weaken activity by obscuring the informational content of the price system and distorting relative prices, disrupting the organization of markets and creating uncertainty that undermines long-term decision making which would thereby lead to an inefficient allocation of resources (Ha et al., 2019). Aghion et al. (2014) argue that inflation has a negative impact on the allocative efficiency of capital across sectors. This makes it harder for investors to identify high productivity projects. Accordingly, the higher the inflation rate, the less efficiently the financial system will allocate the capital to sectors, and this is especially evident the more the sectors are financially dependent.

[Tables 2.5 - 2.7 about here]

Some extensions are undertaken to analyze how politics and natural resource dependence can affect the implementation of macroeconomic policies and thereby the within-sector structural change.

Table 2.8 describes the impact of the macroeconomic tools¹⁸ on the within-sector structural change (the term resulting from the sectoral productivity decomposition when the productivity is measured as sales per worker) for the following groups: Columns 1 and 2 split the group of countries according to their political stability governance score (Column 1 lower than the median of the sample and Column 2 higher than the median of the sample). Columns 3 and 4 split the group of countries according to both their political stability governance score and their democracy score (Column 3 lower than the median in both scores and Column 4 higher than the median in both scores).

The results displayed in Table 2.8 show that the policy rate exerts a significant and negative effect on the within-sector structural change in the group with low political stability score (Column 1) and the one with low political stability and low democracy score (Column 3). This finding could be related to the fact that in a context of uncertainty created by political instability, monetary policy could be easier to undertake as a policy adjustment choice relative to fiscal policy. For instance, central banks can adjust their policy rates in response to the political instability and the economic conditions without the need of undertaking legislative changes or going through budget approval like the case of fiscal policy.

Column 4 in Table 2.8 shows that the flexibility of the exchange rate regime significantly increases the within-sector structural change whereas the corporate tax rate significantly reduces it, by 12.7 percent and 32.5 percent respectively, in the group with high political stability and high

¹⁸The tools were more appropriate to use for these heterogeneity tests for data availability reasons.

democracy scores. Less democratic or authoritarian regimes can be more likely to maintain their exchange rate regime fixed and protectionist policies in order to channel economic rents to their cronies. In contrast, democratic regimes are usually answerable to large constituencies. In this respect, leaders in this type of regimes would have strong incentives to adopt useful economic policies to increase their chances to be reelected. Accordingly, democratic regimes with large constituencies would have incentives to maintain their exchange rate regime flexible since it is usually preferred by voters and different interest groups (Steinberg & Malhotra, 2014). Aliyev (2014) also argue that less democratic regimes can have lower institutional capability and higher bureaucracy levels and they might use the stability of the exchange rate as a way to attract foreign investors. As per the corporate tax rate, the political regime type indeed matters for taxation. Governments incentives to adjust their tax rates would depend on the political regime. Democratic regimes are supposed to take into account the welfare implications of their taxes adjustment. Lower corporate tax rates would potentially be useful for firms through tax competition. In contrast, autocratic regimes would have lower incentives to adjust their tax rates to make their business environments more competitive since they tend to be less concerned about the welfare of their populations and they are less able to attract foreign capital with low taxes (Philipp Genschel & Seelkopf, 2016).

Table 2.9 describes the impact of the exchange rate policy tool (exchange rate regime) and outcomes (misalignment and volatility of the real effective exchange rate) on the within-sector structural change (the term resulting from the sectoral productivity decomposition when the productivity is measured as sales per worker) for two groups according to their fuel exports as an indication on countries structural dependence on natural resources (Columns 1, 3 and 5 for countries with fuel exports higher than the median of the sample and Columns 2, 4 and 6 for countries with fuel exports lower than the median of the sample).

Table 2.9 results show that for the group of countries with high fuel exports (Columns 1, 3 and 5), the REER volatility and a more flexible exchange rate regime significantly reduce the within-sector structural change. In fact, several developing countries can be structurally dependent on natural resource rents which cannot be considered as a reliable source of permanent income. These economies can be vulnerable to the fluctuations in commodity prices and to the external shocks, especially when exports are not diversified (which is related to the results of Column 3). Indeed, this natural resource dependence can create several macroeconomic challenges, notably on the exchange rate policy front. The policy objectives that would be preferred in such cases would be related to avoiding the volatility of commodity prices. In this respect, the choice of an appropriate exchange rate regime in resource rich economies can be challenging and they can prefer fixed exchange rate regimes given their stabilization function (which explain the result in Column 5) (Elbadawi et al., 2019; Kamar & Soto, 2019). The results for the group of countries with low fuel exports (Columns 2, 4 and 6) show that overvalued currencies have a negative and significant impact on the within-sector

structural change (Column 2: the misalignment of the real exchange rate). This finding confirms that economies with low dependence on natural resources can have more competitive exchange rates relative to the economies structurally dependent on exchange rate that more vulnerable to volatile foreign exchange inflows.

[Tables 2.8 - 2.9 about here]

In a nutshell, the main findings related to the macroeconomic tools show that high policy rates can undermine structural change. On the macroeconomic outcomes front, a competitive exchange rate and countercyclical macroeconomic policies enhance structural change. Moreover, the business cycle downturns foster structural change. The results hold with the sectoral measurements of macroeconomic conditions. The extensions show that the policy rate significantly reduces the within-sector structural change in contexts of political instability. The exchange rate regime and the corporate tax rate have a significant impact on the within-sector structural change in economies with high political stability and democracy. Finally, the REER volatility and a more flexible exchange rate regime significantly reduce the structural change in resource rich economies.

2.5.2 Robustness checks: Multilevel Mixed Effects Model and Two-Stage Least Squares Regression (2SLS)

The first robustness check that this paper considers is using the multilevel mixed effects model as an alternative estimation method. The results are reported in Tables B1 - B3 in Annex 2.B.1. Standard errors in the multilevel model results are clustered at the country level.¹⁹ In fact, the multilevel mixed effects method addresses the challenges related to the data structure and the nesting effects. In addition, it allows including simultaneously country level variables along with country, year and sector fixed effects. Results are broadly consistent with the baseline set of results using the fixed effects model.

[Tables B1 - B3 in Annex 2.B.1 about here]

This paper considers another robustness check with an instrumental variables (IV) approach as an identification strategy to control for the potential endogeneity that might arise between the macroeconomic conditions and the within-sector structural change. The results are reported in Tables B4 - B5 in Annex 2.B.2. In this respect, the macroeconomic conditions are instrumented by the tariffs of the main trading partner of the country and this trading partner's institutional

¹⁹Results are robust when the standard errors are clustered at the country year level.

quality. The main rationale behind these instruments pertains to the fact that trading with partners endowed with better institutions and lower tariffs is likely to induce better macroeconomic conditions in the domestic economy. First, the tariffs of the main trading partner would affect the macroeconomic conditions of this country and thereby this would get reflected on the macroeconomic conditions of the domestic economy. Second, the channel through which the institutions of the trading partner could affect the macroeconomic conditions of the domestic economy pertains to the fact that opening to international trade can change the incentives of the domestic country to introduce policies for better allocation of economic resources (Levchenko, 2016). A country is more likely to adopt better policies if it has strong economic ties with a country endowed with good institutions and the mechanism would be a process of learning or imitation (Christiansen et al., 2013). At the same time, the tariffs of the main trading partner of the country and this partner's institutional quality are unlikely to directly affect the structural change of the domestic economy or vice versa. These tariffs and institutional quality of the trading partner are exogenously determined by the trading partner.

These instruments seem to be appropriate for the macroeconomic conditions. The first stage estimation results are reported in Table B5 in Annex 2.B.2. The instruments are correlated to the instrumented variables as shown by the high values of the F-Statistic for the excluded instruments. The Sargan Test over-identifying restrictions also confirm that these instruments are valid. It tests whether the instruments are weak or not and the null hypothesis according to which instruments are weak is rejected. Table B4 in Annex 2.B.2 shows the effect of macroeconomic conditions on the within-sector structural change when the former are instrumented by the tariffs of the main trading partner of the country and this trading partner's institutional quality. In this second stage estimation results, the control variables effect broadly remain the same. In addition, the findings regarding the variables of interest remain also broadly robust.

[Tables B4 - B5 in Annex 2.B.2 about here]

Overall, the robustness checks conducted suggest that the baseline results do not change after using a different estimation methodology which is the multilevel mixed effects model and after controlling for endogeneity using an instrumental-variable approach.

2.6 Conclusion

Structural change drives development through a process related to transforming a country's production structure. It takes place within the sectors and involves a reallocation of resources between firms (Szirmai & Foster-Mcgregor, 2021; Tregenna et al., 2021). Unfortunately, this transformation has not been universal and the desirable patterns of structural change remain hindered in several developing countries. Within this context, this paper aims at studying how the macroeconomic conditions can improve the structural change process at the sectoral level in developing countries.

As a first step, a productivity decomposition exercise is undertaken (following Olley and Pakes (1996) methodology) in order to study the patterns of structural change in different sectors and regions and its contribution to productivity. The main findings from this decomposition show that there is a great extent of heterogeneity in the patterns of structural change among the different sectors. Furthermore, the contribution of structural change to productivity is broadly modest relative to the within component contribution among both manufacturing and services sectors.

In a second step, the paper studies how the macroeconomic conditions could possibly leverage structural change at the sectoral level. The main findings related to the macroeconomic tools show that high policy rates can undermine structural change. On the macroeconomic outcomes front, a competitive exchange rate and countercyclical macroeconomic policies enhance structural change. Moreover, the business cycle downturns foster structural change. The results hold with the sectoral measurements of macroeconomic conditions. The extensions show that the policy rate significantly reduces the within-sector structural change in contexts of political instability. The exchange rate regime and the corporate tax rate have a significant impact on the within-sector structural change in democratic and politically stable economies. The REER volatility and a more flexible exchange rate regime significantly reduce the structural change in resource rich economies. Finally, the robustness checks suggest that the baseline results do not change after using a different estimation methodology (the multilevel mixed effects model) and after controlling for endogeneity (using an instrumental-variable approach).

From a policy perspective, the findings of this paper suggest that a sound use of macroeconomic policies could help developing countries accelerate their structural change process. In this respect, three issues stemming from the findings could be highlighted. First, macroeconomic stability should not be compromised. At the same time, an exclusive focus on stability could be insufficient and countercyclical policies matter for structural change. Indeed, adopting a countercyclical stance is a critical choice for policy makers. Countercyclical policies are difficult to implement since they require fiscal discipline and a strong institutional setup (Nissanke, 2019). Furthermore, policies stance can be also associated with economic or political pressures or both which may undermine

the adoption of countercyclical policies (Ocampo, 2020).

Second, an active exchange rate policy can help inducing structural change. Having a competitive and stable exchange rate is usually perceived as an essential issue for macroeconomic stability, However, beyond its central role in macroeconomic stability, the exchange rate policy should be also perceived as a tool of industrial policy that would help diversifying the production structure. The exchange rate policy could accordingly have dual intertwined objectives: macroeconomic stability and structural change (Guzman et al., 2018). Third, downturns were found to have a cleansing effect on reallocation patterns. Indeed, this paper findings do not promote for downturns, they rather show the silver lining for the difficult times. Recessions can be considered as times of productivity enhancing reallocation since they could be a low cost time for reallocation and this would free up resources for the more productive uses (Foster et al., 2016; Van den bosch & Vanormelingen, 2022).

Table 2.2: The within-sector structural change and macroeconomic conditions (tools)

	(1) Structural Change (Prod sales per worker)	(2) Structural Change (Prod value added per worker)
Foreign ownership	0.0325** (0.0145)	0.00913** (0.00428)
Private ownership	0.0968*** (0.0362)	0.0141 (0.0105)
Training	0.201** (0.0880)	0.0864** (0.0344)
Young firms	-0.0225 (0.162)	0.0490 (0.0480)
Medium firms	-0.172* (0.0872)	0.00650 (0.0277)
Num firms	0.0226 (0.0208)	0.0142** (0.00655)
Exp/imp firms	0.0820 (0.107)	-0.00924 (0.0353)
Tariff by sector	-0.00509 (0.0347)	0.00917 (0.0131)
Business cycle	0.0787** (0.0355)	0.0332** (0.0145)
Ex rate regime	0.0125 (0.0361)	-0.00234 (0.0114)
Policy rate	-0.120* (0.0703)	0.00593 (0.0263)
Corp tax rate	-0.0735 (0.182)	-0.0187 (0.0404)
Constant	3.986*** (0.599)	1.041*** (0.133)
Sector FE	Yes	Yes
Country FE	Yes	Yes
Year FE	Yes	Yes
Observations	1,595	1,372
R-squared	0.223	0.196

Notes: The dependent variable is the structural change resulting from the productivity decomposition (see equation 2.1) (in Column 1 when labor productivity is measured as sales per worker and in Column 2 when labor productivity is measured as value added per per worker). All estimations include sector, country and time fixed effects. Standard errors in parentheses. **** p<0.01, ** p<0.05, * p<0.1 Standard errors are clustered at the country level.

Table 2.3: The within-sector structural change and macroeconomic conditions (outcomes)

	(1) Structural Change (Prod sales per worker)	(2) Structural Change (Prod value added per worker)
Foreign ownership	0.0650*** (0.0124)	0.0125** (0.00511)
Private ownership	0.165*** (0.0596)	0.0162 (0.0136)
Training	-0.0742 (0.116)	0.0447* (0.0223)
Young firms	-0.279 (0.177)	-0.0170 (0.0464)
Medium firms	-0.105 (0.152)	-0.0461 (0.0474)
Num firms	0.0133 (0.0277)	0.0182** (0.00758)
Exp/imp firms	-0.0750 (0.104)	-0.0691** (0.0311)
Tariff by sector	-0.0528 (0.0502)	0.00805 (0.0195)
Business cycle	0.275*** (0.0844)	0.0554** (0.0207)
Misalignment er	-0.144*** (0.0369)	-0.0494*** (0.00915)
Fiscal policy procyc	-0.154** (0.0585)	0.0263** (0.0128)
Monetary policy countercyc	0.104*** (0.0380)	0.0270*** (0.00648)
Constant	3.082*** (0.323)	0.880*** (0.0761)
Sector FE	Yes	Yes
Country FE	Yes	Yes
Year FE	Yes	Yes
Observations	722	627
R-squared	0.269	0.249

Notes: The dependent variable in Column 1 is the structural change resulting from the productivity decomposition (see equation 2.1) when labor productivity is measured as sales per worker. The dependent variable in Column 2 is the structural change resulting from the productivity decomposition (see equation 2.1) when labor productivity is measured as value added per per worker. All estimations include sector, country and time fixed effects. Standard errors in parentheses. **** p<0.01, ** p<0.05, * p<0.1 Standard errors are clustered at the country level.

Table 2.4: The within-sector structural change (labor productivity sales per worker) and macroeconomic conditions at the sector level

	(1) Structural Change (Prod sales per worker)	(2) Structural Change (Prod value added per worker)
Foreign ownership	0.0280** (0.0134)	0.00744* (0.00383)
Private ownership	0.0816 (0.0640)	-0.000650 (0.0184)
Training	0.184** (0.0798)	0.0451* (0.0240)
Young firms	-0.0129 (0.149)	0.0802** (0.0312)
Medium firms	-0.162 (0.106)	-0.0438 (0.0279)
Num firms	0.0325 (0.0270)	0.0159** (0.00671)
Exp/imp firms	-0.0757 (0.108)	-0.0163 (0.0338)
Tariff by sector	-0.0403 (0.0577)	0.00974 (0.0155)
Cycle by sector	3.93e-05*** (9.72e-06)	1.00e-06 (3.05e-06)
Fiscal policy procyc by sector	-0.00422 (0.0691)	0.00234 (0.0189)
Monetary policy countercyc by sector	-0.0251 (0.0653)	0.0195 (0.0191)
REER by sector	0.108* (0.0544)	0.0375** (0.0153)
Constant	3.260*** (0.395)	0.912*** (0.115)
Sector FE	Yes	Yes
Country FE	Yes	Yes
Year FE	Yes	Yes
Observations	1,304	1,264
R-squared	0.219	0.202

Notes: The dependent variable in Column 1 is the structural change resulting from the productivity decomposition (see equation 2.1) when labor productivity is measured as sales per worker. The dependent variable in Column 2 is the structural change resulting from the productivity decomposition (see equation 2.1) when labor productivity is measured as value added per per worker. All estimations include sector, country and time fixed effects. Standard errors in parentheses. **** p<0.01, ** p<0.05, * p<0.1 Standard errors are clustered at the country level.

Table 2.5: The within-sector structural change and macroeconomic conditions (separate tools)

	(1) Structural Change (Prod sales per worker)	(2) Structural Change (Prod sales per worker)	(3) Structural Change (Prod sales per worker)	(4) Structural Change (Prod sales per worker)
Foreign ownership	0.0336** (0.0138)	0.0260*** (0.00987)	0.0222** (0.0103)	0.0249** (0.0101)
Private ownership	0.0899** (0.0357)	0.0890** (0.0386)	0.0617* (0.0353)	0.0657* (0.0341)
Training	0.209** (0.0788)	0.0946 (0.0677)	0.0984 (0.0640)	0.105* (0.0592)
Young firms	-0.0204 (0.147)	-0.0543 (0.108)	-0.0727 (0.102)	-0.0255 (0.102)
Medium firms	-0.140 (0.0852)	-0.114 (0.0719)	-0.184*** (0.0644)	-0.158** (0.0655)
Num firms	0.0214 (0.0196)	0.0279 (0.0171)	0.0280* (0.0154)	0.0198 (0.0153)
Exp/imp firms	0.101 (0.103)	0.0579 (0.0706)	0.0705 (0.0717)	0.0696 (0.0713)
Tariff by sector	-0.0206 (0.0333)	-0.0309 (0.0326)	-0.0364 (0.0275)	-0.0316 (0.0275)
Business cycle	0.0406 (0.0392)	0.0630 (0.0413)	0.0363 (0.0306)	0.0996*** (0.0280)
Policy rate	-0.129*** (0.0455)			
Lending rate		-0.176 (0.124)		
Corp tax rate			0.00658 (0.167)	
Ex rate regime				-0.0224 (0.0177)
Constant	3.858*** (0.225)	4.121*** (0.352)	3.805*** (0.547)	3.833*** (0.180)
Sector FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	1,700	2,362	2,807	2,764
R-squared	0.219	0.182	0.192	0.193

Notes: The dependent variable is the structural change resulting from the productivity decomposition (see equation 2.1) when labor productivity is measured as sales per worker. All estimations include sector, country and time fixed effects. Standard errors in parentheses. **** p<0.01, ** p<0.05, * p<0.1 Standard errors are clustered at the country level.

Table 2.6: The within-sector structural change and macroeconomic conditions (separate outcomes)

	(1)	(2)	(3)	(4)	(5)
	Structural Change (Prod sales per worker)	Structural Change (Prod sales per worker)	Structural Change (Prod sales per worker)	Structural Change (Prod sales per worker)	Structural Change (Prod sales per worker)
Foreign ownership	0.0243** (0.00986)	0.0540*** (0.0155)	0.0239** (0.00983)	0.0244** (0.00977)	0.0263*** (0.00976)
Private ownership	0.0633* (0.0340)	0.150** (0.0588)	0.0642* (0.0338)	0.0768** (0.0336)	0.0671* (0.0341)
Training	0.0922 (0.0599)	0.0309 (0.118)	0.0925 (0.0605)	0.0992 (0.0659)	0.104* (0.0591)
Young firms	-0.0485 (0.0970)	-0.375* (0.192)	-0.0258 (0.0946)	-0.0561 (0.105)	-0.00606 (0.0968)
Medium firms	-0.148** (0.0647)	-0.127 (0.131)	-0.155** (0.0651)	-0.124* (0.0691)	-0.163** (0.0660)
Num firms	0.0250 (0.0154)	0.0166 (0.0268)	0.0253* (0.0151)	0.0300* (0.0170)	0.0244 (0.0151)
Exp/imp firms	0.0622 (0.0690)	-0.0766 (0.0984)	0.0655 (0.0693)	0.0348 (0.0742)	0.0818 (0.0712)
Tariff by sector	-0.0413 (0.0267)	-0.0646* (0.0383)	-0.0358 (0.0265)	-0.0376 (0.0323)	-0.0352 (0.0268)
buscycdummy	0.0548* (0.0302)	0.216*** (0.0743)	0.0398 (0.0336)	0.0540 (0.0372)	0.0705*** (0.0256)
Inflation	-0.0868** (0.0390)				
Misalignment er		-0.0834* (0.0475)			
Fiscal policy procyclicality			-0.0624** (0.0299)		
Monetary policy countercyclicality				0.0722** (0.0316)	
REER volatility					-0.0612* (0.0324)
Constant	3.978*** (0.191)	3.293*** (0.315)	3.818*** (0.174)	3.748*** (0.174)	3.900*** (0.190)
Sector FE	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	2,833	857	2,899	2,398	2,840
R-squared	0.193	0.244	0.192	0.195	0.196

Notes: The dependent variable is the structural change resulting from the productivity decomposition (see equation 2.1) when labor productivity is measured as sales per worker. All estimations include sector, country and time fixed effects. Standard errors in parentheses. **** p<0.01, ** p<0.05, * p<0.1 Standard errors are clustered at the country level.

Table 2.7: The within-sector structural change and macroeconomic conditions at the sector level (separate outcomes)

	(1)	(2)	(3)	(4)	(5)
	Structural Change (Prod sales per worker)	Structural Change (Prod sales per worker)	Structural Change (Prod sales per worker)	Structural Change (Prod sales per worker)	Structural Change (Prod sales per worker)
Foreign ownership	0.0354*** (0.0126)	0.0215** (0.00988)	0.0238** (0.0101)	0.0233** (0.00989)	0.0235** (0.00990)
Private ownership	0.122** (0.0486)	0.0449 (0.0319)	0.0475 (0.0325)	0.0638* (0.0341)	0.0743** (0.0335)
Training	0.0972 (0.0702)	0.125** (0.0578)	0.183*** (0.0663)	0.101* (0.0603)	0.103 (0.0661)
Young firms	-0.00510 (0.112)	-0.0279 (0.106)	0.0226 (0.114)	-0.0271 (0.0979)	-0.0509 (0.107)
Medium firms	-0.0883 (0.0819)	-0.148** (0.0702)	-0.147** (0.0709)	-0.158** (0.0661)	-0.136* (0.0701)
Num firms	0.0162 (0.0197)	0.0297* (0.0167)	0.0274 (0.0177)	0.0272* (0.0151)	0.0303* (0.0170)
Exp/imp firms	0.0123 (0.0828)	0.0302 (0.0776)	0.0116 (0.0791)	0.0709 (0.0695)	0.0400 (0.0735)
Tariff by sector	-0.0341 (0.0367)	-0.0447 (0.0290)	-0.0457 (0.0353)	-0.0388 (0.0266)	-0.0401 (0.0325)
busecycdummy	0.0895* (0.0453)	0.0357 (0.0350)	0.0369 (0.0352)	0.0478 (0.0322)	0.0551 (0.0383)
Cycle by sector	0.0303*** (0.00880)				
REER by sector (exports)		0.0511 (0.0369)			
REER by sector (imports)			0.0714** (0.0330)		
Fiscal policy procyc by sector				-0.0312 (0.0262)	
Monetary policy countercyc by sector					0.0608** (0.0280)
Constant	3.530*** (0.244)	3.677*** (0.233)	3.563*** (0.236)	3.811*** (0.175)	3.768*** (0.175)
Sector FE	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	1,968	2,461	2,272	2,879	2,378
R-squared	0.194	0.200	0.213	0.190	0.194

Notes: The dependent variable is the structural change resulting from the productivity decomposition (see equation 2.1) when labor productivity is measured as sales per worker. All estimations include sector, country and time fixed effects. Standard errors in parentheses. **** p<0.01, ** p<0.05, * p<0.1 Standard errors are clustered at the country level.

Table 2.8: The within-sector structural change, macroeconomic tools and politics

	(1)	(2)	(3)	(4)
	Structural Change (Prod sales per worker)	Structural Change (Prod sales per worker)	Structural Change (Prod sales per worker)	Structural Change (Prod sales per worker)
	Low political stability	High political stability	Low political stability and low democracy	High political stability and high democracy
Foreign ownership	0.0406** (0.0198)	0.0283 (0.0184)	0.0365* (0.0200)	0.0348* (0.0193)
Private ownership	0.112* (0.0554)	0.0848 (0.0513)	0.0954** (0.0449)	0.118* (0.0669)
Training	0.340*** (0.113)	0.106 (0.141)	0.321*** (0.108)	0.00113 (0.157)
Young firms	-0.261 (0.293)	0.153 (0.175)	-0.0473 (0.225)	0.0636 (0.213)
Medium firms	-0.297* (0.149)	-0.157* (0.0882)	-0.152 (0.115)	-0.236* (0.118)
Num firms	0.0143 (0.0324)	0.0109 (0.0300)	0.0230 (0.0253)	0.0108 (0.0396)
Exp/imp firms	0.103 (0.193)	0.139 (0.0973)	0.109 (0.156)	0.120 (0.121)
Tariff by sector	0.0483 (0.0578)	-0.0183 (0.0418)	-0.00562 (0.0493)	-0.00650 (0.0605)
Business cycle	0.279 (0.171)	0.0421 (0.0683)	0.0662 (0.0421)	0.0304 (0.0854)
Ex rate regime	-0.401 (0.351)	0.0119 (0.0524)	0.0117 (0.0431)	0.127*** (0.0383)
Policy rate	-0.351* (0.199)	-0.0886 (0.0820)	-0.153* (0.0903)	-0.128 (0.145)
Corp tax rate	0.587 (0.882)	-0.285** (0.131)	0.0160 (0.250)	-0.325*** (0.104)
Constant	3.013 (3.011)	4.686*** (0.506)	3.717*** (0.853)	4.587*** (0.390)
Sector FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	759	834	1,071	524
R-squared	0.264	0.234	0.246	0.226

Notes: The dependent variable is the structural change resulting from the productivity decomposition (see equation 2.1) when labor productivity is measured as sales per worker. Column 1 is the group of countries with a political stability governance score lower than the median of the sample and Column 2 higher than the median of the sample. Column 3 is the group of countries with political stability governance score and democracy score lower than the median and Column 4 higher than the median. All estimations include sector, country and time fixed effects. Standard errors in parentheses. **** p<0.01, ** p<0.05, * p<0.1 Standard errors are clustered at the country level.

Table 2.9: The within-sector structural change, exchange rate and fuel exports

	(1)	(2)	(5)	(6)	(3)	(4)
	Structural Change (Prod sales per worker)	Structural Change (Prod sales per worker)	Structural Change (Prod sales per worker)	Structural Change (Prod sales per worker)	Structural Change (Prod sales per worker)	Structural Change (Prod sales per worker)
	High fuel exports	Low fuel exports	High fuel exports	Low fuel exports	High fuel exports	Low fuel exports
Foreign ownership	0.0500** (0.0215)	0.0952*** (0.0181)	0.0200 (0.0144)	0.0333** (0.0163)	0.0266* (0.0138)	0.0311** (0.0137)
Private ownership	0.0607 (0.114)	0.194*** (0.0460)	0.0262 (0.0437)	0.117** (0.0505)	0.0242 (0.0533)	0.0774 (0.0531)
Training	0.0617 (0.117)	-0.0757 (0.233)	0.166** (0.0802)	-0.00188 (0.0897)	0.168* (0.100)	0.0961 (0.0830)
Young firms	-0.160 (0.273)	-0.373 (0.225)	-0.0302 (0.131)	-0.0683 (0.147)	-0.104 (0.121)	-0.131 (0.132)
Medium firms	-0.256* (0.140)	0.135 (0.275)	-0.196** (0.0816)	-0.102 (0.115)	-0.181* (0.0985)	-0.0982 (0.110)
Num firms	0.0584** (0.0240)	-0.0411 (0.0546)	0.0297 (0.0195)	0.00801 (0.0241)	0.0558*** (0.0177)	-0.00285 (0.0212)
Exp/imp firms	-0.0926 (0.108)	-0.164 (0.175)	0.0741 (0.101)	0.0435 (0.0916)	-0.140 (0.112)	0.0898 (0.0996)
Tariff by sector	-0.0904 (0.0535)	-0.123 (0.0865)	-0.0869*** (0.0322)	0.0250 (0.0416)	-0.0259 (0.0322)	0.0448 (0.0299)
Business cycle	0.183* (0.102)	-0.0797 (0.111)	0.110*** (0.0369)	0.0869** (0.0426)	0.146*** (0.0394)	0.0452 (0.0467)
Misalignment er	0.00972 (0.0559)	-0.147*** (0.0203)				
REER volatility			-0.147*** (0.0221)	0.0768 (0.0893)		
Ex rate regime					-0.0401* (0.0221)	-0.0147 (0.0205)
Constant	3.880*** (0.524)	3.272*** (0.323)	4.357*** (0.237)	3.329*** (0.331)	3.953*** (0.289)	3.669*** (0.246)
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	520	337	1,587	1,252	1,552	1,211
R-squared	0.159	0.233	0.238	0.201	0.105	0.089

Notes: The dependent variable is the structural change resulting from the productivity decomposition (see equation 2.1) when labor productivity is measured as sales per worker. All estimations include sector, country and time fixed effects. Standard errors in parentheses. **** p<0.01, ** p<0.05, * p<0.1 Standard errors are clustered at the country level.

Appendix 2.A Countries and Sectors

Table A1: Countries by yearly income and WBES survey rounds

Low income				Lower middle income				Upper middle income			
Country	Rounds WBES	Country	Rounds WBES	Country	Rounds WBES	Country	Rounds WBES	Country	Rounds WBES	Country	Rounds WBES
Afghanistan	2008 2014	Mali	2007 2010	Albania	2007	Lesotho	2016	Albania	2013	Lebanon	2013
Bangladesh	2013		2016	Angola	2006	Mauritania	2014	Antigua	2019		2019
Benin	2016	Mauritania	2006		2010	Moldova	2009	Barbuda	2010	Lithuania	2009
Burkina Faso	2009	Mozambique	2007	Armenia	2009		2013	Argentina	2006	Malaysia	2015
Burundi	2006		2018	Belize	2010		2019		2010	Mauritius	2009
Chad	2014 2018	Nepal	2009 2013	Bhutan	2015 2006	Mongolia	2013 2019	Armenia	2020	Mexico	2006 2010
Congo, Dem. Rep.	2006 2010 2013	Niger	2017	Bolivia	2010	Morocco	2013	Azerbaijan	2009	Montenegro	2009 2013
Ethiopia	2011 2015	Nigeria	2007	Cambodia	2016		2019		2019		2013
Gambia,	2006	Rwanda	2006	Cameroon	2009	Myanmar	2014	Belarus	2013	Namibia	2014
Ghana	2018	Senegal	2007	Colombia	2016	Namibia	2006		2018	North Macedonia	2009 2013
Guinea	2007	Sierra Leone	2017	Côte d'Ivoire	2009	Nicaragua	2010	Bosnia	2009	Panama	2006
Guinea-Bissau	2006	South Sudan	2014	d'Ivoire	2016		2016	Herzegovina	2019		2010
Kenya	2007	Tajikistan	2013	Ecuador	2013	Nigeria	2014	Botswana	2006	Paraguay	2017
Kyrgyz Republic	2009		2019		2006	Pakistan	2013	Brazil	2009	Peru	2010
Lao PDR	2009	Tanzania	2006	Egypt	2013	Papua New Guinea	2015		2007		2017
Liberia	2017	Togo	2013		2016		2006	Bulgaria	2009	Romania	2009
Madagascar	2009	Uganda	2016		2020	Paraguay	2010		2013		2013
Malawi	2013		2006		2006	Peru	2006		2019	Russian Federation	2009
	2014		2013	El Salvador	2010	Philippines	2009	Chile	2006		2019
			2008		2016		2015		2010		2009
			2007		2006	Senegal	2014	China	2012	Serbia	2013
			2016	Eswatini	2016	Solomon Islands	2015		2010		2019
					2008	Sri Lanka	2011	Colombia	2017		2007
				Georgia	2013	Sudan	2014	Costa Rica	2010	South Africa	2020
										St. Kitts	
				Ghana	2013	Timor-Leste	2015	Croatia	2007		2010
					2006		2021	Dominica	2010	Nevis	
				Guatemala					2010	St. Lucia	2010
					2010	Tunisia	2020	Dominican Republic	2010	St. Vincent	
									2010	the Gren.	2010
				Guyana	2010		2008		2016	Suriname	2010
					2006	Ukraine	2013	Ecuador	2010		2018
				Honduras	2010		2019		2017	Thailand	2016
					2016		2013	Georgia	2019	Tunisia	2013
				India	2014	Uzbekistan	2019	Grenada	2010		2008
				Indonesia	2009		2009	Guatemala	2017	Turkey	2013
					2015	Vietnam	2015	Hungary	2013		2015
				Iraq	2011	West Bank and Gaza	2013	Jamaica	2010		2019
				Kenya	2018		2019		2013	Uruguay	2006
					2009	Yemen	2010	Jordan	2019		2010
				Kosovo	2013		2013		2009	Venezuela	2010
				Kyrgyz Republic	2019	Zambia	2019	Kazakhstan	2019		
					2012				2019		
				Lao PDR	2016			Kosovo	2019		
					2018						

Table A2: ISIC sectors in the analysis

	code	Description
Manufacturing	1516	Manufacturing of food products and beverages, and manufacturing of tobacco products
	17	Manufacture of textiles
	18	Manufacture of wearing apparel; dressing and dyeing of fur
	19	Tanning and dressing of leather; manufacture of luggage, handbags, saddlery, harness and footwear
	20	Manufacture of wood and products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials
	21	Manufacture of paper and paper products
	22	Publishing, printing and reproduction of recorded media
	2324	Manufacturing of coke, refined petroleum products and nuclear fuel, and manufacturing of chemicals and chemical products
	25	Manufacture of rubber and plastics products
	26	Manufacture of other non-metallic mineral products
	27	Manufacture of basic metals
	28	Manufacture of fabricated metal products, except machinery and equipment
	29	Manufacture of machinery and equipment n.e.c. Manufacturing of office, accounting and computing machinery; manufacturing of electrical machinery and apparatus n.e.c., manufacturing of radio, television and communication equipment and apparatus, and manufacturing of medical, precision and optical instruments, watches and clocks
	30313233	Manufacturing of motor vehicles, trailers and semi-trailers, and manufacturing of other transport equipment
	36	Manufacture of furniture; manufacturing n.e.c.
	37	Recycling
	40	Electricity, gas, steam and hot water supply
	45	Construction
	Services	50
51		Wholesale trade and commission trade, except of motor vehicles and motorcycles
52		Retail trade, except of motor vehicles and motorcycles; repair of personal and household goods
55		Hotels and restaurants
60		Land transport; transport via pipelines
61		Water transport
62		Air transport
63		Supporting and auxiliary transport activities; activities of travel agencies
64		Post and telecommunications
65		Financial intermediation, except insurance and pension funding
70		Real estate activities
72		Computer and related activities
74		Other business activities
93		Other service activities

Table A3: ISIC sectors and WTO tariffs by product

ISIC sector code	Description	Tariff code
10	Mining of coal and lignite; extraction of peat	MT2 - 12 - Minerals and metals
11	Extraction of crude petroleum and natural gas;	MT2 - 13 - Petroleum
12	Mining of uranium and thorium ores	MT2 - 12 - Minerals and metals
13	Mining of metal ores	MT2 - 12 - Minerals and metals
14	Other mining and quarrying	MT2 - 12 - Minerals and metals
17	Manufacture of textiles	MT2 - 16 - Textiles
18	Manufacture of wearing apparel; dressing and dyeing of fur	MT2 - 17 - Clothing
19	Tanning and dressing of leather; manufacture of luggage, handbags, saddlery, harness and footwear	MT2 - 18 - Leather, footwear, etc
20	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	MT2 - 15 - Wood, paper, etc
21	Manufacture of paper and paper products	MT2 - 15 - Wood, paper, etc
22	Publishing, printing and reproduction of recorded media	
25	Manufacture of rubber and plastics products	MT2 - 14 - Chemicals
26	Manufacture of other non-metallic mineral products	MT2 - 22 - Manufactures n.e.s.
27	Manufacture of basic metals	MT2 - 22 - Manufactures n.e.s.
28	Manufacture of fabricated metal products, except machinery and equipment	MT2 - 14 - Chemicals
29	Manufacture of machinery and equipment n.e.c.	MT2 - 19 - Non-electrical machinery
36	Manufacture of furniture; manufacturing n.e.c.	MT2 - 22 - Manufactures n.e.s.
		Average of MT2 - 01 - Animal products
		MT2 - 02 - Dairy products
		MT2 - 03 - Fruits, vegetables, plants
1516	Manufacturing of food products and beverages, and manufacturing of tobacco products	MT2 - 04 - Coffee, tea
		MT2 - 05 - Cereals and preparations
		MT2 - 06 - Oilseeds, fats and oils
		MT2 - 07 - Sugars and confectionery
		MT2 - 08 - Beverages and tobacco
2324	Manufacturing of coke, refined petroleum products and nuclear fuel, and manufacturing of chemicals and chemical products	MT2 - 14 - Chemicals
3435	Manufacturing of motor vehicles, trailers and semi-trailers, and manufacturing of other transport equipment	MT2 - 21 - Transport equipment
30313233	Manufacturing of office, accounting and computing machinery; manufacturing of electrical machinery and apparatus n.e.c., manufacturing of radio, television and communication equipment and apparatus, and manufacturing of medical, precision and optical instruments, watches and clocks	MT2 - 20 - Electrical machinery

Table A4: EORA and ISIC sectors concordance

EORA sector	isic	isic description
Food & Beverages	1516	Manufacturing of food products and beverages, and manufacturing of tobacco products
Textiles and Wearing Apparel	17	Manufacture of textiles
Textiles and Wearing Apparel	18	Manufacture of wearing apparel;
Textiles and Wearing Apparel	19	Tanning and dressing of leather;
Wood and Paper	20	Manufacture of wood and products
Wood and Paper	21	Manufacture of paper and paper products
Wood and Paper	22	Publishing, printing and reproduction of recorded media
Petroleum, Chemical and Non-Metallic Mineral Products	2324	Manufacturing of coke, refined petroleum products
Petroleum, Chemical and Non-Metallic Mineral Products	25	Manufacture of rubber and plastics products
Petroleum, Chemical and Non-Metallic Mineral Products	26	Manufacture of other non-metallic mineral products
Metal Products	27	Manufacture of basic metals
Metal Products	28	Manufacture of fabricated metal products
Electrical and Machinery	29	Manufacture of machinery and equipment
Electrical and Machinery	30313233	Manufacture of machinery and equipment
Transport Equipment	3435	Manufacturing of motor vehicles, trailers and semi-trailers, and manufacturing of other transport equipment
Other Manufacturing	36	Manufacture of furniture; manufacturing n.e.c.
Recycling	37	Recycling
Electricity, Gas and Water	40	Electricity, gas, steam and hot water supply
Construction	45	Construction
Maintenance and Repair	50	Sale, maintenance and repair of motor vehicles and motorcycles
Wholesale Trade	51	Wholesale trade and commission trade
Retail Trade	52	Retail trade
Hotels and Restaurants	55	Hotels and restaurants
Transport	60	Land transport; transport via pipelines
Transport	61	Water transport
Transport	62	Air transport
Transport	63	Supporting and auxiliary transport activities
Post and Telecommunications	64	Post and Telecommunications
Financial Intermediation and Business Activities	65	Financial intermediation
Financial Intermediation and Business Activities	70	Real estate activities
Financial Intermediation and Business Activities	72	Computer and related activities
Financial Intermediation and Business Activities	74	Other business activities
Others	93	Other service activities

Table A5: EBOPS and ISIC sectors concordance

EBOPS code	Description	isic code	Description
SC1	Sea transport	61	Water transport
SC2	Air transport	62	Air transport
SC3	Other modes of trans	60	Land transport; transport via pipelines
SD	Travel	55	Hotels and restaurants
SD	Travel	63	Supporting and auxiliary transport activities
SG	Financial services	65	Financial intermediation, except insurance and pension funding
SI1	Telecommunications services	64	Post and telecommunications
SI2	Computer services	72	Computer and related activities
SJ	Other business services	74	Other business activities
SJ34	Trade-related services	50	Sale, maintenance and repair of motor vehicles and motorcycles; retail sale of automotive fuel
SJ34	Trade-related services	51	Wholesale trade and commission trade
SJ34	Trade-related services	52	Retail trade,
SJ35	Other business services n.i.e.	70	Real estate activities
SK	Personal, cultural, and recreational services	93	Other service activities
SE	Construction	45	Construction

Table A6: GTAP and ISIC sectors concordance

gtap sector	Description	isic	isic description
cmn	communication	64	Post and telecommunications
cmn	communication	72	Computer and related activities
cns	construction	45	Construction
isr	insurance	66	Insurance
obs	business services	74	Other business activities
ofi	finance	65	Financial intermediation, except insurance and pension funding
trd	trade	50	Sale, maintenance and repair of motor vehicles and motorcycles;
trd	trade	51	Wholesale trade and commission trade,
trd	trade	52	Retail trade
trn	all transport	60	Land transport
trn	all transport	62	Air transport
wtp	water transport	61	Water transport

Appendix 2.B Supplementary Results

2.B.1 Multilevel Mixed Effects Model Results

Table B1: The within-sector structural change and macroeconomic conditions (tools), multilevel

	(1) Structural Change (Prod sales per worker)	(2) Structural Change (Prod sales per worker)	(3) Structural Change (Prod sales per worker)	(4) Structural Change (Prod sales per worker)	(5) Structural Change (Prod sales per worker)
Foreign ownership	-0.0245 (0.0787)	-0.0267 (0.0504)	-0.0366 (0.0522)	-0.0146 (0.0505)	-0.0102 (0.0772)
Private ownership	-0.0437 (0.0732)	-0.0102 (0.0503)	-0.0266 (0.0497)	-0.0106 (0.0484)	-0.0196 (0.0716)
Training	0.0813*** (0.0298)	0.0341 (0.0258)	0.0330 (0.0240)	0.0410* (0.0223)	0.0778** (0.0323)
Young firms	0.000304 (0.0359)	-0.0113 (0.0258)	-0.0158 (0.0250)	-0.00574 (0.0249)	0.00234 (0.0398)
Medium firms	-0.0398* (0.0220)	-0.0318* (0.0187)	-0.0482*** (0.0171)	-0.0434** (0.0171)	-0.0469** (0.0225)
Num firms	0.00768 (0.0241)	0.000979 (0.0245)	-0.00834 (0.0233)	-0.0142 (0.0247)	0.00287 (0.0250)
Exp/imp firms	0.0267 (0.0338)	0.0167 (0.0240)	0.0221 (0.0243)	0.0201 (0.0243)	0.0195 (0.0346)
Tariff by sector	-0.0805* (0.0465)	-0.0866** (0.0423)	-0.0794** (0.0354)	-0.0748* (0.0387)	-0.0545 (0.0499)
Business cycle	0.0835 (0.0744)	0.114 (0.0782)	0.0677 (0.0573)	0.186*** (0.0547)	0.143** (0.0624)
Policy rate	-0.0852*** (0.0262)				-0.0880*** (0.0306)
Lending rate		-0.0514 (0.0775)			
Corp tax rate			0.115 (0.125)		0.00592 (0.175)
Ex rate regime				-0.0385 (0.0310)	0.0240 (0.0571)
Constant	-0.0696 (0.292)	-0.471** (0.198)	-0.390** (0.199)	-0.540*** (0.172)	0.864 (0.554)
Sector FE	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	1,701	2,363	2,808	2,765	1,596
Number of countries	60	94	108	110	59

Notes: The dependent variable is the structural change resulting from the productivity decomposition (see equation 2.1) when labor productivity is measured as sales per worker. Variables are standardized. Standard errors in parentheses. **** p<0.01, ** p<0.05, * p<0.1 Standard errors are clustered at the country level.

Table B2: The within-sector structural change and macroeconomic conditions (outcomes), multilevel

	(1) Structural Change (Prod sales per worker)	(2) Structural Change (Prod sales per worker)	(3) Structural Change (Prod sales per worker)	(4) Structural Change (Prod sales per worker)	(5) Structural Change (Prod sales per worker)	(6) Structural Change (Prod sales per worker)
Foreign ownership	-0.0323 (0.0508)	-0.0532 (0.0629)	-0.0341 (0.0489)	-0.0514 (0.0501)	-0.0274 (0.0520)	-0.103* (0.0601)
Private ownership	-0.0306 (0.0495)	-0.0364 (0.0640)	-0.0297 (0.0471)	-0.0346 (0.0498)	-0.0271 (0.0505)	-0.0671 (0.0653)
Training	0.0342 (0.0230)	0.0266 (0.0248)	0.0339 (0.0232)	0.0372 (0.0256)	0.0411* (0.0225)	0.0299 (0.0271)
Young firms	-0.0111 (0.0235)	-0.0227 (0.0259)	-0.00490 (0.0231)	-0.0131 (0.0253)	-0.00262 (0.0235)	-0.0201 (0.0274)
Medium firms	-0.0393** (0.0168)	-0.0465** (0.0192)	-0.0419** (0.0170)	-0.0335* (0.0179)	-0.0433** (0.0171)	-0.0434** (0.0219)
Num firms	-0.00952 (0.0235)	-0.0144 (0.0245)	-0.00618 (0.0231)	0.00121 (0.0245)	-0.00719 (0.0230)	-0.00819 (0.0248)
Exp/imp firms	0.0177 (0.0235)	0.0308 (0.0248)	0.0187 (0.0234)	0.00823 (0.0250)	0.0223 (0.0240)	0.00842 (0.0254)
Tariff by sector	-0.0866** (0.0360)	-0.0791** (0.0356)	-0.0815** (0.0363)	-0.0878** (0.0420)	-0.0843** (0.0358)	-0.0930** (0.0422)
Business cycle	0.104* (0.0592)	0.113* (0.0671)	0.0739 (0.0642)	0.104 (0.0713)	0.115** (0.0584)	0.120 (0.0743)
Inflation	-0.0713* (0.0393)					
Misalignment er		0.0315 (0.0658)				-0.0283 (0.0725)
Fiscal policy proyc			-0.125** (0.0556)			-0.144** (0.0710)
Monetary policy countercyc				0.128** (0.0605)		-0.0588 (0.0505)
REER volatility					-0.984** (0.442)	
Constant	-0.501*** (0.167)	-0.738*** (0.272)	-0.419** (0.170)	-0.426** (0.181)	-0.493*** (0.165)	-0.733** (0.306)
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,834	2,148	2,900	2,399	2,841	1,800
Number of countries	110	79	112	97	109	68

Notes: The dependent variable is the structural change resulting from the productivity decomposition (see equation 2.1) when labor productivity is measured as sales per worker. Variables are standardized. Standard errors in parentheses. **** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ Standard errors are clustered at the country level.

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Table B3: The within-sector structural change and macroeconomic conditions at the sector level, multilevel

	(1)	(2)	(3)	(4)	(5)	(6)
	Structural Change	Structural Change	Structural Change	Structural Change	Structural Change	Structural Change
	(Prod sales per worker)	(Prod sales per worker)	(Prod sales per worker)	(Prod sales per worker)	(Prod sales per worker)	(Prod sales per worker)
Foreign ownership	-0.0488 (0.0508)	-0.0445 (0.0517)	-0.0240 (0.0613)	-0.0284 (0.0497)	-0.0535 (0.0503)	-0.0267 (0.0605)
Private ownership	-0.0546 (0.0511)	-0.0491 (0.0514)	-0.0272 (0.0612)	-0.0223 (0.0478)	-0.0365 (0.0495)	-0.0251 (0.0649)
Training	0.0453** (0.0223)	0.0668*** (0.0258)	0.0416 (0.0256)	0.0372 (0.0231)	0.0379 (0.0255)	0.0728** (0.0299)
Young firms	-0.00507 (0.0255)	0.00655 (0.0274)	0.000206 (0.0271)	-0.00448 (0.0239)	-0.0111 (0.0258)	-0.00224 (0.0354)
Medium firms	-0.0400** (0.0183)	-0.0405** (0.0186)	-0.0234 (0.0203)	-0.0430** (0.0172)	-0.0364** (0.0182)	-0.0442* (0.0263)
Num firms	0.00415 (0.0233)	-0.00110 (0.0271)	-0.0187 (0.0273)	-0.00311 (0.0232)	0.00146 (0.0244)	-0.0127 (0.0331)
Exp/imp firms	0.00730 (0.0266)	0.00248 (0.0270)	-0.00123 (0.0276)	0.0208 (0.0234)	0.00975 (0.0247)	-0.0373 (0.0361)
Tariff by sector	-0.117*** (0.0419)	-0.259** (0.101)	-0.111** (0.0530)	-0.0833** (0.0366)	-0.0855** (0.0417)	-0.406** (0.176)
Business cycle	0.0706 (0.0660)	0.0709 (0.0654)	0.157* (0.0893)	0.0902 (0.0617)	0.106 (0.0730)	0.169 (0.111)
REER by sector (exports)	0.0119 (0.0161)					
REER by sector (imports)		-0.000296 (0.0240)				0.0369* (0.0203)
Cycle by sector			0.969*** (0.194)			0.951*** (0.220)
Fiscal policy procyc by sector				-0.0567 (0.0496)		0.00836 (0.138)
Monetary policy countercyc by sector					0.113** (0.0532)	-0.0360 (0.130)
Constant	-0.493*** (0.164)	-0.580*** (0.194)	-0.364** (0.185)	-0.466*** (0.169)	-0.499*** (0.176)	-0.492** (0.228)
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,461	2,272	1,969	2,880	2,379	1,305
Number of groups	94	93	92	111	96	67

Notes: The dependent variable is the structural change resulting from the productivity decomposition (see equation 2.1) when labor productivity is measured as sales per worker. Variables are standardized. Standard errors in parentheses. **** p<0.01, ** p<0.05, * p<0.1 Standard errors are clustered at the country level.

2.B.2 Two stages least squares 2SLS

Table B4: The within-sector structural change and macroeconomic conditions, Two SLS estimation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Struc change	Struc change	Struc change	Struc change	Struc change	Struc change	Struc change	Struc change	Struc change
Foreign ownership	0.0247*** (0.00953)	0.0570*** (0.0167)	0.0244** (0.0105)	0.0266*** (0.0103)	0.0231** (0.0101)	0.0422*** (0.0144)	0.0244* (0.0129)	0.0201* (0.0107)	0.0263** (0.0107)
Private ownership	0.0649** (0.0315)	0.155*** (0.0560)	0.0367 (0.0377)	0.0807** (0.0324)	0.0664** (0.0324)	0.0689 (0.0478)	0.0441 (0.0498)	0.0680* (0.0354)	0.0825** (0.0364)
Training	0.102 (0.0675)	0.00139 (0.117)	0.0379 (0.0781)	0.0648 (0.0743)	0.0519 (0.0754)	0.203** (0.0991)	0.0709 (0.0887)	-0.0153 (0.0926)	0.0524 (0.0814)
Young firms	-0.0541 (0.0933)	-0.419** (0.182)	0.157 (0.136)	-0.0865 (0.103)	0.0164 (0.0978)	0.0434 (0.147)	-0.178 (0.140)	-0.0255 (0.107)	0.00310 (0.107)
Medium firms	-0.164** (0.0749)	-0.167 (0.129)	-0.170** (0.0828)	-0.133* (0.0805)	-0.170** (0.0770)	-0.168 (0.110)	-0.118 (0.0999)	-0.134 (0.0883)	-0.190** (0.0857)
Num firms	0.0292* (0.0149)	0.0124 (0.0266)	0.0288* (0.0162)	0.0302* (0.0157)	0.0293* (0.0154)	0.0319 (0.0211)	0.0147 (0.0200)	0.0415** (0.0180)	0.0229 (0.0165)
Exp/imp firms	0.0616 (0.0745)	-0.0714 (0.126)	-0.00681 (0.0905)	0.0462 (0.0810)	0.133 (0.0827)	0.0427 (0.116)	0.0257 (0.102)	0.112 (0.0846)	0.0271 (0.0898)
Tariff by sector	-0.0387 (0.0269)	-0.0571 (0.0482)	-0.0630** (0.0318)	-0.0417 (0.0304)	-0.00743 (0.0329)	-0.000561 (0.0377)	0.00123 (0.0406)	-0.0701** (0.0347)	-0.0386 (0.0313)
Business cycle	0.0664** (0.0308)	0.290* (0.151)	0.0659** (0.0335)	0.0320 (0.0350)	0.176** (0.0784)	-0.00982 (0.0483)	0.161** (0.0662)	-0.0207 (0.0433)	-0.116 (0.148)
Macro outcomes									
Inflation	-0.378** (0.177)								
Misalignment er		-0.149 (0.160)							
Fiscal policy procyc			-0.803** (0.371)						
Monetary policy countercyc				0.318 (0.194)					
REER volatility					-0.442* (0.255)				
Macro tools									
Policy rate						-1.214** (0.556)			
Lending rate							-4.360** (2.170)		
Corp tax rate								4.050* (2.133)	
Ex rate regime									0.669 (0.465)
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,820	844	2,874	2,379	2,827	1,687	2,343	2,788	2,751
R-squared	-0.005	0.032	-0.261	-0.005	-0.070	-0.195	-0.513	-0.206	-0.260
Sargan overid (P-val)	0.0663	0.231	0.188	0.1379	0.0419	0.4458	0.3895	0.202	0.7658

Notes: The dependent variable is the structural change resulting from the productivity decomposition (see equation 2.1) when labor productivity is measured as sales per worker. The macroeconomic outcomes and tools are instrumented by the tariffs of the main trading partner of the country and this trading partner's institutional quality. Standard errors in parentheses. **** p<0.01, ** p<0.05, * p<0.1

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Table B5: First stage results

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Inflation	Misalignment er	Fiscal policy procyc	Monetary policy countercyc	REER volatility	Policy rate	Lending rate	Corp tax rate	Ex rate regime
Tariff trading part	0.154*** (0.0273)	2.513*** (0.198)	0.110** (0.0446)	-0.363*** (0.0399)	0.0729 (0.0503)	0.139*** (0.0329)	0.0341*** (0.0107)	-0.0337*** (0.00807)	-0.162*** (0.0515)
Institutions trading part	-0.163*** (0.0235)	2.090*** (0.225)	-0.0609 (0.0382)	-0.241*** (0.0359)	-0.144*** (0.0429)	0.0103 (0.0187)	0.00287 (0.00535)	-0.0229*** (0.00688)	-0.0571 (0.0431)
Foreign ownership	0.00102 (0.00392)	0.0148* (0.00768)	-0.00159 (0.00639)	-0.00422 (0.00569)	-0.00926 (0.00714)	0.00870 (0.00534)	-0.000704 (0.00180)	0.000497 (0.00114)	-0.00221 (0.00721)
Private ownership	-0.000438 (0.0129)	0.0128 (0.0259)	-0.0393* (0.0212)	-0.00704 (0.0179)	-0.00696 (0.0235)	-0.0192 (0.0178)	-0.0115* (0.00610)	-0.00165 (0.00381)	-0.0230 (0.0235)
Training	0.0399 (0.0275)	-0.0574 (0.0547)	-0.0745* (0.0449)	0.0979** (0.0398)	-0.133*** (0.0500)	0.00182 (0.0381)	-0.00436 (0.0125)	0.0259*** (0.00802)	0.0730 (0.0506)
Young firms	-0.00845 (0.0385)	-0.154* (0.0842)	0.244*** (0.0626)	0.0911* (0.0552)	0.0657 (0.0702)	0.0867 (0.0548)	-0.0272 (0.0175)	-0.0153 (0.0113)	-0.0633 (0.0711)
Medium firms	-0.0342 (0.0308)	-0.0155 (0.0599)	-0.0123 (0.0502)	0.00516 (0.0445)	0.00239 (0.0560)	-0.0191 (0.0422)	-0.000495 (0.0141)	-0.0137 (0.00891)	0.0379 (0.0570)
Num firms	0.0146** (0.00604)	-0.0588*** (0.0117)	0.00528 (0.00978)	-0.00920 (0.00865)	0.0136 (0.0109)	0.00959 (0.00781)	-0.00263 (0.00270)	-0.00385** (0.00173)	-0.00473 (0.0110)
Exp/imp firms	-0.0125 (0.0306)	-0.0347 (0.0584)	-0.0965* (0.0500)	-0.0113 (0.0448)	0.125** (0.0560)	-0.0591 (0.0425)	-0.00887 (0.0141)	-0.00813 (0.00889)	0.0712 (0.0566)
Tariff by sector	0.00686 (0.0111)	0.0532** (0.0220)	-0.0287 (0.0181)	0.0204 (0.0167)	0.0712*** (0.0202)	0.0168 (0.0140)	0.00772 (0.00524)	0.00863*** (0.00321)	0.0126 (0.0208)
Business cycle	0.0441*** (0.0123)	0.290*** (0.0649)	0.0206 (0.0200)	0.0401** (0.0182)	0.278*** (0.0224)	-0.0420** (0.0165)	0.0249*** (0.00557)	0.0113*** (0.00357)	0.297*** (0.0245)
Observations	2,820	844	2,874	2,379	2,827	1,687	2,343	2,788	2,751
F test of excluded instruments	94.77	90.71	9.89	43.44	14.59	10.96	5.33	9.44	5.09

Notes:

Standard errors in parentheses.

*** p<0.01, ** p<0.05, * p<0.1

2.B.3 Other Results

Table B6: The within-sector structural change (value added per worker) and macroeconomic conditions (separate tools)

	(1)	(2)	(3)	(4)
	Structural Change (VA per worker)	Structural Change (VA per worker)	Structural Change (VA per worker)	Structural Change (VA per worker)
Foreign ownership	0.00913** (0.00410)	0.00776** (0.00301)	0.00850*** (0.00306)	0.00836*** (0.00306)
Private ownership	0.0122 (0.0106)	0.0115 (0.0157)	0.0126 (0.0136)	0.0124 (0.0137)
Training	0.0802** (0.0305)	0.0155 (0.0227)	0.0285 (0.0225)	0.0203 (0.0221)
Young firms	0.0467 (0.0446)	0.0491 (0.0314)	0.0369 (0.0323)	0.0511 (0.0310)
Medium firms	0.00844 (0.0263)	-0.00849 (0.0216)	-0.0177 (0.0193)	-0.0167 (0.0196)
Num firms	0.0141** (0.00681)	0.0135** (0.00527)	0.0144*** (0.00494)	0.0124** (0.00486)
Exp/imp firms	0.00126 (0.0334)	-0.0153 (0.0233)	-0.00704 (0.0218)	-0.000213 (0.0220)
Tariff by sector	0.00374 (0.0130)	0.0125 (0.0108)	0.00793 (0.0103)	0.00998 (0.0103)
Business cycle	0.0222 (0.0138)	0.0233* (0.0134)	0.0156 (0.0111)	0.0292** (0.0123)
Policy rate	-0.00779 (0.0186)			
Lending rate		-0.102** (0.0392)		
Corp tax rate			-0.0404 (0.0427)	
Ex rate regime				0.000824 (0.00664)
Constant	1.026*** (0.0632)	1.290*** (0.124)	1.152*** (0.148)	1.020*** (0.0678)
Sector FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	1,464	2,097	2,482	2,453
R-squared	0.195	0.176	0.166	0.165

Notes: The dependent variable is the structural change resulting from the productivity decomposition (see equation 2.1) when labor productivity is measured as value added per worker. Standard errors in parentheses. **** p<0.01, ** p<0.05, * p<0.1 Standard errors are clustered at the country level.

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Table B7: The within-sector structural change (value added per worker) and macroeconomic conditions (separate outcomes)

	(1)	(2)	(3)	(4)	(5)
	Structural Change (VA per worker)	Structural Change (VA per worker)	Structural Change (VA per worker)	Structural Change (VA per worker)	Structural Change (VA per worker)
Foreign ownership	0.00881*** (0.00298)	0.0104 (0.00657)	0.00853*** (0.00294)	0.00742** (0.00296)	0.00897*** (0.00299)
Private ownership	0.0105 (0.0134)	0.00996 (0.0178)	0.0127 (0.0135)	0.0122 (0.0131)	0.0136 (0.0137)
Training	0.0265 (0.0211)	0.0656 (0.0403)	0.0232 (0.0210)	0.0154 (0.0220)	0.0255 (0.0213)
Young firms	0.0357 (0.0286)	-0.0549 (0.0554)	0.0462 (0.0295)	0.0515 (0.0319)	0.0525* (0.0304)
Medium firms	-0.0154 (0.0191)	-0.0301 (0.0403)	-0.0143 (0.0188)	-0.00758 (0.0210)	-0.0143 (0.0195)
Num firms	0.0137*** (0.00502)	0.0218** (0.00935)	0.0135*** (0.00484)	0.0141*** (0.00522)	0.0140*** (0.00489)
Exp/imp firms	-0.00793 (0.0212)	-0.0534* (0.0300)	-0.00371 (0.0213)	-0.0127 (0.0237)	0.00422 (0.0218)
Tariff by sector	0.00544 (0.00982)	-0.00319 (0.0154)	0.00694 (0.00979)	0.00884 (0.0107)	0.00795 (0.0100)
Business cycle	0.0210* (0.0112)	0.0490** (0.0200)	0.0167 (0.0115)	0.0179 (0.0128)	0.0241** (0.0111)
Inflation	-0.00704 (0.0112)				
Misalignment er		-0.0308** (0.0117)			
Fiscal policy procyc			-0.0138 (0.00966)		
Monetary policy countercyc				0.0188** (0.00936)	
REER volatility					-0.0178** (0.00805)
Constant	1.051*** (0.0711)	0.959*** (0.0887)	1.029*** (0.0667)	1.030*** (0.0677)	1.049*** (0.0674)
Sector FE	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	2,508	742	2,576	2,131	2,509
R-squared	0.167	0.188	0.165	0.182	0.168

Notes: The dependent variable is the structural change resulting from the productivity decomposition (see equation 2.1) when labor productivity is measured as value added per worker. Standard errors in parentheses. **** p<0.01, ** p<0.05, * p<0.1 Standard errors are clustered at the country level.

Table B8: The within-sector structural change (value added per worker) and macroeconomic conditions at the sector level (separate outcomes)

	(1)	(2)	(3)	(4)	(5)
	Structural Change (VA per worker)	Structural Change (VA per worker)	Structural Change (VA per worker)	Structural Change (VA per worker)	Structural Change (VA per worker)
Foreign ownership	0.0107*** (0.00384)	0.00688** (0.00306)	0.00688** (0.00306)	0.00832*** (0.00296)	0.00709** (0.00303)
Private ownership	0.0358 (0.0235)	-0.00557 (0.0106)	-0.00548 (0.0105)	0.0126 (0.0136)	0.0113 (0.0130)
Training	0.0443 (0.0274)	0.0346* (0.0199)	0.0351* (0.0201)	0.0235 (0.0212)	0.0155 (0.0222)
Young firms	0.0622* (0.0343)	0.0435 (0.0290)	0.0441 (0.0289)	0.0479 (0.0303)	0.0529 (0.0324)
Medium firms	-0.0142 (0.0238)	-0.0173 (0.0208)	-0.0173 (0.0208)	-0.0172 (0.0189)	-0.0126 (0.0211)
Num firms	0.0143** (0.00613)	0.0150*** (0.00530)	0.0150*** (0.00532)	0.0138*** (0.00491)	0.0142*** (0.00524)
Exp/imp firms	0.00106 (0.0296)	-0.0208 (0.0217)	-0.0205 (0.0217)	-0.00103 (0.0216)	-0.0124 (0.0236)
Tariff by sector	0.00967 (0.0121)	0.00495 (0.0106)	0.00515 (0.0106)	0.00604 (0.00999)	0.00729 (0.0109)
Business cycle	0.0304* (0.0173)	0.0140 (0.0109)	0.0142 (0.0108)	0.0192* (0.0115)	0.0182 (0.0130)
Cycle by sector	-0.000236 (0.00317)				
REER by sector (exports)		0.00441 (0.0102)			
REER by sector (imports)			-0.00124 (0.0147)		
Fiscal policy procyc by sector				0.000733 (0.0101)	
Monetary policy countercyc by sector					0.0223** (0.0109)
Constant	0.897*** (0.114)	1.094*** (0.0719)	1.119*** (0.0956)	1.027*** (0.0672)	1.039*** (0.0670)
Sector FE	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	1,748	2,205	2,205	2,557	2,112
R-squared	0.172	0.171	0.171	0.163	0.181

Notes: The dependent variable is the structural change resulting from the productivity decomposition (see equation 2.1) when labor productivity is measured as value added per worker. Standard errors in parentheses. **** p<0.01, ** p<0.05, * p<0.1 Standard errors are clustered at the country level.

Table B9: The within-sector structural change (TFP) and macroeconomic conditions (separate tools)

	(1)	(2)	(3)	(4)
	Structural Change	Structural Change	Structural Change	Structural Change
	(TFP)	(TFP)	(TFP)	(TFP)
Foreign ownership	0.00151 (0.00320)	0.00188 (0.00225)	0.00242 (0.00260)	0.00293 (0.00257)
Private ownership	0.00633 (0.00810)	0.00748 (0.00548)	0.0103* (0.00556)	0.00988* (0.00523)
Training	-0.00560 (0.0153)	-0.0142 (0.0114)	0.0185 (0.0374)	0.0191 (0.0367)
Young firms	0.0205 (0.0259)	0.0256 (0.0205)	-0.0195 (0.0431)	-0.0226 (0.0418)
Medium firms	0.0316 (0.0224)	0.00685 (0.0201)	-0.0352 (0.0489)	-0.0403 (0.0476)
Num firms	0.0129*** (0.00360)	0.0149*** (0.00286)	0.0137*** (0.00391)	0.0137*** (0.00382)
Exp/imp firms	0.00221 (0.0379)	0.0151 (0.0257)	0.0319 (0.0294)	0.0292 (0.0294)
Tariff by sector	-0.00661 (0.00621)	-0.00796 (0.00701)	0.00151 (0.0101)	0.00554 (0.0107)
Business cycle	0.00512 (0.00666)	0.00894 (0.0104)	0.00582 (0.0107)	0.0105 (0.0117)
Policy rate	0.00611 (0.00939)			
Lending rate		0.00498 (0.0277)		
Corp tax rate			-0.0211** (0.00816)	
Ex rate regime				0.000454 (0.00553)
Constant	0.664*** (0.0451)	0.656*** (0.0794)	0.704*** (0.0461)	0.628*** (0.0372)
Sector FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	1,395	2,013	2,359	2,354
R-squared	0.159	0.142	0.099	0.095

Notes: The dependent variable is the structural change resulting from the decomposition of TFP (see equation 2.1). Standard errors in parentheses. **** p<0.01, ** p<0.05, * p<0.1 Standard errors are clustered at the country level.

Table B10: The within-sector structural change (TFP) and macroeconomic conditions (separate outcomes)

	(1)	(2)	(3)	(4)	(5)
	Structural Change	Structural Change	Structural Change	Structural Change	Structural Change
	(TFP)	(TFP)	(TFP)	(TFP)	(TFP)
Foreign ownership	0.00213 (0.00241)	0.00405 (0.00332)	0.00253 (0.00240)	0.00346 (0.00270)	0.00257 (0.00250)
Private ownership	0.00877* (0.00520)	0.0217** (0.00993)	0.00968* (0.00526)	0.0112* (0.00601)	0.00871 (0.00529)
Training	0.0204 (0.0362)	-0.0163 (0.0192)	0.0203 (0.0356)	0.0248 (0.0429)	0.0204 (0.0365)
Young firms	-0.0288 (0.0410)	0.0198 (0.0410)	-0.0251 (0.0408)	-0.0271 (0.0527)	-0.0238 (0.0414)
Medium firms	-0.0423 (0.0469)	0.0200 (0.0307)	-0.0394 (0.0466)	-0.0463 (0.0550)	-0.0373 (0.0473)
Num firms	0.0149*** (0.00388)	0.0111** (0.00445)	0.0142*** (0.00373)	0.0131*** (0.00379)	0.0138*** (0.00391)
Exp/imp firms	0.0276 (0.0284)	-0.0222 (0.0326)	0.0301 (0.0286)	0.0378 (0.0323)	0.0284 (0.0292)
Tariff by sector	0.00264 (0.00981)	-0.00975 (0.0125)	0.00230 (0.00986)	0.00266 (0.0123)	0.00319 (0.00994)
Business cycle	0.00616 (0.00997)	0.0192 (0.0198)	0.00591 (0.00944)	0.00912 (0.0105)	0.00540 (0.00972)
Inflation	0.000890 (0.0104)				
Misalignment er		0.00104 (0.00898)			
Fiscal policy procyc			0.00875 (0.00711)		
Monetary policy countercyc				0.0153** (0.00661)	
REER volatility					0.00253 (0.00484)
Constant	0.640*** (0.0382)	0.622*** (0.0506)	0.637*** (0.0340)	0.628*** (0.0417)	0.636*** (0.0355)
Sector FE	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	2,408	708	2,473	2,044	2,408
R-squared	0.097	0.205	0.099	0.099	0.098

Notes: The dependent variable is the structural change resulting from the decomposition of TFP (see equation 2.1). Standard errors in parentheses. **** p<0.01, ** p<0.05, * p<0.1 Standard errors are clustered at the country level.

Table B11: The within-sector structural change (TFP) and macroeconomic conditions at the sector level (separate outcomes)

	(1)	(2)	(3)	(4)	(5)
	Structural Change	Structural Change	Structural Change	Structural Change	Structural Change
	(TFP)	(TFP)	(TFP)	(TFP)	(TFP)
Foreign ownership	0.00654** (0.00327)	0.00171 (0.00229)	0.00165 (0.00227)	0.00267 (0.00247)	0.00353 (0.00273)
Private ownership	0.0178* (0.00918)	0.00260 (0.00580)	0.00261 (0.00573)	0.00952* (0.00525)	0.0106* (0.00591)
Training	0.0322 (0.0518)	-0.00824 (0.0114)	-0.00790 (0.0115)	0.0207 (0.0356)	0.0262 (0.0433)
Young firms	-0.0400 (0.0544)	0.0157 (0.0202)	0.0154 (0.0205)	-0.0252 (0.0414)	-0.0335 (0.0549)
Medium firms	-0.0684 (0.0705)	-0.00475 (0.0191)	-0.00462 (0.0191)	-0.0402 (0.0474)	-0.0488 (0.0564)
Num firms	0.0143** (0.00590)	0.0177*** (0.00279)	0.0177*** (0.00279)	0.0143*** (0.00373)	0.0129*** (0.00377)
Exp/imp firms	0.0312 (0.0380)	0.00582 (0.0249)	0.00587 (0.0247)	0.0301 (0.0290)	0.0367 (0.0328)
Tariff by sector	0.00963 (0.0151)	-0.00565 (0.00592)	-0.00566 (0.00600)	0.00240 (0.0101)	0.00248 (0.0128)
buseycdummy	0.0233 (0.0185)	0.00895 (0.0109)	0.00881 (0.0108)	0.00597 (0.00970)	0.00985 (0.0109)
Cycle by sector	-0.000628 (0.00208)				
REER by sector (exports)		-0.00436 (0.00669)			
REER by sector (imports)			-0.00503 (0.00675)		
Fiscal policy procyc by sector				-0.000546 (0.00597)	
Monetary policy countercyc by sector					0.0135* (0.00680)
Constant	0.571*** (0.0485)	0.703*** (0.0414)	0.706*** (0.0465)	0.639*** (0.0337)	0.632*** (0.0416)
Sector FE	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	1,675	2,116	2,116	2,457	2,026
R-squared	0.101	0.136	0.136	0.098	0.099

Notes: The dependent variable is the structural change resulting from the decomposition of TFP (see equation 2.1). Standard errors in parentheses. **** p<0.01, ** p<0.05, * p<0.1 Standard errors are clustered at the country level.

Appendix 2.C Data Descriptive Statistics

Table C1: Summary statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Sector data based on WBES firm level data					
Structural change (Prod sales per worker)	4461	0.12	0.535	-3.92	2.995
Structural change (VA per worker)	2802	0.12	0.492	-3.569	3.019
Foreign ownership	4461	0.103	0.150	0	1
Private ownership	4461	0.863	0.172	0	1
Training	4178	0.366	0.271	0	1
Young firms	4461	0.125	0.162	0	1
Medium firms	4461	0.203	0.191	0	1
Number of firms	4461	25.917	47.495	2	682
Exporting and importing firms	4461	0.236	0.246	0	1
Sector level data					
Tariffs	2933	16.537	24.703	0	223.74
Cycle	2918	0.1067511	0.5627075	-0.4349196	13.43843
REER exp	3102	100.504	77.516	5.991	1950.859
REER imp	2438	110.698	98.961	0	2146.663
Fiscal policy procyc	4310	0.106	0.582	-0.986	1
Monetary policy countercyc	3640	-0.062	0.551	-1	1
Country level data					
Inflation	4298	5.603	5.734	-2.41	36.907
Misalignment er	3109	-0.018	0.165	-0.41	0.605
REER volatility	4216	2.066245	0.9872219	-2.64925	7.557101
procycmon5	3675	-0.064	0.57	-1	0.974
Business cycle	4461	0.416	0.493	0	1
Policy rate	2434	6.871	4.715	0.02	40
Corporate tax rate	4200	23.674	7.95	0	40
Lending rate	3578	14.192	8.594	3.29	58.98
ER regime flex	4101	1.905	0.951	1	6
Fuel exports (percent of merch exp)	3966	15.621	23.458	0	99.779
Political stability	4242	-0.466	0.768	-2.691	1.036
Democracy	4369	0.478	0.202	0.091	0.912
Tariffs of trading partner	4394	6.232	3.358	0	20.92
Gov effectiveness of trading partner	4372	0.527	0.768	-1.2	2.307

Table C2: Correlation matrix

	Policy rate	Lending rate	Corp tax rate	ER regime	Inflation	Misalign er	REER volatility	Fiscal policy procyc	Monetary policy countercyc
Policy rate	1								
Lending rate	0.549***	1							
Corporate tax rate	0.145***	0.200***	1						
ER regime flex	0.440***	0.346***	0.084***	1					
Inflation	0.795***	0.520***	0.231***	0.481***	1				
Misalignment er	-0.002	0.011	0.114***	0.183***	-0.069**	1			
REER volatility	0.356***	0.301***	0.031*	0.352***	0.488***	0.221***	1		
Fiscal policy procyc	-0.046**	-0.086***	0.015	-0.037**	-0.002	-0.416***	0.074***	1	
Monetary policy	-0.050**	-0.059***	0.056***	0.189***	-0.021	0.306***	-0.011	0.032*	1

Notes:

 *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

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Chapter 3

On the Determinants and Outcomes of IMF Loans in Low and Middle-Income Countries: Do Politics Matter?

Abstract

The objective of this paper is to analyze the economic and political determinants of IMF loans in low- and middle-income countries and their impact on economic growth. The paper's contribution is threefold. First, the paper relies on the IMF Monitoring of Fund Agreements database along with international political economy factors to analyze IMF lending determinants through a Heckman two-stage selection procedure. Second, the predicted values of determinants of IMF lending are used to explain the consequences of this lending on growth. The paper also investigates how the domestic political regime of the recipient country would affect the outcomes of these loans. Third, the paper studies the dynamic effects of IMF loans on economic growth using the local projection method. The main findings show that economic and political proximity to the IMF major shareholders matter for the likelihood of obtaining an IMF nonconcessional loan. Furthermore, most of the loans exert a negative effect on the trend component of GDP, confirming that such loans can stabilize the economies in the short term without improving the long run steady growth. The analysis of the dynamic effects of loans also confirmed these findings. Finally, democratic regimes compared to autocratic ones improve the effects of these loans on economic growth.

Keywords: IMF lending, Economic Growth, Low and Middle Income Countries, Heckman selection procedure, local projection method.

JEL Classification: F33, F34, F55

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3.1 Introduction

The role and mission of the International Monetary Fund (IMF) have evolved along with the global economy. In addition to economic surveillance and technical assistance, one of the IMF main objectives is providing financial support to its member countries to address actual or potential balance of payments problems. This suggests that the IMF lending should be mainly based on technical economic considerations. However, this does not seem to be the case and controversial anecdotal evidence along with some studies found that politics largely play a role in the IMF's lending decisions. This is why the IMF faced some serious criticism and calls for its reform took place across the political spectrum. Critics included among others promoting moral hazard and dependency or recidivism through repetitive lending, imposing stabilization reforms that might not correspond to local needs and reducing economic growth (Bird, 2007; Bird et al., 2004; Dreher & Vaubel, 2004a; Steinwand & Stone, 2008; Stone, 2004). Thus, this paper empirically examines the determinants of IMF loans beyond economic fundamentals and includes political factors. It also studies the impact of these loans on economic growth.

A universal consensus is not achieved yet concerning the determinants of IMF lending (Bird, 2007). The literature offered a variety of models explaining IMF programs participation. Early studies which attempted to explain IMF lending by exclusively relying on economic factors suffered from low explanatory power (Bird, 2007; Thacker, 1999). Hence, subsequent literature augmented their models with some political aspects, including domestic politics at the recipient side and international politics at the IMF supply side. Nevertheless, results from these models are sometimes contradictory and there is a little consensus on which political determinants really matter (Steinwand & Stone, 2008; Sturm et al., 2005). While analyzing the economic and political determinants of IMF programs participation is important in its own sake, these determinants results can serve as instruments to understand the consequences of IMF lending on economic outcomes, and this is what this paper does.

As per the impact of IMF lending on economic growth, the literature remains also inconclusive. The debate on the growth outcomes of IMF loans is far from being concluded, especially given the different results of empirical studies. While several critics argued that IMF programs have a negative effect on growth (Barro & Lee, 2005; Bird & Rowlands, 2017; Conway, 1994; Khan, 1990; Przeworski & Vreeland, 2000; Vreeland, 2003), other studies show that they mostly focus on restoring macroeconomic stability as an immediate goal and thereby this is supposed to facilitate economic growth. Thus, short run stabilization goals

are necessary but the question of whether IMF loans can induce long term economic growth is of critical importance for developing countries. From a methodological perspective, the challenge in studying the impact of IMF lending on growth pertains to the selection problem since these programs usually come as a response for an economic crisis. However, this selection problem does not seem to be adequately addressed yet (Steinwand & Stone, 2008). Several approaches have been applied to deal with this issue, including the Heckman estimators (see for example: Eichengreen et al. (2008) and Przeworski and Vreeland (2000)), the instrumental variables (see for example: Barro and Lee (2005), Butkiewicz and Yanikkaya (2005), Dreher (2006), Easterly (2005), and Marchesi and Sirtori (2011)), the method of matching (see for example: Bal Gunduz et al. (2013) and Bird and Rowlands (2017)) and the generalized method of moments estimation (see for example: Clements et al. (2013) and Dreher and Walter (2010)). Each method has its own benefits and drawbacks (see Stubbs et al. (2018) for an elaborate discussion in this regard). Another observation to be made on the existing literature is that it falls short in accounting for the dynamic aspect in the relation between IMF lending and economic growth. In other words, the effects of IMF loans on growth can materialize over different horizons of time, thereby requiring an analysis of their impact over time. Accordingly, this paper studies the dynamic response of economic growth to IMF loans by relying on the local projection method and further by using the Hodrick-Prescott (HP) filter to decompose economic growth into a cyclical and a trend component as measures of short- and long-term effects respectively.

Within the context of the discussion on IMF loans impact on economic growth, it is also important to investigate how the outcomes of loans interact with the domestic political regime. This is an issue that remains largely an open question. For instance, the political regime with its relevant political stability should shape the implementation of economic policies in general and in particular those related to IMF loans, and this would thereby get reflected on economic growth. It could be argued that democratic regimes can be more stable and more accountable to public opinion relative to autocratic ones and hence can efficiently implement useful policies for growth (Stone, 2004). In this respect, negotiations in democratic countries are generally complicated at both the international and domestic levels in order to reach an IMF agreement (the two-level game as suggested by (Putnam, 1988)). These complicated negotiations make the executive power more accountable and more obliged to improve the macroeconomic outcomes in order to be re-elected. In contrast, autocratic regimes can be perceived as more capable of imposing policies, even unpopular ones that can be subject to domestic opposition. Furthermore, these autocratic regimes are likely to stay more in power, they might have more incentives to implement reforms as they

expect to see the effect of their policy choices.

Against this backdrop, the main objective of this paper is to empirically analyze the economic and political determinants of IMF loans in low- and middle-income countries and the impact of these loans on economic growth. Compared to the existing literature, the main contribution of the paper is threefold. First, the paper relies on the IMF Monitoring of Fund Agreements (MONA) database along with international political economy factors to analyze IMF lending determinants. Second, the predicted values of determinants of IMF lending are used as instruments to explain the consequences of this lending on economic growth. This helps considering several issues that arise in the literature on the consequences of IMF programs including the endogeneity treatment and the selection problem. The paper also investigates how the domestic political regime of the recipient country would affect the outcomes of these loans. Third, the paper studies the dynamic effects of IMF loans on economic growth using the local projection method.

The main findings of this paper show that economic and political proximity to the IMF major shareholders matter for the likelihood of obtaining an IMF non-concessional loan. Furthermore, most of the loans exert a negative effect on the trend component of GDP, confirming that such loans can stabilize the economies in the short term without improving the long run steady growth. The analysis of the dynamic effects of loans using local projections also confirm the same findings. Finally, democratic regimes compared to autocratic ones were found to improve the effects of most of these loans on economic growth, pointing out the importance of institutions in the effectiveness of IMF loans.

The paper is organized as follows. Section 3.2 reviews the literature on the IMF loans determinants and impact on economic growth. Section 3.3 is dedicated to the methodology and data. Section 3.4 provides stylized facts related to the size and different types of IMF lending by region. Section 3.5 analyzes the empirical findings. Section 3.6 concludes and offers some policy reflections.

3.2 Literature Review

This paper relates to two main strands of the empirical literature on IMF lending, namely the literature pertaining to the determinants of participation in IMF loans and the literature on these loans impact on economic growth.

The first strand of the literature to which this paper contributes to is the one on the determinants of IMF lending. On the empirical front, early studies suggested that the IMF lending is exclusively based on economic considerations. However, these studies suffered from a low overall explanatory power given that political determinants were being omitted (Bird & Rowlands, 2001). Accordingly, later contributions addressed this challenge by accounting for these political variables that are unrelated to macroeconomic performance. These include domestic political factors in the member country asking for lending, foreign policy objectives of the most influential IMF shareholders and IMF bureaucratic considerations as follows. On the domestic demand side, the different stages of an IMF program, including the government's decision to resort to the IMF, accepting conditionality costs, the negotiation stage, the consideration of programs distributional consequences and implementation, entail political dynamics. As for the IMF supply side, various political factors can affect the decision-making process of lending (Sturm et al., 2005). The weighed voting and lending procedures at the Fund can give a room for political dynamics (Thacker, 1999). To that effect, major shareholders can have strong influence on IMF decisions, and they can be inclined to provide lending to some countries in comparison to others. This suggests that a country's political proximity to these shareholders can raise the probability and the size of an IMF loan. On the theoretical front, the literature gradually evolved to the political economy driven models incorporating political determinants of IMF lending. Several theoretical models explain why politics have to be included when analyzing IMF lending. From a public choice theory perspective, the Fund can be considered as an independent actor that aims at maximizing its own objective function incorporating power, prestige, responsibility, and resources (Bird, 2007; Dreher & Vaubel, 2004b; Vaubel, 1986, 1996). If a principal-agent perspective is adopted, the Fund has an interest in providing lending and its principals (major shareholders) would prefer enforcing conditionality (Stone, 2004; Vaubel, 1986). On the domestic side, a government can resort to the Fund to overcome domestic opposition to policy reforms (the scapegoat hypothesis, see Putnam (1988) and Vreeland (2003)).

The literature has emphasized the role of politics and institutions in the domestic economy in the implementation of an IMF program as follows. First, in democratic countries, negotiations are generally complicated at both the international and domestic levels in order to reach an agreement (the so called two-level game as suggested by Putnam (1988) ¹). This

¹Indeed, the politics of many international negotiations can usefully be conceived as a two-level game: where at the national level, domestic groups pursue their interests by pressuring the government to adopt favorable policies, and politicians seek power by constructing coalitions among those groups. At the international level, national governments seek to maximize their own ability to satisfy domestic pressures, while minimizing the adverse consequences of foreign developments. In several cases, negotiations at the domestic

is chiefly attributed to the presence of different stakeholders (including lobbies, trade unions and various chambers) that have to be part of the domestic negotiations. By contrast, in less democratic regimes, this decision is likely to emanate from a centralized power without lengthy negotiations. Indeed, an autocratic regime can have a smaller incentive to resort to the IMF lending since it can undertake itself unpopular reforms. Another contrasting view suggests that a dictatorship can be less constrained by domestic public opinion and hence, can make easier negotiations with the IMF which increases its likelihood of getting the lending (Bird & Rowlands, 2001; Przeworski & Vreeland, 2000; Sturm et al., 2005). Second, the more complicated the negotiations, the more accountable the executive power will be once the loan is obtained. Clearly, governments that are more accountable will be obliged to improve the macroeconomic outcomes in order to be re-elected. Third, since autocratic regimes are likely to stay more in power, they might have more incentives to implement reforms as they expect to see the effect of their policy choices. Moreover, an autocratic regime can be perceived as more capable of enforcing adjustment policies or an impediment for sustainable development since it can compromise good governance (Bird & Rowlands, 2001). Yet, if the executive power is not likely to stay in power in democracies, reforms can suffer from the so-called “time inconsistency”. The latter is a situation where the decision-maker’s preferences change over time in such a way that a preference can become inconsistent at another point in time, which reduces the likelihood of reforms and hence macroeconomic outcomes will not improve.

The second strand of literature that this paper relates to is the literature on the impact of IMF lending on economic growth. Existing literature is rather inconclusive as to whether IMF programs affect economic growth or not and in which direction and hence, there is no consensus yet on the impact of IMF lending (Bird, 2007; Dreher, 2006; Steinwand & Stone, 2008). Much of the existing literature suggest that participation in IMF programs would significantly reduce economic growth (see for example: Barro and Lee (2005), Conway (1994), Khan (1990), Przeworski and Vreeland (2000), and Vreeland (2003)). In contrast, some studies found positive or mixed economic growth effects (see for example Bal Gunduz et al. (2013) and Dicks-Mireaux et al. (2000)). These conflicting results arise from different sources including the methodologies adopted, the types of programs studied (stand-by arrangements versus structural adjustment facilities), the group of countries included, and the time period considered. Within the context of the discussion on the impact of IMF loans on growth, it is important to mention that this impact can materialize over different time horizons. The literature investigating this dynamic impact of IMF loans on economic growth level are much more complicated than at the international one.

over different horizons remains very scarce. Bal Gunduz et al. (2013) studied the short and long run impact of IMF loans on macroeconomic outcomes in low-income countries through a differentiation between the IMF short-term financing instruments and the medium-term ones. Their findings suggest that long term IMF loans helped low-income countries to sustain economic growth. Conway (1994) accounted for the dynamic impact of IMF programs on macroeconomic outcomes through studying contemporaneous effects and lagged effects of participation in programs. His findings suggest that the contemporaneous effects differ from the lagged ones where the latter are positive on growth and the former reduce it.

On the methodological front, the literature on IMF programs outcomes has focused on possible statistical methods to correct the selection problem that might arise. In comparison to other strands of IMF literature, this selection problem can be more pronounced in the assessment of IMF programs outcomes (including economic growth), and it does not seem to be adequately addressed yet (Steinwand & Stone, 2008). Various methods have been considered to deal with this problem, including Heckman estimators (see for example: Eichengreen et al. (2008) and Przeworski and Vreeland (2000)) or instrumental variables (IVs) (See for example: Barro and Lee (2005), Butkiewicz and Yanikkaya (2005), Dreher (2006), Easterly (2005), and Marchesi and Sirtori (2011)) or the method of matching (See for example: Bal Gunduz et al. (2013) and Bird and Rowlands (2017)) or the generalized method of moments (GMM) estimation (See for example: Clements et al. (2013) and Dreher and Walter (2010)). Stubbs et al. (2018) discusses the advantages and the disadvantages of each of the latter methods as follows. The GMM estimation is less frequently used in the literature on IMF outcomes. Despite its flexibility, this method makes strong assumptions about the data generating process and it also includes a risk of overfitting endogenous variables by introducing too many instruments. As for the matching methods, they help tackling the selection bias that would arise from observables by matching participating and non-participating countries in IMF programs with similar context. However, the selection bias from unobservables is not accounted for in this method. With regards to the IVs, previous studies relied on a range of political economy variables like the instruments for IMF participation. Afterwards, the outcome variable is regressed on predicted values of IMF participation and observed values of exogeneous variables. The main challenge related to this method is identifying valid instruments for different outcomes. Finally, unlike the matching methods, Heckman estimators can control for the selection on unobservables. In addition, they are more efficient relative to the IVs when the selection variable is dichotomous (like the participation in IMF programs). Heckman estimators major limitations relate to their precision that depend on the variance of the inverse Mills ratio which is determined by the predictive capacity of

the first stage probit model, the availability of excludable instruments and the absence of country fixed effects in the first stage probit model (due to the incidental parameter problem).

The above review shows that the literature on IMF lending determinants evolved gradually from exclusively relying on economic determinants to including political determinants and afterwards to the political economy driven models. As per the literature on the IMF lending impact on economic growth, there is a great emphasis on the possible statistical methods to correct for the selection bias. Furthermore, this literature falls short in investigating the dynamic impact of IMF loans on economic growth. More broadly, these two strands of the literature remain largely inconclusive and there is no universal consensus yet on the determinants neither on the outcomes of IMF loans. This paper contributes to this existing literature in several ways. First, this paper studies the economic and political determinants of IMF loans in low- and middle-income countries and the predicted values of these determinants are used as instruments to explain the consequences of this lending on economic growth. Second, the paper investigates the impact of IMF loans on economic growth over different time horizons. The analysis is extended further by showing how the domestic political regime in recipient countries can affect these outcomes.

3.3 Methodology and Data

3.3.1 Econometric specification

Following Barro and Lee (2005), this paper studies the economic and political determinants of IMF lending. Using a large panel of low- and middle-income countries over the period 1993-2019 ², Equation 3.1 which is a panel regression where i is the country and t is the time as follows:

$$\text{Ln}(\text{Loan})_{it} = \beta_0 + \beta_1 X_{it} + e_{it} \quad (3.1)$$

The dependent variable ($\text{Ln}(\text{Loan})_{it}$) measures the amount of the IMF credit ³ obtained

²The paper focuses on a group of 156 countries including all low- and middle-income countries according to the World Bank classification and all countries which were enrolled in any IMF agreement over the period of our study. Annex 3.B provides a list of these countries.

³Some studies exclusively focus on two types of IMF programs (SBA and EFF) since they are the major programs offered by the IMF (Barro & Lee, 2005; Dreher, 2006). Other studies account for all IMF programs altogether. However, this paper distinguishes between the programs given their different time span, extent of concessionality, and policies. For instance, some programs focus on managing aggregate demand or adjustment to shocks whereas others focus on strengthening the supply side. Furthermore, some programs focus on low-income countries in particular. These differences are indeed important to consider while studying

by country i in year t . Four types of loans are taken into consideration (see Annex 3.A for more details): Poverty Reduction and Growth Facility (PRGF), Stand-By Arrangement (SBA), Extended Fund Facility (EFF) and Extended Credit Facility (ECF). Following existing literature (Bird & Rowlands, 2001; Knight & Santaella, 1997; Sturm et al., 2005), X_{it} is a vector of time variant economic determinants affecting the IMF credit since a country can receive an IMF loan depending on its economic situation. These economic determinants describe a country's external sector and other macroeconomic objectives indicating the stance of economic policies. They include international reserves as percentage of GDP, current account balance as percentage of GDP, inflation rate, exchange rate and government budget balance as percentage of GDP. These variables are lagged once to avoid potential endogeneity problem and to improve the confidence in assigning causality. e_{it} is the error term.

Yet, since not all low- and middle-income countries obtain an IMF loan, equation 3.1 is likely to suffer from a selection bias. In order to overcome the selection bias, regressions are estimated using a Heckman two-stage selection procedure (Heckman, 1976). Equation 3.2 is accordingly estimated:

$$\text{Ln}(\text{Loan})_{it} = X_{it}\beta + \eta_{it} \quad (3.2)$$

The dependent variable is not, however, observed for all countries since some of them did not obtain an IMF loan. It is only observed if

$$Z_{it}\gamma + \varepsilon_{it} > 0 \quad (3.3)$$

The Heckman selection procedure helps overcoming the problem of selection bias and it has the following advantages compared to other methods used in the literature. First, it reduces the sample selection problem to an omitted variable problem. Second, it controls for selection based on unobservables. While the first step (the probability of obtaining an IMF loan) is estimated using a probit model, the second step (the value of the loan) corrects for self-selection by incorporating a transformation of the predicted loan probabilities. In order to correct the selection bias, it is better to have (X) as a strict subset of (Z). Hence, our exclusion variables (Z) that explain the likelihood of obtaining an IMF loan is measured by political and economic proximity to the IMF major shareholders in addition to (X) specified above. The rationale behind these two variables is that beyond economic considerations, the IMF can be perceived as a political organization and its main shareholders' interests affect the impact of IMF loans on economic growth (Bird & Rowlands, 2017).

its decisions. Accordingly, a country can be more likely to have an IMF loan if it has strong economic and political connections with the most influential IMF shareholders. Indeed, the country's political and economic proximity proxies to the IMF major shareholders which are also permanent members of the UN Security Council (United States, France, China and the United Kingdom) are measured as follows: the country's votes in the UN General Assembly along with each major shareholder and the ratio of the country's bilateral trade with each major shareholder to the country's GDP (Barro & Lee, 2005; Thacker, 1999). To construct these two variables, the share of bilateral trade and the vote similarity are multiplied by the quota share of the major shareholders in the total IMF quota, then these multiplicative terms are added to obtain a weighted average of economic and political proximity respectively. Finally, η_{it} and ε_{it} are the discrepancy terms.

The third step of the analysis examines the effect of the obtained loans on GDP growth while distinguishing between the cyclical and trend components as measures of short- and long-term effects respectively. The undertaken growth specification follows a large strand of the empirical growth literature. This empirical growth model is derived from an augmented Solow growth model (Mankiw et al., 1992) that includes human and physical capital. Equation 3.4 which is a panel fixed effects regression is estimated as follows:

$$Growth_{it} = \alpha_0 + \alpha_1 Inv_{it} + \alpha_2 School_{it} + \alpha_3 NatRes_{it} + \alpha_4 Loan_{it} + \nu_i + \varepsilon_{it} \quad (3.4)$$

Data constraints for developing countries has indeed restricted the choice of variables, especially that physical and human capital are difficult to measure. $Growth_{it}$ is measured by the growth rate of real GDP, Inv_{it} gross fixed capital formation as percentage of GDP to measure physical capital, $School_{it}$ secondary school enrollment as a ratio to total population to measure human capital, $NatRes_{it}$ the share of natural resources rents to GDP to measure resource endowments (following Sachs and Warner (1995)), $Loan_{it}$ the predicted loan from the Heckman selection model is added to account for the impact of IMF loans on growth, ν_i the fixed effect for each country in order to account for time-invariant unobservable country-specific factors and ε_{it} the discrepancy term.⁴

⁴Given that the data consists of a panel of countries, it is important to take into consideration the unobserved heterogeneity. Accordingly, a static panel model is undertaken as a baseline. In order to choose between the fixed effects model and the random effects one, the Hausman test is used. Hausman test results (reported in results tables) mostly confirm that the fixed effects model is preferred compared to the random effects since the null hypothesis of the test is rejected in most of the specifications. The null hypothesis of the test is that the individual unobserved effects are uncorrelated with the included explanatory variables. If that hypothesis is rejected, the fixed effects is the preferred model since it is consistent whereas the

As previously mentioned, the literature falls short in studying the impact of IMF loans on economic growth over different horizons. Furthermore, the previous static panel fixed effects model does not capture the dynamic structure of the data. Hence, the paper contributes to the literature by using the HP filter to decompose our dependent variable and afterwards by relying on the local projection techniques to study the dynamic impact of IMF loans on economic growth as follows.

First, the HP filter decomposes our dependent variable to two parts: the cyclical component (measuring the output gap which is the short-term deviation of actual output from its potential level. It can be also perceived as an indicator of the state of the business cycle) and the trend one (measuring potential GDP which is the level of output that can be achieved with available production factors consistent with stable inflation, Okun (1962)). To our knowledge, the existing literature did not account for this distinction, and hence this is an important value added of this paper since it helps disentangling the stabilization (short term) vs. the allocation effect (long run) of IMF loans on growth. In this respect, the potential output cannot be observed directly and must be inferred from existing data on actual output using statistical and econometric techniques. The HP filter is commonly used in this type of analysis due to its simplicity. It is a univariate filter that estimates the potential output as the series minimizing the deviation of actual output from its trend, subject to an adjustment of the sensitivity of the trend to short term fluctuations. In order to test the results sensitivity to the GDP growth decomposition methodology, the structural and cyclical components of GDP growth are computed with an alternative statistical filtering methodology, the Butterworth (BW) filter. The latter filter is considered as a valid alternative to the HP filter and both are high-pass filters.⁵

Second, the dynamic response of economic growth to IMF loans are accounted for given that IMF loans impact can materialize over different horizons. Accordingly, the local projection techniques (Jordà, 2005) are employed in order to study the dynamic effects of IMF loans on cyclical and trend components of growth. The key advantage of the local projection

random effects is not.

It is also worth noting that the results remain globally the same when these regressions are undertaken using IMF loans as a share to GDP .

⁵High-pass filters, such as the HP and the BW filters, allow for stochastic cycles meeting a minimum frequency level. Band filters, such as Christiano-Fitzgerald (CF), and Baxter-King (BK) filters, allow only stochastic cycles within a specified range of frequencies with any frequencies outside this range filtered out (Fedderke & Mengisteab, 2017).

approach is its flexibility relative to vector autoregressive models since it does not impose dynamic restrictions. The treatment variable is the IMF loan, and we are interested in its impact on economic growth in the following years. Following Jordà et al. (2016), equation 3.5 presents the regression specification as follows:

$$Y_{i,t+h} - Y_{i,t+h-1} = \beta_h \text{Loan}_{it} + \gamma_h X_{it} + v_i^h + \varepsilon_{it}^h \quad (3.5)$$

Where $h=1, \dots, 5$ is the forecast horizon and regressions for each horizon are estimated separately. The choice of this forecast horizon is based on the existing literature using local projection methodology in studies with relatively close objectives to this paper (for example while studying the impact of some reform policies on growth or employment (Hann & Wiese, 2022) and while studying the implications of fiscal consolidation on growth (Jordà & Taylor, 2016)). The dependent variable is the growth rate of real GDP between horizon $t+h$ and $t+h-1$, measured as the difference in log of real GDP ($Y_{i,t}$). Similarly to equation 3.3, separate specifications are undertaken for the cyclical and trend components of GDP growth (using the HP filter as described in the above paragraph). Loan_{it} is the predicted loan from the Heckman selection model. X_{it} denotes the growth controls used in equation 3.3 and their one period lag (namely gross fixed capital formation as percentage of GDP, secondary school enrollment as a ratio to total population, and the share of natural resources rents to GDP) as well as a one period lag of the predicted loan variable. v_i^h denotes the fixed effect for each country in order to account for time-invariant unobservable country-specific factors and ε_{it}^h denotes the discrepancy term. The impulse responses are accordingly constructed based on the estimated β_h coefficients at each horizon which capture the dynamic impact of IMF loans on growth. The confidence bands are based on the respective estimated standard errors.

Finally, the analysis is extended as follows. The differential impact of the IMF loans on economic growth depending on the regime type (autocratic, anocratic and democratic regimes)⁶ is examined. For instance, the domestic political regime can affect the economic policies implementation in general and in particular those related to the IMF loans which would thereby get reflected on economic growth. It could be argued that democratic regimes can be more stable and more accountable relative to autocratic ones and hence can efficiently implement useful policies for growth (Stone, 2004). In contrast, autocratic regimes can be

⁶The regime type classification is based on Polity Scores. The Polity Score captures a regime authority spectrum on a 21-point scale ranging from -10 (hereditary monarchy) to +10 (consolidated democracy). The Polity scores can also be converted into regime categories in a suggested three part categorization of "autocracies" (-10 to -6), "anocracies" (-5 to +5 and three special values: -66, -77 and -88), and "democracies" (+6 to +10).

perceived as more capable of imposing policies, even unpopular ones that can be subject to domestic opposition.

3.3.2 Data

Studying the IMF programs determinants and impact on economic outcomes is feasible since the IMF made detailed data on its programs publicly available. Hence, two complementary sources are used to obtain the IMF related variables: the IMF MONA database and the IMF Financial Data Query tool. In particular, the IMF MONA database is available for all IMF historical arrangements since 1993 till present. A key advantage about the IMF MONA database is its comprehensiveness in terms of years, countries and types of loans. It includes a cumulative history of almost all arrangements with the IMF since 1993. This guarantees that all the IMF arrangements in the studied period are being accounted for in our analysis. In contrast, some studies rely on collecting data on IMF loans from IMF annual reports or other sources (see for example Barro and Lee (2005), Bird and Rowlands (2017), Evrensel (2002), and Putnam (1988)).

The economic determinants affecting the IMF credit (international reserves as percentage of GDP, current account balance as percentage of GDP, inflation rate, and exchange rate) as well as the growth rate of real GDP and its determinants (human capital (secondary school enrollment), physical investment as a measure of capital, and natural resources rents as a percentage of GDP as a measure of endowments) are obtained from the World Development Indicators of the World Bank. The government budget balance as percentage of GDP is obtained from the IMF Fiscal Monitor database. The regime type classification is based on the Polity Scores obtained from the Polity5 Political Regime Characteristics and Transitions Database, 1800-2018.

The exclusion variables that explain the likelihood of obtaining an IMF loan are proxies for the country's economic and political proximity to the IMF major shareholders and members of Security Council. We construct them using data from Erik Voeten Dataset for United Nations General Assembly Voting Data (Harvard Dataverse) and the UN Comtrade dataset.

3.4 Stylized Facts

Annex 3.A - Table A1 provides an overview on the evolution of the different types of facilities offered by the Fund and Figure 3.1 describes this evolution over the period 1992 till 2020. Several conclusions can be drawn as follows.

First, the Stand-By Arrangements (SBA) and the Extended Fund Facility (EFF) are the main non-concessional facilities of the Fund. In terms of number of arrangements, the relative importance of SBA has been somehow declining over the last decade where the total number of SBA arrangements was 20 arrangements over 2011- 2020, compared to 71 arrangements and 97 over 2001-2010 and 1992-2000 respectively. This is also confirmed in terms of the size of loans where the total SBA arrangements reached 77022 million SDR over the last decade (2011-2020), down from 168939 million SDR in the prior decade (2001-2010).⁷ In contrast, the EFF importance increased over the last decade where the total number of EFF arrangements increased to 24 arrangements over 2011-2020, up from 3 arrangements over 2001-2010. Similarly, the total size of EFF arrangements reached 96541 million SDR in 2011-2020 compared to 20142 million SDR a decade earlier.

Second, SBA and EFF facilities do not cover low-income countries since these countries difficult external indebtedness conditions prevent them from borrowing based on the regular non-concessional conditions. This is why the Fund developed later some concessional facilities particularly designed for these countries, notably the Structural Adjustment Facility (SAF) in 1986 and the Enhanced Structural Adjustment Facility (ESAF) in 1987 (Bal Gunduz et al., 2013; Barro & Lee, 2005). The effectiveness of these two facilities was questioned for several reasons mainly related to the absence of social considerations. For instance, these programs did not include poverty reduction as an explicit goal. Critics accordingly perceived these programs as promoting short-term stabilization objectives ahead of other important social objectives. Furthermore, there was no formal component to assess the programs impact on poor. Hence, some claims suggested that poverty worsens under these programs. To that effect, the Fund reviewed these programs and replaced them with the Poverty Reduction and Growth Facility (PRGF) in 1999 (Bal Gunduz et al., 2013; IMF Website). However, it seems that the PRGF relative importance is lower than ESAF and SAF in terms of both number of arrangements as well as size. The total number of ESAF and SAF agreements over 1992-2000 was 150 agreements with total size of 16658 million SDR whereas the total

⁷These numbers exclude any arrangement that was classified in the IMF MONA dataset under two types of programs to avoid misclassification, namely those classified as: SBA-ESF and SBA-SCF.

number of PRGF arrangements over 1999-2010 was 102 arrangements with total size of 9654 million SDR.⁸

Third, over the period 2002 until 2008, the demand for IMF lending dropped sharply and this is reflected on both the number of arrangements and their size. This might be related to the improvement in global economic conditions and countries were repaying their commitments to the Fund. Afterwards, the global economy was hardly hit by the financial crisis in 2008 and this indeed had significant impact on the Fund and debates were reinitiated on its role and legitimacy. The IMF response to this crisis included among other introducing new facilities for concessional lending, namely the Extended Credit Facility (ECF), the Standby Credit Facility (SCF), and the Rapid Credit Facility (RCF). The ECF is the equivalent of EFF for low-income countries. Its relative importance has considerably increased over the last decade (2011-2020), where the total number of ECF arrangements increased to 47 arrangements with a total size of 7680 million SDR, compared to 10 arrangements with a total size of 683 million SDR in the prior decade (2001-2010).⁹

Finally, the Fund also offers precautionary facilities, namely the Flexible Credit Line (FCL) and the Precautionary and Liquidity Line (PLL). Over the last decade (2011-2020), the total number of FCL and PLL arrangements was lower than ECF, SBA and EFF (22 FCL and PLL compared to 51 ECF, 20 SBA and 24 EFF). However, FCL and PLL seems to be quite significant in terms of size compared to other types of loans and this might be explained by their precautionary characteristics.

[Figure 3.1 about here]

Figure 3.2 describes the distribution of Fund arrangements by region over three decades in terms of the number of arrangements and their size. The following conclusions can be drawn on the relative importance and the evolution of IMF lending by region.

First, the Middle East and North Africa (MENA) region is the only region that has an increasing number of loans in the last decade (2011-2020) in comparison to the two previous decades, whereas the number of arrangements declined in other regions. This increase in

⁸These numbers exclude any arrangement that was classified in the IMF MONA dataset under two types of programs to avoid misclassification, namely those classified as PRGF-EFF.

⁹These numbers exclude any arrangement that was classified in the IMF MONA dataset under two types of programs to avoid misclassification, namely those classified as ECF-EFF.

demand for IMF lending can be explained by the political economy context of post Arab Spring Uprisings transition period.

Second, the IMF lending to Europe and Central Asia has been quite important over 1992-2000 and 2001-2010 in comparison to the most recent decade (2011-2020) in terms of both the number of arrangements and their size. This increase in demand for IMF lending in these countries in the earlier two decades can be related to the 1990s transition process of Central European Countries and the 2008 global financial crisis. For instance, the severe economic crisis in Eastern Europe countries during the early transition period was somehow perceived as a result of the communism era mismanagement and this accordingly increased the popularity of the adjustment measures proposed by the Fund (Pop-Eleches, 2009).

Third, with the end of the cold war and the resolution of Latin American debt crisis in 1989, the international economic and political environment seemed more favorable to the compliance to the Washington Consensus. This was also coupled with a boom in international lending and some reforms in IMF conditionality. These factors altogether had led to an increase in demand for IMF lending in Latin American countries in the 1990s. For instance, political and economic elites would pursue the economic reforms suggested by the Fund in order to take advantage from the international lending boom since IMF lending would lead to an increase in outside financing (Pop-Eleches, 2009).

Finally, although significant in terms of number of arrangements, the IMF lending to Sub-Saharan Africa seems to be broadly declining. In particular, the total number of arrangements declined from 129 arrangements (worth 12513.19 million SDR) over 1992-2000 to 77 arrangements (worth 7103.44 million SDR) over 2001-2010. This might be due to the stable economic growth in these countries in the latter period and hence they did not need to heavily resort to the Fund resources. In the wake of the financial crisis (2010-2013), the size of IMF lending to this region was declining, yet it picked up again in 2014. This is possibly due to the collapse in oil prices in this latter year that adversely affected commodity dependent countries in the region and thereby increased the demand for IMF lending.

[Figure 3.2 about here]

3.5 Empirical Findings

3.5.1 Determinants of Obtaining an IMF Loan

As it was mentioned before, not all low- and middle-income countries obtain an IMF loan. This is why a Heckman selection model is undertaken where economic and political proximity to the IMF major shareholders (measured by the bilateral trade and the UN voting patterns respectively) and lagged macroeconomic variables determine the likelihood of obtaining an IMF loan whereas its size is determined by lagged macroeconomic variables. The coefficient of the inverse Mills ratio (λ) is positive and significant for both EFF and ECF, thereby suggesting that a positive selection has occurred.

First, for both EFF and SBA, economic and political proximity to the IMF major shareholders exert a positive impact on the likelihood of obtaining a loan. It is important to note that these loans are non-concessional, and thus are more demanding in their conditionality/rates. These proximity variables are negatively associated to the PRGF that is a concessional loan given to low-income countries. The same result holds for the ECF that replaced the PRGF as the main tool for addressing balance of payments problems and being the corresponding EFF for low-income countries (see Table 3.1).

As per the determinants of the value of the loan, they reflect in a way the need of a recipient country for an IMF loan. It is clear that the lower the international reserves the higher the EFF. The same result holds for the PRGF. This can be attributed to the fact that international reserves reflect the country's external position and countries with low reserves level can have problems of balance of payments and are typically the ones to require an IMF loan. In addition, low reserves can signal pressure on the national currency. Indeed, extending credit to countries with exchange rate problems is one of the IMF traditional missions (Sturm et al., 2005). This corroborates with several studies in the literature using the same variable (Bird & Rowlands, 2001; Sturm et al., 2005). As per the fiscal stance, the lower the fiscal balance (a larger deficit), the higher the IMF loan (for both ECF and SBA). Countries with large deficits turn to the IMF loans since they would help consolidate their fiscal stances. Some empirical studies suggest that fiscal deficit is a significant characteristic that distinguishes users and non-users of IMF loans (Bird, 2004). Similar intuition applies on the inflation rate where inflation exerts a positive and significant effect on the PRGF. High inflation is an indicator of macroeconomic instability, and it is one of the areas that the IMF responds to. Regarding the exchange rate (a higher value means depreciated do-

mestic currency relative to USD), its effect is somehow ambiguous, and this seems consistent with the literature. For instance, the exchange rate appreciation can indicate a worsening of the current account which would require an IMF loan. In contrast, depreciation over a long period can also indicate problems in the balance of payments (Bird & Rowlands, 2001). Current account balance exerts a counterintuitive positive and significant effect on IMF loans.

[Table 3.1 about here]

Yet, it is important to test for the in-sample predictability to see to what extent the model is able to correctly predict the countries that obtained an IMF loan. Thus, the observed outcome is compared to the predicted probability of the model. Figure C1 in Annex 3.C shows that the model, in general, performs well as it correctly predicts 77 percent of SBA loans, 86 percent of EFF, 89 percent of PRGF and 100 percent of ECF. This makes us confident in order to proceed to the second stage where we examine the effect of IMF loans on growth.

3.5.2 The Effect of IMF Loans on Growth Components

After estimating the determinants of IMF loans, the predicted value of loans are used in a growth equation. Table 3.2 presents the results of the four types of loans for the three dependent variables: the cyclical component, trend component and overall growth. Regressions are undertaken once with the IMF loan separately and afterwards along with control variables. Indeed, regressions with the IMF loan separately yield different results than those with all controls since the former suffer from omitted variables.

Interestingly, the SBA loan variable does not have a significant effect on the trend component of GDP growth neither on the cyclical one. This can be related to the fact that this loan has a relatively short time span, and its main emphasis relates to endorsing macroeconomic stability rather than economic growth. Its conditionality might be acting on compressing aggregate demand and this can accordingly constrain economic growth (Bird & Rowlands, 2017). As per EFF, PRGF and ECF, these loans have a negative effect on the trend component of GDP growth and their impact varies for the cyclical one. Regarding the long run effect, our findings are not in line with the argument suggesting that IMF programs restore macroeconomic stability and thereby growth will be resumed in the long run. In fact, this macroeconomic stability is a necessary but insufficient condition for long run growth to occur (Przeworski & Vreeland, 2000). As per the short run effect, the EFF and PRGF

exert a positive and significant effect on the cyclical component of GDP, and this can show that these programs ease the burden of short run adjustment to shocks. More broadly, our findings confirm that, in some cases, most of the loans target stabilizing the economy (by reducing the gap between observed and potential GDP) without changing its structure and might even deteriorate its long-term steady state (because of a lower trend GDP component). This result is in line with Easterly (2005) who explains the dependency of the recipient countries on the IMF loans without an improvement of their macroeconomic outcomes in the long run. In the same vein, Evrensel (2002) findings show that current account and reserves improve temporarily during the loan year, but this relief is not sustained afterwards in the post-program period.

As per the control variables, generally, while natural resources rents (that are a source of foreign currency) and investment (that measures physical capital) exert a positive effect on all growth components, schooling enrollment has a counter-intuitive negative effect on the trend component of GDP.

[Tables 3.2 about here]

To test the sensitivity of the results to the GDP growth decomposition methodology, the BW filter is used as an alternative for the HP filter. Relevant results are reported in Annex 3.C Table C1. The findings from both filters are broadly consistent.

Tables 3.3 and 3.4 present the estimations results of the local projections of cyclical and trend growth in response to IMF loans over years 1-5 and Figures 3.3 and 3.4 show the corresponding impulse response functions. These results confirm our baseline findings described above. The four types of loans exert a negative effect on the growth of cyclical component of GDP in year 1. This means that the immediate effect of the IMF loan is mostly negative. This is consistent with Przeworski and Vreeland (2000) findings who suggest that IMF program participation lowers growth rates as long as the country remains under the program. Our findings also show that in some cases, this is followed by a positive effect in year 3 or year 4 (Figure 3.3). This positive effect lasted till year 5 only in the cases of EFF and PRGF. These findings are broadly in line with Conway (1994) who suggests that growth worsens in the year of the IMF program and past participation in IMF program can induce a positive impact on growth in subsequent years. Furthermore, the four types of studied loans have an insignificant effect on the growth of the trend component of GDP over years 1-5 (Table 3.4, Figure 3.4). This finding is not in line with two IMF studies, namely Khan (1990) and

Bal Gunduz et al. (2013). Both studies suggest that the long run impact of IMF loans on growth is positive, or at least the adverse negative short run effect is reduced. In contrast, our findings corroborate with Easterly (2003) who argued that there are few convincing results that the IMF lending raises long run growth since there are thirty-six countries which received loans from the IMF over 1980-98 and their median income growth rate over two decades remained zero.

[Tables 3.3 - 3.4 and Figures 3.3 - 3.4 about here]

Overall, the findings of this paper, whether the baseline ones or the local projections ones, point out to an important discussion on the differentiated impact of IMF loans on growth over the short run compared to the long run. Loans have either a negative or an insignificant effect on the trend component of growth in both methods. Similarly, the in-sample predictability of the impact of loans on trend and cyclical growth is tested. Figure C2 in Annex 3.C presents the correlation between the predicted and the observed growth variable by loan type. The gray area shows the 95 percent confidence interval associated to the predicted value. While most of the correlations are positive at 5 percent significance level, the only exception is the trend component in the PRGF case.

Tables 3.5 - 3.7 extend the analysis by controlling for the regime type and its interaction with the IMF loan on growth and its different components. While the effect of autocratic regimes is mostly not significant on the three measures of growth, its interaction with the EFF has a negative impact on the trend component of GDP. This is chiefly attributed to the fact that, in autocratic regimes, there is less accountability and transparency, which amplifies the negative effect of these loans on the long run economic growth. Furthermore, autocracies can be unstable relative to democracies since regular turnovers in the latter are incorporated in expectations. This instability in autocracies can affect the implementation of economic policies including those related to the IMF loan and this would thereby reduce economic growth (Stone, 2004). This is especially relevant with the EFF given its long-time span and the emphasis on reform policies requiring stability in political regime for an efficient implementation. The interaction of autocracy and IMF loan is insignificant for PRGF and ECF and positive for SBA (see Table 3.5).

Similarly, when the loan variable is interacted with anocratic regimes (regimes that lie between autocratic and democratic ones), EFF, PRGF and ECF, have a negative impact on the trend component. Such an effect can be explained by the uncertainty that characterizes

these regimes (since they are neither purely democratic nor autocratic). By contrast, this interaction turns to be positive for the cyclical component of GDP in the cases of PRGF and SBA. As per the SBA, the interaction term is not significant for the trend component as it is shown in Table 3.6.

Finally, Table 3.7 shows the case of democracies. In the cases of EFF, PRGF and ECF loans, a democratic regime increases the positive effect of the loan on the trend component of GDP. One potential explanation behind this result is democratic accountability and the fact that democracies can have the incentive to provide public goods like economic reforms and good governance (Stone, 2004). Indeed, the democratic accountability is perceived as a justification for the uses of power (or the use of loans) which leads to the good governance of the loan, enables the concept of checks and balance and allows the public control over the use of public resources (which is the case of the loan). The other interaction terms are generally less significant.

[Tables 3.5 - 3.7 about here]

3.6 Conclusion

This paper is an attempt to empirically analyze the economic and political determinants of IMF lending in low- and middle-income countries and the impact of these loans on economic growth. The paper studies the economic and the political determinants of IMF loans using a Heckman two-stage selection procedure. The results suggest that economic and political proximity to the IMF major shareholders (measured by bilateral trade and UN voting patterns respectively) matter for the likelihood of obtaining an IMF non-concessional loan given that these loans are more demanding in their conditionality/rates. Afterwards, the predicted values of determinants of IMF lending are used as instruments to explain the consequences of this lending on economic growth. An important observation on the existing literature is that it falls short in studying the impact of IMF loans on economic growth over different horizons. Hence, the paper contributes to the literature by using the HP filter to decompose the dependent variable (economic growth) and then by relying on the local projection techniques to study the dynamic impact of IMF loans on the latter. In this respect, the findings show that most of the loans exert a negative effect on the trend component of GDP growth, confirming that such loans can stabilize the economies in the short term without improving the long run steady growth. The analysis of the dynamic effects of loans using local projections also confirm these findings. The analysis is extended to investigate how the domestic politics of the recipient country would affect the outcomes of these loans. Democratic regimes compared to autocratic ones were found to improve the effects of most loans on economic growth.

Overall, the findings of this paper point out to an important discussion on the differentiated impact of IMF loans on growth over the short run compared to the long run. To that effect, some arguments suggest that IMF loans could reduce economic growth over the short run since they compress aggregate demand. In contrast, other views suggest that IMF loans help restoring macroeconomic stability which would thereby improve growth on the short run. As per the long run, some claims argue that the IMF lending would be beneficial for long run growth even if it entails some short run costs. This paper findings show that this is not the case and as previously mentioned, IMF loans do not seem to improve growth over the long run. From a policy perspective, developing countries were unfortunately prone to several recent global shocks, including among others the COVID-19 pandemic and climate related crises. As such, these global crises require pragmatic solutions with international coordination where the IMF is supposed to play a pivotal role along with domestic stakeholders. In these exceptional crises, IMF loans can help restoring macroeconomic stabilization over the short run. Indeed, this macroeconomic stability is a prerequisite for promoting growth

with low volatility (Fischer, 1993). However, this macroeconomic stability is not likely to be sufficient. This is why policy makers need to ensure that long run growth is not being sacrificed while facing these crises.

Moreover, the results shed the light on some of the dynamics between politics and IMF lending. The IMF lending does not seem to be only based on technical economic considerations and politics also matter. The results show that international politics play a role in the IMF lending decisions and domestic politics in the recipient country affect the outcomes of these loans on economic growth. In particular, the results highlight the importance of democratic accountability. Indeed, the latter is perceived as a justification for the uses of power (or the use of loans) which leads to the good governance of the loan, enables the concept of checks and balance and allows the public control over the use of public resources (which is the case of the loan).

Finally, within the context of the discussion on the differentiated impact of loans over the short and long run and the linkages between these loans and politics, it is important to highlight the problem of “time inconsistency”. Low- and middle-income countries are usually faced with this latter problem where short-term objectives can be preferred at the expense of long run ones. This can indeed reduce the likelihood of undertaking reforms with long run objectives and can also lead to suboptimal macroeconomic outcomes. However, the existence of a democratic and accountable political regime can help resolving this problem.

Table 3.1: Determinants of IMF loans – Heckman selection estimation

	EFF		PRGF		SBA		ECF	
	Ln(Loan)	Prob(Loan)	Ln(Loan)	Prob(Loan)	Ln(Loan)	Prob(Loan)	Ln(Loan)	Prob(Loan)
Cur. Acc/GDP(-1)	0.0138 (0.0458)	-0.0160* (0.00902)	0.0268** (0.0119)	-0.0309*** (0.00662)	0.0992*** (0.0201)	0.0183*** (0.00646)	-0.106 (0.0886)	-0.0331*** (0.0103)
Fisc. Bal./GDP(-1)	-0.0192 (0.0947)	0.0428** (0.0172)	-0.0178 (0.0153)	0.0442*** (0.0120)	-0.221*** (0.0391)	-0.0269** (0.0124)	-0.280*** (0.102)	-0.000711 (0.0212)
Res./GDP(-1)	-18.12*** (6.509)	-3.960*** (1.077)	-5.615*** (1.423)	-3.276*** (0.688)	4.630*** (1.634)	-1.501*** (0.515)	-1.448 (2.873)	0.804** (0.410)
Ln(Ex. Rate)(-1)	0.236** (0.110)	0.0421 (0.0265)	-0.116*** (0.0358)	0.0830*** (0.0185)	-0.0676 (0.0615)	-0.0544*** (0.0182)	0.427 (0.285)	0.116*** (0.0338)
Inflation(-1)	0.0113 (0.0140)	0.00151 (0.00260)	0.0257** (0.0102)	-0.00441 (0.00490)	0.00397 (0.00407)	0.00729*** (0.00259)	-0.00779 (0.0504)	0.00181 (0.00411)
Lambda (Mills ratio coeff)	3.339578** (1.613644)		0.0177608 (0.2368194)		0.4764441 (0.5068588)		3.481444* (1.967045)	
Proxim. Vote	39.74*** (12.09)		-68.91*** (9.685)		54.51*** (7.687)		-30.29* (16.22)	
Proxim. Trade	0.827 (2.508)		-15.84*** (2.595)		8.217*** (1.553)		-33.46*** (10.09)	
Constant	-0.392 (3.207)	-3.777*** (0.724)	5.108*** (0.407)	2.966*** (0.538)	4.840*** (0.705)	-4.059*** (0.453)	-6.277 (6.038)	-0.552 (0.960)
Observations	1,390	1,390	1,390	1,390	1,390	1,390	1,390	1,390

Notes: (i) A fixed effect for each country is included in order to account for time-invariant unobservable countryspecific factors. (ii) Standard errors in parentheses. (iii) *** p<0.01, ** p<0.05, * p<0.1

Table 3.2: Effect of IMF loans on growth components

	EFF						PRGF					
	Cyclical		Trend		Growth		Cyclical		Trend		Growth	
Investment	0.114*** (0.0183)		0.0465*** (0.00440)		0.161*** (0.0186)		0.116*** (0.0184)		0.0438*** (0.00436)		0.160*** (0.0187)	
School	0.00212 (0.00990)		-0.0101*** (0.00238)		-0.00801 (0.0101)		0.00183 (0.00981)		-0.0128*** (0.00233)		-0.0109 (0.00998)	
Nat. rent	0.201*** (0.0315)		0.0212*** (0.00757)		0.222*** (0.0320)		0.195*** (0.0313)		0.0206*** (0.00741)		0.216*** (0.0318)	
Loan	-0.434*** (0.0460)	0.223*** (0.0739)	-0.0325*** (0.0107)	-0.0661*** (0.0178)	-0.466*** (0.0473)	0.157** (0.0751)	-0.738*** (0.118)	0.483*** (0.155)	-0.139*** (0.0270)	-0.254*** (0.0368)	-0.878*** (0.121)	0.229 (0.158)
Constant	-0.971*** (0.146)	-3.506*** (0.830)	3.819*** (0.0340)	3.306*** (0.199)	2.847*** (0.150)	-0.200 (0.843)	3.024*** (0.479)	-5.936*** (1.279)	4.452*** (0.109)	4.738*** (0.303)	7.476*** (0.491)	-1.198 (1.300)
Observations	2,250		1,363		2,250		1,363		2,250		1,363	
R-squared	0.040		0.060		0.004		0.110		0.044		0.089	
Number of countries	113		97		113		97		113		97	
Hausman test p-value (Fixed vs. Random)	0.000		0.203		0.000		0.000		0.5408		0.000	
	SBA						ECF					
	Cyclical		Trend		Growth		Cyclical		Trend		Growth	
Investment	0.107*** (0.0190)		0.0498*** (0.00456)		0.157*** (0.0192)		0.108*** (0.0181)		0.0491*** (0.00437)		0.157*** (0.0183)	
School	-0.0104 (0.00933)		-0.00695*** (0.00225)		-0.0173* (0.00946)		-0.00707 (0.00907)		-0.00582*** (0.00218)		-0.0129 (0.00918)	
Nat. rent	0.185*** (0.0312)		0.0257*** (0.00751)		0.211*** (0.0317)		0.168*** (0.0315)		0.0218*** (0.00759)		0.190*** (0.0319)	
Loan	0.413*** (0.0718)	0.0138 (0.112)	0.00919 (0.0165)	0.0221 (0.0268)	0.423*** (0.0740)	0.0358 (0.113)	-0.0691 (0.0536)	-0.253*** (0.0766)	-0.0621*** (0.0122)	-0.0574*** (0.0184)	-0.131** (0.0552)	-0.311*** (0.0775)
Constant	-2.207*** (0.410)	-2.894*** (0.986)	3.847*** (0.0941)	2.990*** (0.237)	1.640*** (0.422)	0.0962 (0.999)	-0.191 (0.237)	-3.982*** (0.871)	3.647*** (0.0538)	2.841*** (0.210)	3.455*** (0.244)	-1.141 (0.881)
Observations	2,250		1,363		2,250		1,363		2,250		1,363	
R-squared	0.015		0.053		0.000		0.101		0.015		0.086	
Number of countries	113		97		113		97		113		97	
Hausman test (Fixed vs. Random)	0.000		0.115		0.000		0.000		0.2256		0.000	

Notes: (i) A fixed effect for each country is included in order to account for time-invariant unobservable countryspecific factors. (ii) Standard errors in parentheses. (iii) *** p<0.01, ** p<0.05, * p<0.1

Table 3.3: Local projection estimates of the effect of IMF loans on cyclical growth

Horizons	Year 1	Year 2	Year 3	Year 4	Year 5
EFF					
Loan	-0.00489** (0.00196)	-0.00101 (0.00216)	0.00322* (0.00173)	0.00170 (0.00160)	0.00288* (0.00159)
Observations	1,176	1,175	1,125	1,068	1,009
R-squared	0.153	0.032	0.025	0.022	0.029
Number of countries	95	95	95	94	93
SBA					
Loan	-0.00504*** (0.00170)	-0.00225 (0.00171)	0.00207 (0.00162)	0.00626*** (0.00184)	0.00249 (0.00160)
Observations	1,176	1,175	1,125	1,068	1,009
R-squared	0.152	0.034	0.035	0.036	0.028
Number of countries	95	95	95	94	93
PRGF					
Loan	-0.0127*** (0.00341)	0.00266 (0.00340)	0.00659* (0.00355)	0.00619 (0.00395)	0.00647*** (0.00225)
Observations	1,176	1,175	1,125	1,068	1,009
R-squared	0.163	0.030	0.024	0.020	0.030
Number of countries	95	95	95	94	93
ECF					
Loan	-0.00214** (0.00104)	-0.00358** (0.00150)	0.00125 (0.00125)	2.36e-05 (0.00154)	-0.000319 (0.00109)
Observations	1,176	1,175	1,125	1,068	1,009
R-squared	0.140	0.034	0.017	0.019	0.027
Number of countries	95	95	95	94	93
Controls	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes

Notes: (i) Results are based on equation 3.5. Controls include growth controls (gross fixed capital formation, secondary school enrollment, and the share of natural resources rents to GDP), their one period lag and one period lag of the predicted IMF loan variable. (ii) Robust standard errors (clustered at the country level) in parentheses. (iii) *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 3.4: Local projection estimates of the effect of IMF loans on trend growth

Horizons	Year 1	Year 2	Year 3	Year 4	Year 5
EFF					
Loan	-7.17e-06 (0.000169)	2.20e-05 (0.000170)	5.69e-05 (0.000196)	0.000102 (0.000204)	0.000137 (0.000197)
Observations	1,176	1,175	1,125	1,068	1,009
R-squared	0.189	0.172	0.159	0.145	0.127
Number of countries	95	95	95	94	93
SBA					
Loan	-0.000201 (0.000164)	-0.000189 (0.000161)	-0.000167 (0.000164)	-0.000169 (0.000160)	-0.000135 (0.000154)
Observations	1,176	1,175	1,125	1,068	1,009
R-squared	0.178	0.154	0.131	0.106	0.079
Number of countries	95	95	95	94	93
PRGF					
Loan	2.81e-05 (0.000319)	9.12e-05 (0.000318)	0.000167 (0.000335)	0.000240 (0.000331)	0.000275 (0.000326)
Observations	1,176	1,175	1,125	1,068	1,009
R-squared	0.170	0.150	0.131	0.111	0.089
Number of countries	95	95	95	94	93
ECF					
Loan	-3.76e-05 (0.000104)	-4.04e-05 (0.000101)	-2.90e-05 (0.000101)	-4.42e-05 (0.000100)	-2.11e-05 (9.61e-05)
Observations	1,176	1,175	1,125	1,068	1,009
R-squared	0.167	0.145	0.123	0.098	0.072
Number of countries	95	95	95	94	93
Controls	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes

Notes: (i) Results are based on equation 3.5. Controls include growth controls (gross fixed capital formation, secondary school enrollment, and the share of natural resources rents to GDP), their one period lag and one period lag of the predicted IMF loan variable. (ii) Robust standard errors (clustered at the country level) in parentheses. (iii) *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 3.5: Effect of IMF loans on growth components – Autocracy

	EFF			PRGF		
	Cyclical	Trend	Growth	Cyclical	Trend	Growth
Investment	0.115*** (0.0183)	0.0472*** (0.00437)	0.162*** (0.0186)	0.118*** (0.0185)	0.0448*** (0.00436)	0.163*** (0.0187)
School	0.00371 (0.01000)	-0.00909*** (0.00238)	-0.00538 (0.0101)	0.00489 (0.00999)	-0.0115*** (0.00236)	-0.00663 (0.0101)
Nat. rent	0.206*** (0.0319)	0.0203*** (0.00760)	0.226*** (0.0323)	0.197*** (0.0313)	0.0224*** (0.00740)	0.220*** (0.0318)
Loan	0.218*** (0.0748)	-0.0565*** (0.0178)	0.161** (0.0759)	0.575*** (0.170)	-0.242*** (0.0402)	0.333* (0.173)
Autocracy	1.073 (0.826)	0.395** (0.197)	1.468* (0.839)	2.898 (1.848)	0.826* (0.436)	3.724** (1.877)
Loan*autocracy	0.231 (0.297)	-0.205*** (0.0709)	0.0264 (0.302)	-0.476 (0.379)	-0.0457 (0.0896)	-0.522 (0.385)
Constant	-3.734*** (0.850)	3.196*** (0.203)	-0.538 (0.862)	-6.656*** (1.358)	4.532*** (0.321)	-2.124 (1.380)
Observations	1,363	1,363	1,363	1,363	1,363	1,363
R-squared	0.061	0.125	0.091	0.062	0.142	0.091
Number of countries	97	97	97	97	97	97
	SBA			ECF		
	Cyclical	Trend	Growth	Cyclical	Trend	Growth
Investment	0.108*** (0.0190)	0.0507*** (0.00454)	0.159*** (0.0192)	0.108*** (0.0181)	0.0498*** (0.00436)	0.158*** (0.0183)
School	-0.00912 (0.00940)	-0.00605*** (0.00225)	-0.0152 (0.00953)	-0.00642 (0.00912)	-0.00493** (0.00219)	-0.0113 (0.00922)
Nat. rent	0.189*** (0.0314)	0.0264*** (0.00749)	0.216*** (0.0318)	0.179*** (0.0317)	0.0242*** (0.00763)	0.203*** (0.0321)
Loan	0.0386 (0.114)	0.0131 (0.0272)	0.0518 (0.115)	-0.311*** (0.0797)	-0.0533*** (0.0192)	-0.365*** (0.0806)
Autocracy	3.060 (2.582)	-0.820 (0.617)	2.240 (2.616)	4.004*** (1.426)	0.712** (0.343)	4.716*** (1.441)
Loan*autocracy	-0.433 (0.460)	0.275** (0.110)	-0.158 (0.466)	0.782*** (0.268)	0.0252 (0.0645)	0.807*** (0.271)
Constant	-3.215*** (1.014)	2.910*** (0.242)	-0.304 (1.028)	-4.363*** (0.885)	2.727*** (0.213)	-1.636* (0.894)
Observations	1,363	1,363	1,363	1,363	1,363	1,363
R-squared	0.055	0.115	0.088	0.068	0.115	0.105
Number of countries	97	97	97	97	97	97

Notes: (i) A fixed effect for each country is included in order to account for time-invariant unobservable country specific factors. (ii) Standard errors in parentheses. (iii) *** p<0.01, ** p<0.05, * p<0.1

Table 3.6: Effect of IMF loans on growth components – Anocracy

	EFF			PRGF		
	Cyclical	Trend	Growth	Cyclical	Trend	Growth
Investment	0.114*** (0.0184)	0.0462*** (0.00440)	0.160*** (0.0186)	0.117*** (0.0184)	0.0438*** (0.00436)	0.160*** (0.0187)
School	0.00235 (0.00998)	-0.0103*** (0.00239)	-0.00798 (0.0101)	0.00260 (0.00985)	-0.0126*** (0.00233)	-0.0100 (0.0100)
Nat. rent	0.200*** (0.0315)	0.0208*** (0.00757)	0.221*** (0.0320)	0.193*** (0.0313)	0.0213*** (0.00741)	0.214*** (0.0318)
Loan	0.239*** (0.0775)	-0.0553*** (0.0186)	0.184** (0.0787)	0.383** (0.178)	-0.204*** (0.0421)	0.180 (0.181)
Anocracy	-0.431 (0.441)	-0.190* (0.106)	-0.622 (0.448)	-2.062* (1.195)	0.618** (0.283)	-1.443 (1.216)
Loan*anocracy	-0.0602 (0.131)	-0.0533* (0.0313)	-0.114 (0.132)	0.387 (0.263)	-0.150** (0.0622)	0.237 (0.267)
Constant	-3.405*** (0.843)	3.374*** (0.202)	-0.0311 (0.856)	-5.474*** (1.334)	4.518*** (0.316)	-0.957 (1.357)
Observations	1,363	1,363	1,363	1,363	1,363	1,363
R-squared	0.061	0.113	0.090	0.063	0.137	0.089
Number of countries	97	97	97	97	97	97
	SBA			ECF		
	Cyclical	Trend	Growth	Cyclical	Trend	Growth
Investment	0.113*** (0.0188)	0.0498*** (0.00457)	0.163*** (0.0190)	0.108*** (0.0181)	0.0493*** (0.00435)	0.157*** (0.0184)
School	-0.0103 (0.00924)	-0.00680*** (0.00225)	-0.0171* (0.00937)	-0.00668 (0.00908)	-0.00574*** (0.00218)	-0.0124 (0.00919)
Nat. rent	0.193*** (0.0309)	0.0255*** (0.00752)	0.219*** (0.0313)	0.173*** (0.0319)	0.0187** (0.00765)	0.192*** (0.0322)
Loan	-0.323** (0.126)	0.0198 (0.0306)	-0.303** (0.128)	-0.310*** (0.0888)	-0.0303 (0.0213)	-0.340*** (0.0898)
Anocracy	-7.024*** (1.286)	-0.132 (0.313)	-7.156*** (1.304)	0.434 (0.667)	-0.475*** (0.160)	-0.0413 (0.675)
Loan*anocracy	1.193*** (0.216)	0.00276 (0.0526)	1.196*** (0.219)	0.164 (0.135)	-0.0839*** (0.0324)	0.0804 (0.136)
Constant	-1.117 (1.027)	3.021*** (0.250)	1.905* (1.041)	-4.204*** (0.898)	2.991*** (0.216)	-1.213 (0.909)
Observations	1,363	1,363	1,363	1,363	1,363	1,363
R-squared	0.076	0.102	0.107	0.063	0.114	0.098
Number of countries	97	97	97	97	97	97

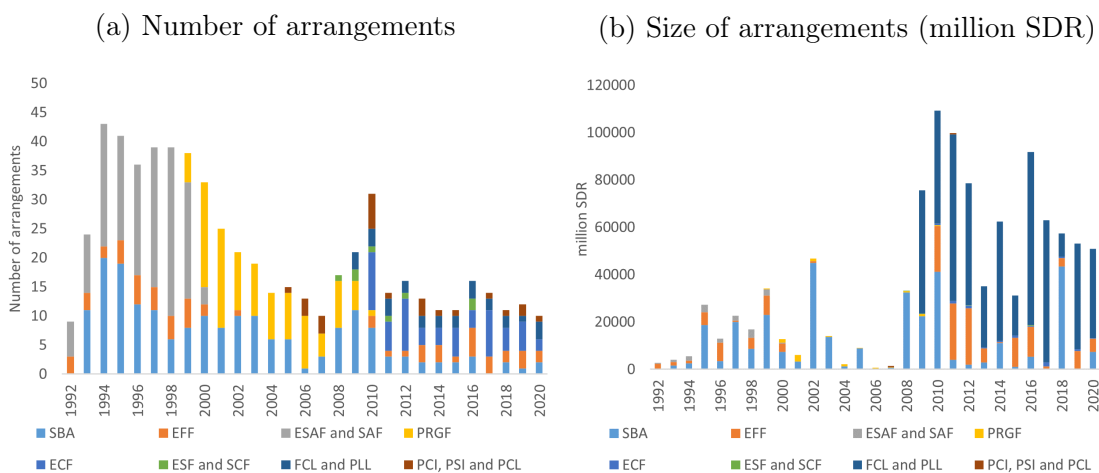
Notes: (i) A fixed effect for each country is included in order to account for time-invariant unobservable country specific factors. (ii) Standard errors in parentheses. (iii) *** p<0.01, ** p<0.05, * p<0.1

Table 3.7: Effect of IMF loans on growth components – Democracy

	EFF			PRGF		
	Cyclical	Trend	Growth	Cyclical	Trend	Growth
Investment	0.114*** (0.0184)	0.0459*** (0.00440)	0.160*** (0.0187)	0.115*** (0.0184)	0.0442*** (0.00435)	0.160*** (0.0187)
School	0.00219 (0.00997)	-0.0108*** (0.00239)	-0.00862 (0.0101)	0.00141 (0.00987)	-0.0123*** (0.00233)	-0.0109 (0.0100)
Nat. rent	0.200*** (0.0317)	0.0198*** (0.00759)	0.220*** (0.0322)	0.194*** (0.0313)	0.0216*** (0.00740)	0.215*** (0.0318)
Loan	0.228* (0.124)	-0.125*** (0.0298)	0.103 (0.126)	0.567*** (0.200)	-0.332*** (0.0472)	0.235 (0.203)
Democracy	0.126 (0.439)	0.0733 (0.105)	0.199 (0.445)	0.834 (1.133)	-0.737*** (0.268)	0.0963 (1.152)
Loan*democracy	-0.00355 (0.125)	0.0728** (0.0300)	0.0692 (0.127)	-0.148 (0.252)	0.146** (0.0596)	-0.00191 (0.256)
Constant	-3.591*** (0.867)	3.313*** (0.208)	-0.278 (0.881)	-6.397*** (1.403)	5.110*** (0.332)	-1.287 (1.427)
Observations	1,363	1,363	1,363	1,363	1,363	1,363
R-squared	0.060	0.115	0.089	0.061	0.139	0.087
Number of countries	97	97	97	97	97	97
	SBA			ECF		
	Cyclical	Trend	Growth	Cyclical	Trend	Growth
Investment	0.111*** (0.0188)	0.0501*** (0.00457)	0.162*** (0.0191)	0.107*** (0.0181)	0.0493*** (0.00436)	0.156*** (0.0183)
School	-0.0114 (0.00926)	-0.00698*** (0.00225)	-0.0184* (0.00938)	-0.00711 (0.00906)	-0.00582*** (0.00218)	-0.0129 (0.00917)
Nat. rent	0.188*** (0.0310)	0.0259*** (0.00753)	0.213*** (0.0314)	0.183*** (0.0321)	0.0183** (0.00772)	0.201*** (0.0325)
Loan	0.688*** (0.179)	0.0524 (0.0435)	0.741*** (0.182)	-0.0599 (0.108)	-0.104*** (0.0260)	-0.164 (0.110)
Democracy	5.733*** (1.244)	0.211 (0.302)	5.944*** (1.260)	(0.654)	(0.157)	(0.662)
Loan*democracy	-1.006*** (0.210)	-0.0441 (0.0509)	-1.050*** (0.213)	-0.336** (0.131)	0.0797** (0.0315)	-0.256* (0.132)
Constant	-6.774*** (1.280)	2.840*** (0.311)	-3.934*** (1.297)	-3.330*** (0.951)	2.671*** (0.229)	-0.659 (0.964)
Observations	1,363	1,363	1,363	1,363	1,363	1,363
R-squared	0.070	0.102	0.103	0.066	0.112	0.100
Number of countries	97	97	97	97	97	97

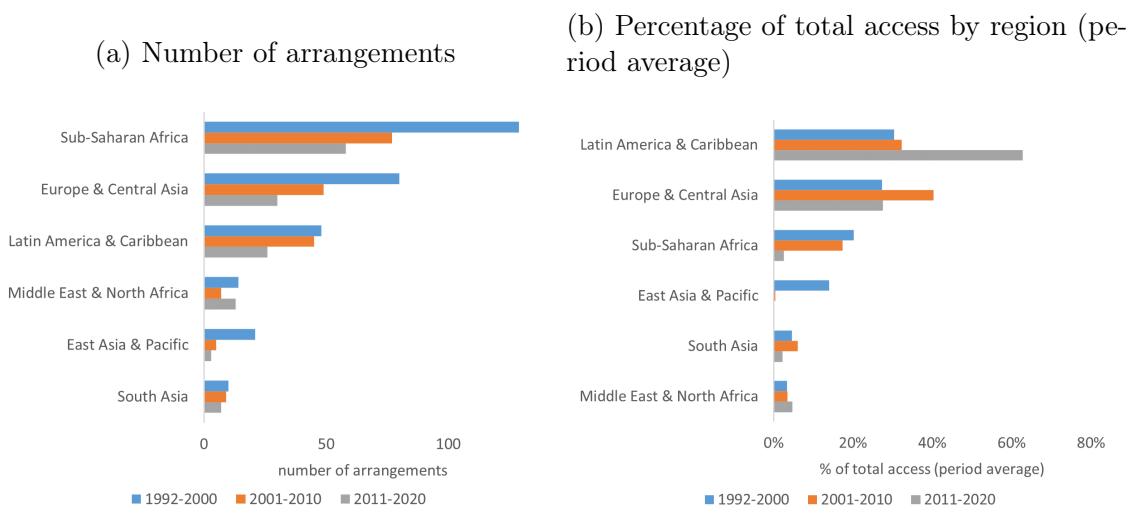
Notes: (i) A fixed effect for each country is included in order to account for time-invariant unobservable country specific factors. (ii) Standard errors in parentheses. (iii) *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Figure 3.1: IMF lending by type of arrangements, 1992-2020



Source: Constructed by the authors using IMF Monitoring of Fund Arrangements (MONA) Database
 Notes: (i) Data are compiled in these figures based on the starting year of each arrangement. (ii) IMF loans mentioned here stand for: SBA: Stand-By Arrangement; EFF: Extended Fund Facility; ESAF: Enhanced Structural Adjustment Facility; SAF: Structural Adjustment Facility; PRGF: Poverty Reduction and Growth Facility; ECF: Extended Credit Facility; ESF: Exogenous Shocks Facility; SCF: Standby Credit Facility; FCL: Flexible Credit Line; PLL: Precautionary and Liquidity Line; PCI: Policy Coordination Instrument; PSI: Policy Support Instrument; PCL: Precautionary Credit Line. (iii) These figures exclude any arrangement that was classified in the IMF MONA dataset under two types of programs to avoid misclassification, namely those classified as: ECF-EFF, PRGF-EFF, SBA-ESF and SBA-SCF.

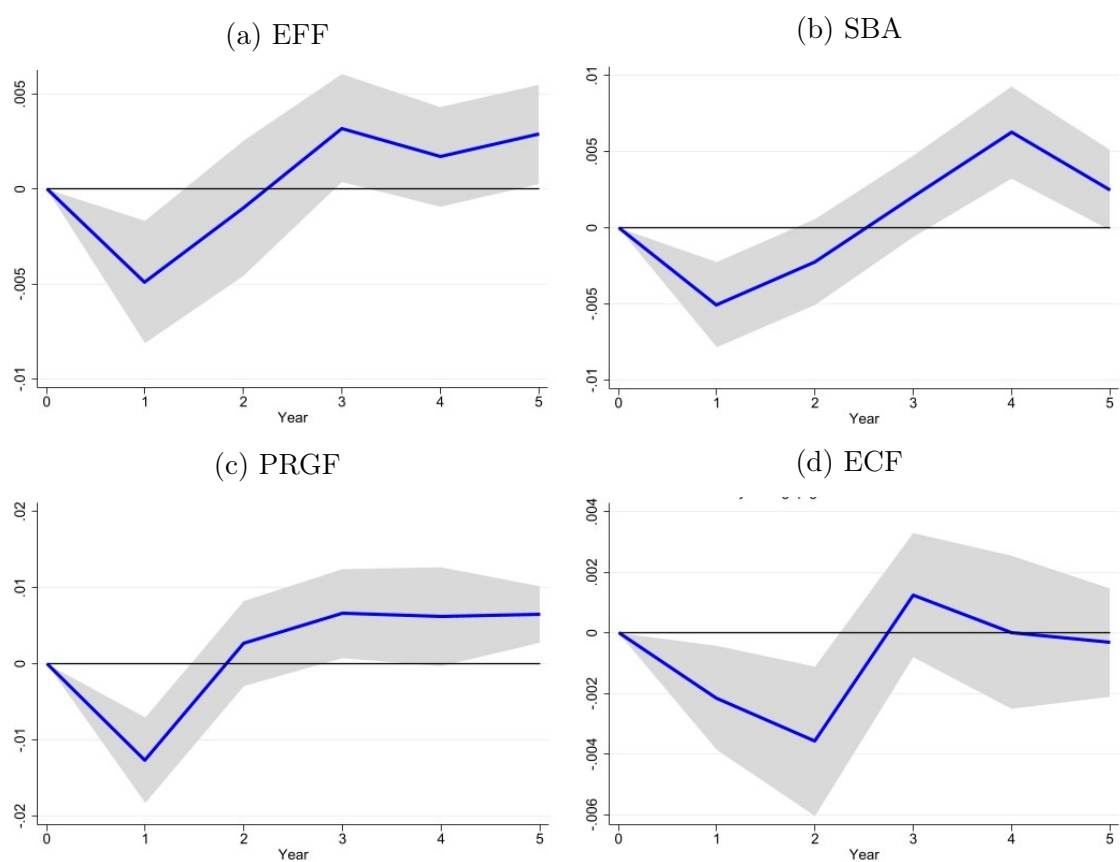
Figure 3.2: IMF lending by region



Source: Constructed by the authors using IMF Monitoring of Fund Arrangements (MONA) Database
 Notes: (i) Data are compiled in these figures based on the starting year of each arrangement. (ii) These

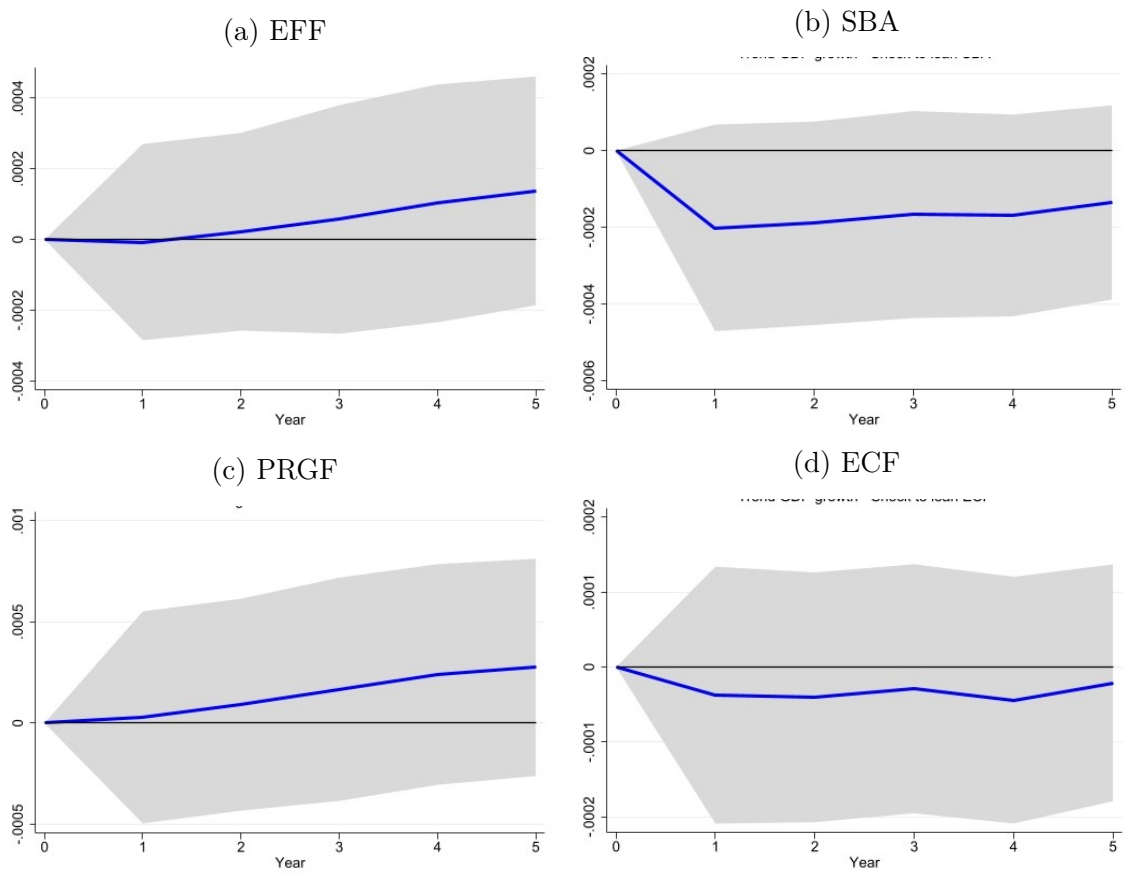
figures include all types of IMF agreements (even the ones classified under two types of arrangements). (iii)
Regions are classified based on the World Bank definitions.

Figure 3.3: Effect of IMF loans on cyclical growth over time



Notes: (i) The solid blue lines represent the local projections of cyclical growth in response to the IMF loan for years 1-5 (see equation 3.5 and Table 3.3 for more details). (ii) The grey shaded region represents the 95 percent confidence interval.

Figure 3.4: Effect of IMF loans on trend growth over time



Notes: (i) The solid blue lines represent the local projections of trend growth in response to the IMF loan for years 1-5 (see equation 3.5 and Table 3.4 for more details). (ii) The grey shaded region represents the 95 percent confidence interval.

Appendix 3.A Definitions

Table A1: The evolution of IMF lending facilities

Broad Category	Lending Facility	Definition/Main Objective
Non-concessional	Stand-By Arrangement (SBA)	It was designed in 1952 and it aims at responding to countries' external financing needs and supporting their adjustment policies with short-term financing. It is used to solve short term balance of payments problems. It usually lasts up to one or two years.
	Extended Fund Facility (EFF)	Recognizing that some balance of payments problems would require longer programs, the Fund introduced the EFF in 1974. It is used to provide assistance to countries experiencing medium term balance of payments problems because of structural weaknesses that require time to be addressed. It provides support for comprehensive programs including the policies needed to correct structural imbalances over an extended period. It usually lasts up to three years.
Low-Income Countries /Concessional	Enhanced Structural Adjustment Facility (ESAF) and Structural Adjustment Facility (SAF)	SBA and EFF are not supposed to cover low-income countries. To that effect, the Fund established the SAF in 1986 and the ESAF in 1987 in order to provide low-interest loans to poor countries. Hence, ESAF and SAF are considered as concessional loans whereas EFF and SBA are considered as non-concessional. The interest rate for SAF and ESAF is 0.5 percent with a five-year grace period followed by repayments to be paid over a period of five to ten years.
	Poverty Reduction and Growth Facility (PRGF)	Following the East Asian crisis, in November 1999, the IMF terminated its Enhanced Structural Adjustment Facility (ESAF) and replaced it with the PRGF as a new lending facility for low-income countries.
	Extended Credit Facility (ECF)	It is the corresponding EFF for low-income countries. It replaced the PRGF as the main tool for addressing balance of payments problems.
	Exogenous Shocks Facility (ESF)	It was established in 2008. It provided concessional financing to Poverty Reduction and Growth Trust (PRGT)-eligible countries facing balance of payments needs caused by sudden and exogenous shocks. It was replaced later by the SCF that became effective in January 2010.
	Standby Credit Facility (SCF)	It was created to provide support to low-income countries with short-term balance of payments needs, similar to SBAs, with the possibility of using it on a precautionary basis.
Precautionary	Flexible Credit Line (FCL)	It was established in 2009 and it is designed for crisis-prevention and crisis-mitigation lending for countries with strong policy frameworks and track records in economic performance. It gives the country the flexibility to draw on the credit line at any time within a prespecified period, or to treat it as a precautionary instrument. To date, five countries have used the FCL, namely Chile, Colombia, Mexico, Peru and Poland.
	Precautionary and Liquidity Line (PLL)	It was introduced in 2011. It provides financing to meet actual or potential balance of payments needs of countries with sound policies and that may have some remaining vulnerabilities. It combines a qualification process (similar to that for the FCL but with a lower bar) with ex-post conditionality. To date, three countries have used the PLL, namely Macedonia, Morocco and Panama.
Rapid	Rapid Financing Instrument (RFI)	It was introduced in 2011 and it provides rapid and low-access financial assistance to member countries facing an urgent balance of payments need, without the need to have a full-fledged program in place. It is available to all member countries, but its similar concessional version is the RCF.
Rapid and Low-income Countries /Concessional	Rapid Credit Facility (RCF)	It provides low-access, rapid, and concessional financial assistance to low-income countries facing an urgent balance of payments need, without ex post conditionality. It can provide support in a wide variety of circumstances, including shocks, natural disasters, and emergencies resulting from fragility.
Non-Financial	Policy Coordination Instrument (PCI)	It is a non-financial tool that is available to all IMF members that do not need Fund financial resources at the time of approval. It is designed for countries seeking to demonstrate commitment to a reform agenda or to unlock financing from other official creditors or private investors.
Non-Financial and Low-Income Countries	Policy Support Instrument (PSI)	It is a non-financial instrument that provides policy support and signals for mature stabilizers whenever countries have attained external and domestic macroeconomic stability such that they no longer needed continuous Fund financial assistance. The PSI is available to all PRGT-eligible countries that have no current or prospective balance of payments need requiring any significant macroeconomic policy adjustment, but that may still benefit from structural reforms. The PSI can expedite access to the SCF if needed.

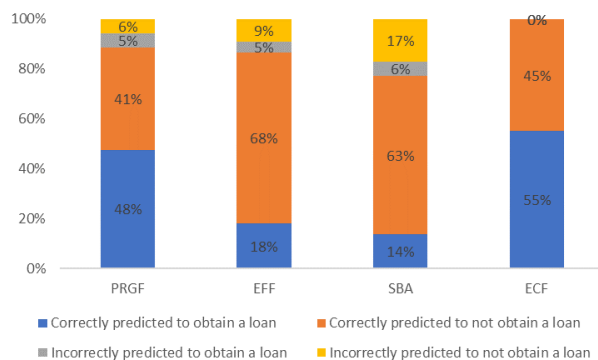
Source: Compiled by the authors from the IMF website (factsheets on different loans); and (Bal Gunduz et al., 2013; Barro & Lee, 2005; Bird & Rowlands, 2017).

Appendix 3.B List of Countries

Afghanistan	Djibouti	Lao PDR	Samoa
Albania	Dominica	Latvia	São Tomé and Princ.
Algeria	Dominican Rep.	Lebanon	Senegal
American Samoa	Ecuador	Lesotho	Serbia
Angola	Egypt, Arab Rep.	Liberia	Seychelles
Antigua and Barbuda	El Salvador	Libya	Sierra Leone
Argentina	Equatorial Guinea	Lithuania	Slovak Republic
Armenia	Eritrea	Madagascar	Solomon Islands
Azerbaijan	Estonia	Malawi	Somalia
Bangladesh	Eswatini	Malaysia	South Africa
Barbados	Ethiopia	Maldives	South Sudan
Belarus	Fiji	Mali	Sri Lanka
Belize	Gabon	Marshall Islands	St. Kitts and Nevis
Benin	Gambia, The	Mauritania	St. Lucia
Bhutan	Georgia	Mexico	St. Vincent
Bolivia	Ghana	Micronesia, Fed. Sts.	Sudan
Bosnia and Herzegovina	Greece	Moldova	Suriname
Botswana	Grenada	Mongolia	Syria
Brazil	Guatemala	Montenegro	Tajikistan
Bulgaria	Guinea	Morocco	Tanzania
Burkina Faso	Guinea-Bissau	Mozambique	Thailand
Burundi	Guyana	Myanmar	Timor-Leste
Cabo Verde	Haiti	Namibia	Togo
Cambodia	Honduras	Nepal	Tonga
Cameroon	Hungary	Nicaragua	Tunisia
Central African Rep.	Iceland	Niger	Turkey
Chad	India	Nigeria	Turkmenistan
Chile	Indonesia	North Macedonia	Tuvalu
China	Iran	Pakistan	Uganda
Colombia	Iraq	Panama	Ukraine
Comoros	Ireland	Papua New Guinea	Uruguay
Congo, Dem. Rep.	Jamaica	Paraguay	Uzbekistan
Congo, Rep.	Jordan	Peru	Vanuatu
Costa Rica	Kazakhstan	Philippines	Venezuela, RB
Côte d'Ivoire	Kenya	Poland	Vietnam
Croatia	Kiribati	Portugal	West Bank and Gaza
Cuba	Korea, Dem. People's Rep.	Romania	Yemen, Rep.
Cyprus	Kosovo	Russian Federation	Zambia
Czech Republic	Kyrgyz Republic	Rwanda	Zimbabwe

Appendix 3.C Empirical Results

Figure C1: In-sample predictability for the probability of getting a loan



Source: Constructed by the authors using Stata.

Figure C2: In-sample predictability for cyclical and trend growth (By loan type)

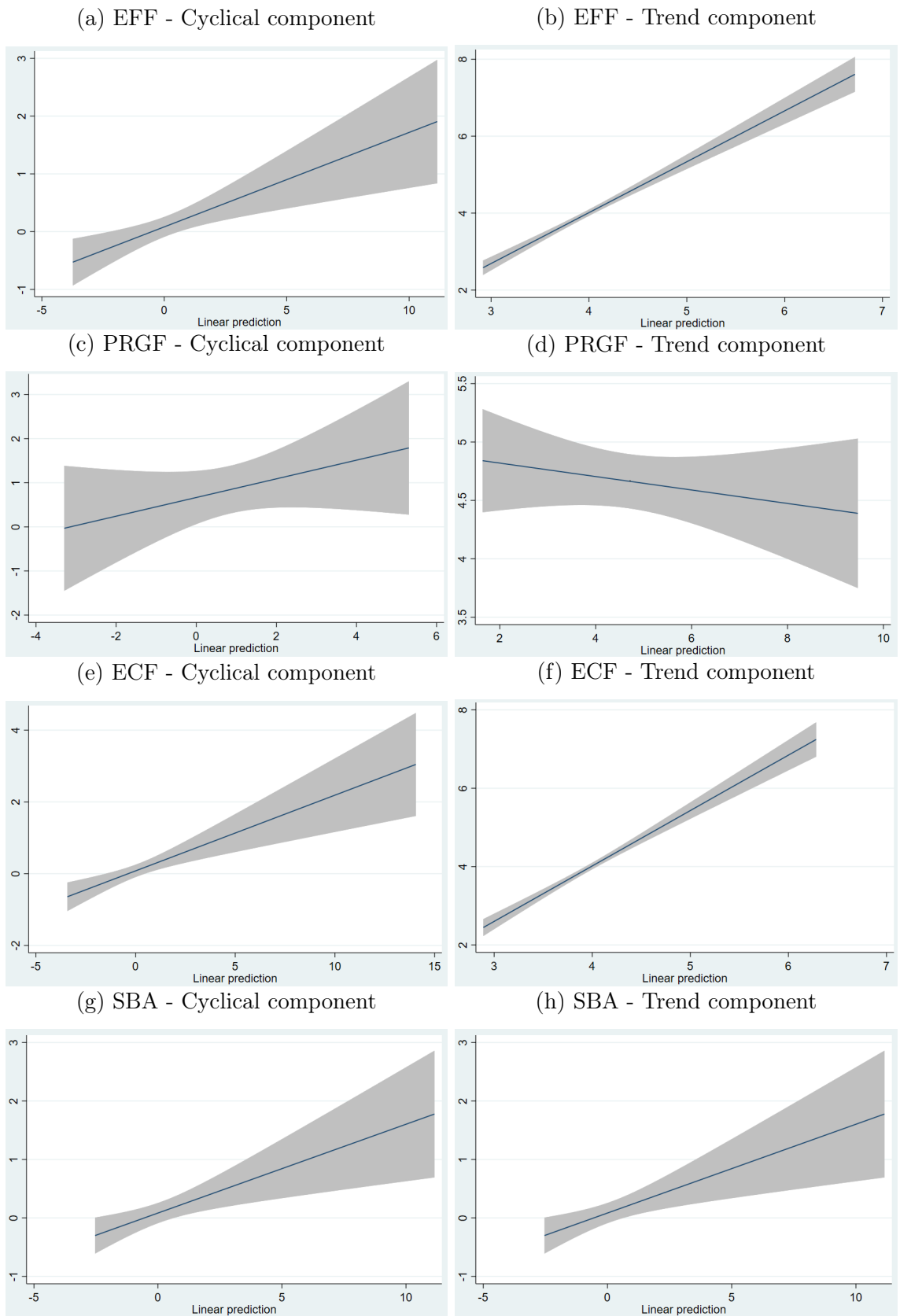


Table C1: Effect of IMF loans on growth components – BW filter

	EFF						PRGF					
	Cyclical		Trend		Growth		Cyclical		Trend		Growth	
Investment	0.111*** (0.0180)		0.0498*** (0.00478)		0.161*** (0.0186)		0.112*** (0.0180)		0.0473*** (0.00476)		0.160*** (0.0187)	
Schooling	0.00421 (0.00971)		-0.0122*** (0.00259)		-0.00801 (0.0101)		0.00401 (0.00962)		-0.0149*** (0.00254)		-0.0109 (0.00998)	
Nat. rent	0.186*** (0.0309)		0.0355*** (0.00823)		0.222*** (0.0320)		0.181*** (0.0307)		0.0344*** (0.00810)		0.216*** (0.0318)	
Loan	-0.445*** (0.0452)	0.200*** (0.0725)	-0.0220* (0.0120)	-0.0433** (0.0193)	-0.466*** (0.0473)	0.157** (0.0751)	-0.764*** (0.116)	0.436*** (0.152)	-0.113*** (0.0304)	-0.207*** (0.0402)	-0.878*** (0.121)	0.229 (0.158)
Constant	-1.023*** (0.144)	-3.586*** (0.814)	3.870*** (0.0383)	3.386*** (0.217)	2.847*** (0.150)	-0.200 (0.843)	3.102*** (0.470)	-5.783*** (1.254)	4.375*** (0.124)	4.585*** (0.331)	7.476*** (0.491)	-1.198 (1.300)
Observations	2,250	1,363	2,250	1,363	2,250	1,363	2,250	1,363	2,250	1,363	2,250	1,363
R-squared	0.043	0.056	0.002	0.111	0.044	0.089	0.020	0.056	0.006	0.126	0.024	0.087
Number of countries	113	97	113	97	113	97	113	97	113	97	113	97

	SBA						PRGF					
	Cyclical		Trend		Growth		Cyclical		Trend		Growth	
Investment	0.105*** (0.0186)		0.0515*** (0.00494)		0.157*** (0.0192)		0.105*** (0.0178)		0.0518*** (0.00471)		0.157*** (0.0183)	
Schooling	-0.00740 (0.00915)		-0.00992*** (0.00243)		-0.0173* (0.00946)		-0.00416 (0.00890)		-0.00873*** (0.00236)		-0.0129 (0.00918)	
Nat. rent	0.173*** (0.0306)		0.0385*** (0.00814)		0.211*** (0.0317)		0.158*** (0.0309)		0.0322*** (0.00818)		0.190*** (0.0319)	
Loan	0.432*** (0.0705)	0.0319 (0.109)	-0.00938 (0.0186)	0.00397 (0.0291)	0.423*** (0.0740)	0.0358 (0.113)	-0.0330 (0.0527)	-0.218*** (0.0752)	-0.0982*** (0.0136)	-0.0932*** (0.0199)	-0.131** (0.0552)	-0.311*** (0.0775)
Constant	-2.335*** (0.402)	-3.137*** (0.966)	3.976*** (0.106)	3.233*** (0.257)	1.640*** (0.422)	0.0962 (0.999)	-0.0707 (0.233)	-3.968*** (0.855)	3.526*** (0.0602)	2.827*** (0.226)	3.455*** (0.244)	-1.141 (0.881)
Observations	2,250	1,363	2,250	1,363	2,250	1,363	2,250	1,363	2,250	1,363	2,250	1,363
R-squared	0.017	0.050	0.000	0.108	0.015	0.086	0.000	0.056	0.024	0.123	0.003	0.097
Number of countries	113	97	113	97	113	97	113	97	113	97	113	97

Notes: (i) A fixed effect for each country is included in order to account for time-invariant unobservable countryspecific factors. (ii) Standard errors in parentheses. (iii) *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

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Résumé de la thèse

"Il est impossible d'atteindre des taux élevés de croissance du produit par habitant ou par travailleur sans que les parts des différents secteurs ne soient modifiées en conséquence" (Kuznets, 1979).

La modification des parts sectorielles à laquelle Kuznets fait référence est connue sous le nom de changement structurel. Depuis les travaux de Lewis (1954) et Kuznets (1955), il est largement admis que le changement structurel est un élément clé du développement économique et de la prospérité sociale. Le changement structurel tend à se produire lorsque les ressources se déplacent des activités traditionnelles et généralement peu productives à des activités modernes et plus productives. En effet, l'accumulation et la croissance de la productivité ont généralement lieu dans les secteurs modernes et, par conséquent, la croissance de l'ensemble de l'économie dépend largement de la réallocation des ressources des secteurs traditionnels vers les secteurs modernes (McMillan et al., 2016). Lorsque la main-d'œuvre et d'autres ressources se déplacent vers les secteurs plus productifs, l'économie peut croître même s'il n'y a pas de croissance de la productivité au sein des secteurs. Ce type de changement structurel favorisant la croissance contribue de manière importante à la croissance économique (McMillan et al., 2014). Sur un niveau plus désagrégé, le changement structurel peut également avoir lieu au sein des secteurs, ce qui implique une réallocation des ressources entre les entreprises (Szirmai & Foster-Mcgregor, 2021). La littérature s'appuie généralement sur des changements sectoriels agrégés pour saisir les tendances du changement structurel. Cependant, la disponibilité de données au niveau des firmes permet de mieux comprendre comment ce processus se déroule.

Le changement structurel est important pour les pays en développement, car les écarts de productivité entre les secteurs sont particulièrement prononcés par rapport aux pays développés, ce qui compromet leur trajectoire de développement. Avec le progrès du développement, cette hétérogénéité structurelle entre les secteurs tend à diminuer et leurs niveaux de productivité tendent à converger (Monga & Lin, 2019; UNCTAD, 2017). En outre, le rythme des changements structurels a été globalement lent dans les pays en développement, ce qui peut expliquer en partie leurs périodes prolongées de faible croissance économique (Diao et al., 2017). Dans ce contexte, il est important d'identifier les politiques moteurs du changement structurel dans les pays en développement.¹⁰

Un fait stylisé important qui motive cette thèse concerne la persistance des modèles d'inégalité dans l'économie mondiale ainsi qu'une divergence de revenus entre les pays développés et les pays en développement (Monga & Lin, 2019; Ocampo, 2020). Selon Ocampo (2020), ces divergences sont dues à plusieurs asymétries internationales, notamment : (i) les différents niveaux de développe-

¹⁰Tout au long de cette thèse, les pays en développement sont définis en fonction de leur revenu : les pays à faible revenu et les pays à revenu intermédiaire.

ment financier national et le degré de stabilité du financement extérieur ; (ii) les asymétries macroéconomiques qui déterminent la capacité des pays à entreprendre des politiques contracycliques (et les tendances des pays en développement à adopter des politiques procycliques en raison, entre autres, de la dépendance à l'égard d'un financement extérieur volatil) ; et (iii) les coûts d'entrée élevés dans les activités productives et dynamiques sur le plan technologique.

À cet égard, la position des pays dans la hiérarchie mondiale affecte leur accès aux opportunités économiques. En conséquence, le développement économique reposerait sur la mise en œuvre d'un processus de transformation structurelle et sur l'adoption de politiques macroéconomiques appropriées pour favoriser ce processus de transformation, tout en tenant compte des limites imposées par la position du pays dans la hiérarchie mondiale. En effet, les épisodes de convergence du développement ont généralement été associés à la réallocation de la main-d'œuvre des secteurs les moins productifs vers les secteurs les plus productifs (Ocampo, 2020).

L'efficacité de la structure de production et le changement structurel nécessitent des politiques macroéconomiques appropriées. Le choix des politiques qui favoriseraient le processus de changement structurel dans les pays en développement fait l'objet d'un débat animé tant dans la littérature que dans l'élaboration des politiques. Comme la plupart des travaux existants se concentrant sur les pays développés, il n'y a toujours pas de consensus sur les politiques de soutien sous-jacentes au changement structurel dans les pays en développement.

Au niveau sectoriel et au niveau de la firme, il est important de préciser que la productivité globale ne dépend pas seulement du niveau de productivité de chaque entreprise, mais aussi de la manière dont les ressources sont allouées entre les différentes entreprises (Alfaro et al., 2008; Brown et al., 2018; Hsieh & Klenow, 2009; Restuccia & Rogerson, 2008). En effet, les pertes de productivité dues à une mauvaise allocation peuvent résulter de distorsions sur lesquelles les politiques peuvent agir (Restuccia & Rogerson, 2017). Par exemple, les politiques font partie de l'environnement opérationnel externe des producteurs, et elles affectent la capacité des producteurs à atteindre une position plus élevée dans la distribution de la productivité de leur industrie, leur part de marché et leur réactivité de survie aux différences de productivité (Syverson, 2011).

Cette thèse identifie deux types de politiques qui peuvent promouvoir le déplacement des ressources des secteurs peu productifs vers les secteurs très productifs. Le premier groupe de politiques que cette thèse considère comme un moteur du changement structurel est celui des politiques macroéconomiques (politiques budgétaires, monétaires et de taux de change). Ces politiques pourraient servir comme une base institutionnelle au changement structurel. Par exemple, elles devraient fournir des conditions macroéconomiques favorables à l'investissement et à la création d'emplois, ce qui faciliterait le changement structurel puisque les mouvements de main-d'œuvre vers les secteurs

productifs dépendent des décisions d'investissement (Nissanke, 2019). En effet, le rôle des politiques macroéconomiques dans le développement est une question discutable. Les points de vue conventionnels sur les politiques macroéconomiques suggèrent qu'elles devraient se préoccuper exclusivement des objectifs de stabilisation. En revanche, d'autres points de vue suggèrent que ces politiques peuvent garantir une stabilité macroéconomique tout en se préoccupant également des objectifs de développement, y compris le processus de changement structurel.

Les politiques macroéconomiques peuvent promouvoir le changement structurel si elles garantissent la stabilité macroéconomique tout en prévoyant une marge de manœuvre pour les politiques contracycliques (Aghion et al., 2014a; Ocampo, 2011). Les pays en développement peuvent être particulièrement vulnérables aux chocs exogènes, y compris les prix des matières premières et les fluctuations du financement externe. Dans ce contexte, les politiques contracycliques ont été préconisées dans la littérature en tant que moteurs politiques du changement structurel dans les pays en développement et les conclusions de ce document fournissent une quantification pertinente de cet argument. Par exemple, le dynamisme des structures de production et le changement structurel qui s'ensuit sont liés à la capacité des firmes à investir dans des activités innovantes et favorisant la croissance. Ces investissements dépendent de l'accès des firmes au financement. Les politiques contracycliques permettraient donc aux firmes de préserver leurs investissements tout au long du cycle économique (Aghion et al., 2014b; Aghion & Marinescu, 2007). D'ailleurs, une politique monétaire contracyclique pourrait aider les firmes à préserver leurs investissements en réduisant le montant des liquidités dont elles auraient besoin pour faire face aux chocs de liquidité lorsque l'économie est en phase de ralentissement (Aghion et al., 2012).

En outre, la politique de change est également cruciale pour le processus de changement structurel. En effet, la politique de change peut être perçue comme un outil de politique industrielle (Guzman et al., 2018). En effet, le maintien d'un taux de change compétitif et stable est une politique proactive visant à diversifier le secteur de la production. Cela est lié aux externalités générées par le développement des secteurs échangeables, qui favoriseraient ainsi la diversification des exportations, la création d'emplois et les changements structurels. En outre, un taux de change compétitif permettrait d'éviter l'instabilité macroéconomique liée aux fluctuations des termes de l'échange et à la volatilité du compte de capital, ce qui est en effet crucial pour le processus de changement structurel dans les pays en développement (Ocampo, 2020).

Enfin, il est également important de mentionner que non seulement les politiques macroéconomiques proactives menées par les gouvernements (telles que les politiques budgétaires, monétaires et de taux de change) peuvent affecter le changement structurel, mais aussi le cycle économique. Par exemple, les fluctuations du cycle économique peuvent également affecter la réallocation des ressources. La littérature suggère que les récessions peuvent encore améliorer la productivité, ce

que l'on appelle l'effet nettoyant de la récession.

La thèse étudie également l'impact d'un deuxième groupe de politiques sur le changement structurel, les politiques structurelles. Selon Kouamé and Tapsoba (2019), les politiques structurelles pourraient être définies comme : "Les politiques gouvernementales visant à remédier aux défaillances du marché et à réduire ou supprimer les obstacles à l'allocation efficace des ressources. Les rigidités structurelles qui empêchent l'allocation des ressources au sein des secteurs et entre eux peuvent expliquer les écarts de productivité intersectoriels persistants entre les pays et à l'intérieur de ceux-ci (Konté et al., 2022). Par conséquent, les politiques structurelles sont censées améliorer l'efficacité allocative inter et intra sectorielle en éliminant les rigidités du marché, en corrigeant les défaillances du marché et en supprimant les obstacles à l'allocation efficace des ressources (Gersbach, 2004; Kouamé & Tapsoba, 2019; Pichelmann & Roeger, 2004; Solow, 2004).

À cet effet, la thèse examine l'impact de plusieurs politiques structurelles sur le changement structurel, notamment la concurrence, le commerce, la finance, le travail et les institutions macroéconomiques. Tout d'abord, la concurrence renforce le processus de réallocation en supprimant les barrières à l'entrée et à la sortie et en soutenant la création de nouvelles entreprises. En effet, une mauvaise allocation des ressources peut résulter de rigidités structurelles empêchant une allocation efficace des ressources. Les frictions à l'origine des différences d'efficacité d'allocation entre les pays comprennent notamment les barrières à l'entrée, le pouvoir de marché et le pouvoir de monopole. L'application d'une politique de concurrence est censée accroître la concurrence sur les marchés, décourager les pratiques anticoncurrentielles, réduire les marges bénéficiaires et donc générer une efficacité allocative, dynamique et productive (Konté et al., 2022).

Deuxièmement, le commerce est un déterminant important du changement structurel dans la littérature théorique et empirique. La libéralisation des échanges devrait conduire à une réaffectation des ressources, puisque celles-ci se déplaceraient vers les secteurs dans lesquels un pays dispose d'un avantage comparatif (Szirmai & Foster-Mcgregor, 2021). Les liens entre le commerce et la productivité ont été largement étudiés dans la littérature. Par exemple, les entreprises les plus productives ont tendance à s'engager dans le commerce (qu'il s'agisse d'importations ou d'exportations). En outre, la libéralisation du commerce incite les entreprises les moins productives à sortir du marché et les entreprises les plus productives à exporter (Pavcnik, 2002). En fait, la libéralisation des échanges induit des changements dans les prix relatifs et la réallocation des ressources se fera en réponse à ces changements (voir une revue de la littérature sur la libéralisation des échanges et les changements structurels dans Landesmann and Foster-Mcgregor (2021)). Les travaux fondamentaux de Melitz (2003) montrent que la libéralisation du commerce a un effet statique sur la productivité globale en réaffectant les ressources vers des entreprises plus productives au sein des secteurs. Le modèle de Melitz (2003) suggère que l'exposition au commerce incite les entreprises productives à entrer sur le

marché de l'exportation. Il montre que l'augmentation de l'exposition d'une industrie au commerce conduit à des réallocations inter-firmes supplémentaires vers des entreprises plus productives.

Troisièmement, la politique financière affecte le processus de réallocation des ressources de la manière suivante. L'accès des entreprises au financement détermine leur décision d'expansion et, par conséquent, la possibilité d'embaucher de nouveaux travailleurs. Cela suggère que l'allocation du crédit entre les entreprises et les secteurs déterminera l'ampleur du changement structurel et la croissance dont l'économie pourra bénéficier (Kharroubi & Silva, 2019). En outre, un système financier bien développé peut conduire à une répartition plus efficace du capital entre les entreprises et les secteurs d'activité. (Dabla-Norris et al., 2016).

Quatrièmement, en ce qui concerne la politique de l'emploi, la transformation structurelle nécessite des marchés du travail qui fonctionnent bien. Les réglementations du travail ne sont pas censées protéger les emplois dans les industries existantes, mais plutôt protéger l'emploi et encourager la mobilité de la main-d'œuvre (Commission & Growth, 2008). Ces dernières réglementations modifient les compromis liés à l'ouverture de postes vacants. Cela peut donc avoir un effet direct sur la demande de main-d'œuvre et sur la capacité des secteurs à forte productivité à absorber les travailleurs qui quittent les secteurs à faible productivité. En outre, ces réglementations peuvent affecter l'offre de travail puisque les rentes dans les secteurs peu productifs peuvent réduire les incitations à se déplacer vers les secteurs productifs (Kharroubi & Silva, 2019). En revanche, une réglementation du travail inadéquate (réglementation rigide en matière d'embauche et de licenciement, faible protection des revenus, etc.) encourage l'informalité et rend ainsi plus coûteux le processus de réallocation et le passage à des secteurs plus productifs (Dabla-Norris et al., 2016). Enfin, les institutions macroéconomiques (telles que les règles fiscales, le ciblage de l'inflation et la transparence de la banque centrale) sont importantes pour le changement structurel car elles soutiennent la stabilité macroéconomique et améliorent également la mise en œuvre de certaines politiques structurelles.

En examinant le rôle des politiques structurelles, il est important de noter que la littérature a montré que l'impact des politiques structurelles sur la productivité, la croissance économique et l'emploi différait entre le court et le long terme. En effet, si les politiques structurelles tendent à induire une croissance et une productivité plus élevées ainsi qu'une meilleure efficacité de l'allocation à long terme, leurs gains à court terme restent incertains. Ces derniers dépendent souvent du cycle économique ou des conditions initiales. Ces gains sont également lents à se matérialiser et se heurtent à des obstacles dans la mise en œuvre des politiques qui entraînent des coûts à court terme (Hollweg et al., 2014; IMF, 2019; Swaroop, 2016).

En étudiant les politiques moteurs du changement structurel, nous ne pouvons pas ignorer la

question des politiques industrielles et, plus largement, des politiques interventionnistes. Le rôle des politiques industrielles a fait l'objet d'un débat tant dans la littérature académique que dans l'élaboration des politiques. Les opinions en faveur de la politique industrielle soutiennent que des interventions gouvernementales ciblées peuvent contribuer à orienter les activités économiques de manière à ce qu'elles ne dépendent plus des produits de base (Vrolijk, 2021). À cet égard, certains points de vue suggèrent que plusieurs pays d'Asie de l'Est ont connu des expériences réussies de changement structurel tout en adoptant des approches interventionnistes, y compris des politiques commerciales et industrielles, pour coordonner les investissements privés dans des secteurs ciblés. En revanche, les opposants à la politique industrielle soutiennent qu'elle fausserait les marchés et nuirait à la croissance économique. On peut distinguer deux phases dans le développement des politiques industrielles dans l'économie mondiale.

La première phase de développement des politiques industrielles s'est déroulée dans les années 1960 et 1970. Au cours de cette phase, les politiques industrielles ont gagné une popularité relative et des politiques de substitution aux importations ont été adoptées pour promouvoir certaines industries par le biais de tarifs et de subventions. Certains estiment que ces politiques n'ont pas développé de liens avec les marchés étrangers, n'ont pas tenu compte des avantages comparatifs des économies et n'ont donc pas réussi à favoriser le développement industriel (Higuchi & Shimada, 2019). La deuxième phase liée au développement des politiques industrielles s'est déroulée à partir des années 1990. Au cours de cette phase, l'économie mondiale s'est éloignée des politiques industrielles interventionnistes et de nouvelles politiques ont commencé à émerger. Contrairement aux anciennes politiques, les nouvelles politiques impliquaient moins d'intervention directe de l'État et ne prévoyaient pas de politiques actives de soutien à des secteurs spécifiques. Ces nouvelles politiques reconnaissent les forces du marché et leur rôle dans la réallocation des ressources, la spécialisation des pays et, plus généralement, le développement industriel, le tout en accord avec les avantages concurrentiels (Rodrik, 2005; Szirmai & Foster-McGregor, 2021).

Tout en reconnaissant que ces politiques interventionnistes peuvent avoir des liens importants avec les changements structurels, il est également important de reconnaître les défis pratiques que pose leur analyse. En effet, les politiques interventionnistes sont très difficiles à définir, à quantifier et à évaluer, en particulier dans un contexte d'analyse transnationale, ce qui explique la rareté de la littérature empirique à cet égard. C'est pourquoi cette thèse considère un type spécifique de politiques structurelles, comme expliqué précédemment, en raison des contraintes de disponibilité des données. De plus, la période analysée dans la thèse corrobore la deuxième phase de développement des politiques où les politiques les moins interventionnistes étaient plus adoptées. La thèse tente également de faire la lumière sur les politiques interventionnistes au chapitre 1 en utilisant une nouvelle base de données sur les banques publiques de développement ainsi qu'une autre base de données sur les agences de promotion des exportations. Bien que ces deux bases de données puis-

sent être considérées comme des indicateurs indirects, elles fournissent néanmoins une quantification utile dans le contexte de la littérature transnationale. Ocampo (2020) plaide en particulier pour que les banques publiques de développement soient un mécanisme capable de financer des activités innovantes et de promouvoir ainsi l'industrialisation.

Dans le contexte de la discussion sur les liens entre le changement structurel et les politiques macroéconomiques, il est également important de souligner que plusieurs pays en développement ont eu recours au Fonds monétaire international (FMI) à plusieurs reprises au cours de leur trajectoire de développement. En effet, les progrès du développement ne sont pas uniquement déterminés par les programmes d'ajustement des institutions financières internationales. Toutefois, la dépendance des pays en développement à l'égard des prêts de ces institutions aurait dû avoir un impact sur le choix de leurs politiques et, partant, sur leur trajectoire vers la transformation structurelle.

Par conséquent, dans le contexte du changement structurel et de l'allocation des ressources, la thèse abordera l'impact des prêts du FMI sur la croissance économique. À cet égard, il est important d'analyser dans quelle mesure les programmes de réforme du FMI s'intéressent aux questions structurelles et d'allocation des ressources dans les pays en développement, ou s'ils se concentrent plutôt exclusivement sur l'ajustement des déséquilibres macroéconomiques à court terme. Idéalement, les programmes d'ajustement structurel devraient viser une meilleure allocation des ressources. En pratique, la gestion macroéconomique dans les pays en développement est un défi, car leurs caractéristiques structurelles peuvent les obliger à trouver un compromis entre la stabilisation macroéconomique et les objectifs de développement liés à l'allocation des ressources et à des problèmes structurels plus vastes. Dans les années 1980 et 1990, il semble que la gestion économique était plutôt dominée par l'objectif de rétablir la stabilité macroéconomique et de corriger les déséquilibres macroéconomiques. Les politiques de stabilisation macroéconomique à court terme recommandées par le FMI dans leurs programmes d'ajustement ont été largement adoptées, laissant peu de place à d'autres politiques structurelles essentielles (Nissanke, 2019). Cela suggère que les réformes structurelles ont généralement été retardées, ce qui a entraîné un manque de contestabilité des marchés, un manque d'égalité en matière d'emploi et de graves inégalités.

Il n'y a pas encore de consensus sur les déterminants des prêts du FMI. La littérature propose une variété de modèles expliquant la participation aux programmes du FMI. Les premières études qui ont tenté d'expliquer les prêts du FMI en s'appuyant exclusivement sur des facteurs économiques ont souffert d'un faible pouvoir explicatif (Bird, 2007; Thacker, 1999). C'est pourquoi la littérature qui a suivi a enrichi ses modèles de certains aspects politiques, notamment la politique intérieure du côté du bénéficiaire et la politique internationale du côté de l'offre du FMI. Néanmoins, les résultats de ces modèles sont parfois contradictoires et il n'y a guère de consensus sur les déterminants politiques qui comptent vraiment (Steinwand & Stone, 2008; Sturm et al., 2005). Si l'analyse des

déterminants économiques et politiques de la participation aux programmes du FMI est importante en soi, les résultats de ces déterminants peuvent servir d'instruments pour comprendre les conséquences des prêts du FMI sur les résultats économiques.

En ce qui concerne l'impact des prêts du FMI sur la croissance économique, la littérature reste également peu concluante. Le débat sur les résultats des prêts du FMI en termes de croissance est loin d'être clos, notamment en raison des différents résultats des études empiriques. Alors que plusieurs critiques affirment que les programmes du FMI ont un effet négatif sur la croissance (Barro & Lee, 2005; Bird & Rowlands, 2017; Conway, 1994; Khan, 1990; Przeworski & Vreeland, 2000; Vreeland, 2003), d'autres études montrent qu'ils se concentrent principalement sur le rétablissement de la stabilité macroéconomique en tant qu'objectif immédiat, ce qui est censé faciliter la croissance économique. Ainsi, les objectifs de stabilisation à court terme sont nécessaires, mais la question de savoir si les prêts du FMI peuvent induire une croissance économique à long terme est d'une importance cruciale pour les pays en développement.

D'un point de vue méthodologique, le défi de l'étude de l'impact des prêts du FMI sur la croissance est lié au problème de sélection, puisque ces programmes sont généralement mis en place en réponse à une crise économique. Toutefois, ce problème de sélection ne semble pas encore avoir été abordé de manière adéquate (Steinwand & Stone, 2008). Plusieurs approches ont été appliquées pour traiter ce problème, notamment les estimateurs de Heckman (voir par exemple : Eichengreen et al. (2008) and Przeworski and Vreeland (2000)), les variables instrumentales (voir par exemple : Barro and Lee (2005), Butkiewicz and Yanikkaya (2005), Dreher (2006), Easterly (2005), and Marchesi and Sirtori (2011)), la méthode d'appariement (voir par exemple : Bal Gunduz et al. (2013) and Bird and Rowlands (2017)) et la méthode généralisée d'estimation des moments (voir par exemple : Clements et al. (2013) and Dreher and Walter (2010)). Chaque méthode présente ses propres avantages et inconvénients (voir Stubbs et al. (2018) pour une discussion approfondie à cet égard). Une autre observation à faire sur la littérature existante est qu'elle ne parvient pas à prendre en compte l'aspect dynamique de la relation entre les prêts du FMI et la croissance économique. En d'autres termes, les effets des prêts du FMI sur la croissance peuvent se matérialiser à différents horizons, ce qui nécessite une analyse de leur impact dans le temps.

Dans le cadre de la discussion sur l'impact des prêts du FMI sur la croissance économique, il est également important d'étudier comment les résultats des prêts interagissent avec le régime politique national. Cette question reste largement ouverte. Par exemple, le régime politique, avec sa stabilité politique, devrait influencer la mise en œuvre des politiques économiques en général et en particulier celles liées aux prêts du FMI, ce qui se répercuterait sur la croissance économique. On pourrait affirmer que les régimes démocratiques peuvent être plus stables et plus responsables vis-à-vis de l'opinion publique que les régimes autocratiques et qu'ils peuvent donc mettre en œu-

vre efficacement des politiques utiles à la croissance. À cet égard, les négociations dans les pays démocratiques sont généralement compliquées, tant au niveau international qu'au niveau national, afin de parvenir à un accord avec le FMI (le jeu à deux niveaux suggéré par (Putnam, 1988)). Ces négociations compliquées rendent le pouvoir exécutif plus responsable et plus obligé d'améliorer les résultats macroéconomiques afin d'être réélu. En revanche, les régimes autocratiques peuvent être perçus comme plus aptes à imposer des politiques, même impopulaires, qui peuvent faire l'objet d'une opposition nationale. En outre, ces régimes autocratiques sont susceptibles de rester plus longtemps au pouvoir et pourraient être davantage incités à mettre en œuvre des réformes dans la mesure où ils s'attendent à voir l'effet de leurs choix politiques.

- **L'objectif de la thèse et la valeur ajoutée**

L'objectif principal de cette thèse est d'étudier les moteurs du changement structurel et de l'allocation des ressources dans les pays en développement, y compris les politiques de stabilisation macroéconomique et les politiques structurelles. Trois évaluations empiriques interdépendantes sont proposées et sont basées sur une analyse transnationale. Les chapitres se complètent en termes de différents types de politiques, de différentes méthodes de mesure du changement structurel (d'un point de vue agrégé ou désagrégé) et de différents niveaux de désagrégation des données utilisées (données macroéconomiques, sectorielles et au niveau de l'entreprise). Le premier chapitre donne un aperçu de l'impact des différentes politiques (macroéconomiques et structurelles) sur le changement structurel au niveau national (d'un point de vue global). Le deuxième chapitre se concentre particulièrement sur les politiques macroéconomiques et étudie leur rôle dans la promotion du changement structurel au niveau sectoriel (d'un point de vue désagrégé). Le troisième chapitre analyse l'impact des prêts du FMI sur la croissance économique. En effet, les prêts du FMI affectent le choix des politiques des pays en développement et donc leur trajectoire de changement structurel. Le reste de ce résumé décrit l'objectif principal de chaque chapitre, les contributions transversales de la thèse et une vue d'ensemble des principaux résultats.

Le premier chapitre analyse les politiques moteurs du changement structurel dans les pays en développement. Il apporte plusieurs contributions à la littérature. Tout d'abord, il étudie le rôle des politiques structurelles et de stabilisation macroéconomique dans la conduite du changement structurel. Il fournit ainsi une vue d'ensemble de l'impact des différentes politiques, puisque la plupart des travaux empiriques antérieurs ont abordé le rôle de ces politiques séparément. Deuxièmement, le chapitre propose un large éventail de nouvelles mesures pour appréhender les politiques susceptibles d'influencer les changements structurels. Ces mesures concernent les politiques structurelles (politique antimonopole, politique financière, politique du travail, politique commerciale et institutions macroéconomiques) et les politiques macroéconomiques (gestion du taux de change, politiques fiscales et monétaires). Enfin, le travail empirique s'appuie sur deux estimateurs différents.

L'estimateur d'Arellano Bond introduit un effet dynamique et contrôle l'endogénéité potentielle. En outre, l'estimateur du groupe moyen regroupé (PMG) permet de distinguer les impacts à court et à long terme des politiques sur le changement structurel dans le même cadre d'estimation et tient compte de l'hétérogénéité entre les pays. Le chapitre utilise différentes mesures du changement structurel au niveau national (le terme résultant de la décomposition de la croissance de la productivité, les parts de valeur ajoutée par secteur et la diversification des exportations).

Le deuxième chapitre explore le rôle des conditions macroéconomiques - politiques fiscales, monétaires et de change, ainsi que les fluctuations du cycle économique - dans la promotion des changements structurels sectoriels dans les pays en développement. Ce chapitre contribue à la littérature qui utilise les techniques de comptabilité de croissance au niveau de l'entreprise tout en les appliquant aux questions macroéconomiques. Il apporte les contributions suivantes à cette littérature. Premièrement, il s'appuie sur les données des enquêtes de la Banque mondiale sur les entreprises (WBES) pour calculer les changements structurels au niveau sectoriel dans un large groupe de pays en développement. Deuxièmement, le chapitre étudie le rôle des différentes conditions macroéconomiques dans l'évolution structurelle intra-sectorielle. Le chapitre comprend donc des données à deux niveaux : les conditions macroéconomiques au niveau du pays et le changement structurel au niveau du secteur. En outre, le chapitre calcule certains indicateurs macroéconomiques (taux de change réel, fluctuations du cycle économique, mesures de la cyclicité des politiques fiscales et monétaires) au niveau sectoriel en utilisant, entre autres, les tableaux d'entrées-sorties de la base de données EORA ainsi que les données sur les flux commerciaux sectoriels. Enfin, le travail empirique s'appuie sur un modèle à effets fixes avec des erreurs types groupées pour fusionner les données sectorielles avec les données macroéconomiques, ainsi que sur deux méthodes alternatives pour les vérifications de robustesse, à savoir le modèle à effets mixtes multiniveaux et une approche par variables instrumentales.

Le troisième chapitre analyse les déterminants économiques et politiques des prêts du FMI dans les pays à revenu faible et intermédiaire et leur impact sur la croissance économique. La contribution de ce chapitre est comme suit. Premièrement, le chapitre s'appuie sur la base de données du suivi des accords du FMI ainsi que sur des facteurs d'économie politique internationale pour analyser les déterminants des prêts du FMI par le biais d'une procédure de sélection en deux étapes de Heckman. Deuxièmement, les valeurs prédites des déterminants des prêts du FMI sont utilisées pour expliquer les conséquences de ces prêts sur la croissance. Le chapitre étudie également la manière dont le régime politique national du pays bénéficiaire peut affecter les résultats de ces prêts. Troisièmement, le chapitre étudie les effets dynamiques des prêts du FMI sur la croissance économique en utilisant la méthode de projection locale.

Il est important de souligner certaines contributions transversales de cette thèse. Premièrement,

la thèse propose trois chapitres empiriques interdépendants. Les chapitres s'appuient sur diverses méthodologies empiriques qui conviennent à la fois aux objectifs des chapitres et à la structure de leurs données. Ces méthodologies comprennent : le panel dynamique d'Arellano Bond, le panel dynamique hétérogène, les effets fixes avec des erreurs standards groupées, le modèle à effets mixtes multiniveaux, la régression des moindres carrés en deux étapes (2SLS), la procédure de sélection d'Heckman et la technique de projection locale. Deuxièmement, par rapport à la littérature existante, cette thèse tente de fournir une analyse transversale complète en termes de grand nombre de pays à faible revenu et à revenu intermédiaire inclus dans l'analyse de chaque chapitre (dans la mesure où la disponibilité des données le permet, bien entendu). En effet, une des limites de cette approche transnationale est qu'elle ne permet pas d'analyser les riches contextes nationaux et leurs particularités respectives. La thèse se concentre sur les années 1990 jusqu'à la période la plus récente car cette période permet d'avoir le plus grand échantillon de pays en développement. En outre, les pays en développement ont entrepris d'importantes réformes politiques au cours de cette période et ils ont été affectés par la mondialisation et sont devenus plus intégrés dans le monde. Il est donc important d'étudier les implications de ce contexte sur la transformation économique.

Une autre contribution transversale de cette thèse concerne les mesures du changement structurel et des politiques. Dans cette thèse, le changement structurel est mesuré de différentes manières du point de vue de la structure de production. D'autres définitions du changement structurel, qui ne sont pas liées à la structure de production, dépassent la portée de cette thèse et pourraient peut-être constituer des domaines de recherche future.¹¹ Deux groupes de mesures de changement structurel liées à la structure de production sont donc pris en compte. Le premier groupe de mesures de changement structurel pris en compte dans cette thèse est celui des mesures au niveau national dans une perspective agrégée. À cet égard, les mesures considérées sont celles couramment utilisées dans la littérature : les parts sectorielles de la valeur ajoutée et le terme résultant d'une décomposition de la croissance de la productivité du pays à l'aide de données sectorielles (suivant les travaux précurseurs de McMillan and Rodrik (2011) and McMillan et al. (2014)).

En outre, étant donné que le changement structurel concerne la structure de production de l'économie, il se répercute à son tour sur la structure des exportations. Par exemple, les économies industrialisées matures produisent généralement des biens et des services diversifiés, tandis que la structure des exportations des pays en développement est généralement limitée (UNCTAD, 2017). Ceci est également cohérent avec les travaux de (Imbs & Wacziarg, 2003). C'est pourquoi le change-

¹¹Martins (2019) a mentionné d'autres définitions plus larges du changement structurel qui vont au-delà des changements dans les structures économiques, y compris des changements dans d'autres aspects de la société : réorganisation spatiale de la population, changement démographique et urbanisation (voir par exemple Gollin et al. (2016) qui étudient les liens entre l'urbanisation et l'industrialisation. Ils montrent que dans le cas des pays dépendants des ressources, l'urbanisation a tendance à se concentrer dans les villes de consommation où les économies consistent principalement en des services non échangeables. En revanche, les villes de production dépendent davantage de l'industrie manufacturière dans les pays industrialisés.

ment structurel est également mesuré dans cette thèse en tant que diversification des exportations, conformément à Rougier (2016). Il est important de préciser que la littérature s'appuie généralement sur ces mesures agrégées pour saisir les tendances du changement structurel. Cependant, la disponibilité de riches ensembles de données au niveau de l'entreprise permet de mieux comprendre comment le processus de changement structurel se déroule. C'est pourquoi cette thèse envisage de mesurer le changement structurel d'un point de vue désagrégé en utilisant le terme résultant d'une décomposition de la productivité sectorielle à l'aide de données au niveau de l'entreprise (selon la méthodologie Olley and Pakes (1996a)).

En ce qui concerne les données relatives aux politiques, les politiques de stabilisation macroéconomique sont généralement plus faciles à quantifier que les politiques structurelles, tant en ce qui concerne les politiques elles-mêmes que leurs résultats ultérieurs. En revanche, les politiques structurelles sont plus difficiles à évaluer et à mesurer, en particulier dans le cas des pays en développement. Compte tenu de ces limites en matière de données, la thèse propose un large éventail de nouvelles mesures provenant de différentes sources afin d'appréhender les politiques structurelles dans plusieurs domaines (politique antimonopole, politique financière, politique de l'emploi, politique commerciale et institutions macroéconomiques). Compte tenu de toutes ces mesures des changements structurel et des politiques, il est important de mentionner que cette thèse combine des données à différents niveaux dans les différents chapitres : le niveau macro/pays (données sur les politiques et les prêts du FMI) ; le niveau sectoriel (données sur l'emploi, la valeur ajoutée et les droits de douane) ; et les données au niveau de l'entreprise (dans le deuxième chapitre).

• Les principales conclusions de la thèse

En termes de résultats, le premier chapitre (qui analyse les déterminants politiques du changement structurel) montre que les lois sur la concurrence et les politiques fiscales contracycliques sont des facteurs importants pour le changement structurel. En outre, les résultats des autres mesures du changement structurel (parts de la valeur ajoutée et de l'emploi ; concentration des exportations) indiquent des tendances à la désindustrialisation puisque les politiques structurelles ont eu tendance à augmenter la part des services dans la valeur ajoutée alors qu'un effet similaire sur l'industrie manufacturière n'a pu être trouvé et ils soulignent l'importance des politiques contracycliques et des taux de change sous-évalués. Enfin, les résultats du groupe de moyennes regroupées (PMG) montrent que les politiques structurelles améliorent le changement structurel à long terme, mais que leur effet est le plus souvent insignifiant à court terme. Ceci est conforme à la littérature sur les politiques structurelles qui suggère qu'elles prennent généralement du temps à se matérialiser et que leur impact à court terme est plutôt peu concluant.

Le message principal que l'on peut tirer de ces résultats est qu'un mix raisonnable de politiques

structurelles et macroéconomiques est nécessaire pour faire avancer le développement et le changement structurel. Bien qu'elles soient coûteuses à court terme, les politiques structurelles peuvent aider les pays en développement à parvenir à une allocation efficace des ressources. Ces résultats confirment que les politiques structurelles sont essentielles et que la stabilité macroéconomique est nécessaire mais pas suffisante pour conduire le changement structurel dans les pays en développement. Les pays en développement peuvent envisager une approche développementale des politiques macroéconomiques par le biais de politiques contracycliques.

La thèse offre également une vue d'ensemble des tendances générales du changement structurel dans les pays en développement. Le rythme du changement structurel semble globalement modeste dans les pays en développement mais diffère d'une région à l'autre. Les mesures globales montrent que les améliorations de la productivité au sein des secteurs ont été le principal moteur de la croissance de la productivité dans seulement deux régions, l'Asie de l'Est et l'Afrique subsaharienne. En outre, le changement structurel a réduit la croissance au Moyen-Orient et en Afrique du Nord ainsi qu'en Amérique latine. La mesure désagrégée du changement structurel confirme également les mêmes schémas de contribution limitée des changements structurels à la productivité dans les différents secteurs. Cela pourrait s'expliquer par la spécialisation des pays en développement dans des secteurs traditionnels loin des secteurs les plus productifs, ce qui entrave l'allocation efficace des ressources.

Un élément important que cette thèse met en lumière concerne les tendances à la désindustrialisation prématurée dans les pays en développement et la capacité du secteur des services à agir en tant que moteur alternatif de la croissance. La désindustrialisation prématurée est une caractéristique relativement récente du processus de réallocation dans les pays en développement. Cette question a été initialement mise en évidence par Rodrik (2005) et concerne le déclin de la part de l'industrie manufacturière dans l'emploi et le PIB à des niveaux de revenus inférieurs, plus tôt que ce qui se produit généralement dans les pays développés (Ocampo, 2020). Ce déclin du secteur manufacturier a été compensé par une augmentation du secteur des services. Dans cette phase de développement de l'économie mondiale, il est important de reconnaître que l'expérience asiatique de transformation structurelle par l'industrie manufacturière n'est pas la seule voie possible et qu'il pourrait y avoir d'autres voies durables et que le secteur des services peut agir comme un moteur de croissance alternatif. L'industrie manufacturière reste importante, mais elle est probablement moins puissante que par le passé (Szirmai & Foster-Mcgregor, 2021).

Le deuxième chapitre étudie la manière dont les conditions macroéconomiques peuvent éventuellement favoriser les changements structurels au niveau sectoriel. Dans un premier temps, un exercice de décomposition de la productivité est entrepris (selon la méthodologie Olley and Pakes (1996b)) afin d'étudier les modèles de changement structurel dans les différents secteurs et leur contribution à

la productivité. Les principales conclusions de cette décomposition montrent qu'il existe une grande hétérogénéité dans les modèles de changement structurel entre les différents secteurs. En outre, la contribution des changements structurels à la productivité est globalement modeste par rapport à la contribution des composantes internes dans les secteurs de l'industrie manufacturière et des services.

Dans un deuxième temps, le chapitre étudie comment les conditions macroéconomiques peuvent éventuellement favoriser les changements structurels au niveau sectoriel. Les principales conclusions relatives aux outils macroéconomiques montrent que des taux d'intérêt élevés peuvent compromettre le changement structurel. En ce qui concerne les résultats macroéconomiques, un taux de change compétitif et des politiques macroéconomiques anticycliques favorisent le changement structurel. En outre, les ralentissements du cycle économique favorisent le changement structurel. Les résultats restent cohérents avec les mesures sectorielles des conditions macroéconomiques. Les tests d'hétérogénéité montrent que le taux d'intérêt directeur réduit significativement le changement structurel intra-sectoriel dans les contextes d'instabilité politique. Le régime de change et le taux d'imposition des entreprises ont un impact significatif sur le changement structurel intrasectoriel dans les économies démocratiques et politiquement stables. La volatilité du taux de change effectif réel (TCER) et un régime de taux de change plus flexible réduisent significativement le changement structurel dans les économies riches en ressources. Enfin, les tests de robustesse suggèrent que les résultats de base ne changent pas après l'utilisation d'une méthodologie d'estimation différente (le modèle à effets mixtes multiniveaux) et après le contrôle de l'endogénéité (à l'aide d'une approche de variables instrumentales).

Les conclusions du deuxième chapitre suggèrent qu'une utilisation judicieuse des politiques macroéconomiques pourrait aider les pays en développement à accélérer leur processus de changement structurel. À cet égard, trois questions découlant des résultats peuvent être soulignées. Premièrement, la stabilité macroéconomique ne doit pas être compromise. En même temps, une focalisation exclusive sur la stabilité pourrait s'avérer insuffisante et les politiques anticycliques sont importantes pour le changement structurel. En effet, l'adoption d'une position contracyclique est un choix crucial pour les décideurs politiques. Les politiques contracycliques sont difficiles à adopter car elles nécessitent une discipline budgétaire et un cadre institutionnel solide (Nissanke, 2019). En outre, l'orientation des politiques peut également être associée à des pressions économiques ou politiques, ou les deux, qui peuvent compromettre l'adoption de politiques contracycliques (Ocampo, 2020).

Deuxièmement, une politique de change active peut contribuer à induire du changement structurel. Toutefois, au-delà de son rôle central dans la stabilité macroéconomique, la politique de change devrait également être perçue comme un outil de politique industrielle qui contribuerait à diversifier la structure de production. La politique de change pourrait donc avoir deux objectifs

étroitement liés : la stabilité macroéconomique et le changement structurel (Guzman et al., 2018). Troisièmement, il a été constaté que les ralentissements avaient un effet nettoyant sur les schémas de réallocation. En effet, les conclusions du présent document ne sont pas favorables aux récessions, elles montrent plutôt les bons côtés des périodes difficiles. Les récessions peuvent être considérées comme des périodes de réallocation favorisant la productivité, car elles peuvent constituer une période de réaffectation à faible coût et libérer des ressources pour des utilisations plus productives (Foster et al., 2016; Van den Bosch & Vanormelingen, 2022).

Le troisième chapitre analyse empiriquement les déterminants économiques et politiques des prêts du FMI dans les pays à revenu faible et intermédiaire et l'impact de ces prêts sur la croissance économique. Ce chapitre étudie les déterminants économiques et politiques des prêts du FMI à l'aide d'une procédure de sélection en deux étapes de Heckman. Les résultats suggèrent que la proximité économique et politique avec les principaux actionnaires du FMI (mesurée respectivement par le commerce bilatéral et le vote aux Nations Unies) a une incidence sur la probabilité d'obtenir un prêt non concessionnel du FMI, étant donné que ces prêts sont plus exigeants en termes de conditionnalité/taux. Ensuite, les valeurs prédites des déterminants des prêts du FMI sont utilisées comme instruments pour expliquer les conséquences de ces prêts sur la croissance économique. Une observation importante sur la littérature existante est qu'elle ne parvient pas à étudier l'impact des prêts du FMI sur la croissance économique dans des différents horizons. Ce chapitre contribue donc à la littérature en utilisant le filtre HP pour décomposer la variable dépendante (croissance économique) et en s'appuyant ensuite sur les techniques de projection locale pour étudier l'impact dynamique des prêts du FMI sur cette dernière. A cet égard, les résultats montrent que la plupart des prêts exercent un effet négatif sur la composante tendancielle de la croissance du PIB, confirmant que ces prêts peuvent stabiliser les économies à court terme sans améliorer la croissance régulière à long terme. L'analyse des effets dynamiques des prêts à l'aide de projections locales confirme également ces résultats. L'analyse est étendue pour étudier comment la politique intérieure du pays bénéficiaire peut affecter les résultats de ces prêts. Il s'avère que les régimes démocratiques, comparés aux régimes autocratiques, améliorent les effets de la plupart des prêts sur la croissance économique.

Dans l'ensemble, les résultats de ce chapitre apportent un débat important sur l'impact différencié des prêts du FMI sur la croissance à court terme par rapport à la croissance à long terme. À cet effet, certains arguments suggèrent que les prêts du FMI pourraient réduire la croissance économique à court terme puisqu'ils compriment la demande globale. En revanche, d'autres points de vue suggèrent que les prêts du FMI contribuent à restaurer la stabilité macroéconomique, ce qui améliorerait la croissance à court terme. En ce qui concerne le long terme, certains affirment que les prêts du FMI seraient bénéfiques pour la croissance à long terme, même s'ils entraînent certains coûts à court terme. Les résultats de ce chapitre montrent que ce n'est pas le cas et, comme indiqué précédemment, les prêts du FMI ne semblent pas améliorer la croissance à long terme. D'un point

de vue politique, les pays en développement ont malheureusement été sujets à plusieurs chocs mondiaux récents, notamment la pandémie de COVID-19 et les crises liées au climat. En tant que telles, ces crises mondiales nécessitent des solutions pragmatiques avec une coordination internationale où le FMI est censé jouer un rôle central avec les parties prenantes nationales. Dans ces crises exceptionnelles, les prêts du FMI peuvent contribuer à restaurer la stabilisation macroéconomique à court terme. En effet, cette stabilité macroéconomique est une condition préalable à la promotion d'une croissance à faible volatilité. Toutefois, cette stabilité macroéconomique ne sera probablement pas suffisante. C'est pourquoi les décideurs politiques doivent s'assurer que la croissance à long terme n'est pas sacrifiée lorsqu'ils font face à ces crises.

En outre, les résultats mettent en lumière certaines dynamiques entre la politique et les prêts du FMI. Les prêts du FMI ne semblent pas être uniquement basés sur des considérations économiques techniques et les aspects politiques ont également leur importance. Les résultats montrent que la politique internationale joue un rôle dans les décisions de prêt du FMI et que la politique domestique du pays bénéficiaire affecte les résultats de ces prêts sur la croissance économique. En particulier, les résultats soulignent l'importance de la responsabilité démocratique. En effet, cette dernière est perçue comme une justification de l'utilisation du pouvoir (ou de l'utilisation des prêts) qui conduit à la bonne gouvernance du prêt, permet le concept de contrôle et d'équilibre et permet au public de contrôler l'utilisation des ressources publiques (ce qui est le cas du prêt).

Enfin, dans le contexte de la discussion sur l'impact différencié des prêts à court et à long terme et sur les liens entre ces prêts et la politique, il est important de souligner le problème de "l'incohérence temporelle". Les pays à faible revenu et à revenu intermédiaire sont généralement confrontés à ce dernier problème, où les objectifs à court terme peuvent être privilégiés au détriment des objectifs à long terme. Cela peut en effet réduire la probabilité d'entreprendre des réformes avec des objectifs à long terme et peut également conduire à des résultats macroéconomiques sous-optimaux. Toutefois, l'existence d'un régime politique démocratique et responsable peut contribuer à résoudre ce problème.

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