Growth, effect and attractiveness of FDI : the role of institutions

Inès Trojette

UNIVERSITÉ DE TOULON

UFR Sciences Économiques et de Gestion

CROISSANCE, EFFET ET ATTRACTIVITÉ DES INVESTISSEMENTS DIRECTS ÉTRANGERS : LE RÔLE DES INSTITUTIONS

Thèse en vue de l'obtention du grade de Docteur en Sciences Économiques
présentée par

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Directeur de thèse : Maurice CATIN
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CONTENTS

GENERAL INTRODUCTION

GENERAL INTRODUCTION

The most central question in the field of economic growth and development is: Why some countries grow faster than others? The neoclassical growth according to Solow (1956), Cass (1965) and Koopmans (1965), clarify the differences in income per capita in terms of factor accumulation. These differences in factor accumulation are explained by differences in saving rates (Solow, 1956), preferences (Cass, 1965; Koopmans, 1965) and factor productivity. Along this line Romer (1986) and Lucas (1988) endogenize steady-state growth and technology. In fact, in the model of Romer (1989) countries may grow faster than others because they allocate more resources to innovation. However, North & Thomas (1973) explain that innovation, capital accumulation and education are not causes of growth: they are growth. They point that the essential explanation of differences in growth is in institutions.

In this context, the role of institutions has received more attention in explaining the cross-country differences in terms of economic growth. Institutions are generally defined as the "constraints that human beings impose on themselves". According to Smith (1755): "little else is requisite to carry a state to the highest degree of opulence from the lowest barbarism but peace, easy taxes, and a tolerable administration of justice: all the rest being brought about by the natural course of things".

High level of institutional quality helps to maintain long run growth over a long period to the extent that institutions allow continuity of reforms beyond governments. The role of institutions as a determinant of growth, however, has remained overshadowed for long owing to focus on other determinants, such as physical and human capital and technological advancement. A limited literature has examined the impact of institutions on economic growth at different stages of development within regions. In fact, institutions perform differently in terms of enhancing economic growth. Furthermore, the effects of these institutions vary across regions and by level of income.

Recognizing the important role of the quality of institutions on economic growth, it could also act as an important factor to enhance the effect of international openness and specifically FDI on economic growth. In this context, inward FDI flows to developing economies reached their highest level at $681 billion with a 2 per cent rise in 2014

(UNCTAD, 2015). Developing economies thus extended their lead in global inflows. Among the top ten FDI recipients in the world, five are developing economies. Many developing countries have acknowledged the vital role of foreign direct investment (FDI) in long-run growth. A voluminous literature exists that explores the impacts of FDI on the host's socio-economic well-being (Borensztein et al., 1998; Carkovic & Levine, 2002…). Yet, the findings are diverse, and sometimes far from conclusive (Meyer et al., 2004…). The ambiguous effect of FDI on growth raises an important question: are there any additional factors that determine the effect of FDI on growth? At this level few studies advance the hypothesis of the existence of an institutional threshold beyond which FDI impacts positively growth. Some empirical works have attempted to estimate the institutional threshold effect (Meyer & Sinani, 2009; Cantwell et al., 2010; Jude & Levieuge, 2013; Brahim & Rachdi, 2014). However there is a very limited research dealing with the threshold effect of institutions in explaining the positive effect of FDI on growth by region and by level of income (high and middle income).

Many countries try to implement policies such as capital account openness and financial development to attract FDI inflows. Dunning (1977, 2014) and Dunning & Lundan (2008) attributed a popular theoretical framework for FDI determinants known as the "eclectic paradigm". It advances that firms invest in foreign markets to look for three types of advantages: Ownership (O), Location (L), and Internalization (I) advantages. Therefore it is called the OLI framework. The authors also identify four categories that motivate foreign investors to invest abroad: resource seeking[1], market seeking[2], efficiency seeking[3], and strategic-asset seeking[4] (Cleeve, 2008).

FDI requires larger upfront fixed costs because a new foreign affiliate must be established or acquired. Hence, on the source side, higher financial development can also be expected to foster FDI, with a disproportionate positive impact on FDI in financially vulnerable sectors. Indeed, a financial system is considered as developed when it is easy for individuals and firms that require external funds to have access at reasonably cheap cost (Guiso et al., 2004). A deep and well-functioning financial

[1] Access raw materials, labor force, and physical infrastructure resources.
[2] Horizontal strategy to access to the host-country domestic market.
[3] Vertical strategy to take advantage of lower labor costs, especially in developing countries.
[4] Access research and development, innovation, and advanced technology.

system is a key determinant of economic growth (Rajan & Zingales, 1998; Levine, 2005). Furthermore, financial development begets economic efficiency because of its ability to reduce transaction costs, contract enforcement and information flow (Levine, 1997; Hermes & Lensink, 2003; Bartels et al., 2009; Méon & Weill, 2010). Štreimikienė (2012) in the World Economic Forum defines financial development as: "The factors, policies, and institutions that lead to effective financial intermediation and markets, as well as deep and broad access to capital and financial services"

The importance of financial services for foreign firms is twofold. Like local firms, foreign firms can use financial services for overdraft facilities, loans, or payments to their suppliers of intermediate goods. Developed financial services also facilitate financial transactions between foreign firms and their customers and employees in the host country. Furthermore, financial development is an engine of economic growth providing better business opportunities for customers and firms. Since local investors have better information about the opportunities and the risks of the local market, the distance between foreign investors and local market generally worsens this informational asymmetry. Obtaining better information about the risks of the local market through financial intermediaries allows foreign investors to know and be confident about profit opportunities in the country, encouraging FDI.

Directly higher financial development improves access to external finance for those firms, which require outside capital to expand in foreign markets and produce there at their first-best levels. Indirectly, greater financial development also promotes local development. This raises the likelihood of more intense local competition.

Higher financial development tends to be associated with higher FDI inflows (Kaur et al., 2013; Otchere et al., 2015). Furthermore, local financial intermediaries may help foreign investors to overcome informational asymmetries by sharing local knowledge on risks and market opportunities (Kinda, 2010). However, by promoting local firm development, the competition between local and foreign firms can increase. This effect may render the host country less attractive to foreign investors (Bilir et al., 2014). We highlight an ambiguity of the effect of financial development in the host country FDI inflows (Desbordes & Wei, 2014). In this context, the role of financial development on FDI can be indirect through institutions (Ju & Wei, 2010). This raises the question of

the existence of an institutional threshold through which financial development impacts FDI positively. Few papers have investigated the role of the threshold of institutional quality in helping financial development to attract FDI inflows. In addition to financial development, capital account openness could be another type of policy to attract FDI inflows. These two policies may strengthen each other in a way that would lead to a better environment to attract FDI inflows.

Capital account liberalization has been one of the most important economic policies recommended for economic growth. The Managing Director of the IMF said in Hong Kong in September 1997, "Freedom has its risks! Let's go then for an orderly liberalization of capital movements...the objective is to foster the smooth operation of international capital markets and encourage countries to remove controls in a way that supports the drive towards sustainable macroeconomic policies, strong monetary and financial sectors, and lasting liberalization."

The neo-classical modeling suggests that capital account liberalization will increase FDI inflows. Nevertheless, this might not be the case if the neoclassical assumptions of perfect information and competitive markets are relaxed[5]. In this sense, Lucas (1990) observed that too little capital flows from rich to poor countries, relative to the prediction of the standard neoclassical model "Lucas' paradox". Likewise, he showed that during the 1990s, net capital flows to poor countries remained relatively small, while gross capital flows, in general, were large, in particular among advanced economies [6](Obstfeld et al., 2005).

Investigations relating to capital account liberalization influences on FDI inflows demonstrate that the positive relationship is not systematic. It depends on the scale/magnitude of liberalization, the level of development or the quality of institutions (Edison et al., 2002; Noy & Vu, 2007; Reinhardt et al., 2013; Brafu-Insaidoo & Biekpe,

[5] Differences in human capital (Lucas, 1990), in the risk of sovereign default (Reinhart & Rogoff, 2004), in capacity to use technologies (Eichengreen & Leblang, 2003) , and in institutional quality (Alfaro et al., 2008; Papaioannou, 2009) seem to be relevant for the direction of cross-border capital flows. Furthermore, frictions in national borders may explain the failure of the neoclassical model in accounting for the direction of capital flows.

[6] During the boom in international capital markets in the 1990s, capital even flooded countries that had major macroeconomic problems, such as Moldova. After the 1997 East Asian crisis, external financing even dropped in countries that seemed to have good 'macroeconomic fundamentals', such as Hong Kong and Chile.

2014). Recently, some empirical studies have examined the role of institutional quality as a key factor in explaining the mixed results in the effect of capital account liberalization on FDI inflows and have reached more positive conclusions (Noy & Vu, 2007; Okada, 2013). Institutional reforms were often emphasized in order to improve economic performances of developing or emerging countries according to some of the most influential papers of the late 90's (Easterly et al., 1997). Few studies have paid attention to the critical level of institutions that allows capital account openness to attract FDI inflows. In fact, the institutional development affects the relation between FDI and capital account openness, and a small number of papers discussed the issue using causal effect models.

Despite the importance of literature, the question of the effects of the institutional quality on economic growth remains asked. Similarly, studies on the impact of FDI on economic growth suggest ambiguous effects. Furthermore, capital account openness and financial development policies have mixed results on the attractiveness of FDI following the empirical studies that we can identify. In addition, few works considered a sample of countries following the institutional classification.

In this study we investigate at different levels the relations between economic growth, FDI and the quality of institutions through an empirical analysis using a large sample of developed and developing countries.

Along this line, our study extends previous findings highlighting that the level of development of institutional quality is important to understand the ambiguity of its effect on economic growth and FDI. With this in mind, several questions arise as follows:

- Does the impact of the components of institutions on economic growth depend on the development status of the country?
- How important are institutions on the effect of FDI on economic growth?
- Do institutions matter on capital account openness and financial development to attract FDI inflows?

We contribute to these strands of literature by examining the role of institutions on economic growth. We highlight that institutions matter differently by region and by level of income. Given the importance of institutional quality on economic growth, we try to bring an answer to the ambiguity of the role of FDI on economic growth, by analyzing its role through institutions. The idea here is to estimate an institutional threshold above which FDI foster economic growth. Since FDI acts as an important means for growth, countries try to implement policies to attract FDI. Such policies can be capital account openness and the improvement in financial services. Finally, we investigate whether institutions play a major role on capital account openness and financial development to bring more FDI inflows in the country.

This thesis is organized around three chapters. Chapter I focuses on the impact of the quality of institutions on economic growth. In other words, we examine whether the impact of institutions is different depending on the level of development of the country. Then, Chapter II analyzes the importance of the quality of institutions for the impact of FDI on economic growth. Finally, Chapter III investigates the role of the quality of institutions on capital account openness and financial development to create favorable conditions to attract FDI.

Chapter I examines the effect of the quality of institutions on economic growth by level of development. We use a sample of five regions (MENA, Europe, America, Asia and SSA) over the period 1984-2013. We apply two panel methods: the fixed effects and the instrumental variable (IV) techniques. The IV method is used to check if the endogeneity of institutions changes the results. In the first part, we build a yearly institutional index composed of 12 variables of the ICRG[7] database (corruption, democracy, bureaucracy…). Then we test the effect of this institutional index on economic growth by region. We also analyze this effect by level of income within the region. In the second step, we investigate the role of the each of the 12 components of the institutional index on GDP growth by region and by level of income. The analyses indicate that improving the quality of institutions fosters economic growth and this effect is higher in the middle income countries. Furthermore, the components of the

[7] ICRG is the Institutional Country Risk Guide database. The indicators of ICRG are grouped in three categories of risk: political, financial and economic. For the purpose of this thesis we use the indicator of the economic risk.

institutional index, such as government stability, is important for economic growth but its impact is different depending on the region and the level of income.

Recognizing the fundamental role of foreign direct investment (FDI) in fostering long run growth, Chapter II emphasizes the role of the institutional environment in determining the relation between FDI and economic growth. We consider the same sample as in Chapter I that is the MENA, Europe, America, Asia and SSA divided by level of income over the period 1984-2013. In order to tackle the problem of endogeneity of institutions, we use the GMM method and the technique of Lewbel (2012) to build the appropriate instruments. Therefore, in the first part we test the impact of FDI on economic growth. Given the ambiguity of the effect of FDI on economic growth, we introduce the institutional effect to see above which level the impact of FDI on economic growth becomes positive and significant. This leads us to the second part in which we introduce the institutional threshold level. We use the method of Caner & Hansen (2004) following the transformation by Kremer et al., (2013) to estimate the threshold. A threshold is estimated for the institutional index and for each of its 12 subcomponents. This critical level enables us firstly to detect the indirect effect of FDI on growth through institutions for countries that are below and above the threshold. Secondly, to compare in each region the impact of FDI on growth between high, middle and low income countries by the institutional threshold. We consider the twelve components of institutions to get the most important institutional variables that condition the positive effect of FDI on growth.

The findings that FDI inflows play a major role on GDP growth through institutions encourages countries to try and implement policies to attract more FDI into their economies. This is an issue that we address in Chapter III. More precisely, Chapter III focuses on the effect of capital account openness and financial development on FDI inflows. We examine how the quality of institutions intervenes on the impact of capital account openness and financial development to foster the attractiveness of FDI. We consider the most recent measure of capital account openness of Chinn & Ito (2008) available until 2013. Furthermore, financial development is measured by two variables: banking and the stock market development. The analysis is based on a wide panel dataset of 144 countries, covering both developed and developing countries, over the period 1984-2013 using the GMM method. We construct an index of banking

development and another one for stock market development using the method of Demirgüç-Kunt & Levine (1996a). Therefore, we consider in the first part, the direct impact of capital account openness and the index of banking development on FDI inflows. Then we test each of its components that are bank assets, liquid liabilities and credit to the private sector on FDI inflows. We also analyze the second measure of financial development, which is stock market development index on FDI inflows. Afterwards, we investigate its components such as stock market value traded, turnover ratio and capitalization on FDI inflows.

In this analysis of the effect of financial development on the attractiveness of FDI we consider the whole sample then the resource and the non resource endowed countries. In the second part, we investigate the indirect effect of capital account openness and financial development on FDI inflows through the institutional quality. To this aim, we estimate an institutional threshold above which capital account openness and financial development impact FDI inflows positively. An institutional threshold is also estimated for each of the components of the banking and the stock market index (Solow, 1956) under which the effect of these financial development variables foster FDI inflows. In the third part, we apply a new methodology called the Propensity Score Matching (PSM) to check for the robustness of capital account openness on FDI for countries that are above and below the institutional threshold. Following this method, the first step attributes scores of probability of opening the capital account to each country. Taking into account these scores, the second step aims at applying the matching method. The purpose here is to compare the impact of capital account openness on FDI inflows for a country that has liberalized its capital account with a country that has not liberalized it. This analysis is at the core of our study because it allows us to demonstrate the substantial role played by institutional quality on financial development and financial openness to attract FDI.

The key results emerging from these three chapters enable to clarify the role of institutions on economic growth, especially through the effects and the attractiveness of FDI. These results show the existence of an institutional threshold for both the effect and the attractiveness of FDI by level of development of countries.

CHAPTER I : THE IMPACT OF INSTITUTIONS ON ECONOMIC GROWTH BY LEVEL OF DEVELOPMENT

I. Introduction

The aim of this chapter is to analyze the role of different measures of institutions on economic growth. This study relies on the idea that institutions perform differently in terms of enhancing economic growth. Furthermore, the effects of these institutions differ across regions and by level of income. Thus we take into consideration 5 subsamples of regions following the World Bank regional classification (MENA, Europe, America, Asia and SSA) and 3 income levels (high, middle and low).

The literature gives evidence that institutional quality plays an important role in determining growth performance. North (1981), Rodrik et al., (2004) and Acemoglu & Robinson (2010) find a positive effect of institutions on economic growth. Although, these findings exhibited significant effects of institutions, they greatly vary in terms of magnitude.

North & Thomas (1973), North (1981), Olson (1982) and Jones (2003) are the pioneers of investigations on the role of institutions in clarifying the differences in the economic development across countries. The quality of institutions is a key factor determining the process of growth by influencing the incentive structure for investment in human and physical capital, in technological and innovations. Using European mortality rates as an instrument for institutions, Acemoglu et al., (2001a) emphasize the positive effects of institutions on income per capita. Valeriani & Peluso (2011) and Law et al., (2013) also find that the WGI[8] have positive effects on economic growth. Moreover, Knack & Keefer (1995) using ICRG[9] and BERI[10] dataset, showed that the quality of institutions is central for growth and investment.

Focusing on the subcomponents of institutions, Rodrik et al., (2004) prove that property rights play a main role in determining the long-run economic growth. North (1990) points that secure property rights and better contract enforcement determine growth. Likewise, Barro (1998) finds that the rule of law has a positive impact on growth for

[8] World Government Indicators.
[9] International Country Risk Guide.
[10] Business Environmental Risk Intelligence.

100 countries over the sample period 1960–1990. Furthermore, Rodrik et al., (2004) confirm the strong impact of law and order on income. Acemoglu & Johnson (2003) use constraint on executive as an instrument for private property institutions. They show that private property plays a major role on long-run growth, investment, and financial development.

Some studies introduce more criteria in the analysis by taking into account heterogeneity across the economies. This heterogeneity includes the level of GDP per capita, the level of income, and institutional quality. As an example, Latin American countries have tried to implement institutions like those of the United States but differences in term of economic growth persist (Lin & Nugent, 1995). Furthermore, developed countries like the United Kingdom, Taiwan and Hong Kong have recorded high growth despite differences in the institutional quality established in these countries (Valeriani & Peluso, 2011).

Iqbal & Daly (2014) demonstrated that fighting against corruption fosters economic growth in strongly democratic economies and fails to improve growth in democratically weak countries. Marakbi & Turcu (2016) point that in countries with high levels of institutional quality, corruption appears to "sand the wheels" of economic activity. However, in countries with low levels of institutional quality, corruption seems to "grease the wheels". This means, in a context of high institutional quality, corruption will affect growth through investment, human capital, political stability, and other means. In contrast, in a context of low institutional quality, corruption allows to circumvent institutional failures. In these countries, and below a threshold, the sensitivity of growth to corruption is low. Liu & Zhou (2015) find that rule of law positively impacts economic growth in the developed countries, but not in the developing ones. Valeriani & Peluso (2011) study the effect of institutional quality on the economic growth considering different stages of development. They point that the effect of civil liberties, quality of government and number of veto players on economic growth is more effective in the developed than in the developing countries. Chauffour (2011) reveal that institutions, measured by economic freedom and civil and political liberties clarify why some countries reach better economic outcomes. His results show that economic freedom matter most for growth in developed economies. In addition, in the middle income countries, civil and political rights improvement generates a greater

effect on growth.

The empirical literature discussed above highlights a positive relationship between institutions and economic growth. However, the conclusions of these studies vary considerably depending on the level of institutional quality, the development status and the region of countries in the samples. The results on institutions-growth nexus are also related to the ways of measuring the quality of institutions and the estimation methodology. However, few studies have taken into account the impact of institutions on growth by region and by level of income.

The present study tests the effects of a wide range of institutional variables on economic growth at a disaggregate income level. The empirical analysis suggests that measures of institutional quality matter differently, depending on the region and by level of income. Such an observation leads us to divide the developed and developing countries into 5 regions (MENA, Europe, America, Asia and SSA). Furthermore, within groups we consider the level of income to assess what types of institutions are the most relevant in each region.

The rest of the chapter is organized as follows. Section 2 present the empirical model, the methodology and the data used. Then section 3 provides regression estimates and discusses the results. Section 4 concludes the chapter.

II. Model and methodology

II.1. Model

To test whether institutions play any role in mediating the impact of institutions on economic growth, we follow Mankiw et al., (1992) and Hall & Jones (1999). The study specifies the model as follows:

Equation I-1

$$Y_{it} = \mu_i + \alpha_1 Y_{it-1} + \alpha_2 G_{it} + \alpha_3 GFCF_{it} + \alpha_4 INFLA_{it} + \alpha_5 POP_{it} + \alpha_6 HK_{it} + \alpha_7 TRADE_{it} + \alpha_8 Y_{84\,it} + \alpha_9 INST_{it} + \varepsilon_{it}$$

where i : is country index and t : is time index. μ_i: is unobserved country-specific effect term, and $\boldsymbol{\varepsilon_{it}}$ is a white noise error term.

Y is the log of GDP (constant 2005 US$), Y_{it-1} is the lag of the dependent variable log of GDP, G is government consumption, GFCF is gross fixed capital formation, INFL is the inflation rate consumer price, POP is the annual population growth rate, HK is Human Capital, TRADE is trade in goods and services, Y_{84} is the log of GDP of 1984 and INST is the variable institutions. This model predicts that institutions (INST) impacts economic growth positively. All the variables that we include in the model have often been used in the growth literature (Mankiw et al., 1992; Barro & Lee, 1996; Sala-i-Martin, 1997). The entire variables are in logarithm and inflation (INFL) is equal to ln (1+ inflation rate). The model's variables are presented in section II.3 and their definitions are on Table I-1.

II.2. Econometric methodology

In order to test the effect of institutions on GDP growth we apply the Fixed Effects (FE) as well as Random Effects (RE). The test of Hausman is used to select the appropriate estimator. If the result of the Hausman test rejects the null hypothesis, this would indicate that the individual effects are significantly correlated with the some explanatory variables. Then the most suitable estimators would be those of the fixed-effect model.

While the FE and the RE methods take into consideration respectively fixed and random individual characteristics, these methods can present biased results because of the endogeneity of the variable institutions (INST). Therefore, to solve the problem of endogeneity and the measurement errors on the institutional quality, we apply the instrumental variable technique. According to the literature on the relation between institutions and economic development (Porta et al., 1996; Acemoglu et al., 2001a,b), we consider different measures of instruments. These instruments are presented in the next section II.3. Furthermore, the lag of GDP growth $Y_{it-1}$is also considered as an endogenous variable and instrumented by its lagged value for one period Y_{it-2}.

II.3. The explanatory variables

II.3.1. Institutional quality: measures and data

In order to measure the different aspects of institutions we use the International Country Risk Guide (ICRG) database. This database is compiled by the Political Risk Services (PRS) Group. It provides information on several risk indicators grouped into three categories: political, economic and financial risks. For the purpose of our study we use the economy index risk. In every case the lower the value, the higher the risk, and the higher the value the lower the risk.

The variable institutions (INST in the model) measures the political risk of countries. It comprises 12 components. It is about government stability, socioeconomic conditions, investment profile, internal conflict, external conflict, corruption, military in politics, religious tensions, law and order, ethnic tensions, democratic accountability and bureaucracy quality. These variables stem from ICRG database (See APPENDIX I-1, Table A I-1 for their descriptions).

The ICRG database has several advantages over other measures of institutional quality. First, it provides an assessment of institutional quality for 142 countries over the period 1984-2013. This enlarges the sample and allows us to perform panel estimations. Moreover, the ICRG provides information on 12 dimensions of institutional quality, which can be used to construct a collective indicator that captures the quality of the overall institutional environment. This flexibility enables us to study the general effect of institutions on GDP growth and to compare it with the effects of other policy-related determinants of GDP growth. This database covers a long period of study beginning from 1984 as opposite to the Kaufmann database which begins from 1996. Although, the ICRG database includes a large number of variables (12), however Kaufmann database provides only 6 variables.

In this context, Alfaro et al., (2008) state that the measurement of institutional quality is a difficult task. Acemoglu et al., (2001b) argue that "There is a cluster of institutions, including constraints on government expropriation, independent judiciary, property rights enforcement and institutions providing equal rights and ensuring civil liberties, that are important to encourage investment and growth". In our study, we build a yearly

composite index (INST) using the 12 variables of the International Country Risk Guide's (ICRG). The measure of INST is an average of its 12 components. In order to compare between the subcomponents of institutions, we standardize all sub-indicators to range between 0 and 1. Higher values indicate higher quality of institutions.

In the literature institutions has been identified as an endogenous variable. We analyze in the next paragraph the different instruments of the variable institutions.

II.3.2. Instruments of institutions

Aghion et al., (2004) support the idea that institutions are chosen by individuals and they progress in response to changing of the political and economic conditions. Furthermore, Acemoglu et al., (2005) state about the endogeneity of institutions: "they are at least in part, determined by society, or a segment of it". Therefore, institutions must be instrumented by variables, which are exogenous, highly correlated with institutions and not directly caused by economic growth.

II.3.2.1. Legal Origin

The first contribution on the effect of legal origin on institutions goes to the contributions of Porta et al., (1996) and La Porta et al., (1997). They analyze the law governing investor protection, the enforcement of the law, and the extent of concentration of firm ownership across countries. Their results point that laws are largely influenced whether by colonialism, conquest, or outright imitation. La Porta et al., (1997) indicate that commercial laws are from Common law and Civil law traditions. In fact they point that English law is common law, prepared by judges and therefore integrated into legislature. In contrast civil law tradition is French, German, and Scandinavian laws. They are made by scholars and legislator and are from the Roman law. La Porta et al., (1997) results show that countries managed by Common law tend to protect investors more than those governed by French civil law. The level of protection of German civil law and Scandinavian civil law countries is in the middle. These legal origin variables have been widely used as exogenous variable of institutional quality in the economic growth literature.

II.3.2.2. Legal transplantation process

Berkowitz et al., (2003a,b) argue that legal origin is not the only determinant of institutions. Along this line, they have advanced that countries, which have made their formal legal order have an advantage in developing their legal institutions in comparison with countries on which a foreign formally legal order was imposed externally. Berkowitz et al., (2003a,b) point that the manner how law was firstly transplanted is a more important determinant of legal institutions than the supply of a particular legal family. Furthermore, the legal transplantation process has a great (indirect) effect on economic development via its impact on legal institutions. Berkowitz & Clay (2004) find that the economy which had been developed by civil law and adopted common law after the American revolution had significantly lower median household income as well as higher share of population living under the poverty in 2001.

II.3.2.3. Initial Endowments

Acemoglu et al., (2001b) claim that the legal origin is poor instruments of institutional quality. In fact, they argue that "it is not the identity of the colonizer or legal origin that matters, but whether European colonialists could safety settle in a particular location: where they could not settle, they created worse institutions"

The theory of Acemoglu et al., (2001b) is based on three ideas:

- First, they observe that Europeans adopted different sorts of colonization strategies, which resulted on different set of institutions in the colonies. Indeed, the main goal of colonization strategy was to extract as much of the resources from the colony to the colonizer. Furthermore, the Europeans settled and established institutions to be protected against expropriation.

- Second, Acemoglu et al., (2001b) state that the colonization strategy was impacted by the feasibility of settlements. In areas where endowments favored settlement, Europeans tended to form settler colonies "Neo-Europe". Nevertheless, in areas where the conditions were not propitious to European settlement (high mortality rates), they tend to form an extractive state.

- The final idea of their theory is that the colonial state and institutions continue even

after independence.

Acemoglu et al., (2001b) consider that the mortality rates expected by the first settlers in the colonies as an instrument for institutions. They summarize their theory as follow:

Settler mortality➔ Settlements➔Early institutions➔Current institutions➔Current performance

This indicate that settler mortality rate is determinant of settlements, then settlements is a major element of early institutions and there is a strong correlation between early institutions and institutions today (Acemoglu et al., 2001b). Moreover, the rate of settler mortality is considered as a measure of initial endowments Beck et al., (2008).

The empirical results of Acemoglu et al., (2001b) confirm their theory. They find that mortality rates faced by settlers more than 100 years ago explain over 25 percent of the variation in current institutions. Therefore, settler mortality during the period of colonization can be a valid instrument of institutions. Other authors like Alfaro et al., (2008) and Papaioannou, (2009) have used the European settler mortality rates (Acemoglu et al., 2001a,b) as an instrument of institutions.

II.3.2.4. Ethnic heterogeneity

The literature has identified the importance of ethnic heterogeneity in explaining growth, investment, or civil wars. In fact, La Porta et al., (1999) find that ethnic diversity leads to corruption and low efficiency in governments that expropriate the ethnic losers. They show a positive correlation between ethnic diversity and poor economic performance. It is a consequence associated to conflict in a highly fractionalized society.

In this context, Aghion et al., (2004) point out a positive relation between racial fragmentation and institutions. This means that in more fragmented systems, political systems are chosen to insulate certain groups and prevent other to have a voice. Consequently, many papers have used the ethno-linguistic fractionalization[11] index as

[11] The index of ethnic fractionalization is the probability that two randomly selected individuals from a given country will not belong to the same ethnic group.

indicator of ethnic heterogeneity.

Nevertheless, Fearon (2003) advances that the index of ethnic fractionalization can not capture important differences in ethnic structures. Thus, Montalvo & Reynal-Querol (2005) support that the measure of ethnic heterogeneity appropriate to capture potential conflict is the polarization[12] measure. Indeed, Horowitz (1985) and Montalvo & Reynal-Querol (2005) find that the most severe conflicts arise in societies where a large ethnic majority.

II.3.3. Other explanatory variables

G is *government consumption* as a proportion of GDP is expected to negatively influence GDP growth (Barro et al., 1991). In fact, higher level of government consumption leads to a lower level of steady state, therefore to a lower rate of growth (Andreano et al., 2013). It can be also explained by the fact that public consumption is financed by distortionary taxes, which reduce growth rate (Barro, 2004). The variable can be also seen as a proxy of political corruption and mis-managed administration, and may reflect the negative effects of non-productive expenditure and taxation. This is confirmed by the positive relationship between the growth rate and the indicators of governance (A higher quality of governance raises the value of competition and this determines an increase in the average rate of development).

GFCF is the *gross fixed capital formation* is expected to positively impacts growth. It has always been seen as a potential of enhancing growth. GFCF determines the capacity of an economy to produce, which in turn, impacts economic growth. The literature has proved that capital formation plays a crucial role in the models of economic growth (Ghura & Hadjimichael, 1996; Ghura, 1997; Bakare, 2011). Romer (1986) and Lucas (1988) using growth models argue that increased capital accumulation may result in a permanent increase in growth rates. According to Jhinghan (2003), the process of GFCF

[12] In the fractionalization index, the size of each group has no effect on the weight of the probabilities of two individuals belonging to different groups, whereas in the polarization index these probabilities are weighted by the relative size of each group. See Montalvo and Reynol (2005) for more explications.

requires three inter-related conditions. First, it is about the existence of real savings and rise in them. Second, it is the existence of credit and financial institutions to mobilize savings and to direct them to desired channels. Third, it is about using these savings for investment in capital goods. The rise in investment through non-financial assets has led to the increase in the GDP through further increase in employment (Adekunle & Aderemi, 2012). Some developing countries, suffer from the huge under-utilization and unemployment of educated labor, so that its social productivity can be minimal at the margin. GFCF can be classified into gross private domestic investment and gross public domestic investment (Bakare, 2011). In this case Beddies (1999) indicates that private capital formation has a greater, more promising effect on growth rather than government capital formation. They clarify that private capital formation is more efficient and less closely associated with corruption.

POP is the annual *population growth rate*. It is predicted to increase GDP growth. Coale & Hoover (2015) argue that in the high income countries, the problem is to assure a full use of the resources available to avoid unemployment both of the labor force and physical capital. Keynesian analysis point that under these circumstances an increase in the demand for capital goods will have a stimulating effect on the whole economy, and will lead to higher incomes. It can be argued that this stimulus to demand is due to a faster population growth rate. The other case is an economy that suffers from deficiency of a supply of capital. A higher schedule of saving rather than of consumption would help to generate higher incomes by making more rapid rate of investment. Similarly, a less need for investment to duplicate facilities would allow a greater increase in the amount of capital per worker, higher per capita income.

INFL is *inflation* measured by the consumer price index Inflation. The effect has been negative on growth, offsetting the Mundell–Tobin effect (Barro, 2004, 1998). The low level of institutions combined with political instability, facilitated the process of generating easy money (Acemoglu et al., 2008). This can be a policy used by governments that are losing control of their own finances to fund themselves (Fischer, 1993). The process of generating easy money leads to higher inflation rates, with all their consequences on macroeconomic uncertainty, economic activity, growth and welfare in general. Khan & Ssnhadji (2001) and Seleteng et al., (2013) argue that only above certain thresholds, inflation impacts negatively growth otherwise it did not

impact growth.

HK is *human capital* which is predicted to improve the GDP growth rate as explained in the work of Borensztein et al., (1998). The inclusion of human capital in a Barro regression overlooks the double role played by the latter. Human capital not only impacts growth as an additional factor of production, but together with the efficiency physical capital and labor. Mankiw et al., (1992), point that the share of physical and human capital with population growth explain about 80 percent of international variation in per capita income. Young (1994) clarify that the economic growth of the "Asian miracle," is the outcome of a rapid factor accumulation.

TRADE measures *trade in goods and services*. Sustained growth requires active policies that promote economic diversification and foster structural change from low-productivity activities (traditional agriculture and informality) to mostly tradable higher-productivity activities. It requires pulling the economy's resources into those sectors that are on the automatic escalator up (Rodrik, 2011). He explains that once an economy gets to produce electric generators, or motor vehicles, labor productivity in that industry is placed on an automatic upward trajectory. The trajectory is steeper the lower the starting point. The trick is to get a toehold in these automatic-growth industries and to expand domestic employment in them. This is a large part of the explanation of why Latin America and Africa have underperformed relative to Asia in recent decades (McMillan & Rodrik, 2011).

Y_{84} is *initial GDP per capita* (GDP per capita of 1984). According to the neoclassical theory the sign of the coefficient associated to per-capita income should be negative. A negative coefficient of this variable indicates a convergence within the group.

We use five groups of countries: SSA, MENA, Europe, America and Asia. Each group is divided on high, middle and low income countries according to the World Bank classification[13]. The list of countries is given in APPENDIX I-1, Table A I-2.

[13] According to the World Bank, middle-income economies are those with a GNI per capita of more than $1,045 but less than $12,746 and high-income economies are those with a GNI per capita of $12,746 or more.

The matrix of correlation (APPENDIX I-1, Table A I-3) indicates the correlation between the explanatory variables. Most of the correlation's coefficients are between 0.06 and 0.48. As the sign of the Pearson correlation coefficient is positive, we can conclude that there is a positive correlation between Government consumption, GFCF, HK, population growth, institutions with GDP growth. That is, growth increases with these variables. The variable INST is correlated with HK (0.48) and with POP (-0.44). For this reason, we run the Variance Inflation Factor to test the muticolinearity of this variable INST. Results point that the VIF of INST is 1.91 (APPENDIX I-1, Table A I-3). It is less than 10, we can conclude that there is no evidence of multicollinearity.

Table I-1: Description of the variables

LABEL	DEFINITION	SOURCE
Y_{it}	Gross Domestic Product at market prices (constant 2005 US$).	WDI, 2014
Government consumption (G)	General government final consumption expenditure includes all government current expenditures for purchases of goods and services. It also includes most expenditure on national defense and security, but excludes government military expenditures.	WDI, 2014
GFCF	Gross Fixed Capital Formation (% of GDP). It includes land improvements (fences, ditches, drains, and so on); plant, machinery, equipment purchases; the construction of roads, railways, including schools, offices, hospitals, private residential dwellings, and commercial and industrial buildings. According to the 1993 SNA, net acquisitions of valuables are also considered capital formation.	WDI, 2014
INFLATION (INFL)	Inflation as measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly.	WDI, 2014
Population growth (POP)	Annual population growth rate. Population is based on the de facto definition of population, which counts all residents regardless of legal status or citizenship-except for refugees not permanently settled in the country of asylum, who are generally considered part of the population of the country of origin.	World Bank (WDI), 2014
Human capital (HK)	-Literacy rate, adult total (% of people ages 15 and below) -Enrolment in tertiary education per 100,000 inhabitants -Mean years of schooling of adults	World Bank (WDI) UNESCO, UNDP, 2014
TRADE	Trade is measured by trade in goods and services as a percentage of GDP at constant price	WDI, 2014

Institutions (INST)	The resulting index ranges between zero and 1 and a larger value means lower political risk. It is computed through an average of twelve different indicators from the ICRG database.	International Country Risk Guide (ICRG), 2014

III. Results and discussions

III.1. The impact of institutions on growth by level of income

Table I-2 tabulates the estimation results of Equation I-1. In this regression we use the whole sample divided by level of income. First, we run estimations using the FE and RE. The results of the Hausman test in Table I-2 (columns (1) to (4)) valid the FE for all the sample, as well as for the three groups by level of income. Then, columns from (5) to (8) give the results using the instruments of institutions.

According to La Porta et al., (1997) and Acemoglu et al., (2001a,b), we consider two variables as instruments of institutions: legal origin and ethnic fractionalization. In fact, we consider a dummy variable legal origin as an instrument for the institutional index (INST). It is equal to 1 if a country has a common law and 0 if it has civil law tradition. For ethnic fractionalization, it is the probability that two randomly selected individuals from a given country will not belong to the same ethnic group. These two instruments valid the Hansen test (see APPENDIX I-2, Table B I-1). However, given that we use panel data, these instruments could not be appropriate because they don't vary over time. For this reason, we run estimations using the lagged values of institutions by two periods as instrument (Table I-2).

Results clearly show that the coefficients obtained with the IV estimator are more significant and higher than the ones with the fixed effect estimator. We use Hansen's over identification test (J-test) to check the null hypothesis of the validity of instruments. Given the P-value of the Hansen test, our instruments (lagged values of institutions and Y_{it-1}) are valid.

The coefficient of institutions has a positive impact on economic growth in the full sample (column 1). This implies that an increase of one percent in the level of institutions increases the GDP growth by 0.024 percent. The increase is higher and more significant by 0.041 percent once we use the IV estimator. A country that has political

stability performs better in speeding up the economic growth. This finding is consistent with the existing literature that emphasizes the importance of good institutions for economic growth (Alguacil et al., 2011). Although, Aisen & Veiga (2013) argue that institutions[14] are associated with higher growth rates of GDP. In high-income countries the estimated coefficient of institutions is positive and significant on GDP growth (column 6), this effect (0.104) is lower than in the middle income countries, the coefficient comes to 0.163 (column 7).

A positive and significant coefficient for lag GDP indicates that previous GDP exert persistent effect on growth. The initial level of GDP is positive in the high income countries and negative in the low income countries which indicates a convergence only in the latter group. Government expenditure as a proportion of GDP shows negative influence on GDP growth in the full sample as well as in the middle income countries, which is also consistent with findings in classic papers (Barro et al., 1991). One percent increase in the variable G, decrease GDP growth by 0.10 percent in the full sample and by 0.21 percent in the middle income countries (columns 5 and 7).

Gross fixed capital formation (GFCF) enters with the expected sign. It improves growth in the high and in the middle income countries (column 5 and 6). Considering the annual rate of growth of population, results show a positive effect in the three groups. Inflation measured by the consumer price index has a negative effect on growth in the middle as well in the low income group (columns 7 and 8).

Human capital has the expected sign[15] (Borensztein et al., 1998). It has a positive impact on growth and the higher impact is in the low income countries (column 8). Trade increases growth and the higher impact is in the middle countries. An increase of 1 percent in the ratio of trade increases growth by 0.31 percent in the middle income countries and by 0.12 percent in the high income countries (columns 6 and 7 respectively).

[14] The components of institutions are: political stability, economic freedom and ethnic heterogeneity.
[15] Human capital was also tested using data from the World Bank like: net enrollment rate for primary and secondary but none of them was significant. We also test the effect of gross enrollment ratio for tertiary school on GDP growth but it was weakly significant. Then we choose to work with human capital presented in Table I-1 and gives better results.

Table I-2: The effect of institutions on GDP growth by income

VARIABLES	Full sample (1)	High income (2)	Middle income (3)	Low income (4)	Full sample (5)	High income (6)	Middle income (7)	Low income (8)
	Fixed Effects				Instrumental Variable			
Y_{it-1}	0.898***	0.826***	0.883***	0.903***	0.931***	0.933***	0.882***	0.907***
	(0.107)	(0.115)	(0.111)	(0.120)	(0.162)	(0.119)	(0.112)	(0.119)
G	-0.100***	0.0231	-0.216***	-0.069	-0.120***	-0.0786	-0.179***	-0.034
	(0.0347)	(0.1822)	(0.0484)	(0.053)	(0.0308)	(0.060)	(0.048)	(0.050)
GFCF	0.0458	-0.121	0.159***	0.0748	0.039*	0.0532**	0.149**	0.055
	(0.0401)	(0.0974)	(0.0581)	(0.055)	(0.0236)	(0.026)	(0.059)	(0.047)
HK	0.095*	0.089*	0.025	0.116***	0.195***	0.108**	0.121*	0.145***
	(0.052)	(0.051)	(0.081)	(0.041)	(0.047)	(0.051)	(0.0789)	(0.056)
TRADE	0.093***	0.128***	0.110***	-0.028	0.138***	0.159***	0.184***	0.049***
	(0.035)	(0.048)	(0.043)	(0.019)	(0.048)	(0.059)	(0.044)	(0.018)
POP	0.069	0.057	0.0326	-0.020	0.0134*	0.0691**	0.077**	0.054***
	(0.114)	(0.118)	(0.025)	(0.048)	(0.00813)	(0.0256)	(0.031)	(0.015)
INFL	-0.078	0.039	-0.0737*	-0.0219	-0.068*	0.0191	-0.096*	-0.042*
	(0.132)	(0.117)	(0.043)	(0.107)	(0.041)	(0.016)	(0.0534)	(0.025)
Y_{84}	0.122	0.117***	-0.255	-0.134**	0.139	0.137**	-0.264	-0.164***
	(0.151)	(0.043)	(0.184)	(0.0532)	(0.168)	(0.057)	(0.184)	(0.054)
INST	0.023**	0.065**	0.093**	-0.008	0.041***	0.104***	0.163***	0.150
	(0.011)	(0.032)	(0.041)	(0.255)	(0.014)	(0.037)	(0.062)	(0.369)
Constant	0.836***	0.300***	0.887***	0.408***	0.752***	0.347***	0.885***	0.289***
	(0.166)	(0.093)	(0.180)	(0.098)	(0.120)	(0.097)	(0.179)	(0.098)
Observations	3,355	1,069	1,800	486	3,119	993	1,676	450
R^2	0.918	0.919	0.872	0.848				
Chi2. HAUSMAN	3196.38	970.79	3323.08	140.20				
Prob>chi2	0.0000	0.0000	0.0000	0.0000				
Hausman	FE	FE	FE	FE				
Hansen (J-Test)					0.421	0.321	0.194	0.212

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

III.2. The impact of institutions on GDP growth by region

The full simple is now divided into five regions: MENA, SSA, America, Asia and Europe groups. See APPENDIX I-1, Table A I-2 for the list of countries

III.2.1. The impact of institutions on GDP growth

Table I-3 reports the effect of institutions on GDP growth by region. It points that institutions have a positive effect on growth in all the groups. For the five groups the results are similar but there are some differences with respect to the size of the estimated coefficients. We highlight that the coefficient is higher in SSA with 1.027 comparing to the MENA region with 0.712, America group with 0.715, Asia group with 0.686 and the Europe group with 0.591. An increase of 1 percent in the level of institutions increases GDP growth by 1.027 percent in SSA and 0.712 percent in the MENA region. For the MENA region, the America and the Europe group, the effect of institutions on GDP growth is higher in the middle income countries than in the high income countries. This effect is different in the SSA group in which the impact of institutions is higher in the low income countries than in the middle income ones. The opposite effect is found for the Asia group, the impact of institutions on GDP growth is higher in the middle income countries than in the low income countries. Tintin (2012) finds similar results for the least developed countries. His results show that institutions[16] have bigger effect on GDP growth in the least developed than in the developing and developed countries.

[16] Institutions in this paper are measured by economic freedom.

Table I-3: The effect of institutions on GDP growth by region

VARIABLE	MENA (1)	MENA (2)	SSA (3)	SSA (4)	AMERICA (5)	AMERICA (6)	ASIA (7)	ASIA (8)	EUROPE (9)	EUROPE (10)
Y_{it-1}	0.660***	0.588***	0.975***	0.911***	0.808***	0.818***	0.936***	1.113***	0.904***	0.918***
	(0.135)	(0.198)	(0.169)	(0.215)	(0.171)	(0.183)	(0.213)	(0.265)	(0.2186)	(0.213)
G	0.428***	0.219	-0.0375**	-0.050**	-0.116	-0.148	-0.250***	-0.604***	0.551*	0.057*
	(0.156)	(0.193)	(0.0153)	(0.025)	(0.074)	(0.097)	(0.077)	(0.078)	(0.321)	(0.033)
GFCF	0.085**	0.205	0.063	-0.028	0.125*	0.0284*	0.0509*	1.187***	0.141	0.0276
	(0.035)	(0.181)	(0.042)	(0.030)	(0.071)	(0.015)	(0.029)	(0.435)	(0.088)	(0.111)
HK	0.510***	0.447**	0.00439	-0.125**	0.064	-0.0463	0.081	0.749***	0.636**	0.502**
	(0.082)	(0.202)	(0.0271)	(0.052)	(0.042)	(0.246)	(0.053)	(0.180)	(0.318)	(0.240)
TRADE	0.374***	0.388***	-0.0301	-0.095***	0.554***	0.583***	0.093***	-0.0811	0.381***	0.292***
	(0.098)	(0.122)	(0.0222)	(0.033)	(0.066)	(0.087)	(0.0272)	(0.0780)	(0.088)	(0.0579)
POP	0.012*	0.140*	0.049***	0.081***	0.105**	0.078	-0.0185	0.496***	0.029	-0.008
	(0.0065)	(0.076)	(0.0181)	(0.024)	(0.0411)	(0.066)	(0.0363)	(0.115)	(0.032)	(0.005)
INFL	-0.038	-0.0119	0.0155*	0.020*	-0.0163	-0.019	0.0388	-0.0258	-0.0914**	-0.033**
	(0.038)	(0.052)	(0.008)	(0.011)	(0.0184)	(0.019)	(0.0293)	(0.0861)	(0.0404)	(0.0165)
Y_{84}	-0.051*	-0.041*	-0.0344***	-0.034***	0.059	0.031	0.0231***	0.0215	0.084	-0.084
	(0.0301)	(0.021)	(0.012)	(0.013)	(0.039)	(0.021)	(0.00617)	(0.0177)	(0.056)	(0.061)
INST	0.712*	0.385*	1.027*	0.190***	0.715***	1.093	0. 686**	0.524***	0.591***	0.517**
	(0.391)	(0.211)	(0.604)	(0.057)	(0.143)	(0.817)	(0.312)	(0.121)	(0.162)	(0.210)
INST middle		0.224**		-0.594***		0.067*		0.389***		0.0242*
		(0.112)		(0.185)		(0.039)		(0.093)		(0.014)
Constant	0.406***	0.330***	0.876***	0.271***	0.371***	0.281***	0.940***	0.514***	0.333***	0.161*
	(0.141)	(0.125)	(0.167)	(0.069)	(0.132)	(0.095)	(0.281)	(0.137)	(0.098)	(0.095)
Observations	375	375	709	709	727	727	675	675	633	633
Hansen (J-Test)	0.216	0.431	0.173	0.134	0.146	0.142	0.357	0.193	0.175	0.166

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1.

The effect of institutions on GDP growth seems to be higher in groups with low level of institutions. Lee & Kim (2009) find that if institutions are going to have any impact on growth, it is more likely to appear in the sample of lower-income countries[17]. They argument that these results don't claim that institutions matter only for lower-income countries, they simply imply that basic political institutions, not others, are important at the early stages of development[18].

Table I-4 shows the mean of institutions by region and by the level of income. The Europe group has the highest level of institutions among the groups and among the middle income countries.

The lowest level is found in the SSA group, which could explain the higher impact of institutions on growth. Nawaz (2015) explains that the lesser positive impact of institutions in the developed economies could be that these economies have already reaped the benefits of improvement in their institutions and, therefore, the room for further improvement in this respect is now limited, in a relative sense[19].

Table I-4: Mean of institutions by region and income

	ALL	High Income	Middle Income	Low Income
MENA	0.58	0.65	0.54	
SSA	0.53		0.57	**0.50**
AMERICA	0.62	0.73	0.60	
ASIA	0.61	**0.79**	0.56	0.47
EUROPE	**0.73**	**0.79**	**0.61**	
Full simple	0.62	0.76	0.57	0.49

* Values in bold indicate higher values of institutions.

The lag of GDP per capita is positive and significant in the five groups. Government consumption has a positive effect in the MENA region and in the Europe group. However, this variable has a negative effect on growth in the SSA and the Asia group. Furthermore, GFCF improves growth in the MENA, America, Asia and the Europe group. Human capital enhances growth in the MENA, Asia and the Europe group. Considering the ratio of trade on GDP growth, it contributes to growth in the MENA region, the America, the Asia and the Europe group. Regarding the population growth, it

[17] Institution is measured by the degree of constraints from Polity IV Dataset
[18] For Lee & Kim (2009) basic institutions are democracy, autocracy and executive constraint
[19] Institutions are measured by investment profile and democratic accountability

has a positive effect on growth in the 5 regions. Inflation has is detrimental to growth in the Europe group the SSA group. The initial level of GDP indicates a convergence in the MENA region and the SSA group. This effect is positive in the Asia group which indicates an absence of convergence.

One particularity of the full sample is that it is mixed by resource endowed and non-resource endowed countries. Table I-5 reveals that the positive effect of institutions on GDP growth is higher in the non-resource endowed countries. Countries that are heavily dependent on natural resources have more difficulties than others to benefit from institutions. Resource-rich countries are coupled with wasteful consumption and public investment behaviour. It also affords incentives for rent seeking and other ineffective activities. Furthermore, it is generally perceived that natural resource prevent operative institutional reforms. In fact the role of total investment in improving growth is also weakened in oil-exporting countries.

Table I-5: The impact of institutions on GDP growth: the natural resource endowment

	Resource endowed countries	**Non-resource endowed countries**
VARIABLES	(1)	(2)
Yit-1	0.886***	0.940***
	(0.213)	(0.206)
G	-0.013	-0.121***
	(0.065)	(0.032)
GFCF	-0.047	0.156***
	(0.069)	(0.042)
HK	0.156*	0.134**
	(0.092)	(0.052)
TRADE	0.066**	0.206***
	(0.033)	(0.073)
POP	0.007	0.002
	(0.0046)	(0.0014)
INFLATION	0.015	0.014
	(0.0106)	(0.025)
Y_{84}	-0.019***	0.013***
	(0.006)	(0.002)
INST	0.332	0.580***
	(0.252)	(0.108)
Constant	0.119***	0.861***
	(0.042)	(0.148)
Observations	1,015	2,104
Hansen (J-Test)	0.416	0.346

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

III.2.2 The effect of the subcomponent of institutions on growth

In a previous subsection, institutional quality (INST) is discussed as a composite index of political risk comprising 12 subcomponents; however, this index may be too aggregated to capture the appropriate effects of institutions on growth.

As an attempt to evaluate the individual effect of institutions on GDP growth and to avoid problems caused by multi-collinearity, we estimate Equation I-1 adding each institutional variable in succession. This approach was used in the literature by Walsh & Yu (2010).

Table I-6 summarizes the effect of FDI and the subcomponent of institutions for the five groups in order to compare the institutional variables the most determinant for growth in each group. In the literature, few studies consider the stages of development of countries to explain the effect of institutions on economic growth. In our case, we take into account the level of income for the five regions to estimate the influence of the twelve institutional variables of the ICRG database. Our purpose is to analyze in each group which institutional variable matter more on GDP growth and to investigate if the impact is greater in the high or in the middle income countries. See APPENDIX I-2, Table B I-2 to Table B I-11 for the detailed results in each group.

Government stability (Table I-6, column 1) is a pre-condition to economic development as foreign investors make long-term plans when they trust in a country's future. The effect of government stability is higher in the MENA region in comparison with the SSA group and the Europe group. Which means a one percent increase in government stability, increases growth by 0.11 percent in the MENA region, by 0.06 percent in the SSA group and by 0.03 in the Europe group. Aisen & Veiga (2013) and Gurgul & Lach (2013) point that political instability is associated with lower growth rates in the per capita GDP. However, these authors did not take into account the level of income. For our case, we find evidence that the effect of government stability on GDP growth may be different within the same group. In fact, this effect is higher in the middle income countries of the MENA region, SSA and the Europe group.

Socioeconomic conditions evaluate the social dissatisfaction which mean how government treats with unemployment, working conditions and poverty. These socioeconomic pressures at work could constrain government action. It is negative in

the MENA region and in the SSA group in comparison with the other groups (Table I-6, column 2). We observe that the negative impact is higher in the middle income of the MENA region and in the low income of the SSA group. In these countries, the social dissatisfaction rate is high in comparison with other countries. Our results are the same as Brahim & Rachdi (2014). For the SSA group, the level of this variable has decreased over the period from 0.40 in 1984 to 0.37 in 2013 in the SSA group[20]. The decline in this value is a sign of higher social dissatisfaction. Though it is the opposite in the America, Asia and the Europe group. The decrease in social dissatisfaction in these countries has highly contributed to GDP growth in. The effect of socioeconomic condition on growth is higher in the middle income countries of the America and the Asia group. However this effect is higher in the high income countries of the Europe group. One percent increase in the level of socioeconomic conditions improves GDP growth by 0.044 percent. In the latter group, the rise in the level of socioeconomic conditions has contributed to enhance economic growth.

Investment profile expresses the contract viability (expropriation), profits repatriation or payment delays. The effect of investment profile on growth is higher in the Asia group (Table I-6, column 3). It is explained by the increase in the level of this variable by 0.07 over the period 1984-2013. It increases only by 0.02 in the MENA region and by 0.02 in the Europe group. We highlight here that the level of investment profile in 1984 was the lowest in the Asia group so they have more margin to improve their level. Investment profile has a greater effect in the high income countries of the MENA and Europe group. This effect is in contrary higher in the middle income countries of the Asia and SSA group.

In case of external conflict (Table I-6, column 4), decreasing the level of external conflict by one percent in the Asia and in the SSA group increase growth by 0.839% and by 0.01% respectively in the Asia and in the SSA group. In these groups, we found that external conflict has larger effect in the middle income countries. In fact, External conflicts can adversely affect foreign business in many ways, ranging from restrictions on operations, to trade and investment sanctions, to distortions in the allocation of economic resources, to violent change in the structure of society. These conditions can

[20] The most important decrease from 1984 to 2013 was 0.24 points in Zimbabwe followed by Gabon 0.14 and Cameroon 0.10 points.

hamper growth.

The World Bank defines corruption as "the misuse or the abuse of public office for private gain". In our case fighting against corruption positively impact GDP growth in the MENA, America and the Asia group (Table I-6, column 6). We highlight that the effect in the higher in the latter group (Asia group). Differences of this effect appear when we consider the level of income. For these 3 groups, control of corruption is higher in the middle income countries than in the high income. Corruption appears with the fiscal constraints, the latter are the structural drivers of political corruption. It also arises in case of weak property rights and the prevalence of non-market asset transfer. Wei (2000) explains that corruption will incur the additional cost of doing business because investors have to bribe official in order to get the licenses and permits. Fisman & Gatti (2006) indicate "in countries where bribery is common the amount of time private enterprise representatives spend with public officials is higher than in less corrupt countries, reflecting an inefficient use of resources that are wasted on courting political connections".

The effect of the variables military in politics (Table I-6, column 7), religious tension (Table I-6, column 8) and ethnic tension (Table I-6, column 10) on growth is higher in the Asia group in comparison to the America and the SSA group. This effect is higher in the middle income than in the high income countries of the Asia and the America group. In opposite, the influence of religious and ethnic tension is higher in the income countries for the SSA group.

The effect of law and order on growth has been widely discussed in the literature with various proxies, and many of these studies have concluded on a positive effect of Law and order on growth. La Porta et al., (1997) highlight that, a 'good legal environment' keeps entrepreneurs from expropriating funds from financiers, raises investors' willingness to exchanges funds for securities, and therefore expands the scope of capital markets. Durham (2003) explains that without an effective legal statutes and their enforcement, market participants will neither invest in shares nor deposit funds in banks, thereby inhibiting efficient savings allocation toward economic expansion. Our results indicate a positive and a significant relation in the America and the Asia group (Table I-6, column 9). Furthermore, this effect is higher in the high income countries

comparing to the middle income ones. Our result is confirmed in the study of Liu & Zhou (2015), they found that the rule of law is more significant in the developed than in the developing countries. We highlight here that the impact of the institutional variables is not the same within the same group. In fact, it depends on the level of development of countries.

The improvement in democracy is higher in the MENA region in comparison with America and Asia group (Table I-6, column 11). Liu & Zhou, (2015), find that democracy higher growth and this result didn't depend on the development status of the country. However, in our case we highlight differences for this relation. In fact, the effect of democracy on growth is higher in the middle income than in the high income countries of the MENA and America. For the Asia group, the influence of democracy on GDP growth is greater in the high income countries. Thus, greater levels of democracy reveal that relatively equal political rights are broadly distributed, which can lead to broadly distributed and relatively equal economic rights, by this way supporting economic development (Acemoglu et al., 2005). Previous works, such as Barro (1996, 1997), did not find a positive impact of democracy on the economic growth of all countries. In contrast, later research like those of Rodrik & Wacziarg (2005), Persson & Tabellini (2006) and Papaioannou & Siourounis (2008) highlight that democracy positively impacts economic growth. Acemoglu et al., (2014) employing both GLS and GMM estimations, they point that democracy increases GDP per capita by approximately 20% in the long run.

Bureaucracy is also higher in the MENA region as the region has improved the most the level of bureaucracy in comparison with the other groups[21]. Enhancing the level of bureaucracy may result on higher growth rates in the middle income countries of the MENA, Asia and the SSA group. For the America group, this impact is higher in the high income countries.

The institutional variables the most determinant of growth in the MENA region are government stability, investment profile, democratic accountability and bureaucracy. However because of the low level Socioeconomic Conditions (low level means higher

[21] The level of bureaucracy has increased by 0.14 growing from 0.57 in 1984 to 0.70 in 2013 for the high income countries of the MENA region. In the Asia high income group this level has increased only by 0.07 points going from 0.57 in 1984 to 0.64 in 2013.

risk), this variable has negatively impact growth. While, socioeconomic conditions, corruption, law and order and bureaucracy matter most for the America growth, it is external conflict, military in politics and democracy for the Asia group. The quality of institution that matter the most in the SSA group is investment profile, law and order and bureaucracy. We highlight for the Europe group investment profile and Socioeconomic Conditions. We point here that Europe has the best quality of institutions among the other groups.

As results have indicated above, differences appear within the same group. Some institutional variables could pay faster on improving growth. We summarize on the one hand that the positive impact of investment profile, and law and order on economic growth is greater in high income countries as compared to middle income countries. On the other hand, the effect of socioeconomic conditions, corruption, democratic accountability and bureaucracy is more growth enhancing in the middle income countries in contrast to high economies. Dividing each group by level of income clarify the impact of institutions on GDP growth. The implication of this study is that countries involve different kinds of institutions to guarantee sustainable economic growth.

Table I-6: Summary of the impact of institutions on growth for the five groups

Institutional variables	Government Stability (1)	Socioeconomic Conditions (2)	Investment Profile (3)	External Conflict (4)	Internal Conflict (5)	Corruption (6)	Military in Politics (7)	Religious Tensions (8)	Law and Order (9)	Ethnic Tensions (10)	Democratic Accountability (11)	Bureaucracy Quality (12)
MENA	0.112*^{M}	-0.735*^{M}	0.121^{*H}	0.0632^{H}	0.0317	0.0138*^{M}	0.0661	0.0985	0.1321	0.200	0.103*^{M}	0.159*^{M}
AMERICA	0.021	0.128**^{M}	0.0205	0.0212	0.0145	0.0781**^{M}	0.0418**	0.00191	0.087***^{H}	0.0258*^{M}	0.0517**^{M}	0.113***^{H}
ASIA	0.177	0.626***^{M}	1.758***^{M}	0.839***^{M}	0.775***^{H}	0.713***^{M}	1.799***^{M}	2.490***^{M}	1.560***^{H}	1.681***	1.764***^{H}	1.626***^{M}
SSA	0.064***^{M}	-0.273***^{L}	0.146***^{M}	0.00149^{M}	0.0255**^{L}	0.0340	0.0500*	0.099***^{L}	0.130***	0.0763***^{L}	0.0606^{M}	0.106**
EUROPE	0.0394**^{M}	**0.0448**** ^{H}	**0.0175**^{H}	0.0522	0.016*^{H}	0.0193	0.0327	0.0191	0.0543**^{H}	0.0186	-0.0346	0.0156

* The symbols H, M and L indicate that the higher impact on GDP growth is respectively in the high income, middle income and in the low income.

VI. Conclusion

The aim of this chapter is to test the impact of institutions on economic growth at a disaggregate level using the 5 groups: MENA, Europe, America, Asia and SSA, divided into high, middle and low income countries. Different institutions measures were used to analyze the impact on economic growth. These measures include: government stability, socioeconomic condition, investment profile, law and order etc. We also analyze what kinds of institutions are more effective in each region and by level of income.

Our main conclusion is that higher institutional quality leads to an acceleration in growth. Taking into account the differences of income give us a clear idea about the importance of the institutional variables by income on growth. We conclude that institutions matter differently depending on regions and income. On the one hand, the institutional variables that matter most for growth are socioeconomic conditions for the Europe group, Law and Order for the America, and the Asia group. On the other hand, it is corruption, democratic accountability and bureaucracy that matter most for growth in the MENA, America, Asia groups.

This study shows that the impact of institution on economic growth depends on the development status considered of the country. In these context, government stability, socioeconomic condition and corruption matter at the early stage of development. Then, law and order and investment profile becomes more significant later on the stage of development. Lee & Kim (2009) clarify that these results simply imply that basic political institutions (like democracy), not others, are particularly important at early stage of economic development.

A low level of corruption, a good quality of bureaucracy, a reliable judiciary, a strong security of property rights, contribute significantly to the firms' decision to invest. Policies should take into account the stage of development of countries. Furthermore, basic political institutions are particularly important at early stage of economic development. Some features of institutional quality could pay faster in terms of marginal effect on growth. Therefore, priority should be given to these specific features, as further institutional complementarities would eventually lead to an incremental effect

on FDI and growth.

Given the importance of institutional quality in determining economic growth, the following chapter examines how the institutional indicators condition the effect of FDI on GDP growth.

APPENDIX I-1

Table A I-1: Institutional Variables

Label	Description	Sources
INSTITUTIONS (INST)	ICRG: consists of the following 12 subcomponents: Government Stability (12 points), Socioeconomic Conditions (12points), Investment Profile (12 points), Internal Conflict (12 points), External Conflict (12 points), Corruption (6 points), Military in Politics (6 points), Religious Tensions (6 points), Law and Order (6 points), Ethnic Tensions (6 points), Democratic Accountability (6 points), Bureaucracy Quality (4points). The resulting index ranges between zero and 100 and a larger value means lower political risk.	PRS-ICRG (2014)
Government Stability	Measures the government's ability to carry out its policies and to stay in office.	PRS-ICRG (2014)
Socioeconomic Conditions	Captures socio–economic pressures at work in society that might restrain government action or elevate social dissatisfaction and thus destabilize the political regime.	PRS-ICRG (2014)
Investment Profile	Assess the investment profile, that is, factors related to the risk of investment that are not covered by other (financial and economic) risk components, such as contract viability (expropriation), profits repatriation or payment delays.	PRS-ICRG (2014)
Internal Conflict	Stands for internal conflict, measuring political violence within the country and its actual or potential impact on governance by focusing on, for instance, civil war, terrorism, political violence or civil disorder.	PRS-ICRG (2014)
External Conflict	Weight external conflict, namely the risk to the incumbent government from foreign action, ranging from non-violent external pressure, such as diplomatic pressure, with holding aid or trade sanctions, to violent external pressures, ranging from cross-border conflicts to all-out war	PRS-ICRG (2014)
Corruption	It evaluates the degree of corruption within the political system	PRS-ICRG (2014)
Military in Politics	Represents the influence of the military in politics, which could signal that the government is unable to function effectively, therefore, the country might have unfavorable environment for business	PRS-ICRG (2014)
Religious Tensions	Measures religious tensions, stemming from the domination of society and/or governance by a single religious group seeking, for instance, to replace civil by religious law or to exclude other religious from the political and social press	PRS-ICRG (2014)

Law and Order	Quantifies law and order, that is, the strength and impartiality of the legal system.	PRS-ICRG (2014)
Ethnic Tensions	Assesses the degree of tensions among ethnic groups attributable to racial, nationality or languages divisions.	PRS-ICRG (2014)
Democratic Accountability	Relates the democratic accountability of the government, that is, the responsiveness of the government to its citizens, but also to fundamental civil liberties and political rights.	PRS-ICRG (2014)
Bureaucracy Quality	Stands for the institutional strength and quality of the bureaucracy, which might act as a shock absorber tending to reduce policy revisions if governments change.	PRS-ICRG (2014)

Table A I-2: List of countries

Group	Level of income	List of countries
MENA	High income	Bahrain, Israel, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates
	Middle income	Algeria, Egypt, Iran, Iraq, Jordan, Lebanon, Libya, Morocco, Syria, Tunisia, West Bank and Gaza, Yemen
Europe	High income	Austria, Belgium, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Iceland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, United Kingdom
	Middle income:	Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Georgia, Hungary, Macedonia, Moldova, Romania, Serbia, Turkey, Ukraine
America	High income	Canada, Chile, Puerto Rico, St. Kitts and Nevis, Trinidad and Tobago, United States, Uruguay
	Middle income	Argentina, Bolivia, Brazil, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, St. Lucia, St. Vincent and the Grenadines, Suriname, Venezuela
Asia	High income	Australia, Brunei Darussalam, Hong Kong, Ireland, Japan, Korea, New Zealand, Russia, Singapore
	Middle income	China, India, Indonesia, Kazakhstan, Kyrgyz Republic, Malaysia, Maldives, Mongolia, Pakistan, Papua New Guinea, Philippines, Solomon Islands, Sri Lanka, Thailand, Timor-Leste, Tonga, Turkmenistan, Uzbekistan, Vanuatu, Vietnam
	Low Income	Bangladesh, Cambodia, Nepal, Myanmar, Tajikistan
SSA	Middle income	Botswana, Cameroon, Gabon, Ghana, Mauritania, Mauritius, Namibia, Nigeria, Senegal, Seychelles, South Africa, Sudan, Swaziland, Zambia
	Low Income	Burkina Faso, Central African Republic, Ethiopia, Guinea, Guinea-Bissau, Kenya, Liberia, Madagascar, Malawi, Mali, Mozambique, Niger, Rwanda, Sierra Leone, Tanzania, Togo, Uganda, Zimbabwe

Table A I-3: Matrix of correlation and VIF

	Y_{-1}	G	GFCF	HK	TRADE	POP	INFL	Y_{84}	INST	VIF
Y_{-1}	1.0000									**1.48**
G	0.0922	1.0000								**1.18**
GFCF	0.1355	0.1490	1.0000							**1.17**
HK	0.3163	0.2772	0.2448	1.0000						**1.49**
TRADE	-0.1721	0.1655	0.2042	0.2546	1.0000					**1.25**
POPU	-0.2985	-0.2408	-0.1618	-0.3828	-0.0859	1.0000				**1.33**
INFL	-0.1432	-0.2049	-0.1946	-0.1498	-0.1607	0.1627	1.0000			**1.14**
Y_{84}	-0.0156	0.0158	-0.0066	-0.0468	-0.0539	0.0244	0.0169	1.0000		**1.01**
INST	0.4779	0.3354	0.3075	0.4869	0.1764	-0.4466	-0.3054	-0.0589	1.0000	**1.91**

APPENDIX I-2

Table B I-1: **The effect of institutions on GDP growth by income (Instruments: legal origin and ethnic polarization)**

	Full sample (1)	High income (2)	Middle income (3)	Low income (4)
Yit-1	0.933***	0.934***	0.883***	0.903***
	(0.201)	(0.221)	(0.142)	(0.189)
G	-0.103***	-0.079	-0.216***	-0.069
	(0.03)	(0.06)	(0.05)	(0.05)
GFCF	0.048	-0.052	0.159**	0.075
	(0.04)	(0.08)	(0.079)	(0.05)
HK	0.134**	0.124	0.020	0.216***
	(0.053)	(0.18)	(0.0133)	(0.06)
TRADE	0.126***	0.128***	0.310***	0.028
	(0.021)	(0.03)	(0.04)	(0.02)
POP	0.025**	0.047**	0.033**	0.020**
	(0.01)	(0.02)	(0.015)	(0.01)
INFL	-0.088*	0.019	-0.087*	-0.022*
	(0.048)	(0.02)	(0.051)	(0.012)
Y84	0.093	0.114***	-0.003	-0.113*
	(0.062)	(0.043)	(0.002)	(0.059)
INST	0.533***	0.093*	0.130*	0.059
	(0.101)	(0.0541)	(0.068)	(0.039)
Constant	0.195***	0.148***	0.187***	0.108***
	(0.065)	(0.050)	(0.061)	(0.04)
Observations	3,355	1,069	1,800	486
Hansen (J-Test)	0.174	0.133	0.154	0.127

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table B I-2: The impact of institutions on growth in the MENA region

Poltical Risk Variable	Government Stability	Socioeconomic Conditions	Investment Profile	External Conflict	Internal Conflict	Corruption	Military in Politics	Religious Tensions	Law and Order	Ethnic Tensions	Democratic Accountability	Bureaucracy Quality
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
$\mathbf{Y_{it-1}}$	0.657***	0.655***	0.659***	0.657***	0.651***	0.673***	0.662***	0.654***	0.658***	0.660***	0.666***	0.663***
	(0.0359)	(0.0376)	(0.0356)	(0.0363)	(0.0381)	(0.0407)	(0.0350)	(0.0370)	(0.0357)	(0.0354)	(0.0357)	(0.0351)
G	0.504**	0.412***	0.444***	0.467***	0.465***	0.332	0.399***	0.494**	0.425***	0.451***	0.384**	0.365**
	(0.208)	(0.152)	(0.165)	(0.178)	(0.170)	(0.216)	(0.152)	(0.192)	(0.155)	(0.168)	(0.161)	(0.165)
GFCF	0.398	0.663**	0.211	0.0362	0.0220	0.225**	0.139	-0.0509	0.0433	0.204	0.0474**	0.0951**
	(0.321)	(0.049)	(0.229)	(0.115)	(0.155)	(0.102)	(0.137)	(0.331)	(0.198)	(0.190)	(0.0237)	(0.041)
HK	0.484**	0.499***	0.522***	0.539***	0.469**	0.500**	0.513**	0.395**	0.297**	0.535**	0.509***	0.487**
	(0.193)	(0.187)	(0.179)	(0.177)	(0.197)	(0.195)	(0.150)	(0.113)	(0.0931)	(0.635)	(0.190)	(0.094)
TRADE	0.387***	0.365***	0.376***	0.387***	0.400***	0.336***	0.372***	0.427***	0.369***	0.371***	0.351***	0.370***
	(0.122)	(0.116)	(0.119)	(0.124)	(0.127)	(0.127)	(0.118)	(0.146)	(0.117)	(0.118)	(0.119)	(0.117)
POP	0.232*	0.353*	0.154	0.225	0.451**	0.0460	0.207	0.583	0.0130**	0.0840*	0.225**	0.145**
	(0.136)	(0.207)	(0.340)	(0.229)	(0.186)	(0.352)	(0.236)	(0.436)	(0.0054)	(0.047)	(0.093)	(0.06041)
INFL	-0.450*	-0.503*	-0.465	-0.0335	-0.0538*	-0.0276**	-0.0322**	0.148**	-0.0244*	-0.0924*	-0.0251*	-0.0986*
	(0.243)	(0.295)	(0.147)	(0.107)	(0.0286)	(0.0131)	(0.015)	(0.061)	(0.0152)	(0.057)	(0.015)	(0.057)
Y_{84}	0.304*	0.0848	-0.0440*	-0.0407*	0.0337	-0.00780*	-0.00781	-0.0574	-0.0207	-0.0500	-0.0127	-0.00485
	(0.176)	(0.175)	(0.0257)	(0.0227)	(0.182)	(0.004)	(0.0257)	(0.0397)	(0.0251)	(0.0383)	(0.0240)	(0.0246)
INST	0.112*	-0.735*	0.121	0.0632	0.0317	0.0138*	0.0661	0.0985	0.1321	0.200	0.103*	0.159*
	(0.059)	(0.422)	(0.0977)	(0.057)	(0.0437)	(0.007)	(0.0697)	(0.0677)	(0.088)	(0.142)	(0.0612)	(0.0935)
Constant	1.046***	1.567 *	0.947	0.462*	0.460	-0.967	0.506*	1.510*	0.736	1.299	0.288**	0.732
	(0.273)	(0.885)	(0.660)	(0.242)	(0.526)	(0.836)	(0.297)	(0.831)	(0.683)	(0.848)	(0.169)	(0.515)
Observations	375	375	375	375	375	375	375	375	375	375	375	375
Hansen (J-Test)	0.572	0.211	0.264	0.353	0.327	0.481	0.537	0.496	0.377	0.121	0.321	0.194

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table B I-3: The impact of institutions on growth in the MENA region by income

Poltical Risk Variable	Government Stability	Socioeconomic Conditions	Investment Profile	External Conflict	Internal Conflict	Corruption	Military in Politics	Religious Tensions	Law and Order	Ethnic Tensions	Democratic Accountability	Bureaucracy Quality
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
$\mathbf{Y_{it-1}}$	0.987***	0.957***	0.957***	0.954***	0.960***	0.963***	0.957***	0.958***	0.958***	0.955***	0.965***	0.962***
	(0.0180)	(0.07)	(0.072)	(0.080)	(0.0796)	(0.067)	(0.074)	(0.088)	(0.069)	(0.080)	(0.09)	(0.0728)
G	-0.035***	-0.0236*	0.0258	0.0274	-0.0298	-0.031**	0.0277	0.0301	0.0273**	0.0298	0.0307**	0.0292**
	(0.0132)	(0.0124)	(0.022)	(0.021)	(0.0221)	(0.0155)	(0.0213)	(0.0212)	(0.0122)	(0.0221)	(0.0120)	(0.0122)
GFCF	0.169	0.0274**	0.340	0.257	-0.0527	0.300	0.0312**	0.0468	0.180	0.577	0.363	0.0248*
	(0.197)	(0.0134)	(0.395)	(0.430)	(0.556)	(0.324)	(0.0139)	(0.599)	(0.888)	(0.913)	(0.388)	(0.0135)
HK	0.133***	0.180***	0.189***	0.202***	0.191***	0.16***	0.197***	0.186***	0.198***	0.199***	0.164***	0.169***
	(0.0507)	(0.0345)	(0.0350)	(0.0367)	(0.0365)	(0.0335)	(0.0362)	(0.0357)	(0.0358)	(0.0363)	(0.0339)	(0.0341)
TRADE	0.384***	0.667	0.479**	0.402***	0.406***	0.538**	0.683	0.577	0.421	0.763	0.430***	0.526*
	(0.127)	(0.461)	(0.215)	(0.131)	(0.143)	(0.272)	(0.481)	(1.397)	(0.539)	(0.739)	(0.149)	(0.286)
POP	0.065**	0.058**	0.064**	0.078***	0.068**	0.056**	0.0716**	0.0660**	0.0685**	0.071***	0.065**	0.0638**
	(0.0287)	(0.0285)	(0.0284)	(0.0287)	(0.0282)	(0.0285)	(0.0286)	(0.0282)	(0.0283)	(0.028)	(0.0282)	(0.0284)
INFL	-0.0336*	-0.0338*	0.0582	-0.0292	-0.0426	-0.028**	0.0277	-0.081**	-0.031**	0.0227	-0.0191**	-0.0177**
	(0.019)	(0.0193)	(0.0828)	(0.0433)	(0.0514)	(0.013)	(0.111)	(0.0370)	(0.007)	(0.01)	(0.009)	(0.008)
Y_{84}	-0.0151**	0.0133	0.00545	0.00220	-0.014**	-0.078**	0.00156	0.00351	0.00374	0.00737	0.00406	0.00272
	(0.00735)	(0.0180)	(0.0120)	(0.0153)	(0.00632)	(0.0371)	(0.0150)	(0.00987)	(0.0122)	(0.0195)	(0.0146)	(0.0137)
INST	0.0412	0.008*	0.0479*	0.005*	-0.0236*	-0.0108*	0.036*	-0.0311*	-0.0066*	0.0032*	0.0193	-0.0147*
	(0.0559)	(0.047)	(0.028)	(0.0029)	(0.0136)	(0.0059)	(0.0216)	(0.018)	(0.0038)	(0.0188)	(0.016)	(0.0087)
INST_ middle	0.0397*	0.125***	-0.076**	-0.077	0.075	0.088**	-0.096	-0.0743	-0.081	-0.079	0.0611*	0.0963**
	(0.021)	(0.0359)	(0.0314)	(0.063)	(0.0521)	(0.0345)	(0.070)	(0.0613)	(0.064)	(0.065)	(0.035)	(0.0400)
Constant	0.0237	0.458***	0.401***	0.412***	0.348***	0.312***	0.351***	0.363***	0.377***	0.417***	0.277**	0.308***
	(0.221)	(0.118)	(0.0996)	(0.104)	(0.104)	(0.0949)	(0.0956)	(0.109)	(0.0967)	(0.110)	(0.115)	(0.0940)
Observations	375	375	375	375	375	375	375	375	375	375	375	375
Hansen (J-Test)	0.217	0.298	0.289	0.195	0.196	0.218	0.192	0.191	0.254	0.147	0.227	0.217

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table B I-4: The impact of institutions on growth in the AMERICA group

Poltical Risk Variable	Government Stability	Socioeconomic Conditions	Investment Profile	External Conflict	Internal Conflict	Corruption	Military in Politics	Religious Tensions	Law and Order	Ethnic Tensions	Democratic Accountability	Bureaucracy Quality
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
$\mathbf{Y_{it-1}}$	0.818***	0.807***	0.831***	0.842***	0.785***	0.840***	0.814***	0.802***	0.826***	0.847***	0.821***	0.802***
	(0.0202)	(0.0217)	(0.0175)	(0.0182)	(0.0228)	(0.0178)	(0.0194)	(0.0296)	(0.0181)	(0.0212)	(0.0184)	(0.0199)
G	-0.110***	-0.373	-0.128***	-0.116***	-0.124***	-0.0770*	-0.0542	-0.102***	-0.077***	-0.063***	-0.0912***	-0.0941
	(0.0329)	(0.272)	(0.0357)	(0.0357)	(0.0360)	(0.0406)	(0.0353)	(0.0295)	(0.0296)	(0.0245)	(0.0353)	(0.0634)
GFCF	0.0169***	-0.0864	0.0164***	0.0171***	0.0172***	-0.149*	-0.0878	-0.0619	0.0910**	-0.0351	0.100**	-0.0838
	(0.0053)	(0.0846)	(0.006)	(0.0065)	(0.0063)	(0.0772)	(0.0540)	(0.0455)	(0.043)	(0.0538)	(0.0367)	(0.0848)
HK	0.0177*	0.161	0.325	0.256**	0.571**	0.327***	0.182	0.203***	0.232**	0.0547	0.390***	0.259*
	(0.0106)	(0.150)	(0.255)	(0.121)	(0.271)	(0.118)	(0.108)	(0.0716)	(0.100)	(0.0644)	(0.137)	(0.154)
TRADE	0.178*	0.0941	0.010**	-0.01970	0.016*	0.0457**	-0.00297	0.025**	-0.0121	0.0229**	0.0250*	0.025
	(0.104)	(0.062)	(0.005)	(0.01836)	(0.0088)	(0.0192)	(0.0119)	(0.0112)	(0.0160)	(0.0115)	(0.0148)	(0.0199)
POP	0.171***	0.0799*	0.0916**	0.155***	0.151***	0.0138	0.130***	0.0470	0.0581	0.0698	0.0999**	0.127***
	(0.0520)	(0.0443)	(0.0424)	(0.0508)	(0.0481)	(0.0436)	(0.0454)	(0.0512)	(0.0417)	(0.0521)	(0.0434)	(0.0439)
INFL	-0.1187	-0.246*	-0.0229	-0.0319	-0.0107	-0.161**	-0.0319	-0.0107	0.00796	-0.0190	-0.103*	-0.213**
	(0.0251)	(0.136)	(0.0193)	(0.0207)	(0.0201)	(0.077)	(0.0207)	(0.0201)	(0.0214)	(0.0192)	(0.0605)	(0.0945)
Y_{84}	0.0136*	0.00499	0.00998	0.0172**	0.00819	0.00776	0.00672	0.0147*	0.00674	0.00574	0.0129*	0.00801
	(0.00746)	(0.00724)	(0.00690)	(0.00764)	(0.00712)	(0.00726)	(0.00692)	(0.00879)	(0.00695)	(0.00863)	(0.00706)	(0.00677)
INST	0.0210	0.128**	0.0205	0.0212	0.0145	0.0781**	0.0418**	0.00191	0.087***	0.0258*	0.0517**	0.113***
	(0.025)	(0.0626)	(0.0820)	(0.0878)	(0.018)	(0.0378)	(0.016)	(0.0183)	(0.0274)	(0.0155)	(0.0251)	(0.0354)
Constant	0.0591**	0.049*	0.066**	0.052	0.042	0.0892*	0.059	0.082	0.099*	0.126	0.786	0.546**
	(0.024)	(0.021)	(0.031)	(0.045)	(0.032)	(0.0488)	(0.0519)	(0.077)	(0.057)	(0.371)	(0.483)	(0.261)
Observations	727	727	727	727	727	727	727	727	727	727	727	727
Hansen (J-Test)	0.165	0.215	0.181	0.211	0.353	0.175	0.125	0.275	0.147	0.147	0.127	0.327

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table B I-5: The impact of institutions on growth in the AMERICA group by income

Poltical Risk Variable	Government Stability	Socioeconomic Conditions	Investment Profile	External Conflict	Internal Conflict	Corruption	Military in Politics	Religious Tensions	Law and Order	Ethnic Tensions	Democratic Accountability	Bureaucracy Quality
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
$\mathbf{Y_{it-1}}$	0.826***	0.725***	0.788***	0.832***	0.762***	0.711***	0.735***	0.775***	0.731***	0.772***	0.744***	0.694***
	(0.0385)	(0.0540)	(0.0570)	(0.0426)	(0.0505)	(0.0949)	(0.0862)	(0.0433)	(0.0967)	(0.105)	(0.131)	(0.114)
G	-0.274	-0.371***	-0.308	-0.341	-0.310	-0.352***	-0.380**	-0.275***	-0.344*	-0.192	-0.246	-0.346**
	(0.215)	(0.141)	(0.209)	(0.246)	(0.408)	(0.105)	(0.168)	(0.103)	(0.201)	(0.195)	(0.181)	(0.161)
GFCF	0.0154***	0.0149	0.0150***	0.0159	0.0147***	-0.017***	0.0147	0.0168	0.0146***	0.0132	0.0152**	0.0151***
	(0.00461)	(0.0145)	(0.0045)	(0.0173)	(0.0045)	(0.0045)	(0.0146)	(0.0149)	(0.0046)	(0.0143)	(0.0048)	(0.00474)
HK	0.0238**	0.0293	0.0263	0.0261	0.0231	0.0255**	0.0262***	0.0249**	0.0281**	0.0236	0.0270***	0.0265**
	(0.0105)	(0.0296)	(0.0281)	(0.029)	(0.0207)	(0.0121)	(0.008)	(0.0100)	(0.0111)	(0.0213)	(0.00998)	(0.00983)
TRADE	0.639***	0.396***	0.448***	0.466***	0.430	0.474***	0.428***	0.466***	0.476***	0.375***	0.475***	0.482***
	(0.0992)	(0.121)	(0.150)	(0.128)	(0.441)	(0.116)	(0.149)	(0.0960)	(0.0871)	(0.112)	(0.0891)	(0.0789)
POP	0.485	0.255***	0.222*	0.292***	0.261*	0.155*	0.243***	0.245**	0.157	0.225*	0.175*	0.181***
	(0.295)	(0.0900)	(0.117)	(0.107)	(0.153)	(0.0888)	(0.0938)	(0.108)	(0.0989)	(0.126)	(0.0949)	(0.0672)
INFL	-0.065**	-0.007***	0.0407	0.0426	0.0456	-0.080***	-0.007***	0.0550	-0.008***	0.0213	0.0200	-0.008***
	(0.0278)	(0.002)	(0.0561)	(0.0532)	(0.0760)	(0.0256)	(0.00269)	(0.0547)	(0.0025)	(0.0475)	(0.0484)	(0.00258)
Y_{84}	0.0947**	0.0124*	0.00214	0.010**	0.0101	0.0132**	0.0133	0.0134	0.0117	0.0159	0.0140	0.0142**
	(0.0452)	(0.0072)	(0.0141)	(0.0047)	(0.0148)	(0.00614)	(0.0142)	(0.0141)	(0.0148)	(0.0147)	(0.0141)	(0.0067)
INST	0.0472**	0.0276	-0.00211	0.0196	0.0156	-0.0539*	0.00477	0.0371	0.0636**	0.0136*	0.00127	0.0009
	(0.0232)	(0.0198)	(0.0191)	(0.0255)	(0.0186)	(0.0317)	(0.0148)	(0.0320)	(0.0312)	(0.008)	(0.0185)	(0.0153)
INST_middle	0.0176	0.0257*	-0.00280	0.0139	0.0138	0.0879**	0.0297*	0.0285	-0.0726*	-0.0190	0.0404*	-0.0254*
	(0.0174)	(0.015)	(0.0162)	(0.0231)	(0.0191)	(0.00418)	(0.0174)	(0.0276)	(0.0427)	(0.0291)	(0.024)	(0.0145)
Constant	0.0600	-0.0595	0.0244	-0.0606	0.0298	0.0927	0.0241	-0.0226	0.0611	0.0604	0.0408	0.0249
	(0.0443)	(0.105)	(0.0681)	(0.0890)	(0.0758)	(0.133)	(0.136)	(0.183)	(0.0888)	(0.103)	(0.151)	(0.0726)
Observations	727	727	727	727	727	727	727	727	727	727	727	727
Hansen (J-Test)	0.141	0.414	0.197	0.140	0.197	0.148	0.139	0.141	0.224	0.242	0.398	0.146

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table B I-6: The impact of institutions on growth in the SSA group

Poltical Risk Variable	Government Stability	Socioeconomic Conditions	Investment profile	External Conflict	Internal Conflict	Corruption	Military in Politics	Religious Tensions	Law and Order	Ethnic Tensions	Democratic Accountabilit	Bureaucracy Quality
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
$\mathbf{Y_{it-1}}$	1.027***	0.996***	1.052***	1.059***	1.049***	1.052***	1.005***	0.992***	0.988***	0.988***	1.026***	0.984***
	(0.0234)	(0.0286)	(0.0245)	(0.0290)	(0.0253)	(0.0248)	(0.0314)	(0.00369)	(0.00353)	(0.0034)	(0.0240)	(0.0349)
G	0.0121	-0.119**	-0.101**	-0.0364	-0.0726*	-0.147**	-0.0948**	-0.0950**	-0.0861**	-0.0678*	-0.103**	-0.0976
	(0.0500)	(0.0508)	(0.0484)	(0.0384)	(0.0398)	(0.0627)	(0.0416)	(0.0434)	(0.0421)	(0.0402)	(0.0464)	(0.0620)
GFCF	-0.0508	-0.0602	-0.0331	-0.0433	-0.0374	-0.00152	-0.0196	-0.00385	-0.0457	-0.0253	-0.0521	-0.0677
	(0.0453)	(0.0499)	(0.0402)	(0.0401)	(0.0422)	(0.0414)	(0.0329)	(0.0356)	(0.0404)	(0.0375)	(0.0419)	(0.0525)
HK	0.103	-0.179	0.210**	0.188**	0.209**	0.216*	0.165**	0.196**	0.210**	0.190**	0.194**	0.229**
	(0.0829)	(0.111)	(0.0970)	(0.0826)	(0.0991)	(0.120)	(0.0710)	(0.0811)	(0.0927)	(0.0887)	(0.0905)	(0.111)
TRADE	0.0419	0.170**	0.206***	0.180***	0.164**	0.173**	0.115***	0.162***	0.173**	0.217***	0.172***	0.182**
	(0.0477)	(0.0828)	(0.0789)	(0.0647)	(0.0664)	(0.0831)	(0.0436)	(0.0592)	(0.0683)	(0.0807)	(0.0658)	(0.0781)
POP	-0.0492	0.149**	0.162***	0.155***	0.177***	0.174***	0.132***	0.138***	0.153***	0.139***	0.191***	0.170***
	(0.0486)	(0.0639)	(0.0555)	(0.0481)	(0.0612)	(0.0647)	(0.0389)	(0.0418)	(0.0501)	(0.0439)	(0.0634)	(0.0614)
INFL	0.0282*	0.0375***	0.0350***	0.0357***	0.0311***	0.0304**	0.0334***	0.0330***	0.0279**	0.0362***	0.0358***	0.0444***
	(0.0149)	(0.0134)	(0.0132)	(0.0124)	(0.0119)	(0.0132)	(0.0113)	(0.0123)	(0.0114)	(0.0132)	(0.0129)	(0.0172)
Y_{84}	-0.0324***	-0.0381***	-0.0354***	-0.0339***	-0.0348***	-0.0349***	-0.0354***	-0.0354***	-0.0351***	-0.0376***	-0.0338***	-0.0343***
	(0.00435)	(0.00350)	(0.00349)	(0.00327)	(0.00322)	(0.00357)	(0.00292)	(0.00317)	(0.00325)	(0.00350)	(0.00330)	(0.00392)
INST	0.0646***	-0.273***	0.146***	0.00149	0.0255	0.0340	0.0500*	0.0992***	0.130***	0.0763***	0.0606*	0.106**
	(0.0160)	(0.0844)	(0.0448)	(0.0319)	(0.0227)	(0.0206)	(0.029)	(0.0288)	(0.0262)	(0.0243)	(0.0339)	(0.0516)
Constant	0.428*	-0.111	0.182	-0.290	0.236	-0.158	-0.298	-0.0194	0.00564	0.0232	0.107	-0.0440
	(0.251)	(0.320)	(0.216)	(0.239)	(0.333)	(0.290)	(0.725)	(0.0397)	(0.0371)	(0.0360)	(0.490)	(0.345)
Observations	709	709	709	709	709	709	709	709	709	709	709	709
Hansen (J-Test)	0.253	0.159	0.186	0.159	0.451	0.360	0.279	0.128	0.227	0.136	0.177	0.341

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table B I-7: The impact of institutions on growth in the SSA group by income

Poltical Risk Variable	Government Stability	Socioeconomic Conditions	Investment Profile	External Conflict	Internal Conflict	Corruption	Military in Politics	Religious Tensions	Law and Order	Ethnic Tensions	Democratic Accountability	Bureaucracy Quality
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
$\mathbf{Y_{it-1}}$	0.951***	0.988***	0.901***	0.879***	0.889***	0.985***	0.927***	0.913***	0.921***	0.917***	0.887***	0.976***
	(0.00922)	(0.0161)	(0.0247)	(0.0472)	(0.0348)	(0.00961)	(0.0156)	(0.0220)	(0.0204)	(0.0204)	(0.0330)	(0.0164)
G	-0.0191	-0.0821**	-0.0294	-0.0111	-0.0388	-0.0535*	-0.0460*	-0.0274	-0.0417	-0.0326	-0.0384	-0.0578*
	(0.0252)	(0.0339)	(0.0245)	(0.0253)	(0.0254)	(0.0285)	(0.0278)	(0.0247)	(0.0258)	(0.0252)	(0.0255)	(0.0340)
GFCF	-0.0214*	0.0262	0.0181	0.0184	-0.0609*	-0.026***	0.0180	-0.0228***	-0.0194**	0.0231	0.0134	0.024
	(0.012)	(0.0584)	(0.0185)	(0.0101)	(0.0365)	(0.00563)	(0.0718)	(0.00804)	(0.00763)	(0.0790)	(0.0101)	(0.0607)
HK	0.0039**	0.0238	0.0060**	0.00598*	0.005**	-0.040	0.038**	0.053**	0.044**	0.066	0.005**	0.0268*
	(0.00173)	(0.0264)	(0.0025)	(0.00306)	(0.0026)	(0.056)	(0.0194)	(0.0236)	(0.0212)	(0.0648)	(0.002)	(0.0157)
TRADE	0.00263	0.0296**	0.0269***	0.0258***	0.0263	0.0306***	0.0435	-0.0386	0.0126***	0.0157***	-0.00264	0.00322
	(0.00252)	(0.00232)	(0.0034)	(0.00392)	(0.0356)	(0.00232)	(0.0285)	(0.0341)	(0.00306)	(0.00334)	(0.00417)	(0.00236)
POP	0.0538***	0.0481**	0.0443**	0.0451**	0.0484***	0.0479***	0.0496***	0.0472**	0.0481***	0.0525***	0.0538***	0.0481**
	(0.0194)	(0.0200)	(0.0179)	(0.0180)	(0.0182)	(0.0185)	(0.0183)	(0.0183)	(0.0181)	(0.0190)	(0.0194)	(0.0200)
INFL	0.0160**	0.0255***	0.0160**	0.0164**	0.0162**	0.0150**	0.0152**	0.0135*	0.0144**	0.0166**	0.0160**	0.0255***
	(0.00712)	(0.00839)	(0.00681)	(0.00687)	(0.00686)	(0.00693)	(0.00676)	(0.00693)	(0.00680)	(0.00693)	(0.00712)	(0.00839)
Y_{84}	-0.0336***	-0.0370***	-0.0342***	-0.0340***	-0.0340***	-0.0345***	-0.0347***	-0.0350***	-0.0340***	-0.0339***	-0.0336***	-0.0370***
	(0.00231)	(0.00252)	(0.00218)	(0.00222)	(0.00219)	(0.00221)	(0.00215)	(0.00216)	(0.00218)	(0.00224)	(0.00231)	(0.00252)
INST	0.0614**	0.140	0.0225	0.128***	-0.00921	0.182	-0.0514	-0.275	0.110*	-0.169	0.0361	0.271***
	(0.0294)	(0.114)	(0.0281)	(0.0458)	(0.0955)	(0.112)	(0.135)	(0.618)	(0.0653)	(0.507)	(0.0988)	(0.0889)
INST_middle	0.166***	-0.0101**	0.349***	0.378**	0.461***	0.0249	0.269***	-0.309***	0.361***	-0.355***	0.488***	-0.0628*
	(0.0362)	(0.004)	(0.0952)	(0.160)	(0.158)	(0.0509)	(0.0651)	(0.0872)	(0.105)	(0.0976)	(0.155)	(0.0362)
Constant	0.192***	0.0283	0.518***	0.490**	0.511***	0.0414	0.402***	0.411***	0.392***	0.460***	0.518***	0.0891
	(0.0546)	(0.0914)	(0.146)	(0.209)	(0.177)	(0.0580)	(0.103)	(0.122)	(0.119)	(0.131)	(0.169)	(0.0921)
Observations	709	709	709	709	709	709	709	709	709	709	709	709
Hansen (J-Test)	0.173	0.148	0.281	0.702	0.179	0.224	0.520	0.191	0.0104	0.615	0.129	0.288

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table B I-8: The impact of institutions on growth in the Asia group

Poltical Risk Variable	Government Stability (1)	Socioeconomic Conditions (2)	Investment profile (3)	External Conflict (4)	Internal Conflict (5)	Corruption (6)	Military in Politics (7)	Religious Tensions (8)	Law and Order (9)	Ethnic Tensions (10)	Democratic Accountability (11)	Bureaucracy Quality (12)
Y_{it-1}	0.930***	0.924***	0.935***	0.945***	0.938***	0.941***	0.943***	0.948***	0.947***	0.921***	0.931***	0.943***
	(0.0141)	(0.0182)	(0.0135)	(0.0145)	(0.0133)	(0.0131)	(0.0130)	(0.0126)	(0.0148)	(0.0164)	(0.0140)	(0.0125)
G	-0.193**	-0.275***	-0.214***	-0.255***	-0.238***	-0.255***	-0.258***	-0.196***	-0.206**	-0.289***	-0.193**	-0.275***
	(0.0807)	(0.0843)	(0.0745)	(0.0827)	(0.0825)	(0.0789)	(0.0776)	(0.0756)	(0.0895)	(0.0817)	(0.0807)	(0.0843)
GFCF	0.0270	0.456***	0.153***	-0.0359	0.041	-0.0280	-0.0766	0.0138**	0.0505	-0.0424	0.0259	0.16***
	(0.0460)	(0.129)	(0.0553)	(0.0571)	(0.0508)	(0.0474)	(0.0553)	(0.0063)	(0.0478)	(0.0545)	(0.0527)	(0.0534)
HK	0.0190***	0.021***	0.018***	0.025***	0.019***	0.021***	0.0214***	0.0278***	0.0193***	0.019***	0.022**	0.01***
	(0.0073)	(0.00292)	(0.0017)	(0.00220)	(0.0015)	(0.0016)	(0.00190)	(0.00258)	(0.00163)	(0.0018)	(0.0018)	(0.0017)
TRADE	0.354***	0.356***	0.299***	0.306***	0.471***	0.261***	0.285***	0.229***	0.295***	0.208***	0.283***	0.308***
	(0.0658)	(0.0641)	(0.0595)	(0.0598)	(0.0843)	(0.0588)	(0.0582)	(0.0600)	(0.0581)	(0.0619)	(0.0583)	(0.0590)
POP	0.229***	0.471***	0.328***	0.139*	0.203***	0.319***	0.115	0.149*	0.360***	0.133*	0.0506	0.418***
	(0.0605)	(0.121)	(0.0686)	(0.0767)	(0.0622)	(0.0637)	(0.0736)	(0.0860)	(0.0648)	(0.0733)	(0.0737)	(0.0691)
INFL	-0.0870**	-0.159**	-0.100**	0.111	-0.094**	-0.122**	-0.125	-0.0708	-0.110***	-0.089***	0.146	-0.132***
	(0.041)	(0.075)	(0.04)	(0.137)	(0.044)	(0.059)	(0.0135)	(0.0751)	(0.0114)	(0.0126)	(0.0143)	(0.0127)
Y_{84}	0.0203***	0.0202***	0.0239	0.024***	0.0217***	0.0227***	0.0234***	0.022***	0.0243***	0.0234***	0.0239***	0.020***
	(0.00675)	(0.00652)	(0.0620)	(0.00622)	(0.00629)	(0.00626)	(0.00620)	(0.00641)	(0.00617)	(0.00626)	(0.00619)	(0.00675)
INST	0.177	0.626***	1.758***	0.839***	0.775***	0.713***	1.799***	2.490***	1.560***	1.681***	1.764***	1.626***
	(0.147)	(0.183)	(0.235)	(0.416)	(0.289)	(0.187)	(0.222)	(0.369)	(0.189)	(0.247)	(0.212)	(0.192)
Constant	1.837***	1.898***	1.607***	1.125***	1.564***	1.804***	1.430***	1.437***	1.514***	1.136***	1.235***	1.036***
	(0.240)	(0.421)	(0.258)	(0.374)	(0.244)	(0.240)	(0.278)	(0.379)	(0.242)	(0.289)	(0.276)	(0.252)
Observations	675	675	675	675	675	675	675	675	675	675	675	675
Hansen (J-Test)	0.241	0.432	0.214	0.193	0.329	0.214	0.147	0.324	0.257	0.142	0.412	0.365

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table B I-9: The impact of institutions on growth in the Asia group by income

Poltical Risk Variable	Government Stability	Socioeconomic Conditions	Investment Profile	External Conflict	Internal Conflict	Corruption	Military in Politics	Religious Tensions	Law and Order	Ethnic Tensions	Democratic Accountability	Bureaucracy Quality
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
$\mathbf{Y_{it-1}}$	0.479***	0.531***	0.483***	0.424***	0.561***	0.552***	0.505***	0.478***	0.498***	0.493***	0.518***	0.497***
	(0.0367)	(0.0199)	(0.0230)	(0.0356)	(0.0205)	(0.0186)	(0.0231)	(0.0304)	(0.0205)	(0.0246)	(0.0248)	(0.0206)
G	-0.0969	-0.0124	-0.130***	-0.206***	-0.0510**	-0.0444	-0.0606**	-0.186***	-0.049**	-0.029**	-0.101**	-0.0247
	(0.0943)	(0.0312)	(0.0402)	(0.0548)	(0.021)	(0.0342)	(0.0288)	(0.0605)	(0.0204)	(0.01357)	(0.0426)	(0.0309)
GFCF	0.197***	0.0813**	0.222***	-0.224**	0.0638	0.0379**	0.0178	0.304***	0.0498	-0.135	0.0636**	0.0708**
	(0.0717)	(0.038)	(0.0704)	(0.0869)	(0.0757)	(0.018)	(0.0526)	(0.103)	(0.0561)	(0.0656)	(0.030)	(0.0337)
HK	0.022***	0.022***	0.0249***	0.0299***	0.02***	0.021***	0.024***	0.029***	0.023***	0.04***	0.024***	0.022***
	(0.00174)	(0.00150)	(0.00168)	(0.00250)	(0.00170)	(0.00147)	(0.0016)	(0.00265)	(0.0015)	(0.0020)	(0.00173)	(0.00147)
TRADE	0.0217	0.0844***	0.0746***	0.0896***	0.086***	0.097***	0.063***	0.0834***	0.065***	0.078***	0.096***	0.0729***
	(0.0231)	(0.0118)	(0.0127)	(0.0143)	(0.0126)	(0.0115)	(0.0134)	(0.0150)	(0.0121)	(0.0134)	(0.0118)	(0.0120)
POP	0.526***	0.354***	0.196***	-0.117	0.228***	0.357***	0.285***	-0.161	0.317***	0.0950	0.192**	0.392***
	(0.0904)	(0.0592)	(0.0704)	(0.122)	(0.0840)	(0.0591)	(0.0681)	(0.144)	(0.0606)	(0.0952)	(0.0765)	(0.0570)
INFL	-0.152***	-0.139***	-0.157***	-0.181***	-0.132***	-0.133***	-0.145***	-0.159***	-0.15***	-0.13***	0.157	0.153
	(0.0146)	(0.0109)	(0.0121)	(0.0164)	(0.0117)	(0.0105)	(0.0112)	(0.0150)	(0.0111)	(0.0120)	(0.130)	(0.113)
Y_{84}	0.0108**	0.0132**	0.0142	-0.008	0.001*	0.011*	0.017**	0.004**	0.002**	0.0240*	0.044***	0.0216*
	(0.0051)	(0.0062)	(0.0133)	(0.0152)	(0.0005)	(0.0064)	(0.008)	(0.0019)	(0.0119)	(0.0126)	(0.0115)	(0.0114)
INST	0.946	2.501*	1.489*	1.265*	1.025*	1.047*	5.580*	1.870**	2.163*	1.068*	1.541**	1.773*
	(0.591)	(1.471)	(0.870)	(0.711)	(0.607)	(0.631)	(3.226)	(0.920)	(1.112)	(0.601)	(0.733)	(1.042)
INST_high	2.006	1.895***	2.104***	2.856***	1.782***	1.391***	1.657***	2.521***	1.845***	2.186***	1.576***	1.642***
	(1.337)	(0.198)	(0.216)	(0.399)	(0.299)	(0.148)	(0.216)	(0.379)	(0.176)	(0.260)	(0.230)	(0.158)
INST_middle	-0.318	0.478**	1.154***	1.647***	0.762**	0.371**	0.679***	1.634***	0.869***	1.163***	0.627**	0.679***
	(0.200)	(0.189)	(0.212)	(0.347)	(0.331)	(0.188)	(0.234)	(0.387)	(0.201)	(0.270)	(0.268)	(0.206)
Constant	2.483***	3.120***	3.812***	3.825***	3.053***	3.078***	3.027***	3.817***	3.237***	3.275***	2.956***	3.173***
	(0.261)	(0.257)	(0.289)	(0.346)	(0.268)	(0.259)	(0.234)	(0.365)	(0.240)	(0.263)	(0.245)	(0.257)
Observations	675	675	675	675	675	675	675	675	675	675	675	675
Hansen (J-Test)	0.184	0.390	0.295	0.461	0.377	0.242	0.274	0.213	0.216	0.477	0.295	0.131

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table B I-10: The impact of institutions on growth in the Europe group

Poltical Risk Variable	Government Stability	Socioeconomic Conditions	Investment profile	External Conflict	Internal Conflict	Corruption	Military in Politics	Religious Tensions	Law and Order	Ethnic Tensions	Democratic Accountability	Bureaucracy Quality
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
$\mathbf{Y_{it-1}}$	1.018***	1.014***	0.992***	0.939***	1.018***	1.066***	1.109***	1.052***	1.109***	1.069***	1.040***	0.919***
	(0.0272)	(0.0209)	(0.0198)	(0.0214)	(0.0234)	(0.0345)	(0.0750)	(0.0344)	(0.0346)	(0.0352)	(0.0276)	(0.0224)
G	0.168**	0.0730	-0.197	0.0171	-0.127	-0.109*	-0.156	-0.170	-0.103	-0.107	-0.108**	-0.376***
	(0.008)	(0.106)	(0.135)	(0.0936)	(0.110)	(0.064)	(0.157)	(0.103)	(0.131)	(0.103)	(0.045)	(0.0935)
GFCF	0.121**	0.117***	0.248***	0.215***	0.186***	0.0242**	-0.125	0.0736	-0.0482	0.0471	0.160**	0.0951*
	(0.0486)	(0.0431)	(0.0753)	(0.0487)	(0.0526)	(0.01)	(0.213)	(0.0954)	(0.0769)	(0.0805)	(0.0670)	(0.0541)
HK	0.0506**	0.046*	0.377**	0.120	0.275*	0.469**	0.352**	0.235**	0.282*	0.298**	0.058*	0.0541*
	(0.0215)	(0.027)	(0.179)	(0.168)	(0.151)	(0.190)	(0.146)	(0.118)	(0.161)	(0.141)	(0.031)	(0.029)
TRADE	0.105**	0.0104**	0.008**	0.037	0.010*	0.0194	0.0696	0.0184	0.0750**	0.0354**	0.0292	0.0857***
	(0.05)	(0.00457)	(0.0038)	(0.036)	(0.0056)	(0.0141)	(0.0588)	(0.0229)	(0.0335)	(0.0146)	(0.0244)	(0.0237)
POP	0.103	0.122	0.265**	0.464***	0.141	0.220	0.041**	0.194	0.284**	0.113	0.0174	0.446**
	(0.130)	(0.130)	(0.133)	(0.137)	(0.161)	(0.176)	(0.017)	(0.219)	(0.1183)	(0.197)	(0.150)	(0.179)
INFL	-0.0281	-0.0589*	-0.0522*	-0.0617**	-0.113**	-0.0173	-0.0517	-0.0587	0.00142	-0.0485	-0.0389	-0.0813***
	(0.0387)	(0.0356)	(0.0292)	(0.0283)	(0.0445)	(0.0484)	(0.0798)	(0.0533)	(0.0440)	(0.0591)	(0.0370)	(0.031)
Y_{84}	0.0839**	0.033**	-0.0283	0.0289	0.0879***	0.0804**	0.092**	0.0501**	0.0487*	0.068**	0.0126**	0.033**
	(0.034)	(0.015)	(0.0267)	(0.0217)	(0.0281)	(0.0345)	(0.0409)	(0.021)	(0.0281)	(0.0326)	(0.006)	(0.01571)
INST	0.0394*	0.0448**	0.0175**	0.0522***	0.016*	0.0193	0.0327	0.0191	0.0543**	0.0186	-0.0346	0.0156
	(0.0209)	(0.0213)	(0.0083)	(0.0156)	(0.0095)	(0.0234)	(0.0424)	(0.0105)	(0.025)	(0.0336)	(0.0285)	(0.0273)
Constant	0.0250	-0.176	0.322	0.162	-0.196	-0.759	-0.592	-0.234	-1.146*	-0.681	-0.426	1.974***
	(0.537)	(0.534)	(0.535)	(0.393)	(0.496)	(0.868)	(0.826)	(0.505)	(0.637)	(0.545)	(0.512)	(0.431)
Observations	633	633	633	633	633	633	633	633	633	633	633	633
Hansen (J-Test)	0.146	0.288	0.310	0.241	0.142	0.150	0.193	0.261	0.157	0.241	0.281	0.210

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table B I-11: The impact of institutions on growth in the Europe group by income

Poltical Risk Variable	Government Stability	Socioeconomic Conditions	Investment Profile	External Conflict	Internal Conflict	Corruption	Military in Politics	Religious Tensions	Law and Order	Ethnic Tensions	Democratic Accountability	Bureaucracy Quality
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
$\mathbf{Y_{it-1}}$	0.930***	0.915***	0.925***	0.913***	0.883***	0.922***	0.914***	0.925***	0.918***	0.938***	0.919***	0.930***
	(0.0130)	(0.0143)	(0.0130)	(0.0143)	(0.0204)	(0.0133)	(0.0139)	(0.0131)	(0.0137)	(0.0126)	(0.0138)	(0.0130)
G	0.0230**	0.021***	0.020***	0.020	-0.017	-0.0215**	-0.022	-0.019	0.021***	-0.021	-0.021***	-0.0212***
	(0.0109)	(0.009)	(0.00641)	(0.0236)	(0.0653)	(0.00636)	(0.0264)	(0.0643)	(0.00639)	(0.0242)	(0.00648)	(0.00635)
GFCF	0.0746***	0.0529***	0.0527***	0.051	0.0536***	0.0499***	0.0532***	0.0528***	0.0520***	0.0513***	0.0519***	0.0531***
	(0.0135)	(0.017)	(0.021)	(0.056)	(0.021)	(0.0156)	(0.012)	(0.011)	(0.00643)	(0.00647)	(0.00647)	(0.00640)
HK	0.0942	0.0556***	0.0537***	0.0561***	0.0450***	0.0562***	0.0561***	0.0521***	0.0560***	0.0573***	0.0539***	0.0635***
	(0.0718)	(0.0161)	(0.0158)	(0.0159)	(0.0164)	(0.0157)	(0.0158)	(0.0159)	(0.0159)	(0.0161)	(0.0159)	(0.0163)
TRADE	0.394*	0.244**	0.0959	0.279	0.902**	0.347	0.0722	0.0382	0.017	0.227**	0.770	0.394*
	(0.227)	(0.116)	(0.177)	(0.243)	(0.371)	(0.429)	(0.140)	(0.192)	(0.334)	(0.093)	(0.531)	(0.227)
POP	0.0353	0.0465	0.0468**	0.0475	0.0453	0.0439	0.0463	0.0466**	0.0517**	0.0464	0.0474	0.052**
	(0.0483)	(0.0307)	(0.0206)	(0.0406)	(0.0527)	(0.0397)	(0.0527)	(0.0207)	(0.0209)	(0.0632)	(0.0517)	(0.021)
INFL	-0.260**	-0.132**	-0.082**	-0.0529*	-0.0754**	-0.0460	-0.0622	0.0591*	-0.199**	-0.0995*	-0.325*	-0.0760*
	(0.1232)	(0.056)	(0.0400)	(0.0311)	(0.031)	(0.0703)	(0.0527)	(0.0340)	(0.082)	(0.057)	(0.180)	(0.045)
Y_{84}	0.084***	0.0048***	0.0049***	0.0048***	0.0053***	0.00469***	0.0047***	0.051***	0.0050***	0.0049***	0.0051***	0.0045***
	(0.00273)	(0.00164)	(0.00163)	(0.00163)	(0.00162)	(0.00163)	(0.00164)	(0.00163)	(0.00162)	(0.00163)	(0.00162)	(0.00164)
INST	-0.0331	0.144**	0.061***	0.0801**	0.084**	0.0945**	0.0485***	0.048**	0.064***	0.056***	0.0632***	0.071***
	(0.0667)	(0.0574)	(0.0231)	(0.0327)	(0.038)	(0.0392)	(0.0164)	(0.02)	(0.0246)	(0.0214)	(0.0242)	(0.0199)
INST_ middle	0.301**	-0.0236**	-0.0108**	-0.0125*	-0.0452**	-0.0410***	-0.0196**	-0.00379	-0.0183*	-0.0195*	-0.0110	0.037
	(0.143)	(0.0098)	(0.0045)	(0.00745)	(0.0198)	(0.0144)	(0.00915)	(0.008)	(0.00977)	(0.0106)	(0.00928)	(0.033)
Constant	-0.110	0.0107	0.00396	-0.0495	-0.172**	0.0317	0.0450	-0.0214	0.0135	-0.0656	-0.0264	0.0893*
	(0.0746)	(0.0547)	(0.0494)	(0.0606)	(0.0761)	(0.0545)	(0.0489)	(0.0502)	(0.0515)	(0.0681)	(0.0544)	(0.0510)
Observations	633	633	633	633	633	633	633	633	633	633	633	633
Hansen (J-Test)	0.288	0.139	0.124	0.177	0.138	0.494	0.0807	0.110	0.209	0.253	0.0468	0.120

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

CHAPTER II : THE EFFECT OF FOREIGN DIRECT INVESTMENT ON ECONOMIC GROWTH: THE INSTITUTIONAL THRESHOLD[22]

[22] A version of this chapter has been published in Région et Développement (Trojette, 2016).

I. Introduction

The aim of this chapter is to estimate the impact of FDI on growth on the one hand, on the other hand to assess the role of institutions on the effectiveness of FDI' effects on growth. One particularity of this study is the introduction of threshold analysis. This part relies on the idea that the impact of FDI on growth depends on a critical level of institutions developed by several authors (Meyer & Sinani, 2009). It leads us to consider 5 subsamples of countries according to the World Bank regional decomposition (MENA, Europe, America, Asia and SSA) and 3 income levels (high, middle and low income countries).

According to the economic literature, FDI may affect growth mainly through three channels. This works through first the linkages between FDI and foreign trade flows. Second, the spillovers and other externalities vis-à-vis the host country; and third the direct impact on structural factors in the host economy (OECD, 2002).

The endogenous growth theory (Barro, 2004) asserts that the only vehicle for growth enhancing FDI would be through permanent technological shocks. Due to greater potential externality effects than in the case of new inputs, knowledge and technology transfers are expected to be the most important mechanisms through which FDI promotes growth in the host country (De Mello Jr, 1997).

Theoretical models show different ways in which FDI affects growth. FDI is a source of human capital increase and technological change in developing countries, since it promotes the use of more advanced technology by domestic firms (De Mello Jr, 1997). Through capital accumulation in the host country, FDI is expected to boost growth by encouraging the incorporation of new inputs and technologies in the production function of the recipient economy. FDI stimulates a host economy's growth through the technological know-how transfer and human capital (Carkovic & Levine, 2002) creating the ''first-order'' effects. Subsequently, second-order effects, including the mobility of these advanced technology, management system, and skilled labor for local firms will follow (De Mello & Sinclair, 1995). This, in turn, enhances the host environment's ability to absorb other FDI, creating clusters of FDI and pools of talented managers and a skilled labor force in the host economy (Borensztein et al., 1998). FDI also offers

demonstration effects, that is, their superior operational efficiency encourages local firms to place more emphasis on technology investments for productivity gains that contribute to the economic growth of the host country (Meyer & Sinani, 2009) [23]. According to De Mello (1997), this impact should be lower in technological leaders than in technological laggards.

Furthermore, FDI is shown to be more growth enhancing in countries that pursue export promotion than in those promoting import substitution (Bhagwati, 1978). The extent to which export-led growth is determined by export promotion policies establishes the link between trade regimes and long run growth in the presence of FDI. Basu et al., (2003) and Balasubramanyam et al., (1996) emphasize trade openness as a crucial determinant for the impact of FDI on growth. Xiaming Liu et al., (1997) explain that a larger bilateral trade would help the home country receive more information about the investment climate in the host country. With this channel, the home country creates permanent FDI opportunity in the host country.

However**,** despite the arguments and evidence in support of the positive impacts of FDI on growth, some empirical findings suggest the contrary. Sen (1998) indicates that multinationals may have an adverse reaction in the host country RD in order to continue to hold a technological advantage compared to local firms. He points out the increase in payments of royalties that will lead to a negative impact on the balance of payments. Vissak & Roolaht (2005) explain that the host country can become dependent on technologies introduced by multinationals. These authors argue that workers with high education may leave the country, since there are no R&D activities that they can engage in the host country. Furthermore, Ford et al., (2008) state that local authorities, verifying that multinationals are a source of training and improving the levels of education in the country, reduce public spending in this area which mitigates the effect of labor force training provided by FDI. Mencinger (2003) reports that FDI has a higher impact on imports than on exports, which influences negatively the balance of payments. This can be explained by the fact that multinationals use goods and raw materials, which are most of the time not available, in the host country (OECD, 2002). Vissak & Roolaht (2005) note that the purpose of improving the balance of payments through the initial

[23] Previous works have provided more supports for this positive prediction (Buckley et al., 2002).

financial flows received is not always achieved in the long run. This can be explained by the repatriation of multinational subsidiary profits to their countries of origin (OECD, 2002; Hansen & Rand, 2006). Finally, another negative effect of FDI on growth is caused by the competition created in access to credit. Lim (2001), Carkovic & Levine (2002) and Sylwester (2005) explain that multinationals are partly financed by the host countries financial markets. This increases the costs of credit and changes the access to credit[24].

A recent literature survey by Bruno & Campos (2013) shows that 50% of empirical studies report a significantly positive effect of FDI on growth[25], 11% find a negative effect[26] while 39% find growth to be independent of FDI. It thus seems that FDI plays an ambiguous role in economic growth (Greenaway & Kneller, 2007) with little support for the positive effect (Meyer, 2004)[27].

The explanations for these conflicting results have pointed to methodological issues (Carkovic et al., 2005) and to the different absorptive capacity of host countries (Blomström et al., 2003). Empirical research seems to converge to the conclusion that the effect of FDI on economic growth is conditional on several local circumstances. The literature has identified the level of development (Blomstrom et al., 1994), trade openness (Balasubramanyam, 1996), human capital (Borensztein et al., 1998), financial development (Alfaro et al., 2004), the business environment (Busse & Groizard, 2008), export diversification[28] (Nicet-Chenaf & Rougier, 2011) and the institutional quality (Azman et al., 2010) to influence the effect of FDI on growth.

Since the late 1990s there has been a growing consensus among researchers that recognize the role of institutions the ‘‘rules of the game’’ in shaping multinational corporations (MNCs) activities and the spillover effects they produce (North, 2005). Institutions, broadly defined, consist of informal constraints such as norms, culture, and

[24] Chakraborty and Basu (2002) explain that the problems in access to credit are mainly experienced by local firms which have a smaller structure, and then find it difficult to support the increased costs of credit, plus their weak bargaining power with financial institutions (compared to multinationals).
[25] See Liu et al., (2002) for other work on the positive impact of FDI on growth.
[26] See survey by Herzer (2008), Gorg & Greenaway (2003), Aitken & Harrison (1999) and Kathuria (2000) for the negative impact of FDI on growth.
[27] According to Meyer et al., (2004) the existing literature on the negative impacts of FDI is comparatively thinner than its positive economic impacts especially for emerging economies.
[28] As reported by Nicet-Chenaf & Rougier (2011), FDI and diversification promote growth in the MENA countries, however higher levels of export diversification decrease the impact of FDI on growth.

customs, or the more purposive formal ones embodied in particular political rules and organizational structures.

Institutions could be seen as one channel through which FDI promotes economic growth. Indeed, good institutions are supposed to exert their positive influence on development through the promotion of investment in general, which faces less uncertainty and higher expected rates of return. Because FDI is now a very large share of capital formation in poor countries (UNCTAD, 2004), the FDI-promoting effect of good institutions might be an important channel of their overall effect on growth and development.

In line with the recent emphasis on the role of institutions in economic growth Acemoglu et al., (2001a) [29] and Cantwell et al., (2010) argue that institutional environment significantly varies the degree and even the direction of FDI impacts in the host economy. This institution-based view on FDI is particularly relevant to developing countries where institutions differ significantly from those in developed countries and forcefully shape the way multinationals behave and interact with local sectors (Acemoglu et al., 2005). They argue that local institutions in terms of private property protection, legal and regulatory enforcement, product and intermediary market development, can moderate the various impacts of FDI on the local economy. More specifically, a more developed institutional setting motivates and facilitates both foreign and local firms to compete for output rationalization and curtails the negative impacts of FDI.

Along this strand of research, some studies have also aimed at analyzing the relationships between national institutional systems and foreign direct investments (FDI). The works of Globerman & Shapiro (2002), Cantwell et al., (2010) and Bénassy-Quéré et al., (2007) are some recent examples in this research field. They identify several reasons why the quality of institutions may matter for FDI. In fact, poor institutions can bring additional costs to FDI. This can be the case of corruption for instance (Wei, 2000). Likewise, due to high sunk costs, FDI is especially vulnerable to any form of uncertainty, including uncertainty stemming from poor government

[29] See Aghion et al., (2007), Rodrik et al., (2004) and Porta et al., (1998) for other works on institutions and growth.

efficiency, policy reversals, bribery or weak enforcement of property rights and of the legal system in general.

Bénassy-Quéré et al., (2007) use five out of six governance indicators provided by Kaufmann et al., (1999) and show that inward FDI is significantly influenced by the quality of institutions like political instability and violence, regulatory burden, rule of law and graft. Using the same database Globerman & Shapiro (2002) find that good governance impacts positively both on FDI inflows and outflows, although the latter effect is only significant for relatively big and developed countries.

The ambiguous effect of FDI on growth as mentioned above, arises an important question: to what extent institutions can be crucial and determining factors towards FDI until it becomes a real lever for growth? At this level we advance the hypothesis of the existence of an institutional threshold beyond which FDI positively impacts growth.

Some studies have attempted to estimate the institutional threshold effect. Meyer & Sinani (2009) have found a curvilinear relation between FDI spillovers and the host country's institutional framework. They estimate an institutional threshold (economic freedom and corruption) for the advanced and less advanced economies using the mathematical derivative method. Their results show that FDI impacts positively growth if the level of economic freedom and corruption are respectively above the threshold of 56.6 and 5.69. Globerman & Shapiro (2002) use a sample of 94 developing countries over the period 1984-2009 and a Panel Smooth Transition Regression (PSTR) to identify the threshold of institutional quality that influences the FDI growth effect. They find that, the improvement of the institutional framework should precede FDI attraction policies to benefit from FDI-led growth and that. Furthermore, democratic accountability and bureaucracy have an immediate effect on fostering FDI-led growth as opposite to internal and external conflict. They find that any effort above the threshold of 2.09 for Law and Order increase the elasticity of FDI on growth by 0.126. K. E. Meyer & Sinani (2009) use a Panel Smooth Transition Regression (PSTR) for a sample of 19 MENA countries over the period 1984-2011. Their results indicate that the effect of FDI on economic growth is conditional to the development of institutions in the MENA countries. It is shown that any effort made by the MENA region just below

the threshold value of 0.006 for Investment profile and 0.206 government stability is likely to result in a sharp increase of the elasticity of growth with respect to FDI.

The purpose of this chapter is to examine a wider range of institutional indicators (political risk variables), to identify the relative importance of these indicators for FDI flows. Such a link may be seen as one particular channel through which FDI is able to promote GDP growth. There are a number of studies investigating the role of institutions in conditioning the positive impact of FDI flows on growth (Ali et al., 2010; Buchanan et al., 2012)[30]. However there is very limited research dealing with the threshold effect of institutions in explaining the positive effect of FDI on growth by region and by level of income (high and middle income). Seeking to refine the growth effect of FDI, we investigate its conditionality on the institutional quality. In this chapter we argue that well developed institutions enhance the overall benefits of FDI on economic growth. Likewise, we consider host country heterogeneity, in its wider form, to be a plausible explanation for the different results of empirical studies.

Our research has several original features compared to the existing literature. The empirical analysis shows that institutional quality conditions the effect of FDI on economic growth more in the middle-income countries than in high income ones. Furthermore, we highlight the importance of heterogeneity in analyzing the FDI-growth relationship, as we divide the 5 groups of SSA, MENA, Europe, Asia and America by level of income to determine the institutional threshold level. The existence of such a threshold level allows us on the one hand to analyze the indirect effect of FDI on growth through institutions for countries that are below and above the institutional threshold. On the other hand to compare the effect of FDI on growth between high, middle and low income countries that are below and above the institutional threshold. We take into account the twelve components of institutions[31] to analyze the most important institutional variables that condition the positive impact of FDI on growth.

This chapter is organized as follows. Section 2 presents the model and methodology being used. Section 3 presents the results. Section 4 highlights the main conclusions and

[30] See Busse & Hefeker (2007), Alfaro et al., (2008) and Javorcik & Wei (2009) for other studies of the effect of institutions on FDI.
[31] Further detailed discussion on the definition of the twelve components of institutions was developed in Chapter I, APPENDIX I-1, Table A I-1.

policy implications.

II. Model and methodology

II.1. Model

To test the hypothesis of the threshold effect of institutions on the impact of FDI in economic growth, the following Equation II-1 is particularly well suited to capture the presence of contingency effects. It also offers a rich way of modeling the influence of the institutional development on the impact of FDI in economic growth. We use the dynamic panel threshold regression approach suggested by Kremer et al., (2013) to explore the nonlinear behavior of FDI in relation to the economic growth[32]. The model such as (1) is based on lessons drawn from the literature review. It has been used in the analysis of trade and growth (El Khoury & Savvides, 2006), knowledge spillovers (Falvey et al., 2007), FDI and growth (Azman-Saini et al., 2010), and FDI and income inequality (Wu & Hsu, 2012), among other topics. This study adopts a macroeconomic approach. It does not take into account the financial variables as they are highly correlated with the institutional factors (Minea & Villieu, 2010; Ayadi et al., 2015) which appear more important to explain the attractiveness of FDI (see Chapter III).

The model based on the threshold regression takes the following form:

Equation II-1

$$\boldsymbol{Y_{it}} = \mu_i + \alpha_1 Y_{it-1} + \alpha_2 G_{it} + \alpha_3 GFCF_{it} + \alpha_4 INFRA_{it} + \alpha_5 CREATION_{it} + \alpha_6 HK_{it} + \alpha_7 TRADE_{it} + \alpha_8 FDI_{it} + \beta_1 FDI_{it} * \mathrm{I}(INST_{it} \leq \gamma) + \delta_1 * \mathrm{I}(INST_{it} \leq \gamma) + \beta_2 FDI_{it} * \mathrm{I}(INST_{it} > \gamma) + \varepsilon_{it}$$

where *i* is country index and *t* is time index.

Y is the log of GDP (constant 2005 US$), FDI is the stock of foreign direct investment, net inflows in percentage of GDP. Using the share of GDP allows us to take into account the relative country size.

[32] Kremer et al., (2013) extend the Hansen (1999) original static panel threshold estimation and the Caner and Hansen (2004) cross-sectional instrumental variable (IV) threshold model, where generalized methods of moments (GMM) estimators are used to deal with endogeneity.

where INST (i.e., level of institutional quality) is the threshold variable used to split the sample into regimes or groups and γ is the unknown threshold parameter. I(.) is the indicator function, which takes the value 1 if the argument in the indicator function is valid, and 0 otherwise. This type of modeling strategy allows the role of FDI to differ depending on whether institutions are below or above some unknown level of γ. In this equation, institutions act as sample-splitting (or threshold) variables. The impacts of FDI on growth will be β_1 and β_2 for countries with a low and high regime, respectively. Following Bick (2010), we allow for differences in the regime intercepts ($\delta 1$). The variable institutions is considered as an endogenous variable.

X_{it} denotes the vector of explanatory regressors, which includes lagged values of the dependent variable Y_{it}, endogenous variable (INST), as well as exogenous variables, for which the slope coefficients are all assumed to be regime independent. These control variables are hypothesized to affect economic growth. These determinants are: G (government consumption), GFCF (gross fixed capital formation), HK (human capital), TRADE (trade openness), and INST (institutions), which were presented in Chapter I, Table I-1. In addition the description of INFRA (infrastructure), CREATION (technology creation) and FDI are given in Table II-1. The entire variables are in logarithm. μ_i is unobserved country-specific effect term, and $\boldsymbol{\varepsilon_{it}}$ is a white noise error term.

The matrix of correlation (APPENDIX II-1, Table A II-1) indicates the correlation between the explanatory variables. Most of the correlation's coefficients are low: they are between 0.02 and 0.47. As the sign of the Pearson correlation coefficient is positive, we can conclude that there is a positive correlation between Government consumption, GFCF, infrastructure, creation, HK, institutions and FDI with growth. That is, growth increases with these variables. The variable CREATION is correlated with HK (0.50) and with INST (0.63). For this reason, we run the Variance Inflation Factor to test the muticolinearity of this variable (CREATION). Results (APPENDIX II-1, Table A II-2) point that the VIF of the variable CREATION is 2.15. It is less than 10, we conclude that there is no evidence of multicollinearity.

Table II-1: Description of macroeconomic variables

LABEL	Definition	SOURCE
FDI	Foreign Direct Investment: inward stock, in percentage of GDP. It is the value of the share of their capital and reserves (including retained profits) attributable to the parent enterprise, plus the net indebtedness of affiliates to the parent enterprises.	UNCTAD, 2014
Technology creation (CREATION)	-Number of patent grants per 1 million people -Number of publications in scientific and technical journals per 1 million people	WIPO, World Bank (WDI), 2014
Technology Infrastructure (INFRA)	-Fixed broadband Internet subscribers per 100 people -Telephone fixed-lines per 100 people -Mobile cellular subscriptions per 100 people -Electric power consumption (kWh per capita)	WDI, 2014

II.2. Methodology

II.2.1. GMM estimation

This study employs a system generalized method of moments (GMM) panel estimator, which was finalized by Blundell & Bond (1998). This estimator is better over others because (i) it is able to control for the presence of unobserved country-specific effects, and (ii) it is also able to control for a simultaneity bias caused by the potential endogeneity of the explanatory variables. To eliminate the country specific effect Arellano & Bond (1991) apply first-difference transformation of Equation II-1 as follows:

Equation II-2:

$$\Delta y_{it} = \alpha(\Delta y_{it-1}) + \beta_1(\Delta FDI_{it}) + \beta_2(\Delta INST_{it}) + \beta_3[\Delta(FDI * INST)_{it}] + \beta_4(\Delta X_{it}) + \Delta\varepsilon_{it}$$

In order to address the issue of endogeneity and the correlation between Δy_{it-1} and $\Delta\varepsilon_{i,t}$ and between $\Delta INST_{it}$ with $\Delta\varepsilon_{i,t}$, the GMM uses higher order lag of the regressors as instrument (Arellano & Bond, 1991). However, the validity of the moment conditions must be fulfilled to yield unbiased and consistent estimators. In fact, this econometric method has one serious limitation where instrumental variables are weak if the explanatory variables are persistent (Blundell & Bond, 1998; Alonso-Borrego & Arellano, 1999). To overcome this limitation, system GMM estimator has been

introduced by Arellano & Bover (1995). Two specification tests are employed to test the validity of the model. Firstly, the consistency of the system GMM estimator requires no second order serial correlation in difference error term εit. Next, would be Hansen test of over identifying restrictions. The non-rejection of the null hypothesis of both tests indicates that the model is correctly specified and the instruments are valid.

System GMM estimator uses lagged differences of y_{it} as instruments for equations in levels and lagged levels of y_{it} as instruments for equations in first differences. In our case, we built the instruments for Y_{it-1} and INST using the method of Lewbel (2012). In the first stage, each endogenous variable is regressed on the Z vector (Z is a subset of the exogenous X vector included in the regression excluding the endogenous variable). Then the vector of residuals (Re) is retrieved. The instruments are computed as follow:

Instrument(X)= (X- E(X)) * residual

E(X): is the mean of X

II.2.2. Estimation of a threshold effect

According to Kremer et al., (2013), the standard within transformation and first differencing methods to eliminate the country-specific fixed effects in the dynamic panel are not applicable because both violate the distribution assumptions underlying Hansen (1999) and Caner & Hansen (2004). Thus, the forward orthogonal deviations transformation suggested by Arellano & Bover (1995) is used to eliminate the fixed effects. The unique feature of this transformation is that serial correlation of the transformed error terms is avoided. This ensures that the estimation procedure derived by Caner & Hansen (2004) for a cross-sectional model can be applied to the dynamic panel specification such as Equation II-1.

Following Caner & Hansen (2004), there are three steps to estimate the coefficients. First, a reduced form regression is estimated for the endogenous variables (Y_{it-1} and INST) as a function of the instruments Z_{it} by the ordinary least squares (OLS) approach, and we obtain the fitted values of $\hat{b}$ $INST_{it}$. Second, by substituting the predicted values of $\hat{b}$ $INST_{it}$ into Equation II-1, we estimate the equation using the OLS method. Then a threshold parameter k is estimated and associated with a sum of squared residuals for

each threshold by S(k). This step is repeated for different value of the thresholds k. The estimator of the threshold value k selected is associated with the smallest sum of squared residuals:

$$\hat{\gamma} = \text{argmin}\ \gamma\ Sn(\gamma).$$

In accordance with Hansen (2000) and Caner & Hansen (2004), the critical values for determining the 95% confidence interval of the threshold value are given by

$$\Gamma = \{\gamma : LR(\gamma) \leq C(\alpha)\},$$

where $C(\alpha)$ is the 95% percentile of the asymptotic distribution of the likelihood ratio statistic $LR(\gamma)$. The underlying likelihood ratio has been adjusted to account for the number of time periods used for each cross section (see Hansen, 2000). Once $\hat{\gamma}$ is determined, the slope coefficients can be estimated by the generalized method of moments (GMM) for the previously used instruments and the previous estimated threshold $\hat{\gamma}$.

III. Results of the threshold estimation

III.1. The effect of FDI on GDP growth: the institutional threshold

The threshold values for institutions and the effect of FDI on GDP growth is displayed in Table II-2. Given the p-value of AR(2) and Sargan tests, we accept all specifications. Furthermore, the p-values suggest that, for all the five groups, low debt regime slope coefficient ($\beta 1$) is significantly different from high debt regime slope coefficient ($\beta 2$) and therefore the threshold estimates are significant.

Table II-2 summarizes the results for the MENA, America, Asia, Europe and SSA groups using the threshold regressions of equation II-1.

Results show that institutions mitigate the negative effect of FDI on growth for the SSA group (column 9). The coefficient of FDI is negative, it turns to be positive for this group when we introduce INST (institutions). For the MENA (column 1), Asia (column 5) and Europe (column 7), the improvement of the level of institutions makes the impact of FDI on growth higher. It can be seen through the coefficient of the interaction

(FDI*INST) as it becomes significant in the MENA region. For the Asia and the Europe groups the additional effect of institutions on FDI has increased the impact of FDI on growth from 0.256 to 0.541 in the Asia group, and from 0.385 to 0.601 in the Europe group. The positive sign of the interaction (FDI*INST) means that the benefit of FDI is higher with a better institutional environment. Host countries should decrease the political risk in their countries to benefit more from FDI. Such a policy in a host country would generate a favorable environment for the spillover effects stemming from multinational companies to domestic companies. Also, the contribution of multinational companies would be easier and higher in a favorable business environment.

Table II-2: The effect of FDI nexus institutions on growth by region

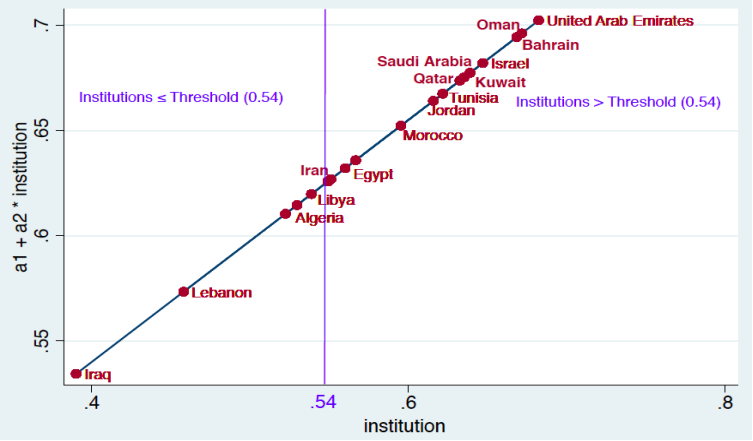
VARIABLES	MENA (1)	MENA (2)	AMERQ (3)	AMERQ (4)	ASIA (5)	ASIA (6)	EUROPE (7)	EUROPE (8)	SSA (9)	SSA (10)
Y_{it-1}	0.679***	0.620***	0.806***	0.817***	0.927***	0.921***	0.820***	0.858***	0.869***	0.881***
	(0.029)	(0.069)	(0.024)	(0.022)	(0.011)	(0.011)	(0.015)	(0.020)	(0.014)	(0.012)
G	0.234**	0.491*	-0.144*	-0.141	-0.171***	-0.183***	-0.0650	0.122	-0.133**	-0.129***
	(0.111)	(0.275)	(0.087)	(0.088)	(0.049)	(0.0518)	(0.041)	(0.151)	(0.0561)	(0.0459)
GFCF	-0.276	-0.0450	0.227*	0.225*	0.0874	0.0753	0.0799	0.006	0.0395	0.041
	(0.191)	(0.062)	(0.133)	(0.117)	(0.112)	(0.061)	(0.121)	(0.0037)	(0.068)	(0.066)
INFRA	0.915	1.526***	0.190	0.160	0.111	0.106	-0.005	-0.009	-0.004	0.017
	(0.571)	(0.218)	(0.252)	(0.141)	(0.152)	(0.148)	(0.022)	(0.0056)	(0.0021)	(0.038)
CREATION	-0.0384	0.039	-0.0119	-0.0311	0.110***	0.072***	0.0327**	0.063***	0.051	-0.026
	(0.035)	(0.045)	(0.017)	(0.047)	(0.040)	(0.023)	(0.016)	(0.0242)	(0.061)	(0.041)
HK	0.486	0.961**	-0.0204	0.251	0.378***	0.239**	0.0215*	0.143*	0.0809	0.0341
	(0.311)	(0.391)	(0.028)	(0.319)	(0.131)	(0.120)	(0.012)	(0.084)	(0.075)	(0.062)
TRADE	0.294***	0.520**	0.515***	0.450***	0.096***	0.125***	0.426***	0.442***	0.180***	0.165***
	(0.108)	(0.232)	(0.171)	(0.0720)	(0.0296)	(0.0332)	(0.098)	(0.057)	(0.051)	(0.0461)
FDI	0.379	0.438	0.399	0.0975	0.256*	0.635*	0.385***	0.530*	-0.196***	-0.116**
	(0.264)	(0.308)	(0.295)	(0.071)	(0.148)	(0.351)	(0.073)	(0.316)	(0.0609)	(0.051)
FDI*INST	0.575*		0.674		0.541*		0.601***		0.480***	
	(0.326)		(0.490)		(0.318)		(0.183)		(0.131)	
FDI*(INST<= ɣ)		-0.377		0.0847		-0.325*		0.811		-0.063*
		(0.289)		(0.075)		(0.191)		(0.757)		(0.037)
FDI*(INST> ɣ)		0.051**		0.078*		0.133*		0.117***		0.325***
		(0.021)		(0.042)		(0.078)		(0.037)		(0.124)
δ1		-0.555*		0.055		-0.460*		-0.455		0.196**
		(0.296)		(0.041)		(0.270)		(0.357)		(0.098)
Threshold ɣ		0.54		0.63		0.60		0.7		0.51
Constant	0.559***	0.243**	0.746***	0.755***	0.699***	0.537***	0.480***	0.272***	0.487***	0.244***
	(0.157)	(0.114)	(0.183)	(0.181)	(0.174)	(0.154)	(0.104)	(0.093)	(0.125)	(0.093)
Observations	570	570	930	930	1,020	1,020	1,230	1,230	960	960
Number of id	19	19	31	31	34	34	41	41	32	32
AR(2) P-value	0.206	0.359	0.171	0.630	0.186	0.475	0.398	0.172	0.453	0.516
Sargan P-value	0.130	0.146	0.584	0.498	0.498	0.390	0.260	0.179	0.175	0.146

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

MENA region

According to the regression of the MENA region, FDI impacts positively growth only for countries with an institutional level (INST) above the threshold of 0.54 (column 2). Therefore 14 of the 19 countries in the regression pass the threshold (Figure II.1).

Figure II.1: Threshold level of institutions in the MENA region



Countries below 0.54* *(5 countries): High income: none, Middle income: Algeria, Iraq, Lebanon, Libya, West Bank and Gaza.* ***Countries above 0.54* *(14 countries): High income: Bahrain, Israel, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates. Middle income: Egypt, Iran, Jordan, Morocco, Syria, Tunisia, and Yemen.*

Conversely, FDI has a negative but a non significant effect on growth for 5 of the 19 countries in the sample (Algeria, Iraq, Lebanon, Libya and West Bank and Gaza). For these countries, the low level of institutions[33] (below 0.54) impedes them from the benefit of FDI on growth. This means that the existence of high political instability leads for example to corruption and restrains countries from benefiting from FDI. For example, during the period 1984-2013, it is Iraq and Lebanon had the lowest level of institutions (0.39 and 0.43 respectively). More precisely, it is due to high level of corruption and others forms of cronyism. This means that institutions are important factors in influencing the effect of foreign direct investment on growth. A minimum level of institutions (0.54) is required in the MENA region to get a positive effect of FDI on growth.

Table II-3 presents a summary of the effect of FDI nexus institutions by income on growth for countries above and below the threshold of institutions. Details of the results including all explanatory variables are presented in APPENDIX II-1, Table A II-3. In Table II-3 we compare between high, middle and low income countries that are above

[33] Lower level of institutions means higher level of political instability.

and beyond the threshold level of institutions. Results for the MENA region (column 1) confirm that the effect of FDI on growth is higher in the middle income countries than in the high income countries (0.241) when the level of institutions is above 0.54.

Table II-3: The effect of threshold of institutions by income on FDI and growth by region

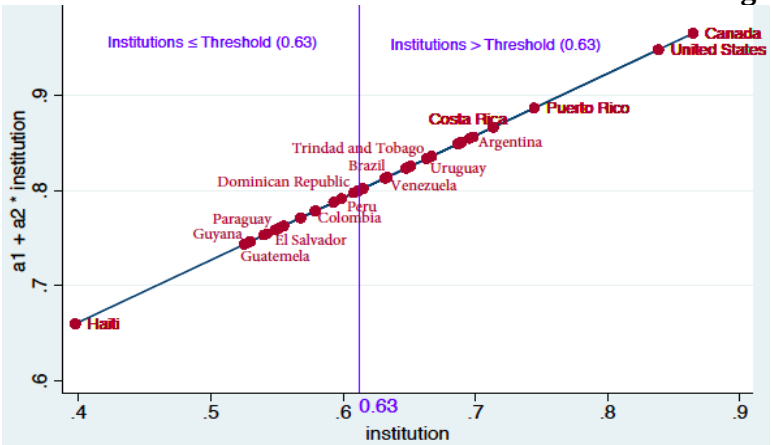
VARIABLES	MENA (1)	America (2)	Asia (3)	Europe (4)	SSA (5)
FDI	0.112	0.490	0.488**	0.228*	-0.032*
	(0.129)	(0.385)	(0.206)	(0.125)	(0.0168)
FDI*(INST<= ɣ)_high income			-		
FDI*(INST>ɣ)_high income			0.979**		
			(0.490)		
FDI*(INST<= ɣ)_middle income	0.070	-0.725	-0.809**	0.017	0.646
	(0.092)	(0.634)	(0.321)	(0.026)	(0.510)
FDI*(INST>ɣ)_middle income	0.241*	0.564**	0.327*	0.572**	0.266***
	(0.141)	(0.234)	(0.179)	(0.287)	(0.097)
Number of id	19	31	34	41	32

We conclude that for the MENA region institutions raise the effect of FDI on growth as the additional effect of institutions makes the effect of FDI on growth higher. The estimation of the threshold of institutions shows that the effect is positive only for countries that are above the institutional threshold of 0.54. Furthermore, taking into account the level of income indicates that institutions are more important for FDI in the middle income countries than in the high income countries.

America group

For the America group, institutions add a positive and significant effect to the impact of FDI on growth (0.0787) only for countries above the institutional threshold of 0.63 (Table II-2, column 4). Only 15 of 31 countries pass the threshold (Figure II.2). We point that, the interaction (FDI*INST) is not significant (Table II-2, column 3), but the fact that we divide the sample into countries that are below and above the threshold highlights that the effect is only positive for countries above the institutional threshold of 0.63. Furthermore, in Table II-3, column (2), the effect of FDI on growth is bigger in the middle income countries than in the high income countries when the level of institutions is higher than 0.63.

Figure II.2: Threshold level of institutions in the America group

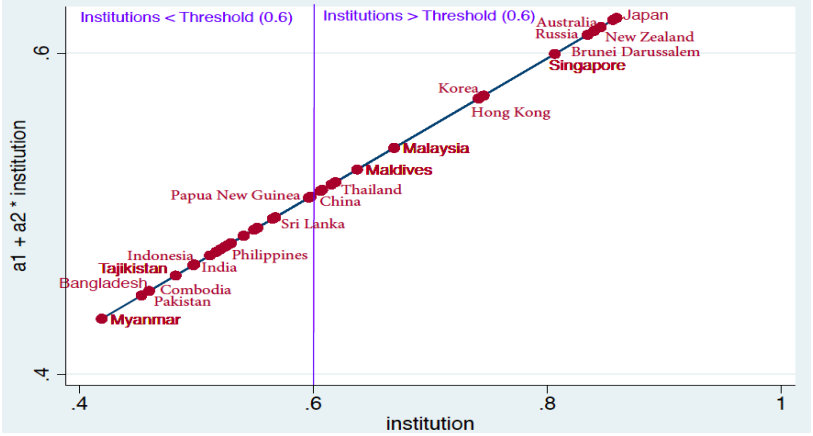


Countries below 0.63* *(16 countries): High income: none, Middle income: Bolivia, Colombia, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Honduras, Nicaragua, Panama, Paraguay, Peru, St. Vincent and the Grenadines, Suriname.* ***Countries above 0.63* *(15 countries): High income: Canada, Chile, Puerto Rico, St. Kitts and Nevis, Trinidad and Tobago, United States, Uruguay. Middle income: Argentina, Brazil, Costa Rica, Dominica, Jamaica, Mexico, St. Lucia, Venezuela.*

Asia group

In the Asia group, institutions almost double the positive effect of FDI on growth (Table II-2, column 5). More precisely the positive effect of FDI on growth appears on countries that are above the threshold institutions of 0.60 (column 6). Only 14 of 34 countries are above the institutional threshold (Figure II.3). When institutions are higher than 0.60, the effect of FDI on growth is higher in the high income countries than in the low income countries (Table II-3). Furthermore, when institutions are below 0.60, the negative effect of FDI on growth is higher in the low income countries than in the middle income countries.

Figure II.3: Threshold level of institutions in the Asia group



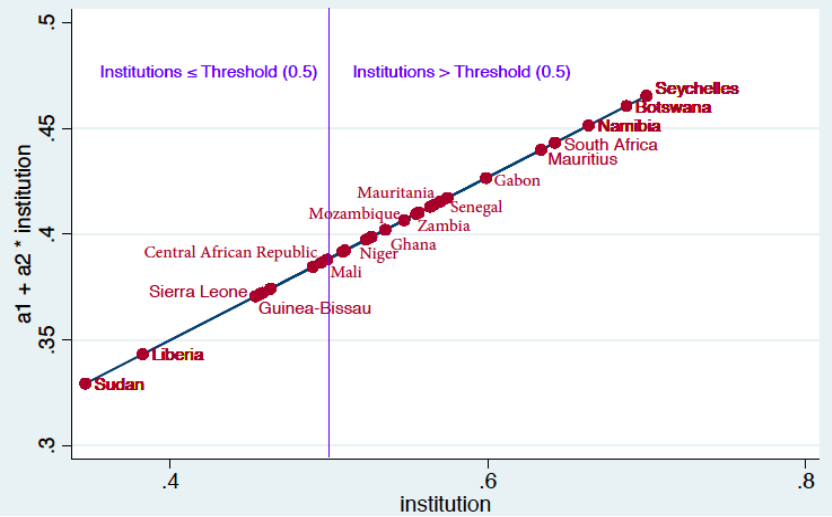
Countries below 0.6* *(20 countries): High income: none, Middle income: India, Indonesia, Kazakhstan, Kyrgyz Republic, Mongolia, Pakistan, Papua New Guinea, Philippines, Solomon Islands, Sri Lanka, Timor-Leste, Turkmenistan, Uzbekistan, Vanuatu, Vietnam. Low Income: Bangladesh, Cambodia, Myanmar, Nepal, Tajikistan.* ***Countries above 0.6* *(14 countries): High income: Australia, Brunei Darussalam, Hong Kong, Ireland, Japan, Korea, New Zealand, Russia, Singapore. Middle income: China, Malaysia, Maldives, Thailand, Tonga.*

SSA group

In the SSA group (Table II-2, column 9), the variable institutions mitigates the negative effect of FDI on growth. One percent increase in FDI increases GDP growth by 0.32 percent if the level of institutions is above 0.50 (column 10) which represents the mean value of institutions (column 10). Ajide et al., (2014) find the same results for 27 countries of SSA. They show that FDI impacts positively growth if the level of governance is higher than its mean value. Now, if we consider countries that are below the level of institutions 0.5, the effect of FDI on growth is negative. It is the case for 13 of 32 countries (Figure II.4).

The effect of FDI on growth becomes positive, once the level of institution is above 0.5. This positive effect is higher in the middle income than in the low countries (Table II-3). Results explain that institutions are important in the effect of FDI on growth in the middle income countries that are above 0.50.

Figure II.4: Threshold level of institutions in the SSA group



Countries below 0.5: Middle income: Nigeria, Sudan. Low Income: Central African Republic, Ethiopia, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Rwanda, Sierra Leone, Togo, Uganda. **Countries above 0.5: Middle Income: Botswana, Cameroon, Gabon, Ghana, Mauritania, Mauritius, Namibia, Senegal, Seychelles, South Africa, Swaziland, Zambia. Low income: Burkina Faso, Kenya, Madagascar, Malawi, Mozambique, Tanzania, Zimbabwe.*

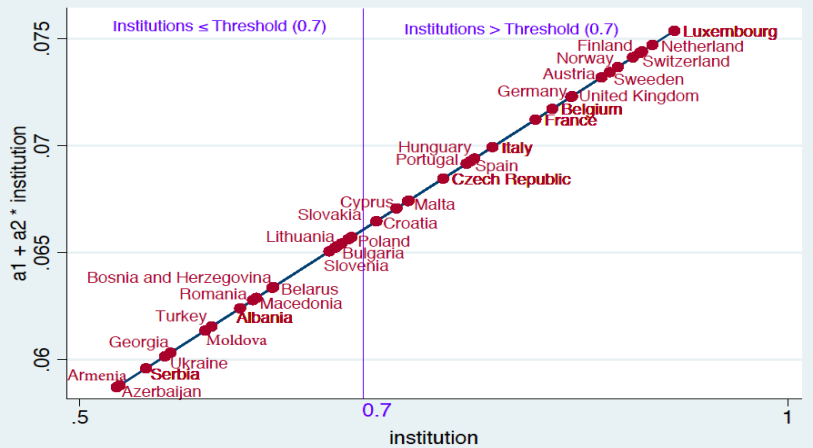
Europe group

For the Europe group, FDI has a positive effect. The additional effect of institutions increases the impact of FDI on growth (Table II-2, column 7). Like in the other groups, the threshold level of institutions conditions the positive effect of FDI on growth. In this case, FDI contributes positively to growth for countries that are above the institutional

threshold of 0.70. There are 27 countries out of 41 that are above the threshold (see Figure II.5). We highlight that the Europe group has the highest level of institutions, so the latter increase the effect of FDI on growth. In fact, the Europe group has achieved a high and stable level of institutions. Other factors as technology (creation) and human capital (HK) are determinant for FDI and growth (Table II-2, column 7 and 8).

When the level of institutions is above 0.7 the effect of FDI on growth is higher in the middle income countries than in the high income countries (Table II-3).

Figure II.5: Threshold level of institutions in the Europe group



Countries below 0.7: High income: Estonia, Latvia, Lithuania, Poland, Slovenia. Middle Income: Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Georgia, Macedonia, Moldova, Romania, Serbia, Turkey, Ukraine.* ***Countries above 0.7**: High Income: Austria, Belgium, Croatia, Cyprus, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland, United Kingdom. Middle income: Hungary.*

We conclude that FDI is not affected by the same level of institutions in the different groups. In fact, the effect of institutions is different across the groups and by level of income. Results show that the effect of institutions is more important in the middle income countries. Institutional quality is an important pre-condition for the positive effect of FDI on growth. This finding is consistent with Azman-Saini et al., (2010), Alfaro et al., (2004), Durham (2004), Borensztein et al., (1998), among many others, who also find that the impact of FDI on growth depends on other conditions available in the host countries. FDI targeting strategies should therefore take into account the differentiated aspects that matter for FDI.

After studying the overall effect of the institutional threshold on FDI, we focus now on the components of this variable institutions[34] in order to measure the threshold of each component that allows FDI to affect growth positively.

III.2 The effect of the subcomponent of institutions nexus FDI on growth

Table II-4 summarizes the threshold effect of institutions nexus FDI for the five regions using the twelve institutional variables. The details of the other explanatory variables are presented in APPENDIX II-1, Table A II-4 to Table A II-13. As an attempt to appraise the individual effect of institutions on GDP growth and to avoid problems caused by multi-collinearity, we estimate equation (1) adding each institutional variable in succession. This approach was used in the literature by Walsh and Yu (2010).

Results indicate that FDI has a positive effect on growth for the MENA, America and the SSA groups when they are above the threshold level of government stability (column 1). The stability of government allows investors to have a warranty on the viability of their business project at least in the short term. This promotes the goals set by the investor and reduces political risks. Conversely, government instability exposes the investors to very high risk (changes in laws, conventions or agreements), which can increase costs. We notice that, the coefficient is higher in the MENA region, which means that in case of government stability, the effect of FDI on growth is higher in the MENA region than in the SSA group or the America group. Improving government stability by one point will have an additional effect on growth by 0.24 percent in the MENA region if the level of government stability is higher than 0.42, and by 0.011 percent in the America group if the level of government stability is higher than 0.38. Our results are confirmed in the work of Brahim and Rachdi (2014). They found a threshold level for government stability of 0.5 for the MENA region, which is lower than our threshold (0.54). This difference can be explained by the sample that includes Sudan and Turkey, also by the method of PSTR used to estimate the threshold. Furthermore, in our estimation we take into account the effect for countries that are below and above the institutional threshold to get a clear idea about the effect of FDI on growth.

[34] The definition of the 12 components of the variable institutions was presented in Chapter I, APPENDIX I-1, Table A I-1.

Socio-economic condition can also be a mechanism through which FDI impacts growth. In this case, pressures at work and social dissatisfaction could restrain the activity of the foreign investors. In some cases it could even stop the project for a few months so government cannot profit from this investment. Results of Table 5 indicate that the effect of FDI on growth is higher in the Europe group than in the MENA region and the SSA group when they are above the critical value of socioeconomic conditions of 0.37, 0.35 and 0.11 respectively (column 2). We note that the level of socioeconomic conditions is the highest in the Europe group.

For control of corruption, FDI has a negative effect on growth in the MENA region (Table 5, column 6). But, the additional effect of fighting against corruption makes the impact of FDI on growth positive and significant when the level of corruption is higher than 0.30. It is the same case in the SSA group when corruption is higher than 0.15. Ajide et al., (2014) find a threshold level of corruption for 27 countries of SSA above which FDI impacts positively growth. We highlight that the effect on growth is higher in the MENA region than in the SSA group when they are above the threshold of 0.30 and 0.15 respectively. McCloud & Kumbhakar (2012) find evidence that controlling for corruption reduces the magnitude of unobserved heterogeneity in the FDI–growth relationship. Indeed, developing countries have not the same threshold above which control of corruption has a positive effect on FDI-growth. Results highlight the threshold effect of corruption in explaining these ambiguous outcomes. In case of corruption, the benefits of FDI are diverted for the profit of specific groups (Oligarchy). Meisel & Aoudia (2007) describe this group of insider or interest group. In this case the benefit of FDI will not reach growth.

The effect of FDI on growth becomes positive in case of the law and order variable (column 9). The strength and impartiality of the legal system prevent the misappropriation of funds by the group of insiders. They act as a guarantee for the foreign investors as they favor the application of the clauses stated in the contract. They form together a mechanism for growth to benefit easily from FDI. This effect is confirmed if the level of Law and Order is above the threshold of 0.25 for the MENA region, 0.20 for the America group and 0.28 for the Europe group. A one percent improvement in FDI will have an additional effect on growth by 0.002 percent in the MENA region (if law and order is higher than 0.25), 0.014 in the Europe group (if law and order is higher than 0.5) and the highest improve is in the America group by 0.029

percent (if Law and Order is higher than 0.20). However, if the level of Law and order is weak in the MENA region (below 0.25) and in the America group (below 0.20), FDI impacts growth negatively. In fact, Busse & Groizard (2008) clarify that restrictive employment laws (hiring and firing of employees) create a weak labor market turnover that limits domestic firm gains from technology spillovers. Other types of government regulation can lead to the same results. For example ensuring creditor rights and enforcement of contracts are hard to apply due to high uncertainty, long periods of investment and great expenses. This result may reduce investment in the host country, which lowers productivity related to the exploitation of technology spillovers from FDI inflows.

Looking at democracy, Aidt & Gassebner (2010) point that democracy is associated with more trade liberalization. The latter leads to a more competitive environment on local market. Higher competitiveness between domestic firms improves their resource allocation and upper efficiency. Indeed, democracy guarantees an enforcement of property rights and the risk of expropriation for foreign investor (Harms et al., 2002; Jensen, 2003, 2008). Our results point that democracy is an important mechanism through which FDI impacts growth for the Asia, and the Europe group (column 11). These results are confirmed if the level of democracy is higher than the threshold of 0.5 for the Asia group, 0.17 for the SSA group and 0.48 for the Europe group. Once the SSA and the Europe group are above their critical values of democracy, the effect of FDI on growth is higher in the middle income than in the high income group.

Bureaucracy mitigates the negative effect of FDI on growth for the MENA region and the SSA group when the level of bureaucracy is higher than respectively 0.26 and 0.2 (column 12). For the Europe group, improving the quality of bureaucracy raises the positive effect of FDI on growth from 0.028 to 0.045. Indeed, this institutional variable measures the ability of bureaucracy to resist political change that is the stability of administrative procedures. The more stable the government is despite the political changes and the less FDI will be impacted. On contrary, the instability of bureaucracy exposes investors to downturns and often changes in the administrative procedures. This results in an additional cost for investors and limits the achievement of targets set by the foreign investors. So, the impact on growth will be limited (less tax payment). If doing business is subject to many bureaucratic procedures (requiring time and resources), then

FDI flows can be prevented from being reallocated to the most productive sectors (Busse & Groizard, 2008).

Results show that for the MENA region, being above the threshold of the institutional variables as government stability, fighting against corruption, the respect of law and order and less bureaucracy enables the country to benefit from FDI. As opposite to the America group in which to draw advantage from FDI they should improve government stability, ethnic tension and law and order. It is government stability and democracy that matter most for the SSA group, external conflict and democracy for the Asia group, socioeconomic conditions, law and order and bureaucracy for the Europe group. Values in bold in Table 5 indicate that, the five variables such as: government stability, socioeconomic conditions, law and order, democratic accountability and bureaucracy quality, are the most important institutional variables to benefit from FDI for 3 groups out of five in this study. Our results are confirmed in the work of Júlio et al., (2013). They also find that these variables are important to benefit from FDI.

Table II-4: Summary of the effect of FDI nexus institutions (12 variables) on growth

Institutional variables		Government Stability	Socioeconomic Conditions	Investment Profile	External Conflict	Internal Conflict	Corruption	Military in Politics	Religious Tensions	Law and Order	Ethnic Tensions	Democratic Accountability	Bureaucracy Quality
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
MENA	**FDI**	-0.026	-0.027	-0.054*	-0.055**	-0.018	-0.017	-0.013	-0.002	-0.0514*	-0.017	-0.038	-0.049*
	FDI*(INST<= γ)	-0.911*	0.603	0.380	-0.359	0.605	0.060	0.486	-0.132	-0.271*	0.160	-0.472	-0.233*
	FDI*(INST> γ)	**0.243***	**0.015***	0.027	0.0147	-0.015	**0.026***	0.018	0.001	**0.034***	-0.004	0.014	**0.021***
AMERICA	**FDI**	0.022	0.016	0.004	-0.005	0.010	-0.015	-0.010	0.020*	0.021	0.017	0.020*	0.010
	FDI*(INST<= γ)	0.006	-0.025	-0.061	-0.006	-0.225***	0.056	0.041	0.241***	-0.95***	0.034	-0.033	0.272
	FDI*(INST> γ)	**0.0111***	0.001	-0.0061	0.001	-0.006	-0.001	0.005	-0.010	**0.029***	0.083*	-0.005	0.005
ASIA	**FDI**	0.0152	0.184	-0.017	-0.018	0.272***	0.075	-0.200*	0.102	0.094	0.051	-0.038	0.288
	FDI*(INST<= γ)	0.129	0.748	-0.271	1.328	-0.128	0.057	-0.080*	0.799	0.534	0.071	-0.089	-0.386
	FDI*(INST> γ)	0.007	0.124	0.0537	**0.110***	0.030	0.022	**0.044***	0.0314	0.009	0.027	**0.070***	-0.017
SSA	**FDI**	-0.030**	0.003	-0.032*	-0.016	-0.025*	-0.003	-0.011	-0.017	-0.011	-0.015	-0.04***	-0.006
	FDI*(INST<= γ)	-1.84***	0.977	-1.162**	-0.90***	-0.184	-0.200	1.564	0.136	-0.89***	-0.817	0.209	-0.537*
	FDI*(INST> γ)	**0.019*****	**0.011***	0.027	0.008	**0.0145***	**0.014****	-0.002	-0.012	0.001	0.011	**0.022*****	**0.011***
EUROPE	**FDI**	0.068***	0.019	0.078***	0.107***	0.171***	0.044***	0.056***	0.049***	0.055***	0.042***	-0.005	0.028**
	FDI*(INST<= γ)	-0.22***	-0.005	0.055	-0.139***	-0.27***	0.118	0.009	0.0231	-0.032	-0.056	0.014	0.079
	FDI*(INST> γ)	0.006	**0.022****	-0.001	0.032	**0.034*****	0.002	0.004	0.009	**0.014***	0.017	**0.009*****	**0.015*****

** Values in bold indicate the most significant institutional mechanisms that condition the positive impact of FDI on growth.*

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

IV. Conclusion

The aim of this chapter is to test the indirect effect of FDI on growth through institutions for the 5 groups: MENA, Europe, America, Asia and SSA divided into high, middle and low income countries. Our main conclusion is that institutional quality differently modulates the effect of FDI on economic growth for the five groups. This difference is due to the institutional level and to the level of income of each group and whether the group has reached the institutional threshold. Furthermore, the magnitude of the indirect effect of FDI on growth through institutions depends on the level of income.

The global effect of the interaction between FDI and institutions can hide specific effect of FDI on growth for countries that are below and above the critical level. The method of Caner & Hansen (2004) allows us to divide the region into countries that are above and below the threshold. Our results highlight the importance of taking into consideration countries that are below and above the threshold level of institutions as it gives a clear idea of beyond which level of institutions FDI impacts growth positively.

The magnitudes of the effect of FDI nexus institutions on growth are non- uniform across country groups. The critical value of institutions explains the difference between the groups. A minimum level of institutions is required for the positive impact of FDI on growth. It is found that FDI enhances growth through government stability, socioeconomic conditions, law and order, democratic accountability and bureaucracy quality for three out of the five groups.

Furthermore, a group of countries can be above the institutional threshold level but belong to a different level of income. Results highlight that even if countries are above the institutional threshold, the effect of FDI on growth can be different. This difference is due to the income level of countries. Indeed, above the global institutional level, the positive impact of FDI on growth is more important in the middle income countries than in the high income countries (Nawaz, 2015). However, this result is different depending on the institutional variable. For example, for countries of the MENA region and the Europe group, which have a level of bureaucracy above the threshold, the positive impact of FDI on growth is greater in the middle income countries than in the high

income. Nevertheless, above the critical value of the variable corruption, the positive impact of FDI on growth in the MENA region and the Asia group is more important in the high income countries. Furthermore, we point that some features of institutional quality could pay- off faster in terms of marginal effect of FDI on growth. Countries should better improve their institutional environment to gather the benefits of the effect of FDI on GDP growth.

Not only are institutions an important factor to attract FDI but also capital account liberalization. The removal of restrictions on foreign ownership and the deregulations of offshore borrowing affect capital inflows. Furthermore, the relation between FDI and capital account openness depends on the level of development of the country. In this context, in the following chapter, we analyze the importance of capital account liberalization on FDI for the developing and developed countries.

APPENDIX II-1

Table A II-1: Matrix of correlation

	Yit-1	G	GFCF	INFRA	CREATION	HK	TRADE	INST	FDI
Yit-1	1.000								
G	0.073	1.000							
GFCF	0.101	0.133	1.000						
INFRA	0.111	0.022	-0.037	1.000					
CREATION	0.496	0.376	0.179	0.044	1.000				
HK	0.307	0.214	0.219	-0.282	0.503	1.000			
TRADE	-0.101	0.134	0.160	-0.089	0.133	0.226	1.000		
INST	0.471	0.239	0.254	-0.044	0.630	0.433	0.149	1.000	
FDI	0.025	0.024	0.069	-0.031	0.205	0.200	0.264	0.212	1.000

Table A II-2: Variance Inflation Factor (VIF)

Variable	VIF	1/VIF
CREATION	2.15	0.46
INST	1.79	0.55
HK	1.51	0.66
G	1.19	0.83
TRADE	1.17	0.85
FDI	1.16	0.86
GFCF	1.10	0.91
INFRA	1.09	0.91
Mean VIF	1.39	

Table A II-3: The effect of threshold of institutions by income on FDI and growth by region

VARIABLES	MENA (1)	America (2)	Asia (3)	Europe (4)	SSA (5)
Yit-1	0.730***	0.986***	0.930***	0.832***	0.855***
	(0.062)	(0.052)	(0.047)	(0.016)	(0.015)
G	0.261*	0.025	0.687*	-0.133	-0.176***
	(0.153)	(0.045)	(0.381)	(0.187)	(0.066)
GFCF	-0.149	0.625	0.110**	0.136	0.056
	(0.150)	(0.472)	(0.051)	(0.251)	(0.066)
INFRA	0.740***	0.144	0.110*	0.507**	-0.005
	(0.259)	(0.153)	(0.064)	(0.211)	(0.0158)
CREATION	-0.019	-0.375	-0.153	0.098***	-0.069***
	(0.017)	(0.277)	(0.147)	(0.017)	(0.025)
HK	-0.099**	0.104	-0.122	0.136**	-0.008
	(0.0412)	(0.152)	(0.126)	(0.059)	(0.005)
TRADE	-0.142	-0.199	-0.126	0.460***	-0.235***
	(0.193)	(0.118)	(0.246)	(0.058)	(0.0538)
FDI	0.112	0.490	0.488**	0.228*	-0.032*
	(0.129)	(0.385)	(0.206)	(0.125)	(0.0168)
FDI*(INST<= ɣ)_high income			-		
FDI*(INST>ɣ)_high income			0.979**		
			(0.490)		
FDI*(INST<= ɣ)_middle income	0.070	-0.725	-0.809**	0.017	0.646
	(0.092)	(0.634)	(0.321)	(0.026)	(0.510)
FDI*(INST>ɣ)_middle income	0.241*	0.564**	0.327*	0.572**	0.266***
	(0.141)	(0.234)	(0.179)	(0.287)	(0.097)
δ1	-0.276**	-0.861	-1.801	-0.142	-0.905**
	(0.107)	(0.764)	(1.260)	(0.262)	(0.389)
Constant	0.459*	0.417*	0.448***	0.862***	0.245**
	(0.269)	(0.243)	(0.091)	(0.234)	(0.114)
Observations	570	930	1,020	1,230	960
Number of id	19	31	34	41	32
AR(2) P-value	0.177	0.171	0.142	0.211	0.159
Sargan P-value	0.157	0.160	0.156	0.131	0.216

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table A II-4: The effect of FDI nexus institutions (12 variables) on growth for the MENA region

Poltical Risk Variable	Government Stability	Socioeconomic Conditions	Investment Profile	External Conflict	Internal Conflict	Corruption	Military in Politics	Religious Tensions	Law and Order	Ethnic Tensions	Democratic Accountability	Bureaucracy Quality
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Y_{it-1}	0.975***	0.951***	0.944***	0.903***	0.963***	0.952***	0.948***	0.958***	0.952***	0.935***	0.974***	0.922***
	(0.0299)	(0.0227)	(0.0368)	(0.0276)	(0.0207)	(0.0251)	(0.0237)	(0.0332)	(0.0321)	(0.0347)	(0.0333)	(0.0269)
G	0.0686	0.0930	0.114	0.226**	0.0358	0.147	0.145	0.0400	0.0387	0.177	-0.0490	0.191**
	(0.096)	(0.086)	(0.241)	(0.107)	(0.0937)	(0.138)	(0.15)	(0.044)	(0.126)	(0.150)	(0.037)	(0.0969)
GFCF	0.0220	-0.0414	-0.166**	-0.150*	0.0260	-0.0685	-0.0758	0.0317	-0.208**	-0.0547	-0.158	-0.122
	(0.031)	(0.052)	(0.0758)	(0.082)	(0.0570)	(0.0211)	(0.0841)	(0.035)	(0.0944)	(0.066)	(0.16)	(0.154)
INFRA	0.234	0.362**	0.552**	0.730***	0.275*	0.467***	0.381**	0.307*	0.476**	0.637***	0.453**	0.655***
	(0.399)	(0.14)	(0.217)	(0.197)	(0.142)	(0.114)	(0.150)	(0.161)	(0.213)	(0.232)	(0.205)	(0.182)
CREATION	0.016	-0.0220	-0.00447	-0.0025	-0.0195	-0.0294	-0.0243	-0.00951	0.00545	-0.0178	0.013	-0.0186
	(0.036)	(0.026)	(0.005)	(0.026)	(0.055)	(0.0200)	(0.0203)	(0.007)	(0.0175)	(0.0141)	(0.026)	(0.012)
HK	-0.264*	-0.289**	-0.500***	-0.450***	-0.261**	-0.380**	-0.249	-0.281***	-0.45***	-0.531***	-0.54***	-0.499***
	(0.155)	(0.131)	(0.186)	(0.159)	(0.110)	(0.149)	(0.258)	(0.107)	(0.161)	(0.174)	(0.193)	(0.157)
TRADE	0.0424	0.0782	0.0609	0.133	0.0876	0.0912	-0.0486	0.0706	0.120*	0.0707	0.0734	0.109
	(0.041)	(0.095)	(0.0577)	(0.262)	(0.071)	(0.0775)	(0.0366)	(0.065)	(0.0691)	(0.089)	(0.064)	(0.1675)
FDI	-0.0263	-0.0272	-0.0542*	-0.055**	-0.0181	-0.0176	-0.0135	-0.002	-0.0514*	-0.0178	-0.0389	-0.0498*
	(0.066)	(0.032)	(0.031)	(0.0253)	(0.019)	(0.016)	(0.015)	(0.026)	(0.0286)	(0.016)	(0.0545)	(0.0029)
FDI*(INST<= ɣ)	-0.911*	0.603	0.380	-0.359	0.605	0.0607	0.486	-0.132	-0.271*	0.160	-0.472	-0.233*
	(0.535)	(0.593)	(0.364)	(0.549)	(0.579)	(0.062)	(0.603)	(0.118)	(0.159)	(0.248)	(0.561)	(0.137)
FDI*(INST>ɣ)	0.243*	0.0157*	0.0275	0.0147	-0.0153	0.0267*	0.0183	0.014	0.034*	-0.004	0.0144	0.0216*
	(0.142)	(0.0092)	(0.03)	(0.036)	(0.016)	(0.015)	(0.016)	(0.037)	(0.020)	(0.026)	(0.025)	(0.012)
δ_1	0.473	-0.265	-0.793	0.843	-0.347*	-0.145	-0.362	0.420	-0.777	-0.320	0.274	-0.349
	(0.655)	(0.275)	(0.637)	(0.789)	(0.204)	(0.176)	(0.381)	(0.380)	(0.855)	(0.320)	(0.250)	(0.398)
Threshold ɣ	0.42	0.35	0.26	0.28	0.20	0.30	0.22	0.34	0.25	0.38	0.25	0.26
Constant	0.0457	0.0203	0.604*	0.447	-0.183	-0.127	0.401	-0.121	0.690*	0.0669	0.721*	0.260
	(0.053)	(0.025)	(0.355)	(0.327)	(0.161)	(0.152)	(0.342)	(0.160)	(0.405)	(0.075)	(0.424)	(0.264)
Observations	570	570	570	570	570	570	570	570	570	570	570	570
Number of id	19	19	19	19	19	19	19	19	19	19	19	19
AR(2) P-value	0.126	0.147	0.246	0.172	0.256	0.125	0.163	0.201	0.273	0.139	0.166	0.141
Sargan P-value	0.316	0.449	0.166	0.427	0.195	0.529	0.605	0.693	0.485	0.153	0.290	0.298

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table A II-5: The effect of threshold of institutions by income on FDI and growth for the MENA region

Poltical Risk Variable	Government Stability	Socioeconomic Conditions	Investment Profile	External Conflict	Internal Conflict	Corruption	Military in Politics	Religious Tensions	Law and Order	Ethnic Tensions	Democratic Accountability	Bureaucracy Quality
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Y_{it-1}	0.968***	0.947***	0.990***	0.994***	0.962***	0.952***	0.857***	0.946***	0.969***	0.914***	0.953***	1.031***
	(0.0501)	(0.0796)	(0.0587)	(0.0557)	(0.0120)	(0.0131)	(0.0411)	(0.0309)	(0.00976)	(0.0461)	(0.0448)	(0.0292)
G	0.0758	0.111	0.0427	-0.0112	0.0200	0.0267	0.0272	0.0615	0.0326***	-0.0341	0.240	0.148***
	(0.0712)	(0.101)	(0.0706)	(0.0957)	(0.0239)	(0.0279)	(0.0451)	(0.0583)	(0.012)	(0.0582)	(0.272)	(0.0510)
GFCF	-0.0156	0.562	-0.0501	-0.125	0.0114	0.00130	0.153**	0.0176	0.0209	-0.123	0.0242	-0.0219
	(0.0554)	(0.363)	(0.0808)	(0.128)	(0.0147)	(0.0198)	(0.0610)	(0.0302)	(0.0243)	(0.0912)	(0.0677)	(0.0369)
INFRA	0.294	0.358	-0.324	0.155	0.105*	0.120**	0.224	0.412***	0.184***	0.300**	0.297	0.431***
	(0.280)	(0.290)	(0.289)	(0.261)	(0.061)	(0.054)	(0.247)	(0.113)	(0.0412)	(0.136)	(0.281)	(0.131)
CREATION	-0.00124	0.0159	0.0110	-0.0272	-0.00196	-0.00704	0.0232**	0.0127	0.00178	-0.0419	-0.0389	-0.00555
	(0.0112)	(0.0224)	(0.0153)	(0.0338)	(0.0031)	(0.00639)	(0.010)	(0.0136)	(0.00277)	(0.0656)	(0.0334)	(0.0075)
HK	-0.110	-0.144	0.455*	0.0246	0.00569	-0.0276	0.0230	-0.174*	-0.087***	-0.153	-0.259	-0.37***
	(0.124)	(0.217)	(0.0091)	(0.235)	(0.0376)	(0.0429)	(0.114)	(0.102)	(0.021)	(0.112)	(0.229)	(0.129)
TRADE	0.0138	-0.134	-0.0709	0.00877	0.0168	-0.00344	-0.0672*	0.0729**	-0.00319	0.0497	-0.146	0.102**
	(0.0479)	(0.124)	(0.0702)	(0.0733)	(0.0119)	(0.0137)	(0.0407)	(0.0321)	(0.0107)	(0.0443)	(0.100)	(0.0458)
FDI	-0.0201	0.0195	0.00217	-0.0187	0.00495	0.0020	0.0418*	0.0160	0.00630	-0.0100	0.116*	-0.00748
	(0.0266)	(0.0509)	(0.0424)	(0.0469)	(0.0078)	(0.00942)	(0.024)	(0.0228)	(0.00666)	(0.0266)	(0.068)	(0.0194)
FDI*(INST<= ɣ)	-1.474	1.41	0.861	0.314	-1.993	0.391	-0.811	0.807	-0.382	-0.189	1.798	1.531
	(1.48)	(0.861)	(0.821)	(1.02)	(1.841)	(0.621)	(0.614)	(1.361)	(0.436)	(0.931)	(1.57)	(0.921)
FDI*(INST>ɣ)	0.103	0.575	0.508	-0.537	-0.052*	1.609	0.649	1.219	-0.0382*	1.520	0.444	-0.119
	(0.161)	(0.731)	(0.615)	(0.517)	(0.030)	(0.722)	(1.093)	(1.057)	(0.022)	(1.135)	(0.697)	(1.109)
FDI*(INST<= ɣ)_MI[35]	-0.954*	—	0.709**	0.549	—	0.947***	0.282***	0.240	-0.327	-0.898*	0.201*	-0.425*
	(0.561)		(0.322)	(0.494)		(0.165)	(0.0929)	(0.673)	(0.412)	(0.527)	(0.118)	(0.073)
FDI*(INST>ɣ)_MI	-0.0199	-0.0681	-0.183*	-0.0760*	-0.0197	-0.0722**	-0.240***	-0.0227	-0.0107	0.0447	-0.269*	0.201**
	(0.0197)	(0.202)	(0.107)	(0.045)	(0.0209)	(0.0328)	(0.0753)	(0.0305)	(0.0158)	(0.0535)	(0.159)	(0.0913)
δ_1	-0.228*	-0.056*	-0.427**	-0.799	-0.652**	-0.955***	-0.651***	1.333	0.470	0.699*	-0.038**	0.359***
	(0.134)	(0.032)	(0.195)	(0.72)	(0.296)	(0.127)	(0.205)	(0.946)	(0.601)	(0.411)	(0.017)	(0.117)
Constant	0.191	-0.725	0.534	0.433	0.245*	0.465***	0.342***	0.0670	0.215*	0.891	0.119	-0.141**
	(0.510)	(1.091)	(0.716)	(0.543)	(0.145)	(0.165)	(0.113)	(0.289)	(0.126)	(0.565)	(0.769)	(0.064)
Observations	570	570	570	570	570	570	570	570	570	570	570	570
Number of id	19	19	19	19	19	19	19	19	19	19	19	19
AR(2) P-value	0.816	0.363	0.303	0.252	0.245	0.175	0.170	0.728	0.577	0.605	0.332	0.218
Sargan P-value	0.406	0.228	0.388	0.365	0.178	0.147	0.603	0.417	0.287	0.191	0.681	0.345

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

[35] MI refer to middle income

Table A II-6: The effect of FDI nexus institutions (12 variables) on growth for the Europe group

Poltical Risk Variable	Governme nt Stability (1)	Socioeconom ic Conditions (2)	Investment Profile (3)	External Conflict (4)	Internal Conflict (5)	Corruption (6)	Military in Politics (7)	Religious Tensions (8)	Law and Order (9)	Ethnic Tensions (10)	Democratic Accountability (11)	Bureaucracy Quality (12)
Yit-1	0.965***	0.990***	1.018***	0.996***	1.052***	0.988***	1.016***	0.981***	1.027***	1.017***	1.005***	1.027***
	(0.0298)	(0.0167)	(0.0129)	(0.0157)	(0.0279)	(0.0140)	(0.0189)	(0.0142)	(0.0142)	(0.0171)	(0.0180)	(0.0144)
G	-0.00932	-0.0279	0.119	0.101	0.0694	-0.212***	0.0145	-0.0618	0.0190	-0.0136	-0.128	-0.0790
	(0.0975)	(0.0525)	(0.0780)	(0.0805)	(0.0983)	(0.0558)	(0.0614)	(0.0709)	(0.0733)	(0.0562)	(0.184)	(0.0869)
GFCF	0.133***	0.106***	0.0712**	0.0505	-0.0277	0.118***	0.106***	0.0971***	0.0560*	0.136***	0.0596	0.0719**
	(0.0457)	(0.0289)	(0.0338)	(0.0610)	(0.0462)	(0.0309)	(0.0372)	(0.0331)	(0.032)	(0.0320)	(0.0379)	(0.032)
INFRA	-0.0525	-0.105	-0.0315	-0.215**	-0.300**	-0.0595	-0.0162	-0.0870	-0.206**	0.0283	-0.0370	-0.129*
	(0.106)	(0.0936)	(0.0930)	(0.0837)	(0.136)	(0.0809)	(0.0922)	(0.0996)	(0.0819)	(0.0907)	(0.0960)	(0.075)
CREATION	0.0258	0.0129	-0.0343**	0.00860	-0.0412	0.0277**	-0.0250	0.0195	-0.0200	-0.0244	-0.00545	-0.0149
	(0.0318)	(0.0140)	(0.015)	(0.0163)	(0.0659)	(0.0113)	(0.0292)	(0.0152)	(0.0261)	(0.0260)	(0.0186)	(0.0122)
HK	-0.253	-0.0673	-0.228*	-0.00507	-0.299	-0.0732	-0.172	-0.0972	0.139	-0.240*	-0.152	0.106
	(0.261)	(0.124)	(0.134)	(0.117)	(0.209)	(0.118)	(0.130)	(0.151)	(0.101)	(0.141)	(0.138)	(0.110)
TRADE	-0.11***	-0.0170	-0.106***	-0.086***	-0.0691**	-0.102***	-0.095***	-0.099***	-0.0662***	-0.0724**	-0.00575	-0.0351
	(0.0381)	(0.0239)	(0.0317)	(0.0238)	(0.0349)	(0.0280)	(0.0287)	(0.0313)	(0.0198)	(0.0297)	(0.0271)	(0.0324)
FDI	0.068***	0.0198	0.078***	0.107***	0.171***	0.0446***	0.056***	0.0495***	0.0551***	0.042***	-0.005	0.0283**
	(0.025)	(0.0184)	(0.0151)	(0.0128)	(0.0262)	(0.00880)	(0.00914)	(0.0135)	(0.0125)	(0.0140)	(0.0187)	(0.0133)
FDI*(INST<= ɣ)	-0.22***	-0.00527	0.0550	-0.139***	-0.276***	0.118	0.00921	0.0231	-0.0321	-0.0564	0.0147	0.0792
	(0.0781)	(0.0540)	(0.0574)	(0.053)	(0.105)	(0.0827)	(0.0722)	(0.0314)	(0.169)	(0.0659)	(0.0311)	(0.0825)
FDI*(INST>ɣ)	0.00631	0.0224**	-0.00155	0.032	0.034***	0.00287	0.00425	0.00982	0.0143*	0.0174	0.0096***	0.0151***
	(0.0125)	(0.0111)	(0.0104)	(0.0404)	(0.00985)	(0.00561)	(0.00491)	(0.0114)	(0.0084)	(0.0908)	(0.0036)	(0.00576)
δ1	0.565	-0.133*	-0.221	0.0465	0.416	-0.303	-0.0188	-0.0257	-0.0764*	0.30	-0.185**	-0.0198
	(0.431)	(0.078)	(0.201)	(0.304)	(0.484)	(0.460)	(0.150)	(0.162)	(0.045)	(0.420)	(0.084)	(0.250)
Threshold ɣ	0.40	0.37	0.48	0.54	0.39	0.3	0.41	0.48	0.69	0.5	0.61	0.3
Constant	0.216	-0.186	-0.617*	-0.323	-0.113**	0.726***	-0.370	0.329	-0.490	-0.467*	0.0151	-0.272
	(0.575)	(0.303)	(0.362)	(0.353)	(0.051)	(0.160)	(0.369)	(0.334)	(0.334)	(0.274)	(0.366)	(0.384)
Observations	1,230	1,230	1,230	1,230	1,230	1,230	1,230	1,230	1,230	1,230	1,230	1,230
Number of id	41	41	41	41	41	41	41	41	41	41	41	41
AR(2) P-value	0.147	0.440	0.257	0.147	0.263	0.432	0.452	0.328	0.337	0.256	0.242	0.442
Sargan P-value	0.264	0.327	0.359	0.173	0.259	0.487	0.345	0.272	0.126	0.201	0.285	0.378

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table A II-7: The effect of threshold of institutions by income on FDI and growth for the Europe group

Poltical Risk Variable	Government Stability	Socioeconomic Conditions	Investment Profile	External Conflict	Internal Conflict	Corruption	Military in Politics	Religious Tensions	Law and Order	Ethnic Tensions	Democratic Accountability	Bureaucracy Quality
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Yit-1	1.159***	1.095***	1.157***	1.118***	1.171***	1.068***	1.128***	1.128***	1.147***	1.085***	1.121***	1.121***
	(0.0420)	(0.0361)	(0.0416)	(0.0230)	(0.0602)	(0.0219)	(0.0310)	(0.0252)	(0.0308)	(0.0139)	(0.0248)	(0.0322)
G	0.0621*	0.0230	0.0818*	0.0182	0.0797*	-0.00279	0.0406	0.0348	0.0516*	0.0240	0.0446*	-0.00974
	(0.036)	(0.0269)	(0.048)	(0.0206)	(0.046)	(0.0201)	(0.0567)	(0.0631)	(0.03)	(0.0251)	(0.026)	(0.0542)
GFCF	0.108***	0.0585***	0.106***	0.0946***	0.102**	0.121***	0.0611**	0.0795***	0.0577**	0.0720***	0.131***	0.117***
	(0.0392)	(0.0224)	(0.0355)	(0.0215)	(0.0401)	(0.0292)	(0.0239)	(0.0215)	(0.0242)	(0.0140)	(0.0276)	(0.0340)
INFRA	-0.248***	-0.136*	-0.259**	-0.234***	-0.260**	-0.126***	-0.207**	-0.252***	-0.272***	-0.134***	-0.220***	-0.212**
	(0.0957)	(0.08)	(0.104)	(0.0807)	(0.115)	(0.0453)	(0.0887)	(0.0730)	(0.0840)	(0.0422)	(0.0738)	(0.0845)
CREATION	-0.00628	0.00338	0.00411	0.0116*	-0.00242	0.00333	0.00358	0.00859	-0.0175**	0.00558	0.00931	0.0168
	(0.00828)	(0.00609)	(0.00865)	(0.0068)	(0.0095)	(0.00709)	(0.00691)	(0.00622)	(0.00880)	(0.00441)	(0.00867)	(0.0143)
HK	0.264**	-0.0224	0.277**	0.170*	0.0994	0.0139	0.128	0.181**	0.365***	-0.0126	0.159*	0.0643
	(0.109)	(0.0966)	(0.119)	(0.0887)	(0.107)	(0.0549)	(0.0914)	(0.106)	(0.111)	(0.0608)	(0.0825)	(0.103)
TRADE	0.0254	0.0247*	0.0275	0.0257*	0.0430*	0.0373**	0.0123	0.00281	0.0120	0.0120	0.0331**	0.0525**
	(0.0283)	(0.0145)	(0.0202)	(0.0137)	(0.0234)	(0.0188)	(0.0154)	(0.0131)	(0.0143)	(0.01956)	(0.0154)	(0.0240)
FDI	-0.0268**	-0.0294***	-0.0506***	-0.0419***	-0.0436***	-0.028***	-0.0329***	-0.0415***	-0.0288***	-0.0289***	-0.036***	-0.0208*
	(0.0129)	(0.00955)	(0.0155)	(0.00934)	(0.0155)	(0.0100)	(0.0100)	(0.00987)	(0.00998)	(0.00646)	(0.00979)	(0.0117)
FDI*(INST<= ɣ)	-0.814	0.702	0.342	-0.271	0.683	0.976	-0.799	0.320	-0.306**	0.610	-0.408	0.0129
	(1.43)	(0.511)	(0.379)	(0.261)	(0.504)	(0.734)	(0.738)	(0.290)	(0.139)	(0.82)	(0.965)	(0.457)
FDI*(INST>ɣ)	-0.634	-0.497	0.0253	-0.713	1.093	0.150	-0.00628	0.185	-0.0380	0.476	-0.00548	0.00154
	(0.651)	(0.65)	(0.122)	(1.38)	(0.993)	(0.122)	(0.106)	(0.752)	(0.029)	(0.97)	(0.0698)	(0.0780)
FDI*(INST<= ɣ)_MI[36]	-0.319***	-0.155	-0.841**	-0.764***	-0.746	0.160	-0.477*	-0.338*	__	0.0185	-0.0883	-0.468
	(0.081)	(0.294)	(0.382)	(0.187)	(0.534)	(0.0401)	(0.281)	(0.198)		(0.0700)	(0.0985)	(0.360)
FDI*(INST>ɣ)_MI	0.248***	0.346***	0.252***	0.185***	0.326***	0.228***	0.246***	0.207***	0.222***	0.159***	0.249***	0.334***
	(0.0551)	(0.130)	(0.0634)	(0.0312)	(0.110)	(0.0331)	(0.0485)	(0.0377)	(0.041)	(0.0240)	(0.0458)	(0.0870)
δ_1	0.559*	0.766	0.024**	0.547	0.816	-0.510	0.841***	0.765***	0.601**	0.188	0.797***	0.632***
	(0.328)	(0.798)	(0.0109)	(0.426)	(0.740)	(0.435)	(0.0966)	(0.092)	(0.2731)	(0.120)	(0.153)	(0.024)
Constant	0.237***	0.307***	0.189***	0.580***	0.469***	0.181***	0.644***	0.602***	0.860***	0.178***	0.868***	0.806***
	(0.091)	(0.082)	(0.0780)	(0.106)	(0.073)	(0.024)	(0.083)	(0.110)	(0.082)	(0.079)	(0.063)	(0.082)
Observations	1,230	1,230	1,230	1,230	1,230	1,230	1,230	1,230	1,230	1,230	1,230	1,230
Number of id	41	41	41	41	41	41	41	41	41	41	41	41
AR(2) P-value	0.814	0.291	0.852	0.134	0.136	0.736	0.459	0.575	0.814	0.291	0.852	0.134
Sargan P-value	0.412	0.628	0.320	0.417	0.383	0.437	0.556	0.365	0.490	0.361	0.259	0.520

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

[36] MI refer to middle income

Table A II-8: The effect of FDI nexus institutions (12 variables) on growth for AMERICA group

Poltical Risk Variable	Government Stability	Socioeconomic Conditions	Investment Profile	External Conflict	Internal Conflict	Corruption	Military in Politics	Religious Tensions	Law and Order	Ethnic Tensions	Democratic Accountability	Bureaucracy Quality
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Y_{it-1}	1.027***	1.00***	1.001***	1.017***	1.018***	1.026***	1.005***	1.026***	1.009***	1.024***	1.012***	1.002***
	(0.0120)	(0.0137)	(0.0132)	(0.0122)	(0.0159)	(0.0143)	(0.0120)	(0.0158)	(0.0118)	(0.0123)	(0.0118)	(0.0109)
G	-0.057***	-0.08***	-0.102***	-0.0885***	-0.093***	-0.0558**	-0.0919***	-0.0494**	-0.0359	-0.0812***	-0.07***	-0.0437**
	(0.0204)	(0.0231)	(0.0217)	(0.0256)	(0.0215)	(0.0235)	(0.0217)	(0.0209)	(0.0451)	(0.0192)	(0.0236)	(0.0215)
GFCF	0.0765**	-0.0255	-0.0292	-0.115**	0.0739**	-0.0888*	-0.0758**	-0.0346	-0.0331	-0.0174	0.0604	0.00165
	(0.0349)	(0.0418)	(0.0456)	(0.0529)	(0.0333)	(0.0522)	(0.0365)	(0.0574)	(0.0465)	(0.0405)	(0.0834)	(0.0411)
INFRA	0.0401	-0.140*	0.0745	0.0272	0.0741	0.0550	0.0241	-0.0308	0.0621	-0.0731	0.00195	-0.0144
	(0.0844)	(0.0724)	(0.0601)	(0.0561)	(0.0785)	(0.0592)	(0.0619)	(0.0507)	(0.0651)	(0.0556)	(0.0568)	(0.0603)
CREATION	-0.020***	0.00231	0.0105	0.00124	-0.00585	-0.00805	-0.00158	-0.00730	0.00157	-0.00858	-0.00258	-0.00210
	(0.00761)	(0.0078)	(0.0754)	(0.0710)	(0.0101)	(0.00794)	(0.00682)	(0.00861)	(0.00722)	(0.00638)	(0.00720)	(0.00636)
HK	-0.0925	0.219**	-0.137**	-0.0556	-0.0759	-0.0671	0.0247	-0.0668	-0.0924	0.0618	-0.0767	0.0525
	(0.106)	(0.111)	(0.0690)	(0.0725)	(0.102)	(0.0852)	(0.0890)	(0.0740)	(0.0843)	(0.0688)	(0.0734)	(0.0652)
TRADE	-0.0220	0.0466**	0.0421**	0.0631***	0.0256	0.0661**	0.0407**	0.0334	0.0715**	0.0209	0.00304	0.0129
	(0.0253)	(0.0226)	(0.0200)	(0.0226)	(0.0193)	(0.0262)	(0.0206)	(0.0462)	(0.0301)	(0.0210)	(0.0213)	(0.0213)
FDI	0.0226	0.0166	0.00488	-0.00521	0.0102	-0.0157	-0.0103	0.0202*	0.021	0.0177	0.0206*	0.0101
	(0.0532)	(0.0113)	(0.0111)	(0.0111)	(0.00999)	(0.0111)	(0.0104)	(0.0114)	(0.0137)	(0.0117)	(0.0124)	(0.0119)
FDI*(INST<= ɣ)	0.00647	-0.0253	-0.0614	-0.00693	-0.225***	0.0566	0.0412	0.241***	-0.953***	0.0348	-0.0339	0.272
	(0.0928)	(0.0433)	(0.0722)	(0.0725)	(0.0812)	(0.0913)	(0.045)	(0.0780)	(0.124)	(0.0696)	(0.0378)	(0.455)
FDI*(INST>ɣ)	0.0111*	0.00110	-0.00617	0.00149	-0.00605	-0.00150	0.00575	-0.0104	0.0293*	0.0839*	-0.00522	0.00527
	(0.00597)	(0.0094)	(0.00594)	(0.00651)	(0.00474)	(0.00537)	(0.0356)	(0.00718)	(0.0172)	(0.049)	(0.00488)	(0.00460)
δ_1	-0.126	0.0649	0.137	0.0433	-0.647***	-0.207	-0.126	-0.989***	0.414	-0.196	0.0579	-0.844
	(0.258)	(0.0994)	(0.192)	(0.228)	(0.144)	(0.347)	(0.110)	(0.126)	(0.587)	(0.248)	(0.117)	(1.388)
Threshold ɣ	0.38	0.38	0.42	0.51	0.35	0.33	0.41	0.51	0.57	0.40	0.45	0.24
Constant	-0.329*	0.00788	0.242	0.212	-0.239	-0.0282	0.315	-0.212	-0.151	-0.104	-0.162	-0.00772
	(0.192)	(0.161)	(0.177)	(0.189)	(0.234)	(0.183)	(0.294)	(0.187)	(0.186)	(0.184)	(0.191)	(0.181)
Observations	930	930	930	930	930	930	930	930	930	930	930	930
Number of id	31	31	31	31	31	31	31	31	31	31	31	31
AR(2) P-value	0.281	0.247	0.353	0.263	0.275	0.153	0.147	0.380	0.281	0.350	0.241	0.132
Sargan P-value	0.260	0.175	0.196	0.186	0.174	0.456	0.325	0.197	0.182	0.196	0.166	0.272

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table A II-9: The effect of threshold of institutions by income on FDI and growth for the America group

Poltical Risk Variable	Government Stability	Socioeconomic Conditions	Investment Profile	External Conflict	Internal Conflict	Corruption	Military in Politics	Religious Tensions	Law and Order	Ethnic Tensions	Democratic Accountability	Bureaucracy Quality
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Y_{it-1}	1.013***	0.996***	0.826***	0.845**	0.763	0.872***	0.84***	0.99***	0.95***	1.119***	1.765	1.003***
	(0.110)	(0.073)	(0.09215)	(0.082)	(0.083)	(0.079)	(0.097)	(0.033)	(0.034)	(0.082)	(2.229)	(0.052)
G	-0.010	-0.013	0.024	0.119	0.060	-0.038	-0.036	-0.016	-0.04**	-0.065*	0.034	0.003
	(0.018)	(0.029)	(0.043)	(0.212)	(0.236)	(0.036)	(0.059)	(0.013)	(0.020)	(0.034)	(0.131)	(0.085)
GFCF	0.001	0.091*	-0.022	0.075	0.125	0.037	0.078	0.043**	-0.025	0.029	-0.059	0.026
	(0.059)	(0.053)	(0.110)	(0.095)	(0.379)	(0.061)	(0.082)	(0.019)	(0.029)	(0.029)	(0.258)	(0.080)
INFRA	0.066	0.045	0.265	-0.075	0.413	0.024	0.011	0.027	-0.034	0.012	-0.350	0.039
	(0.110)	(0.053)	(0.292)	(0.175)	(1.120)	(0.099)	(0.086)	(0.038)	(0.048)	(0.119)	(0.850)	(0.205)
CREATION	-0.005	-0.004	-0.013	0.006	-0.006	0.007	0.003	-0.004	0.001	0.001	-0.011	0.007
	(0.004)	(0.007)	(0.016)	(0.013)	(0.018)	(0.008)	(0.012)	(0.004)	(0.004)	(0.008)	(0.052)	(0.019)
HK	0.006	0.016	-0.197	0.082	-0.036	-0.006	-0.046	0.070	0.021	0.139	0.369	-0.014
	(0.078)	(0.084)	(0.195)	(0.134)	(0.281)	(0.100)	(0.157)	(0.056)	(0.062)	(0.109)	(0.842)	(0.292)
TRADE	0.021	-0.002	-0.038	-0.011	-0.030	-0.033	-0.037	-0.003	-0.032	0.041	0.178	0.004
	(0.030)	(0.016)	(0.065)	(0.098)	(0.184)	(0.055)	(0.060)	(0.015)	(0.059)	(0.057)	(0.564)	(0.037)
FDI	-0.010	-0.012	-0.163	-0.243	0.085	-0.022	-0.188	-0.056	0.059*	0.014	0.054	-0.029
	(0.093)	(0.092)	(0.153)	(0.514)	(0.396)	(0.088)	(0.260)	(0.068)	(0.0302)	(0.113)	(0.652)	(0.071)
FDI*(INST<= ɣ)	1.347	1.097	0.397	1.504	0.091	0.109	0.053	1.170	-	-0.252	-1.573	1.443
	(0.135)	(0.830)	(0.763)	(1.800)	(1.942)	(0.316)	(0.206)	(0.958)		(1.354)	(1.172)	(0.977)
FDI*(INST>ɣ)	0.005	0.012	0.288	0.340	-0.051	0.099	0.285	0.055	0.018	-0.148	-0.505	0.025
	(0.196)	(0.172)	(0.299)	(0.817)	(0.487)	(0.258)	(0.362)	(0.085)	(0.042)	(0.184)	(1.907)	(0.098)
FDI*(INST<= ɣ)_MI[37]	-0.479	-0.041	0.324	0.366	0.776	1.362	1.742	0.779	-1.481***	0.724	-1.728	1.533
	(0.746)	(0.633)	(0.081)	(0.829)	(1.400)	(1.006)	(1.043)	(0.894)	(0.184)	(0.864)	(1.603)	(1.513)
FDI*(INST>ɣ)_MI	0.024	0.037	0.152	0.191	-0.362	-0.050	0.115	0.047	-0.035	-0.019	0.244	0.018
	(0.089)	(0.102)	(0.146)	(0.467)	(1.256)	(0.111)	(0.247)	(0.066)	(0.050)	(0.133)	(0.644)	(0.089)
δ_1	0.791	0.211	-0.569	-0.883	-1.277	-1.380	-1.254	-0.474	0.241***	0.368	0.907	-1.544
	(1.413)	(1.217)	(0.482)	(1.029)	(1.495)	(1.847)	(1.520)	(0.312)	(0.008)	(0.907)	(0.626)	(1.143)
Constant	-0.144	-0.190	0.737	0.966	0.099	1.302	1.519	0.051	0.575	-0.962	-1.438	-0.037
	(0.952)	(0.715)	(0.753)	(0.989)	(0.906)	(1.716)	(1.908)	(0.298)	(0.390)	(0.731)	(1.652)	(0.693)
Observations	930	930	930	930	930	930	930	930	930	930	930	930
Number of id	31	31	31	31	31	31	31	31	31	31	31	31
AR(2) P-value	0.633	0.591	1.241	0.337	0.117	0.539	0.813	0.268	0.382	0.286	0.148	0.408
Sargan P-value	0. 275	0.448	0.628	0.815	0.864	0.221	0.435	0.659	0.957	0.543	0.433	0.402

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

[37] MI refer to middle income

Table A II-10: The effect of FDI nexus institutions (12 variables) on growth for ASIA group

Poltical Risk Variable	Government Stability (1)	Socioeconomic Conditions (2)	Investment Profile (3)	External Conflict (4)	Internal Conflict (5)	Corruption (6)	Military in Politics (7)	Religious Tensions (8)	Law and Order (9)	Ethnic Tensions (10)	Democratic Accountability (11)	Bureaucracy Quality (12)
Y_{it-1}	0.704***	0.737***	0.561***	0.634***	0.560***	0.724***	0.754***	0.669***	0.65***	0.91***	0.82***	0.752***
	(0.111)	(0.124)	(0.0773)	(0.0887)	(0.0797)	(0.115)	(0.120)	(0.109)	(0.111)	(0.128)	(0.120)	(0.148)
G	0.0177	0.455	-0.215	0.307	0.577*	-0.145	0.0650	-0.0835	0.0663	0.261	-0.0841	0.436
	(0.436)	(0.350)	(0.272)	(0.394)	(0.339)	(0.409)	(0.350)	(0.395)	(0.377)	(0.454)	(0.457)	(0.478)
GFCF	-0.549	-0.344	-0.986***	-0.668*	-0.613	-0.384	-0.293	-0.679	-0.938*	-0.191	-0.130	-0.187
	(0.621)	(0.414)	(0.128)	(0.392)	(0.388)	(0.495)	(0.416)	(0.490)	(0.5517)	(0.430)	(0.427)	(0.304)
INFRA	-0.0203*	-0.0181	-0.0229**	-0.040***	-0.02***	-0.0158	-0.0145	-0.0304**	-0.029**	-0.0145	-0.0128	-0.0241
	(0.0116)	(0.0141)	(0.0100)	(0.0150)	(0.0077)	(0.0144)	(0.0160)	(0.0148)	(0.0141)	(0.015)	(0.0160)	(0.0450)
CREATION	0.255*	0.166	0.379***	0.329***	0.279***	0.225*	0.217*	0.289***	0.318**	0.0528	0.168	0.128
	(0.15)	(0.118)	(0.0844)	(0.0933)	(0.0891)	(0.132)	(0.127)	(0.111)	(0.126)	(0.135)	(0.124)	(0.133)
HK	-0.0639	-0.571	0.336	-0.680	-0.172	-0.0365	-0.351	-0.235	-0.422	-0.218	-0.485	-0.274
	(0.530)	(0.616)	(0.478)	(0.647)	(0.418)	(0.713)	(0.696)	(0.581)	(0.671)	(0.704)	(0.667)	(0.672)
TRADE	0.0312	0.0543	0.104**	0.0840	0.0693	-0.0283	-0.0815	-0.138	-0.0221	-0.0238	0.0868	-0.0860
	(0.0770)	(0.0806)	(0.0426)	(0.128)	(0.0546)	(0.0988)	(0.126)	(0.110)	(0.133)	(0.142)	(0.146)	(0.0765)
FDI	0.0152	0.184	-0.0178	-0.0181	0.272***	0.0754	-0.200*	0.102	0.0949	0.0516	-0.0380	0.288
	(0.217)	(0.195)	(0.124)	(0.129)	(0.0921)	(0.126)	(0.140)	(0.152)	(0.197)	(0.192)	(0.178)	(0.195)
FDI*(INST<= ɣ)	0.129	0.748	-0.271	1.328	-0.128	0.057	-0.0807*	0.799	0.534	0.071	-0.0899	-0.386
	(0.316)	(0.705)	(0.818)	(0.803)	(0.543)	(0.121)	(0.047)	(1.157)	(0.427)	(0.135)	(0.565)	(0.599)
FDI*(INST>ɣ)	0.00720	0.124	0.0537	0.110*	0.0309	0.0226	0.0445*	0.0314	0.00914	0.0273	0.0702*	-0.0177
	(0.0763)	(0.106)	(0.0792)	(0.064)	(0.0615)	(0.0949)	(0.06)	(0.0635)	(0.117)	(0.0764)	(0.041)	(0.0726)
δ_1	-0.526*	-0.879	0.121	-0.007	0.579	-0.572*	-0.254	-0.243	-0.117	-0.468	0.851	0.638
	(0.310)	(1.363)	(0.331)	(0.374)	(1.781)	(0.336)	(0.455)	(0.531)	(1.918)	(0.657)	(0.848)	(0.473)
Threshold ɣ	0.80	0.31	0.29	0.40	0.36	0.28	0.33	0.30	0.26	0.19	0.54	0.29
Constant	1.101	1.619	0.495***	0.922**	0.040**	0.707	0.491*	0.498**	0.670**	0.777	0.991	0.552
	(0.772)	(0.584)	(0.045)	(0.103)	(0.014)	(0.512)	(0.052)	(0.088)	(0.183)	(0.779)	(0.681)	(0.767)
Observations	1,020	1,020	1,020	1,020	1,020	1,020	1,020	1,020	1,020	1,020	1,020	1,020
Number of id	34	34	34	34	34	34	34	34	34	34	34	34
AR(2) P-value	0.186	0.190	0.262	0.188	0.182	0.155	0.308	0.165	0.192	0.141	0.287	0.432
Sargan P-value	0.475	0.518	0.442	0.448	0.429	0.504	0.562	0.531	0.502	0.562	0.539	0.532

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table A II-11: The effect of threshold of institutions by income on FDI and growth for the Asia group

Poltical Risk Variable	Government Stability	Socioeconomic Conditions	Investment Profile	External Conflict	Internal Conflict	Corruption	Military in Politics	Religious Tensions	Law and Order	Ethnic Tensions	Democratic Accountability	Bureaucracy Quality
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Y_{it-1}	-0.849	-0.460	1.136	0.273	0.334	-0.174	0.798***	0.008	-0.131	-0.095	2.515	0.057
	(1.043)	(1.244)	(1.236)	(0.202)	(0.502)	(0.802)	(0.303)	(1.820)	(0.635)	(0.686)	(6.143)	(0.612)
G	-1.680	-0.116	1.539	0.449*	1.055*	0.411	0.830	0.208	-0.247	0.058	0.642	0.677
	(1.565)	(0.857)	(1.032)	(0.264)	(0.620)	(0.891)	(0.667)	(3.282)	(0.887)	(0.674)	(0.520)	(0.619)
GFCF	-1.940	-0.264	0.683	0.556	1.573	1.402	0.084	0.002	1.166	0.103	1.287	1.095
	(1.087)	(0.208)	(0.690)	(0.473)	(0.974)	(1.127)	(0.686)	(2.872)	(1.457)	(1.347)	(0.799)	(1.046)
INFRA	2.639	1.471	0.447	1.275**	1.719*	1.130	1.706**	0.609	1.867	1.295	0.994	0.659
	(1.745)	(1.255)	(0.686)	(0.564)	(0.883)	(1.360)	(0.750)	(3.513)	(1.166)	(0.871)	(0.631)	(1.247)
CREATION	-0.467	-0.768	-0.418	-0.325**	-0.309*	-0.869	-0.051	-0.354	-0.237	-0.194	0.666	-0.449
	(0.594)	(0.842)	(0.467)	(0.128)	(0.181)	(0.717)	(0.161)	(0.295)	(0.253)	(0.239)	(0.607)	(0.671)
HK	0.041	0.375	0.842	0.509	0.106	0.794	0.872	2.205	-0.831	0.942	-0.955	1.120
	(0.323)	(0.753)	(0.838)	(0.572)	(1.407)	(1.182)	(0.727)	(8.534)	(1.446)	(1.325)	(0.917)	(1.547)
TRADE	0.537	0.036	-0.002	-0.019	0.189	0.221	-0.221	0.105	0.156	-0.185	-1.758	0.300
	(0.465)	(0.273)	(0.317)	(0.092)	(0.599)	(0.292)	(0.155)	(0.725)	(0.288)	(0.220)	(0.959)	(0.369)
FDI	-1.762	-0.677	0.437	-0.343	0.430	-0.916	0.326	-1.197	-1.002	-0.584	1.824	0.139
	(1.460)	(0.458)	(0.332)	(0.489)	(0.338)	(0.745)	(1.032)	(0.405)	(1.014)	(1.934)	(1.301)	(1.888)
FDI*(INST<= ɣ)	0.727	0.52**	0.945	-0.126	1.734	-1.682	-0.053	1.145	-0.321	0.305	0.579	0.541**
	(0.545)	(0.305)	(0.013)	(0.799)	(1.583)	(1.58)	(0.836)	(1.382)	(0.252)	(0.997)	(0.414)	(0.245)
FDI*(INST>ɣ)	0.886***	-0.369	-0.068	0.187	0.686	-1.566	-0.791***	0.149	1.024	1.221	-0.159**	-0.437
	(0.341)	(0.985)	(0.262)	(0.188)	(0.790)	(1.608)	(0.168)	(0.394)	(0.110)	(1.340)	(0.0722)	(1.468)
FDI*(INST<= ɣ)_HI[38]	1.134	0.321	-	-	0.956	0.145	0.818	-10.677	-	-	-0.276	0.094
	(0.767)	(0.933)			(0.771)	(0.897)	(0.748)	(1.634)			(1.767)	(0.916)
FDI*(INST>ɣ)_HI	1.337	0.548	1.072	-1.231	-1.534	0.518	-0.138	2.478	1.613	1.621	-1.608	0.438
	(1.237)	(0.414)	(0.682)	(1.705)	(1.004)	(0.488)	(1.258)	(0.766)	(1.343)	(1.771)	(1.386)	(0.136)
FDI*(INST<= ɣ)_MI	0.520	0.897	1.254	0.747	-0.021	0.772	-1.040*	0.837	0.094	0.157	-1.554	-0.418
	(0.504)	(1.081)	(1.238)	(0.667)	(0.518)	(0.759)	(0.611)	(0.383)	(0.726)	(0.726)	(1.071)	(0.393)
FDI*(INST>ɣ)_MI	-0.182	0.593	-0.450	-0.478	-0.039	-0.029	-0.206	0.506	-0.691	-0.793	-0.965	-0.445
	(1.835)	(0.612)	(0.612)	(0.913)	(0.467)	(0.473)	(1.659)	(0.499)	(0.683)	(0.704)	(0.757)	(0.451)
δ_1	-1.049	0.531	-1.721	-1.135	-1.178	-0.417	0.160*	-0.637	-0.670	-1.645	0.014	-1.611
	(1.112)	(0.954)	(1.014)	(0.889)	(1.422)	(1.702)	(0.095)	(1.986)	(1.614)	(1.094)	(1.874)	(1.806)
Constant	0.327	1.738	-1.174	1.626	-1.500	1.672	0.604	1.830	0.654	0.769	-1.845	0.632
	(0.319)	(1.429)	(1.999)	(1.557)	(1.837)	(1.187)	(1.374)	(1.610)	(1.709)	(1.171)	(1.747)	(1.188)
Observations	1,020	1,020	1,020	1,020	1,020	1,020	1,020	1,020	1,020	1,020	1,020	1,020
Number of id	34	34	34	34	34	34	34	34	34	34	34	34
AR(2) P-value	0.216	0.442	0.129	0.205	0.198	0.186	0.688	0.506	0.135	0.213	0.234	0.128
Sargan P-value	0.311	0.269	0.785	0.243	0.597	0.525	0.172	0.308	0.818	0.295	0.142	0.748

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

[38] HI : High Income

Table A II-12: The effect of FDI nexus institutions (12 variables) on growth for SSA group

Poltical Risk Variable	Government Stability	Socioeconomic Conditions	Investment Profile	External Conflict	Internal Conflict	Corruption	Military in Politics	Religious Tensions	Law and Order	Ethnic Tensions	Democratic Accountability	Bureaucrac y Quality
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Y_{it-1}	0.952***	1.020***	0.907***	0.992***	0.976***	1.027***	1.001***	1.00***	1.027***	0.976***	0.959***	0.998***
	(0.0231)	(0.0198)	(0.0227)	(0.0222)	(0.0200)	(0.0214)	(0.0188)	(0.0195)	(0.0257)	(0.0199)	(0.0169)	(0.0174)
G	0.0540	-0.0284	0.0588	0.00811	0.0224	-0.0243	-0.0354	-0.0692*	-0.0564*	-0.00305	0.00797	-0.0205
	(0.0436)	(0.0408)	(0.0393)	(0.0392)	(0.0415)	(0.0421)	(0.0364)	(0.041)	(0.033)	(0.0379)	(0.0336)	(0.0434)
GFCF	-0.0660**	-0.0191	0.0376	-0.00218	-0.0395	0.0298	0.0591**	0.0558	0.0783**	0.0390	-0.0106	-0.000232
	(0.0312)	(0.0335)	(0.0348)	(0.0417)	(0.0440)	(0.0479)	(0.0275)	(0.0654)	(0.0362)	(0.0349)	(0.0355)	(0.0317)
INFRA	0.0250***	-0.00344	0.00907*	0.00745	0.00604	-0.00222	0.000819	-0.0153*	0.0171**	-0.00134	0.00222	-0.00946
	(0.00534)	(0.00607)	(0.00477)	(0.00776)	(0.00567)	(0.00981)	(0.00747)	(0.0078)	(0.0070)	(0.00496)	(0.006)	(0.00754)
CREATION	-0.00521	-0.0163	0.0290	-0.0376	-0.0256	-0.0421**	-0.00694	-0.00607	-0.0190	-0.034**	0.0111	-0.00725
	(0.0220)	(0.0136)	(0.0212)	(0.0329)	(0.0207)	(0.0190)	(0.0145)	(0.0135)	(0.0199)	(0.0166)	(0.0171)	(0.0138)
HK	-0.00368	0.0754*	0.0121	0.107*	0.124**	0.0222	0.0793	0.15***	0.0466	0.155***	0.0155	0.0488
	(0.0356)	(0.045)	(0.0518)	(0.062)	(0.0542)	(0.0428)	(0.0647)	(0.0478)	(0.0525)	(0.0491)	(0.0389)	(0.0436)
TRADE	0.173***	0.00543	0.136***	0.0708	0.0697*	0.0467	-0.00371	-0.0107	-0.0553*	0.0490	0.0752**	0.0216
	(0.0312)	(0.0371)	(0.0393)	(0.0681)	(0.0378)	(0.0427)	(0.0352)	(0.0407)	(0.0328)	(0.0310)	(0.0316)	(0.0329)
FDI	-0.0300**	0.00365	-0.0322*	-0.0164	-0.0252*	-0.00326	-0.0118	-0.0176	-0.0111	-0.0158	-0.04***	-0.00670
	(0.0140)	(0.0171)	(0.0165)	(0.0129)	(0.0131)	(0.0129)	(0.0148)	(0.0128)	(0.0187)	(0.0184)	(0.0137)	(0.0181)
FDI*(INST<= ɣ)	-1.841***	0.977***	-1.162**	-0.903***	-0.184	-0.200	0.564	0.136	-0.889***	-0.817	0.209	0.537*
	(0.145)	(0.176)	(0.489)	(0.102)	(0.186)	(0.580)	(0.549)	(0.235)	(0.095)	(0.683)	(0.334)	(0.280)
FDI*(INST>ɣ)	0.0193***	0.0170	0.0270	0.00860	0.0145*	0.0143**	-0.00227	-0.0126*	0.00100	0.0112	0.022***	0.0119*
	(0.00690)	(0.0111)	(0.0201)	(0.0120)	(0.0087)	(0.00686)	(0.00579)	(0.0067)	(0.0107)	(0.01907)	(0.0075)	(0.00608)
δ_1	-0.059***	-0.421***	0.832	-1.494**	0.298	0.890	-0.083	-0.643	-0.997**	0.387	-0.697	-1.670*
	(0.021)	(0.084)	(0.945)	(0.680)	(0.839)	(1.682)	(0.072)	(0.837)	(0.453)	(0.574)	(0.502)	(0.982)
Threshold ɣ	0.15	0.11	0.15	0.3	0.2	0.15	0.12	0.2	0.17	0.15	0.17	0.2
Constant	-0.287	-0.0937	0.0736	-0.362	-0.0761	-0.625**	-0.0100	0.202	-0.0489	-0.213	0.144	-0.0244
	(0.320)	(0.222)	(0.251)	(0.302)	(0.275)	(0.284)	(0.204)	(0.223)	(0.272)	(0.221)	(0.260)	(0.236)
Observations	960	960	960	960	960	960	960	960	960	960	960	960
Number of id	32	32	32	32	32	32	32	32	32	32	32	32
AR(2) P-value	0.526	0.522	0.568	0.156	0.143	0.348	0.217	0.264	0.129	0.248	0.295	0.161
Sargan P-value	0.172	0.154	0.172	0.178	0.162	0.274	0.255	0.267	0.265	0.264	0.262	0.161

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table A II-13: **The effect of threshold of institutions by income on FDI and growth for the SSA group**

Poltical Risk Variable	Government Stability (1)	Socioeconomic Conditions (2)	Investment Profile (3)	External Conflict (4)	Internal Conflict (5)	Corruption (6)	Military in Politics (7)	Religious Tensions (8)	Law and Order (9)	Ethnic Tensions (10)	Democratic Accountability (11)	Bureaucracy Quality (12)
Y_{it-1}	0.971***	0.510***	0.986***	0.798***	0.946***	0.940	0.918***	0.818***	0.913***	0.980***	0.805***	0.670***
	(0.053)	(0.130)	(0.030)	(0.040)	(0.069)	(0.710)	(0.054)	(0.042)	(0.067)	(0.033)	(0.049)	(0.104)
G	0.032*	-0.072	0.019	0.030	0.031	-0.118	-0.022	-0.011	-0.065	-0.027	-0.001	-0.083*
	(0.019)	(0.045)	(0.013)	(0.029)	(0.027)	(0.285)	(0.032)	(0.031)	(0.046)	(0.016)	(0.021)	(0.047)
GFCF	0.024	0.010	0.022**	0.027	-0.020	-0.127	0.031	0.044**	0.156**	0.033**	0.031*	0.038
	(0.026)	(0.035)	(0.011)	(0.057)	(0.021)	(0.512)	(0.049)	(0.021)	(0.062)	(0.013)	(0.018)	(0.041)
INFRA	0.006	0.001	0.006**	0.003	0.016**	-0.000	-0.001	0.007	0.062**	0.004	0.003	-0.001
	(0.005)	(0.016)	(0.00352)	(0.004)	(0.00727)	(0.045)	(0.007)	(0.007)	(0.0281)	(0.004)	(0.004)	(0.008)
CREATION	0.006	0.008	0.006	0.009	0.014	-0.070	0.016	0.008	-0.009	0.005	-0.005	0.025
	(0.007)	(0.016)	(0.005)	(0.008)	(0.008)	(0.225)	(0.012)	(0.011)	(0.016)	(0.006)	(0.007)	(0.038)
HK	0.007	0.072	-0.021	0.004	-0.059*	-0.196	-0.002	-0.070	-0.105	-0.016	0.013	0.032
	(0.022)	(0.063)	(0.046)	(0.025)	(0.034)	(0.580)	(0.034)	(0.052)	(0.171)	(0.019)	(0.022)	(0.047)
TRADE	0.016	0.051	0.021*	0.040**	0.029	0.011	-0.000	0.079**	0.065	0.010	0.072***	0.026
	(0.019)	(0.045)	(0.0124)	(0.017)	(0.025)	(0.190)	(0.031)	(0.031)	(0.066)	(0.020)	(0.018)	(0.043)
FDI	0.022	-0.127***	0.006	-0.052***	0.005	0.001	-0.027*	-0.077***	-0.061**	0.002	-0.058***	-0.07***
	(0.021)	(0.043)	(0.011)	(0.014)	(0.027)	(0.331)	(0.0159)	(0.019)	(0.026)	(0.013)	(0.016)	(0.025)
FDI*(INST<= ɣ)	0.975	0.481	-0.027	-0.041	-0.795	-1.592	-0.689	-0.553	-0.367**	-0.833	-0.358*	-0.601
	(0.747)	(1.283)	(0.038)	(0.361)	(1.200)	(1.682)	(1.657)	(0.617)	(0.166)	(0.808)	(0.211)	(0.846)
FDI*(INST>ɣ)	-0.101	-0.616	-0.368	0.478	-0.755	0.101	0.433	-0.802	0.009	-0.075	-0.005	0.561
	(0.149)	(0.660)	(1.792)	(0.592)	(0.727)	(1.140)	(1.407)	(0.660)	(0.241)	(0.361)	(0.214)	(0.181)
FDI*(INST<= ɣ)_MI	0.711***	1.964	0.847***	0.301**	0.578***	-0.540	0.479*	0.101	0.745***	0.208***	0.146***	0.579
	(0.171)	(0.827)	(0.138)	(0.136)	(0.177)	(0.814)	(0.281)	(0.151)	(0.119)	(0.008)	(0.043)	(0.465)
FDI*(INST>ɣ)_MI	-0.007	0.922***	-0.005	0.196***	0.028	0.489	0.071	0.210***	0.090	0.005	0.266***	0.489***
	(0.078)	(0.159)	(0.037)	(0.046)	(0.109)	(0.749)	(0.079)	(0.053)	(0.106)	(0.045)	(0.085)	(0.072)
δ_1	-1.26***	0.039	-1.219***	-1.536***	-1.533***	0.285	-0.121	-0.692	-0.252**	-0.053***	-0.426	0.490
	(0.120)	(0.490)	(0.128)	(0.096)	(0.112)	(1.443)	(0.355)	(0.733)	(0.102)	(0.02)	(0.856)	(0.744)
Constant	-0.019	0.153***	-0.076	0.099***	0.263	0.055	0.632*	0.774***	0.097	0.077	0.828***	0.175***
	(0.305)	(0.054)	(0.189)	(0.038)	(0.382)	(1.611)	(0.371)	(0.193)	(0.482)	(0.201)	(0.133)	(0.068)
Observations	960	960	960	960	960	960	960	960	960	960	960	960
Number of id	32	32	32	32	32	32	32	32	32	32	32	32
AR(2) P-value	0.195	0.404	0.136	0.195	0.221	0.246	0.268	0.251	0.457	0.156	0.179	0.346
Sargan P-value	0.171	0.273	0.186	0.270	0.162	0.362	0.145	0.151	0.248	0.281	0.175	0.207

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

CHAPTER III : THE IMPACT OF FINANCIAL OPENNESS AND FINANCIAL DEVELOPMENT ON FOREIGN DIRECT INVESTMENT: THE ROLE OF INSTITUTIONS

If you torture the data long enough, it will confess.

Ronald Coase (2001)

I. Introduction

The role of foreign direct investment has been widely recognized as a growth-enhancing factor in developing and developed countries as we showed in Chapter II. FDI acts as a key component of the world's growth engine. Therefore countries try to create propitious environment to attract more FDI inflow into their economies (Adhikary, 2011; Bhavan et al., 2011).

The literature identified particularly three categories of determinants of the inward FDI. The first category denotes basic economic factors such as the market size, inflation, natural resources, portfolio diversification strategy. The second category includes trade and the exchange market policies as trade liberalization, exchange rate movements and their volatility[39]. The third category is about the aspects of the investment climate: economic factors[40], quality of human capital, financial development, capital account openness, the role of institutions[41], foreign aid[42]. In addition to these decisive factors of FDI inflows, do foreign firms need locally developed financial services and capital account openness?

In the current literature, little attention has been paid to the importance of financial services and capital account liberalization on attracting FDI inflows given institutional quality. With regards to this, financial services include an easy access to bank credit and to stock market. In this context, financial development should be followed by capital account openness to generate better conditions for FDI inflows. This chapter focuses on two factors that determine FDI inflows: capital account openness and financial development with a focus on the institutional quality. For this purpose, we use a large sample of developed and developing countries. First, we consider the effect of capital account openness on attracting FDI inflows. Second, this chapter examines the role of financial development on FDI, which still remains controversial. We try to bring an answer using the level of institutions as a key factor in explaining the mixed results. The Caner & Hansen (2004) method is used to estimate an institutional threshold above

[39] See Froot et al., (1991)
[40] By economic factors we mean: importance of infrastructure Wheeler & Mody (1992), GDP growth rate, economic integration, commerce and communication.
[41] See Root & Ahmed (1979) and Schneider & Frey (1985) for further information.
[42] See Harms & Lutz (2006) and Kimura & Todo (2010)

which capital account openness and financial development impact positively FDI inflows. After determining this critical institutional level, the method of Propensity Score Matching (PSM) is used to test the effect of capital account openness on FDI for each institutional level. The PSM method is suitable to compare countries that have applied capital account openness measures with those that didn't. To our knowledge, none of the research studies have used the PSM method to test the effect of capital account openness on FDI. Two aspects deserve to be analyzed: the relation firstly between FDI and financial development and secondly between capital account openness and FDI.

I.1 FDI and financial development

Higher financial services may affect FDI inflows through the allocative channel. By the allocative channel, financial intermediaries raise the productivity of capital by guiding financial resources to projects with the highest rates of return. They also afford the mechanisms for reducing risk and diversification (Claessens & Laeven, 2003; Ncube, 2007). Financial development can affect FDI by reducing the transaction costs and raising the liquidity in the local market. A developed financial system facilitates capital and investment flows. Along this line, Al Nasser & Gomez (2009) establish a positive correlation between FDI and private credit. They also find a positive impact of stock market trading volume on FDI inflows. Likewise, Alfaro et al., (2008) point that improving financial conditions not only attracts foreign firms but also allows host countries to maximize the benefits of FDI projects. Similarly, Ang (2008) in a case study of Malaysia highlights that improving the level of financial services, infrastructure, and trade openness fosters FDI. Others who find that better financial development attracts FDI inflows are Deichmann et al., (2003), Jenkins & Thomas (2002) and Kinda (2010).

While a positive effect of financial development is still likely to exist, several channels find that it could reduce FDI. Antras et al., (2007) give an explanation to this. Indeed, the misbehavior decision of Multinational Corporations (MNCs) partner may be impeded in countries with strong financial development and high institutional quality. In these countries, lenders do not claim the MNC to possess an equity share with its foreign partner. This is due to strong financial institutions, which ensures that the local

firm maximizes its utility. Therefore, higher financial development and institutions prevent MNCs from holding a controlling interest in local firms. This can result in decreasing its engagement in FDI. In the same context, Bilir et al., (2013) point that (MNCs) in host countries with a developed financial system tend to have a smaller share of their sales in the local market. They find that better access to credit in the FDI host country (South) would help the emergence of more Southern manufacturing firms into the local market. This decreases Northern MNCs sales in the local market (South). Then it results in a drop of FDI in host countries in the manufacturing sector. In addition, Ju & Wei (2010) found that financial development and the quality of institutions (measured by property rights protection) impact differently FDI inflows. In fact, developing the financial system efficiency induces a higher financial interest rate but does not impact the marginal product of capital. This leads to less incentive for financial capital to leave the country. In this way, the marginal product of capital declines. This makes it less attractive for FDI. However, an improvement in the quality of institutions (property rights), by directly raising the expected marginal product of capital, also increases the financial interest rate. These conditions encourage the attractiveness of both more financial capital inflows and more FDI inflows.

From this point, it seems there is an institutional threshold above which financial development helps to attract more FDI inflows to the host country.

In a world free of any barriers to cross-border capital flows, financial development and capital account openness reinforce each other in a way that would lead to a great environment to attract FDI inflows. Since the early 1990s, many countries have established strategies of capital openness to attract capital flows, mainly FDI. Indeed some explanations made the connection explicit, such as the so-called Bretton Woods II model, which portrays capital mobility as an essential element of high global growth in recent years.

I.2 FDI and capital account openness

Brafu-Insaidoo & Biekpe (2014) employ three explanations on how capital account liberalization affects capital inflows. Firstly, the removal or relaxation of restrictions on foreign ownership limitations can increase FDI inflows. Secondly, the de-regulation of

offshore borrowing can attract more foreign private loan inflows through the removal of quantitative restrictions on overseas borrowing and the provision of tax incentives. Thirdly, the abolition of multiple exchange rate practices can enhance the foreign capital inflows by eliminating economic distortions and reducing the uncertainties and the risks about exchange rates particularly during repatriation of capital or income from capital. Asiedu & Lien (2004) provide some evidence that FDI flows are impacted by capital account policies but only in specific geographical regions. Furthermore, Reinhardt et al., (2010) point for the emerging market that FDI in the service sector flows into fast-growing emerging markets, especially if they are financially open. Recently, Asiedu & Lien (2011) and Okada (2013) have examined the impact of institutional factors on the degree of association between capital control and FDI inflows. They show that financial openness improves FDI inflow only in countries with good institutional quality comparing to countries with poor institutional quality. Moreover, the effectiveness of capital controls is not straightforward as it highly depends on the imposing country's economic characteristics, particularly, its overall business context or country risk properties. Similarly Noy & Vu (2007) find that capital controls are easily circumvented in corrupted and politically unstable environments, and capital account liberalization will generate increases in FDI inflows only in environments with a lower level of corruption and political risk.

On the negative side, openness to capital account makes countries especially sensitive to corporate or capital tax rates or to changes in interest rates. Jeanne et al., (2012) argue that capital account liberalization can misfire when done badly and there are no one-size-fits-all policies when it comes to prudential regulation. They point that certain types of FDI (extractive industries) may worsen domestic political economy distortions and corruption. They suggest that the right solution is to decrease those distortions rather than to restrict FDI inflows. They point that countries that maintain controls on inward FDI might benefit the most from reducing those controls. Premature opening of the capital account also poses serious risks when financial regulation and supervision are inadequate (Bakker & Chapple, 2002). In fact, inflows of foreign capital in a weakly regulated banking systems could worsen the existing inefficiencies in these economies (Ishii et al., 2002). Many empirical studies identified a robust relation between surges in capital inflows (FDI) and the probability of debt, banking and currency crises for the

emerging countries (Mendoza & Terrones, 2008; Furceri et al., 2011). Ostry et al., (2010) find a negative effect of capital account openness on FDI when restrictions are in place. Re-imposing some constraints can affect mainly the composition of inflows instead of the aggregate volume of inflows. For example, in the case of Chile and Colombia, capital controls seem to have tilted the composition of capital flows towards less volatile types of flows (Cárdenas & Barrera, 1997; José De Gregorio et al., 2000). Thus, openness may impose costly constraints on the ability of government to pursue legitimate objectives. One of those objectives is economic stability. China was able to pursue active countercyclical macro-policies, staving off a recession and maintaining robust growth of close to 8%, because the capital account restrictions provided it some room to maneuver. It had no need to raise interest rates to levels that killed the economy in order to ``save'' it from capital fight.

Other studies did not a find a significant impact of capital account openness on FDI. Along this line, Montiel & Reinhart (1999) find that capital controls have no effect on volumes of FDI flows but it shifts the composition of flows in the short term. Furthermore, Aizenman & Noy (2006) did not find a significant effect of capital controls on FDI gross flows. Their analyses reveal that the relationship between capital openness and FDI relies on the level of financial development, institutional quality, macroeconomic policy, and trade openness (Dell'Ariccia et al., 2008). Brafu-Insaidoo & Biekpe (2014) don't find a significant effect of capital account liberalization on FDI inflows in Sub-Saharan Africa. They found that the removal of multiple exchange rates and the decrease of restrictions on foreigners' participation in domestic equity markets are important to attract FDI to Sub-Saharan Africa.

The role of institutional quality could be a key factor in clarifying the mixed results of capital account openness on FDI.

This research study differs from the previous studies and contributes to the literature in several ways. Firstly, while some previous studies have analyzed the effects of capital account openness and the level of institutions separately, this work demonstrates their interaction effects on FDI inflows. Few previous researches have estimated an institutional threshold above which capital account openness increases FDI inflows. In addition, we consider the most recent measure of capital account openness of Chinn &

Ito (2008) available until 2013. Secondly, in order to test the impact of financial development on FDI, we take into account five variables (banking and equity market). Then, the institutional level is considered to try to answer to the ambiguity of the effect of financial development on FDI. Similarly to the capital account openness, we estimate an institutional threshold under which financial development improves the attractiveness of FDI. Thirdly, after determining this critical institutional level, we apply the PSM to check the robustness of the effect of capital account openness on FDI by level of institutions. This method allows to compare countries that have opened their capital account until 2013 (full liberalization) with those that did not (no liberalization). Finally, we address the endogeneity problems, using the GMM estimation for panel data.

Following this method, the first step is to attribute scores of probability of opening the capital account to each country. Taking into account these scores, the second step aim is to apply the matching method. The purpose here is to compare the FDI inflows for a country that has opened its capital account and the estimated FDI inflows if it had not opened its capital account. This analysis is at the core of our study because it allows us to demonstrate the substantial role of institutional quality on financial development and capital openness to attract FDI. Furthermore, PSM reduces considerably the sources of endogeneity as sample selection, omitted variables, errors of measures, as well as heteroscedasticity. It is one of the most developed strategies used for causal analysis in observational studies introduced by Rosenbaum & Rubin (1983). PSM becomes an interesting method of evaluation for economists with Heckman (1991) and Heckman et al., (1998) as pioneers. It still holds the attention in recent empirical studies (Busso et al., 2014; Javorcik, 2014).

The empirical analysis shows that capital account openness, private credit and stock market capitalization matter for FDI inflows under a certain institutional level. Furthermore, we highlight the importance of heterogeneity in analyzing the capital openness- FDI relationship, as we divide the sample depending on the institutional threshold level. The PSM method indicates that countries that have opened their capital account and that have an institutional level higher than a certain level are able to attract more FDI inflows.

The chapter is organized as follow: Section 2 presents the model and the methodology. Section 3 discusses the results of the GMM and the PSM method. Section 4 concludes the chapter.

II. Model and Methodology

II.1. Model

Our empirical approach is inspired by a theoretical framework due to Noy and Vu (2007) and Okada (2013) which consider the effect of capital account openness and financial development. Our equation can be written as follow:

Equation III-1:

$$\mathrm{FDI}_{it} = \alpha_1 INFL_{it} + \alpha_2 HK_{it} + \alpha_3 TRADE_{it} + \alpha_4 INST_{it} + \alpha_5 INFRA_{it} + \alpha_6 \mathrm{KAOPEN}_{it} + \alpha_7 FD_{it} + \alpha_8 Nat\_Resr_{it} + \mu_i + \varepsilon_{it}$$

where i : is country index and t : is time index. μ_i: is unobserved country-specific effect term, and $\boldsymbol{\varepsilon_{it}}$ is a white noise error term.

The dependent variable is $\mathrm{FDI_{it}}$: it is the net inflows of Foreign Direct Investment as a percentage of GDP. It represents the net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor. We use net FDI inflows (FDI inflows minus repatriated investments) instead of the Asiedu & Lien (2004) measure of net FDI flows (net FDI inflows minus FDI-outflows) or Aizenman & Noy (2006) measure of FDI gross flows.

The precondition variables are drawn from the literature as the most determinants of FDI and based on the availability of dataset from 1984-2013. It includes firstly INFL (inflation), HK (human capital), TRADE (trade openness), INST (institutions) that were defined in Chapter I, Table I-1. Secondly, infrastructure (INFRA) were presented in Chapter II, Table II-1. Then the definitions and sources of KAOPEN (capital account openness), financial development (FD), and natural resources (Nat_Resr) are given in APPENDIX III-1, Table A III-1. The entire variables are in logarithm. We consider 148

countries: 36 developed, 95 developing and 13 transition countries. The list of countries is presented in APPENDIX III-1, Table A III-2.

In our study we use the system GMM approach. This method produces more efficient and precise estimates compared to difference GMM by reducing the finite sample bias (Baltagi, 2008). It is an appropriate method to tackle the problem of endogeneity of financial development (FD) and institutions (INST) variables. The literature has identified the variable legal origin as an instrument of financial development (Levine et al., 2000). However, as it describes the type of law applied in the country for example common or civil law, this variable doesn't vary over time. Then it cannot be used as an instrument of financial development in the panel analysis (Eggoh & Villieu, 2013). In this case we instrument financial development following the method of Lewbel (2012) like in Chapter II, section II.2.1.

In order to check the robustness of the result of capital account openness on FDI, we apply a new methodology called the Propensity Score Matching. First, this method attributes a score of probability of opening capital account for each country considering the determinants of FDI. Then, it computes for a country *i* which has opened its capital account the difference between FDI and the estimated FDI if this country *i* had not opened its capital account. More details of this method are presented later in section III.2

II.2. Measures and data of the explanatory variables

II.2.1. Measure of capital account openness

For capital account openness variable KAOPEN, we follow those used in previous literature as we use a de facto measure of capital account openness developed initially by (Chinn, 2015). It is a variable ranged between −2.5 and 2.5, with higher values standing for larger degrees of financial openness. The KAOPEN index refers to the intensity of capital controls. KAOPEN is a component of four binary variables. The first variable gives information on the existence of multiple exchange rates. Furthermore, the second and the third components detail the existence of restrictions on current and capital account transactions, respectively. Finally, the fourth component provides information on the requirement of the surrender of export proceeds.

II.2.2 Measures of financial development

Financial indicators are substantial in FDI decision because they affect the cost structure of investment projects. Financial development is usually defined as a process that marks improvements in quantity and quality in financial services. Well-functioning financial systems should offer a wide range of financial services and products from a diversified set of financial intermediaries and markets. It results in interactions between many activities and institutions. Consequently, it cannot be captured by a single measure. Thus, we consider indicators of both banking and stock market development as indicators of financial sector development.

II.2.2.1. Banking development indicators

A) Liquid liabilities

The first measure is the ratio of liquid liabilities (LL) of the financial sector to GDP. It is the currency plus demand and interest-bearing liabilities of banks and nonbank financial intermediaries) divided by GDP. It is a general indicator of the size of financial intermediaries relative to the size of the economy. This indicator has been widely used under the assumption that the size of financial intermediary sector is positively correlated with the provision and quality of financial services (Goldsmith, 1969; McKinnon, 1973; King & Levine, 1993a,b; Levine et al., 2000). However, this measure does not distinguish between allocation to private and public sector entities, and hence could misleadingly indicate that a country with lending directed to state owned enterprises actually had an advanced financial system, when in fact the banking system was failing in its role as project monitor.

B) Bank Assets

The second indicator is bank assets (ASSETS) which is equal to the ratio of the total assets of deposit money banks (commercial bank and other deposit taking banks) divided by GDP. This variable measures the importance of deposit money banks, as reflected in their total assets, relative to the economy. It provides a measure of the overall size of the banking sector. LL and ASSETS are size measures and do not consider the allocation of capital between the private and public sector.

C) Private credit

Consequently, private credit (CREDIT) is our third measure of banking development. It measures the private credit by deposit money banks and other financial institutions to GDP. The financial resources provided to the private sector by domestic money banks as a share of GDP. Domestic money banks comprise commercial banks and other financial institutions that accept transferable deposits, such as demand deposits. Jose De Gregorio & Guidotti (1995), Levine et al., (2000) and Beck & Levine (2004) argue that is probably a better proxy for banking sector development since it only accounts for credit granted to the private sector, as opposed to credit issued to government and other non private institutions. It also excludes credit issued by the central bank. Therefore, it is a more accurate measure of the savings that financial intermediaries channel to the private sector. Boyd et al., (2001) argue that private credit is not merely a measure of size. It isolates credits to the private sector and excludes credits issued to the government, government agencies and public enterprises". It is considered as an indicator of financial intermediary's activity (Levine & Zervos, 1998). Klein et al., (2002) point that financial difficulties at banks were statistically important in decreasing the number of FDI projects by Japanese firms into the United States. So differences across firms in access to credit may be a main determinant of foreign direct investment. Nasser and Gomez (2009) find that FDI significantly and positively correlated with the level of private credit offered by the banking sector.

Thus, taken together, these three measures of bank development provide more information on banking sector than if one uses only a single. Finally, we construct an index of banking sector development (BANKING INDEX) that aggregate the information contained in the individual indicators. Thus, to do this, we use a formula[43], which is similar to the algorithm developed by Demirgüç-Kunt & Levine (1996b). Specifically the construction of BANKING INDEX follows a two-step procedure. Firstly, for each country i and each time t, transformed variables of private credit, liquid liabilities and bank assets ratios are computed. We define the transformed value of each variable X as follows:

Equation III-2 $$X_{it}^{t} = (X_{it} - \bar{X}) / |X|$$

[43] This formula is also adopted by Naceur & Ghazouani (2007)

$\bar{X}$ is the average value of variable X across all countries in the panel over the period of observation for each one. Secondly, we take a simple average of the transformed value of private credit, liquid liabilities and bank assets ratios obtained by Equation III-2 in order to provide the overall BANKING INDEX.

II.2.2.2. Stock market development indicators

Stock market development measures are also included in the model specification. The development of equity markets may be a better measure of the ability of an economy to mobilize capital in an efficient manner. The stock market data set focuses on three measures.

A) Market Capitalization (CAPIT)

To measure market size, we use the ratio of stock market capitalization to GDP. It is equal to the ratio of the value of domestic equities (that are traded on domestic exchanges) to GDP. Many observers use the market capitalization ratio as an indicator of market development (Garcia et al., 1999; Yartey, 2008). Demirgüç-Kunt & Levine (1996a) argue that market capitalization is positively correlated with the ability to mobilize capital and diversify risk. Furthermore, Dupuy et al., (2016) measure market size using stock market capitalization and state that large markets tend to be more liquid and allow reducing some risks like uncertainty and the lack of liquidity. Indeed, Claessens et al., (2001) conclude that FDI is positively correlated with market capitalization and market value traded. They highlight that FDI is a complement and not a substitute of local stock market development.

B) Total value traded (TRADED)

It equals to the total value of domestic equities traded on each country's major stock exchanges as a percentage of GDP. The total value traded ratio measures the organized trading of equities as a share of national output, and should therefore positively reflect liquidity on an economy wide basis. This measure is also considered as indicator of stock market activity (Levine, 1999). The total value traded complements the market capitalization. Although market capitalization may be large but there can be few

trading. Nasser and Gomez (2009) find that FDI inflows are positively correlated with stock market trading volume.

C) Turnover ratio (TURN)

Turnover ratio is also a measure of stock market liquidity. It is equal to the total value of domestic shares traded divided by market capitalization. The turnover ratio may be importantly different from the value-traded ratio. While the turnover ratio measure captures trading relative to the size of market, value traded measures trading relative to the size of the economy. Thus, a small, liquid market can have a high turnover ratio but a small total value traded to GDP ratio.

We use the three indicators of stock market development to construct the overall stock MARKET INDEX based on a formula that is similar to the one developed to obtain the BANKING INDEX (Equation III-2 above).

II.2.2.3. Other explanatory variables

We consider the quality of *Human Capital* (HK) as an important determinant of FDI. The study of Reiter & Steensma (2010) points that FDI inflows are strongly related to human development. Furthermore, Markusen (2001) finds that knowledge capital is essential for FDI inflows. In addition, Rodriguez & Pallas (2008) find that the quality of human capital is one of the most significant determinants of inward FDI.

The *inflation* (INFL) rate is included because it may cause distortions in decision-making regarding nominal magnitudes. In particular, moderate high inflation may discourage financial intermediation, and encourage saving in real assets. According to Garibaldi et al., (2001) and Nnadozie & Osili (2004) inflation is an indicator of economic instability. They found that it negatively affects FDI inflows, though the results of Brahmasrene & Jiranyakul (2001) indicate insignificant effect.

Trade openness (TRADE) is measured by trade in goods and services as a percentage of GDP. Chakrabarti (2001) found that most investment projects are concentrated on the tradable sector. A country's degree of openness to international trade can be a pertinent element in the decision of foreign investors. Other works of Asiedu (2002), Feils &

Rahman (2008) and Yang et al., (2000) find that trade openness is positively associated with FDI inflows.

Natural resources (Nat_Resr): The literature suggests that countries, which are endowed with natural resources, are able to attract more FDI. We therefore consider in our model the total natural resources rents (%GDP). This measure of natural resources has been employed in several studies, including Asiedu & Lien (2011) and Sachs & Warner (1997) among others[44]. The study of Asiedu (2002), Deichmann et al., (2003) and Dupasquier & Osakwe (2006) for example report that the availability of natural resources has a positive and significant effect on FDI inflows. Resource-seeking FDI is motivated by the availability of natural resources in host countries. This type of FDI was historically fairly important and remains a relevant source of FDI for various developing countries. Natural resources play vital role in overall FDI attraction or decision. Several studies like those of Asiedu (2002, 2006) and Dupasquier & Osakwe (2006) show that natural resources in African countries attract more FDI. Although, Deichmann et al., (2003) explain that in transition economies of Euro-Asia countries, natural resources are a decisive factor for the attractiveness of FDI.

Infrastructure (INFRA): a large number of studies show the importance of infrastructure for FDI (Wheeler & Mody, 1992; Ngowi, 2001; Asiedu, 2002; Kinda, 2008). Kinoshita & Campos (2003) argue that infrastructure is an essential condition for foreign investors to work successfully. The availability of telephone lines is indispensable to simplify the communication between the home and host countries. Gholami et al., (2006) argue that a higher level of ICT investment leads to a greater level of FDI inflows. According to Marr (1997), the impact of poor infrastructure on FDI inflows is dependent on the features of the country. For less developed countries, it is frequently cited as one of the main constraints. However, foreign investors also indicate the potential for attracting significant FDI if host governments allow further considerable foreign participation in the infrastructure sector.

Institutions (INST) are measured by Political risk. Institutions generally impact the

[44] Using a panel of 36 countries, Mohamed & Sidiropoulos (2010) conclude that the key determinants of FDI inflows in MENA countries are the natural resources. Asiedu (2006) find that countries that are endowed with natural resources attract more FDI in Sub-Saharan Africa (SSA).

decision whether to invest or not in a country (Dunning, 1994). Political risk indicates the political actions that slow the economic activity (suspended sales, harmed property). These actions include: riots and governmental takeover of property (Daniels et al., 2002). Political risk indicators generally affect negatively the investment decisions of foreign investors (Dunning, 1994; Dupasquier & Osakwe, 2006; Hailu, 2010). Li (2008) shows that FDI flows and Military conflict are inversely related.

III. Estimation results

In this section we analyze first the results of the effect of capital account openness and financial development on FDI using the GMM methodology. Second, we present the relation between capital account openness and FDI using the Propensity Score Matching.

III.1. GMM Estimation

III.1.1. The effect of capital account openness and financial development on FDI

Table III-1 sums up the effect of capital account openness and financial development on FDI. Column (1) gives the results of the linear effect of KAOPEN and BANKING INDEX on FDI. The effects of KAOPEN and MARKET INDEX on FDI are presented on column (2). Column (3) provides the result of the indirect impact of KAOPEN and BANKING INDEX on FDI through institutions, and column (4) presents the results of the indirect impact of KAOPEN and MARKET INDEX on FDI through institutions. Given the results of AR(2) and Sargan tests, we validate all the specifications.

The coefficient of openness (TRADE) is positive, significant and consistent with foreign investment. It indicates that countries in which trade is important also have relatively higher FDI. Thus, performing a more liberal economic policy would undoubtedly attract more foreign investment. The negative coefficient on inflation suggests that the macroeconomic instability is not effective in attracting FDI inflows (Khan & Nawaz, 2010). Chenaf-Nicet & Rougier (2016) find the same results in the sense that inflation may rise uncertainty about the future assessment of liabilities and assets hold by MNCs which reduce FDI inflows in the host country. FDI always privileges low and controlled inflation (Kamar & Bakardzhieva, 2005). The positive

coefficient of infrastructure (INFRA) indicates that investment in the physical infrastructure improves the investment climate for FDI.

Capital account openness has a positive effect on FDI using the BANKING INDEX (column (1)) and the stock MARKET INDEX (column (2)). The higher impact of KAOPEN on FDI is when using the BANKING INDEX variable in the model. This means that capital account openness promotes the attractiveness of FDI in a financial developed market. Gastanaga et al., (1998) find that countries with relatively liberalized capital accounts were able to attract more FDI inflows than countries that are more closed. Thus investors prefer to invest in countries with more open capital account so they can repatriate their investment and dividends. FDI in general looks for financing possibilities on the world market. In this sense, liberalizing the capital account will allow the foreign investors to borrow freely and more efficiently from foreign financial institutions.

Looking at the BANKING index, the development of the banking sector fosters FDI inflows in countries (Table III-1, column (1)). Indeed, a higher level of BANKING INDEX can rise FDI directly by improving firms' ability to cover the fixed costs of FDI with outside capital (FDI-specific access to external finance effect). Indirectly, by fostering domestic activity (Desbordes & Wei, 2014). As Nasser and Gomez (2009) note, financial development is important in FDI decisions because it affects the cost structure of investment projects. Knowing that FDI projects involve purchasing a production facility in the host country, Helpman et al., (2004) indicate that some sectors are more dependent on external finance than others. In this case, firms will have to rely greatly on external finance to engage their project since they will only be able to finance internally a small part of the fixed expenses of their investment. From this point of view, improving the level of banking development can also increase the number and size of active producers, especially in financially vulnerable sectors (Rajan & Zingales, 1998). In contrast, higher banking development can increase the local competition. This results on reducing the profits of firms and may make a country less attractive than before to non-financially constrained MNCs (Bilir et al., 2013)[45].

[45] The empirical findings of Bilir et al., (2013) suggest that the negative effect of a more competitive local market will be much higher when FDI is horizontal. Consequently, the production of foreign firms aimed

Considering the MARKET INDEX, the evolution of the stock market sector plays a major role in attracting FDI to the country. In this context, Agarwal & Mohtadi (2004) find that FDI is positively associated with equity financing in the short run, but not in the long run.

Table III-1: The impact of capital account openness and financial development on FDI

Dependent Variable : FDI inflows				
VARIABLES	**(1)**	**(2)**	**(3)**	**(4)**
INFRA	0.241***	0.274***	0.244***	0.447***
	(0.0544)	(0.043)	(0.0420)	(0.0776)
HK	0.204	0.222***	0.197	0.254**
	(0.276)	(0.040)	(0.134)	(0.105)
TRADE	0.112***	0.086***	0.172***	0.041***
	(0.038)	(0.027)	(0.053)	(0.009)
INFL	-0.150***	0.135	-0.0341**	-0.0217
	(0.0406)	(0.1565)	(0.014)	(0.0376)
NAT_RESR	0.156***	0.0724	0.104	0.092*
	(0.029)	(0.0634)	(0.259)	(0.0048)
INST	0.209***	0.141**		
	(0.052)	(0.056)		
KAOPEN	0.156**	0.128**	0.115***	0.085***
	(0.0624)	(0.051)	(0.032)	(0.022)
KAOPEN*INST			0.044***	0.033***
			(0.006)	(0.004)
BANKING INDEX	0.163**		0.104**	
	(0.0652)		(0.041)	
BANKING INDEX*INST			0.055***	
			(0.013)	
MARKET INDEX		0.125**		0.088*
		(0.034)		(0.016)
MARKET INDEX*INST				0.024***
				(0.002)
Constant	-0.145***	-0.245**	-0.153***	-0.213**
	(0.051)	(0.102)	(0.053)	(0.088)
Observations	3,682	2,480	3,682	2,480
Number of id	144	105	144	105
AR(2) P-value	0.378	0.302	0.292	0.243
Sargan P-value	0.143	0.211	0.253	0.192

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

at serving the local market will be the most impacted by the entry of new firms (domestic and foreign producers) induced by higher financial development. As a result, the price of inputs can increase relative to other firms and the volume of their sales may falls.

III.1.1.1 The effect of natural resource endowment

In fact, taking together all the countries can hide specificities of the effect of capital account openness and financial development on the attractiveness of FDI, for the natural resource endowed countries and the non natural resource endowed countries.

A comparison between Sample A (resource endowed countries) and Sample B (non resource endowed countries) reveals some interesting results (Table III-2). It indicates that KAOPEN matters more for the attractiveness of FDI in Sample B than in Sample A. In fact, an increase by 1% in KAOPEN raises the attractiveness of FDI by 0.13% in sample B (column (3)) and by 0.098% in sample A (column (1)). The results also point that BANKING INDEX and MARKET INDEX are significantly and positively related to FDI only in Sample B. These results mean that financial development matters more for foreign investors operating in non resource endowed countries. Furthermore, we highlight that the impacts of infrastructure and openness are higher and more significant on FDI for Sample B. The results show that, a one percent increase in trade leads to raise FDI inflows by 0.14% in Sample A and by 0.26% in Sample B.

In addition, the positive impact of institutions on FDI inflows is greater in non-resource endowed countries. An increase by 1% in the variable institutions increases the attractiveness of FDI inflows by 0.08% in sample A in comparison to a raise by 0.20% in sample B.

The above opposing results of FDI factors between resource endowed and non resource endowed countries affirms that financial development and institutional quality play a greater role in attracting FDI inflows to non resource endowed countries. Our results are confirmed in the previous study of Basu & Srinivasan (2002) and Ezeoha & Cattaneo (2012).

Table III-2: The impact of capital account openness and financial development on FDI

Dependent Variable : FDI inflows				
VARIABLES	**Sample A: resource endowed countries**		**Sample B: non resource endowed countries**	
	(1)	**(2)**	**(3)**	**(4)**
INFRA	0.141*	0.278	0.0545**	0.0690*
	(0.074)	(0.387)	(0.0269)	(0.0395)
HK	0.197***	0.083***	0.209***	-0.066
	(0.069)	(0.024)	(0.077)	(0.27)
TRADE	0.141***	0.160*	0.268***	0.171***
	(0.054)	(0.084)	(0.087)	(0.057)
INFL	-0.0366	-0.015	-0.130***	-0.0653
	(0.0453)	(0.022)	(0.0249)	(0.0674)
INST	0.081**	-0.121	0.207***	0.154**
	(0.038)	(0.152)	(0.098)	(0.0641)
KAOPEN	0.098**	0.034	0.135***	0.0806**
	(0.042)	(0.039)	(0.0292)	(0.0341)
BANKING INDEX	0.153		0.266**	
	(0.163)		(0.0647)	
MARKET INDEX		0.082		0.138***
		(0.071)		(0.051)
Constant	-0.298**	0.359	-0.243***	0.324
	(0.124)	(0.326)	(0.086)	(0.319)
Observations	1,060	682	2,922	2,098
Number of id	42	27	102	78
AR(2) P-value	0.159	0.248	0.251	0.241
Sargan P-value	0.199	0.251	0.166	0.274

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

III.1.1.2. The institutional effect on capital account openness and financial development: the impact on FDI

Given the positive effect of KAOPEN, BANKING and MARKET INDEX on FDI inflows, we investigate now if there is an additional impact of institutions on these variables that can enhance the impact on FDI inflows.

Indeed, Table III-1 shows that the interaction between KAOPEN and institutions (KAOPEN*INST) is positive and significant. This indicates the existence of an additional effect of institutions on capital openness that upgrades the attractiveness of FDI inflows. The supplementary effect of institutions on KAOPEN is 0.044 (column (3)) when we perform the BANKING INDEX in the estimation and 0.033 (column (4))

when we use the MARKET INDEX. This means that capital account openness needs to be followed by a good institutional quality in order to attract more FDI in the host country.

Since institutions have a considerable effect on KAOPEN, we have estimated a threshold level of institutions above which KAOPEN raises the impact on FDI inflows. This threshold is computed using the method of Kremer et al., (2013) which is an extension of Caner & Hansen (2004) method as in Chapter II. In this view, the interaction term KAOPEN*INST can hide specific effects for countries that are below and above the institutional threshold. Following this method, the estimated institutional threshold for KAOPEN is presented in Table III-3, column (1). The details with the all the explanatory variables are in APPENDIX III-2, Table B III-1. Results highlight that only countries with an institutional level higher than 0.59 can gather the benefit of capital account openness to attract FDI inflows.

Table III-3: The threshold effect of institutions of capital account openness and financial development indexes (summary)

	Dependent Variable: FDI inflows		
VARIABLES	(1)	(2)	(3)
KAOPEN*(INST<= γ_1)	0.075		
	(0.122)		
KAOPEN*(INST> γ_1)	0.073**		
	(0.0304)		
BANKING INDEX*(INST<= γ_2)		-0.065	
		(0.075)	
BANKING INDEX*(INST> γ_2)		0.161**	
		(0.073)	
MARKET INDEX*(INST<= γ_3)			-0.012
			(0.042)
MARKET INDEX*(INST> γ_3)			0.122**
			(0.048)
Threshold	γ_1=0.59	γ_2=0.73	γ_3=0.79
Number of id	144	144	105

*The results given in column (1) of the interaction between KAOPEN*INST by level of institutions are estimated using the BANKING_INDEX in the model. We choose to present in this table of summary the results of KAOPEN*INST by level of institutions employing the BANKING_INDEX because they are not different from those with MARKET INDEX. Refer to APPENDIX III-2, Table B III-1, for the results of KAOPEN*INST by level of institutions using MARKET INDEX. Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1.

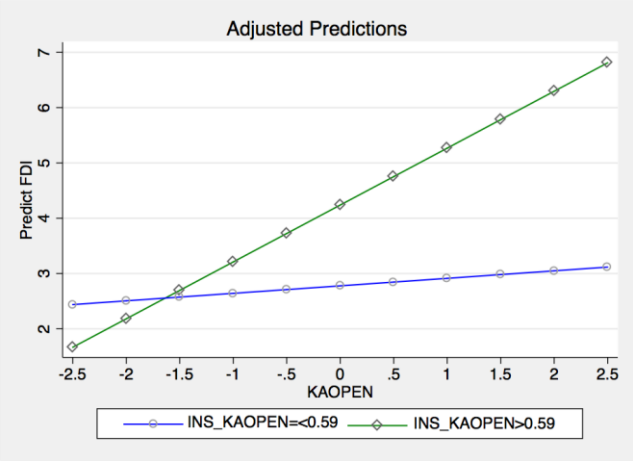
We point out here that 40 developing countries like Argentina, China and Singapore[46],

[46] To have all the countries above and below the institutional threshold of KAOPEN, See Appendix III-2, Table B III-2

five[47] transition countries such as Russia and Albania and all the developed countries (36 countries) are above the institutional level of 0.59. These countries may reap the benefit of a favorable institutional environment to attract FDI through capital account openness.

In this context, Figure III.1 presents the predicted values of the effect of KAOPEN on FDI for countries under and beyond the institutional level of 0.59. It clearly indicates that the relation between FDI and capital account openness is positive for both countries that are below and above 0.59. One difference appears: the slope of the green line (countries with an institutional level higher than 0.59) is much higher than the blue line (countries with an institutional level lower than 0.59). It also shows that the correlation between capital account openness and FDI is more important in countries with high institutional level (green line).

Figure III.1: The impact of KAOPEN on FDI inflows
(lower VS higher institutional level)



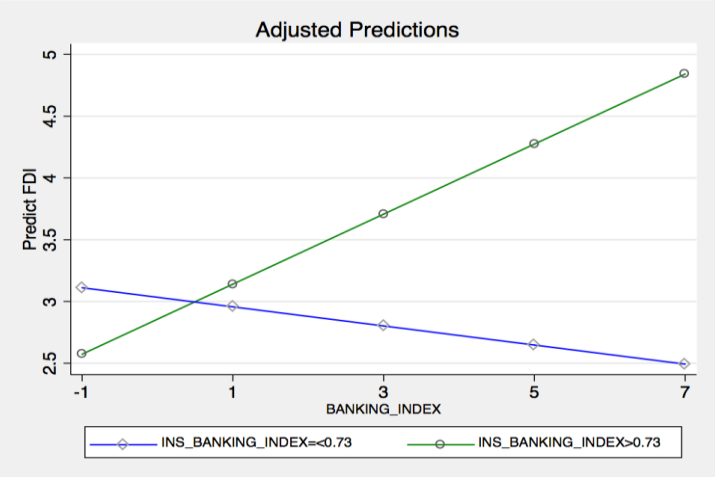
Author's calculation

Considering now the BANKING INDEX variable, its effect on FDI increases with higher level of institutional quality (Table III-1, column (3)). This additional effect increases the impact of BANKING INDEX on FDI by 0.055. The significance of the interaction term means that the BANKING INDEX impacts FDI inflows differently depending on the level of institutions. For this reason, we estimate a critical institutional level that allows the BANKING INDEX to increase the impact on FDI. This critical

[47] The five transition countries above 0.59 are: Albania, Belarus, Bosnia and Herzegovina, Macedonia and Russia. See Appendix III-2, Table B III-3 for the rest of the countries

level is 0.73 (Table III-3, column 2). Results show that in countries with an institutional level higher than 0.73, the effect of banking development on the attractiveness of FDI increases to 0.161. While this effect is 0.055 (Table III-1, column (3)) if we don't consider the division by the institutional level. In this context, only 3 out of 96 countries from the developing group (Hong Kong, Korea and Singapore considered as "newly industrialized countries") pass the threshold [48]. Moreover, 28 out of 39 developed countries have an institutional level higher 0.73 to attract FDI through banking development [49]. We highlight here that few number of countries of the developing group have an institutional level higher than 0.73. It may be the low level of institutions that impedes countries to attract FDI through financial development. Figure III.2 puts in evidence the predicted values of the effect of BANKING INDEX on FDI for countries under and beyond the institutional level of 0.73. This figure points that there is a positive relation between the BANKING INDEX and FDI only for countries above the level 0.73 (green line). Nevertheless, the relation is negative for countries below 0.73 (blue line). Even if the coefficient of BANKING INDEX*INST is positive and significant on FDI, we clearly show that the effect can be different depending on the institutional level.

Figure III.2: The impact of BANKING INDEX on FDI inflows (lower VS higher institutional level)



Author's calculation

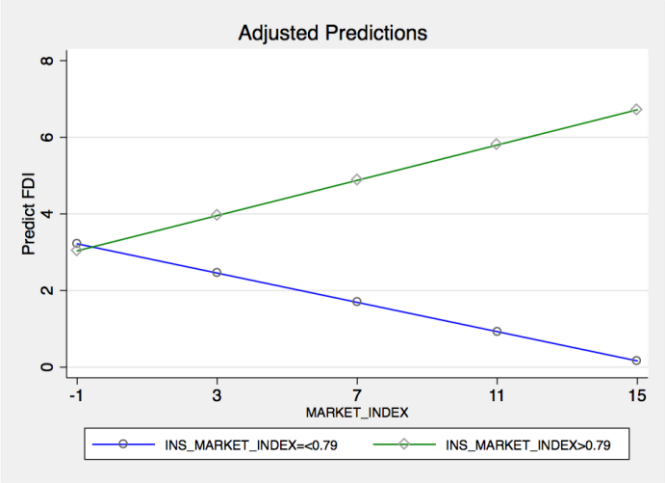
[48] See Appendix III-2, Table B III-3 for the list of countries below and above 0.73.

[49] The 28 developed countries above the institutional threshold of 0.73 are Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Malta, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom and United States. The 11 countries below 0.73 are: Bulgaria, Croatia, Cyprus, Estonia, Israel, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia

Looking at the market index, we observe that a good institutional environment in countries increases the effect of MARKET INDEX on FDI inflows. We detect a supplementary institutional effect by 0.024 for the effect of MARKET INDEX on FDI. Similarly to the KAOPEN and the BANKING INDEX, we estimate an institutional threshold for the MARKET INDEX (Table III-3, column (3)). This threshold is equal to 0.79. It indicates the level above which institutions increase the impact of stock market on FDI inflows. The latter would mean that the effect of MARKET INDEX on FDI is different depending on the institutional level. We find here that only 1 country "Singapore" from the developing group that is above the threshold of 0.79. Furthermore, 19 of 36 developed countries are able to attract FDI through the development of stock market [50].

Figure III.3 clearly points that only countries with better institutional level can benefit from the development of the MARKET INDEX to attract more FDI to the country.

Figure III.3: The impact of MARKET INDEX on FDI inflows
(lower VS higher institutional level)



Author's calculation

We remark from this point that Hong Kong and Korea were able to attract FDI through

[50] The 19 developed countries above the institutional threshold of 0.79 are Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Iceland, Ireland, Italy, Japan, Netherlands, New Zealand, Norway, Sweden, Switzerland, United Kingdom, and United States. The 17 countries below 0.79 are : Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Greece, Hungary, Israel, Latvia, Lithuania, Malta, Poland, Portugal, Romania, Slovakia, Slovenia and Spain.

banking development because their institutional level was higher than 0.73. However, these countries did not figure among those countries, which were able to attract FDI through stock market because their institutional level was respectively 0.75 and 0.74. Their level is lower than the threshold of 0.79. If Hong Kong and Korea increase their institutional level to 0.79, they will join Singapore to attract FDI inflows through stock market development.

We can conclude that a few numbers of the developing countries were able to attract FDI through the development of banking and stock market. The low level of institutions can be a constraint for foreign investors to choose to invest in countries with low legal system, high bureaucracy and corruption. There is a need in these countries to decrease the level of political risk to attract more FDI inflows.

We highlight that institutions play a major role in influencing the effect of KAOPEN and financial development in attracting FDI inflows. In addition, these results indicate that a sophisticated and well-functioning financial system is a key determinant of FDI. Countries can reap more the benefit of KAOPEN, banking and stock market development by improving their institutional quality (decreasing the political risk).

In this section, the BANKING INDEX was computed using the liquid liabilities, bank assets and private credit. Although the stock MARKET INDEX was calculated using the stock market value traded, the stock market turnover ratio and the stock market capitalization. In the next section, we investigate the role of each of these components on FDI.

III.1.2 The effect of the components of banking and stock market development on FDI

Table III-4 presents the results of the effect of capital account openness and the components of financial development on FDI. We observe that even if we introduce in the model LL (column (1)), CREDIT (column (5)), TRADED (column (7)) and CAPIT (column (11)), the effect of capital account openness on FDI remains positive and significant. This highlights the robustness of our results.

Focusing on the development banking variables, results show that FDI is significantly and positively correlated with LL (column (1)), and CREDIT (column (5)). Al Nasser and Gomez (2009) and Adeniyi et al., (2012) find that liquid liabilities matter for FDI respectively in Latin America and in both Ghana and Gambia. The second variable that has a positive effect on FDI is CREDIT to private sector. The higher the credit to the private sector, the higher is the possibility to get financing on the local market. Access to credit is also attractive for foreign investors when they seek expansion of their production capacity and growth. A well functioning and expanding credit to the private sector is an indicator of a healthy growing economy.

One interesting comment is when we take for example a country like Romania, which has a ratio of LL by 29.19%. If it raises its ratio of LL to the average of the sample 53%, it will annually improve the attractiveness of FDI by 0.10%[51]. In addition, Costa Rica has a ratio of CREDIT by 24.7 %. If it increases its ratio to the average of the sample 42.57% then it will annually increase FDI by 0.06%[52]. Kinda (2010) finds that credit to the private sector is an important factor driving international finance. These results are in line with those of Resende Jr (2010) but contradict the findings of Kirkpatrick et al., (2006). The latters explain the hypothesis that foreign investment will be greater where the capacity of the private sector to finance its investment is constrained by an underdeveloped domestic financial sector.

In fact, there are two extreme cases that can explain the negative relationship between private credit and FDI inflows.

The first case is that high domestic credit to the private sector means an abundance of domestic capital. Thus, foreign investments in the form of FDI would not be needed. In fact, a great level of "credit to the private sector" is a sign of the abundance of domestic capital. Therefore a negative relationship between private credit and FDI inflows can occur (Anyanwu & Erhijakpor, 2004; Walsh & Yu, 2010; Anyanwu, 2011).

The second case is when the ratio of private credit in term of GDP is low in the local market. This would indicate a negative relationship between FDI and bank loans (Hausmann & Fernandez-Arias, 2000). These authors point that the more inefficient the

[51] This result is obtained following this formula ln(53)-ln(29.19)*0.171=0.10.
[52] ln(42.57)-ln(24.7)*0.120=0.06

market, the greater the incentive to extend the border of the firm. In addition, when the institutional quality is low, or when certain markets are not adequately developed, foreign investors can find that in order to do business in another market, they need to own and operate a firm. They cannot rely on the market[53]. They add that when the access to international finance is limited, then local firms are constrained to sell their project at price beyond their reservation price to foreign investors with better access to capital. In this case, FDI can increase in underdeveloped financial markets.

Looking at the stock market variables, the regression results for stock market value traded and capitalization support the work by Agarwal & Mohtadi (2004), Jeffus (2004) and Al Nasser & Gomez (2009). In a similar vein, Di Giovanni (2005) highlights that stock market capitalization in the home country is a strong determinant of M&A (Merging and Acquisation) activity. In this case the coefficient of TRADED and CAPIT result in a positive effect on FDI inflows as predicted (columns (7) and (11)). These results point that these stock market indicators imply that FDI is a complement and not a substitute of domestic stock market development (Claessens et al., 2001).

[53] Hausmann and Fernandez-Arias (2000) show that FDI take a major role in Mexico as local firms have limited access to domestic bank credit. Consequently, FDI can help to overcome this restricted access to financial markets. However, it is not necessarily an indication of better domestic conditions.

Table III-4 The impact of capital account openness and financial development on FDI

	Dependent variable: FDI inflows											
VARIABLES	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**	**(11)**	**(12)**
INFRA	0.173	0.153	0.161**	0.205***	0.1667	0.1374	0.1206	0.153***	0.1326**	0.1302	0.182*	0.1543
	(0.187)	(0.173)	(0.0785)	(0.0751)	(0.158)	(0.129)	(0.158)	(0.0554)	(0.0539)	(0.125)	(0.095)	(0.135)
HK	0.111**	0.141*	0.164	0.206	0.228	0.129	0.191***	0.125**	0.113***	0.177***	0.154***	0.106***
	(0.045)	(0.078)	(0.142)	(0.215)	(0.251)	(0.242)	(0.072)	(0.05)	(0.042)	(0.0410)	(0.057)	(0.039)
TRADE	0.120***	0.142***	0.101***	0.155*	0.146***	0.182***	0.162***	0.062***	0.082**	-0.0715	0.141***	-0.0182
	(0.029)	(0.053)	(0.0336)	(0.081)	(0.048)	(0.052)	(0.062)	(0.022)	(0.0328)	(0.573)	(0.026)	(0.299)
INFL	-0.35***	-0.297***	-0.233***	-0.220***	-0.271***	-0.233***	-0.102*	-0.257***	-0.120	-0.157	0.0183	-0.0775
	(0.0752)	(0.0699)	(0.0699)	(0.0693)	(0.0691)	(0.0577)	(0.0621)	(0.0725)	(0.193)	(0.114)	(0.0497)	(0.0605)
NAT_RESR	0.364***	0.328***	0.414***	0.497***	0.314***	0.337***	0.106	0.0520	0.106	0.114	0.145**	0.0818
	(0.105)	(0.100)	(0.104)	(0.0927)	(0.0951)	(0.0910)	(0.167)	(0.0655)	(0.118)	(0.105)	(0.0582)	(0.0561)
INST	0.269***		0.245**		0.144***		0.151***		0.135**		0.148**	
	(0.098)		(0.067)		(0.041)		(0.043)		(0.054)		(0.0592)	
KAOPEN	0.279**	0.160**	0.225	0.137	0.188**	0.121**	0.203***	0.113***	-0.391	-0.574	0.143**	0.182**
	(0.116)	(0.066)	(0.1781)	(0.151)	(0.075)	(0.041)	(0.0289)	(0.021)	(0.300)	(0.435)	(0.0595)	(0.0728)
KAOPEN*INST		0.220**		0.102*		0.098**		0.175***		1.814		0.070**
		(0.091)		(0.056)		(0.040)		(0.062)		(2.509)		(0.028)
LL	0.171**	0.084*										
	(0.071)	(0.046)										
LL*INST		0.041**										
		(0.017)										
ASSETS			0.151	0.117								
			(0.137)	(0.151)								
ASSETS*INST				0.077								
				(0.064)								
CREDIT					0.120**	0.069**						
					(0.048)	(0.027)						
CREDIT*INST						0.091***						
						(0.031)						
TRADED							0.163***	0.126**				

							(0.0364)	(0.0506)				
TRADED*INST								0.041***				
								(0.011)				
TUR									-0.0971	0.178		
									(0.120)	(0.300)		
TURVER*INST										-0.549		
										(0.425)		
CAPIT											0.141***	0.084*
											(0.047)	(0.0289)
CAPIT*INST												0.057**
												(0.0259)
Constant	-0.118***	-0.069***	-0.125**	-0.062**	-0.086***	-0.043***	-0.116***	-0.096***	-0.146	-0.072*	-0.105**	-0.093**
	(0.045)	(0.017)	(0.022)	(0.029)	(0.020)	(0.012)	(0.034)	(0.0097)	(0.059)	(0.037)	(0.043)	(0.038)
Observations	3,682	3,682	3,682	3,682	3,682	3,682	2,480	2,480	2,480	2,480	2,480	2,480
Number of id	144	144	144	144	144	144	105	105	105	105	105	105
AR(2) P-value	0.476	0.476	0.465	0.455	0.417	0.411	0.345	0.338	0.624	0.668	0.310	0.343
Sargan P-value	0.226	0.227	0.216	0.207	0.174	0.169	0.119	0.115	0.388	0.446	0.0959	0.118

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

III.1.2.1.The effect of natural resource endowment

Table III-5 resumes the effect of the components of financial development on FDI inflows for the resource endowed countries (Sample A) and for non resource endowed countries (Sample B) (See APPENDIX III-2, Table B III-4 and Table B III-5 for the other explanatory variables).

Results clearly show that the impact of LL and CREDIT on FDI inflows is significantly positive in Sample B (non resource endowed). We observe that CREDIT is also positive in Sample A but the effect is greater in FDI inflows in the sample B. In fact, an increase of 1% in the credit to the private sector, raises the attractiveness of FDI inflows by 0.24% in Sample B by and by 0.16% in Sample A.

Table III-5: The effect of the components of financial development on FDI

Dependent variable: FDI inflows							
VARIABLES		**LL**	**ASSETS**	**CREDIT**	**TRADED**	**TURN**	**CAPIT**
		(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Sample A: Resource Endowed	KAOPEN	0.104***	0.073**	0.0813*	0.103	0.194	0.130**
		(0.029)	(0.033)	(0.045)	(0.128)	(0.132)	(0.057)
	Financial Development	0.174	0.180	0.161**	0.0352	0.0446	0.103***
		(0.145)	(0.298)	(0.066)	(0.0422)	(0.0452)	(0.022)
Sample B: Non Resource Endowed	KAOPEN	0.1590	0.098**	0.139**	0.074***	0.151**	0.081
		(0.144)	(0.0420)	(0.0619)	(0.027)	(0.0648)	(0.0384)
	Financial Development	0.229***	-0.111	0.242***	0.103***	-0.177	0.153***
		(0.088)	(0.160)	(0.0789)	(0.0297)	(0.115)	(0.0375)

*Column (1) to (6) represents the financial development variables considered in the regression. The coefficients of KAOPEN in raw indicates the estimation of capital account openness associated to each of the financial development variables in columns. Financial development in raw show the coefficient of respectively LL (column (1)), ASSETS (column (2)), CREDIT (column (3)), TRADED (column (4)), TURN (column (5)), and CAPIT (column (6)). Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Similarly, the impact of the stock market variables: TRADED and CAPIT are higher and more significant in the non natural resource endowed countries. This confirms the results found previously that financial development have a greater role in attracting FDI inflows in the non natural resource endowed as contrary to the natural resource endowed countries.

III.1.2.2. The institutional effect on capital account openness and the subcomponents of financial development: the impact on FDI

We investigate in this section the indirect effects of the components of financial development on FDI through institutions. The aim here is to check whether there is an additional effect of institutions in the components of the banking variables and the stock market variables. Results in Table III-4 indicate that capital account openness improve the attractiveness of FDI through institutions even when we introduce LL (column (2)), CREDIT (column (6)), TRADED (column (8)) and CAPIT (column (12)). This means that the institutional mechanism through which capital account openness favors FDI inflows is still robust independently from the financial development variable used except in the case of ASSETS and TURN.

Analyzing the development banking variables, results in Table III-4 point an additional effect of institutions on LL (column (2)), and CREDIT (column (6)). This institutional supplementary effect has strengthened the positive effect of these banking variables on FDI. Furthermore, we observe that the higher institutional impact is seen in the case of CREDIT with an additional value by 0.091 (column (6)) while for LL it 0.041 (column (2)). Credits to the private sector should be followed by high institutional quality to attract more FDI inflows.

As the interaction between the level of institutions and these two financial variables is significant, this means that the impact of LL and CREDIT on FDI inflows depend on the level of institutions. Along this line, we estimate an institutional threshold above which liquid liabilities and private credit boost the attractiveness of FDI inflows. This critical level is given in Table III-6 and the rest of the explanatory variables are in APPENDIX III-2, Table B III-6.

Results clearly show that a good level of institutions conditions the positive effect of LL and CREDIT on FDI inflows. The significant effect of LL and CREDIT on FDI inflows is only observed above the institutional level of 0.68 for LL and 0.70 for CREDIT. In case of LL only 17 out of 95 developing countries pass the threshold of 0.68 such as Korea, Hong Kong, Singapore, Costa Rica, Mexico, Seychelles, St Kitts and Nevis,

Argentina, Bahrain, Botswana, Chile, Jamaica, Malaysia, Namibia, Oman, United Arab Emirates and Uruguay.

For the developed countries all of them are above 0.68 except Israel and Romania. Furthermore, none of the transition countries have an institutional level higher than 0.68. We observe for CREDIT, that only 7 out of 95 developing countries like Korea, Hong Kong, Singapore, Costa Rica, Mexico, Seychelles and St Kitts and Nevis are above the threshold.

There are more countries (29 of 36) in the developed group having an institutional level greater than 0.70.

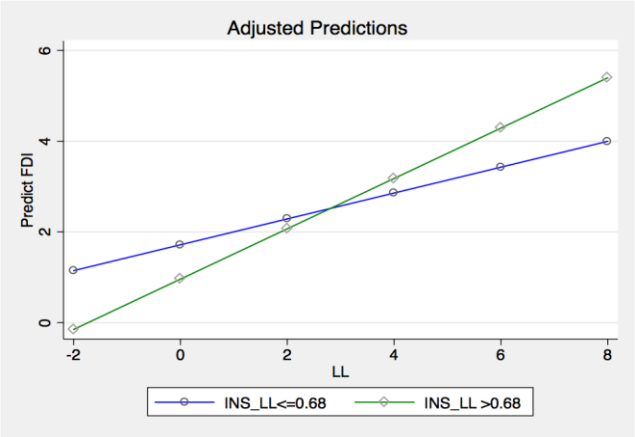
Table III-6: Threshold effect of the components of financial development on FDI inflows (Summary)

	Dependent Variable: FDI inflows			
VARIABLES	**(1)**	**(2)**	**(3)**	**(4)**
LL*(INS<= γ_4)	0.051			
	(0.065)			
LL*(INS> γ_4)	0.171**			
	(0.075)			
CREDIT*(INS<= γ_5)		0.052		
		(0.051)		
CREDIT*(INS>γ_5)		0.042***		
		(0.007)		
TRADED*(INS<= γ_6)			-0.110**	
			(0.054)	
TRADED*(INS>γ_6)			0.084**	
			(0.042)	
CAPIT*(INS<= γ_7)				-0.035**
				(0.0159)
CAPIT*(INS> γ_7)				0.179**
				(0.0864)
Constant	-1.525	-3.146***	-2.574***	-2.441***
	(1.559)	(0.787)	(0.516)	(0.368)
Threshold	γ_4=0.68	γ_5=0.70	γ_6=0.72	γ_7=0.75
Number of id	144	144	105	105

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

We can illustrate graphically from the results of estimations the impact of LL (liquid liabilities) on FDI inflows for countries above and below the threshold 0.68. Figure III.4 indicates that the correlation between liquid liabilities and FDI inflows is much higher for countries above the institutional level of 0.68.

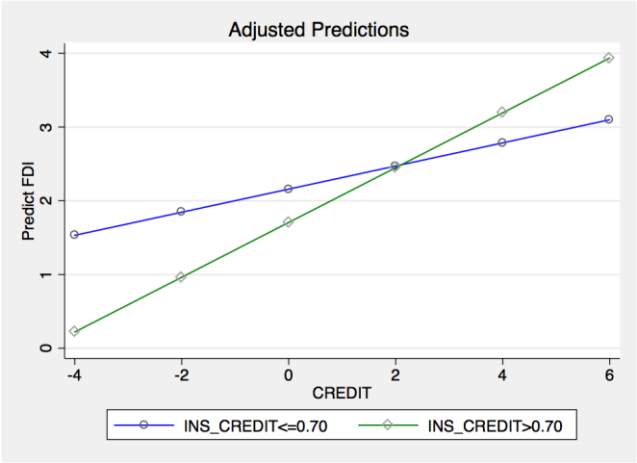
Figure III.4 The impact of Liquid liabilities on FDI inflows (lower VS higher institutional level)



Author's calculation

Furthermore, Figure III.5 presents the same trend. The slope of the line of private credit on FDI is greater for countries with an institutional level higher than 0.70.

Figure III.5:The impact of private credit on FDI inflows (lower VS higher institutional level)



Author's calculation

We can conclude that the more advanced the banking sector is, the greater FDI inflows will be. These results are consistent with the works of Kar and Pentecost (2000) and Hejazi and Safarian (2002).

Looking whether institutions have an additional effect on stock market variables, in Table III-4, we notice a supplementary impact for TRADED (0.041, column (8)) and

CAPIT (0.057, column (12)) on FDI inflows. There are no additional effects of institutions for the stock market turnover variable (column (10)). Countries should focus on creating conditions, such as improving the institutional quality as like the local legal systems, that allows firms to issue and trade shares abroad efficiently (Claessens et al., 2001).

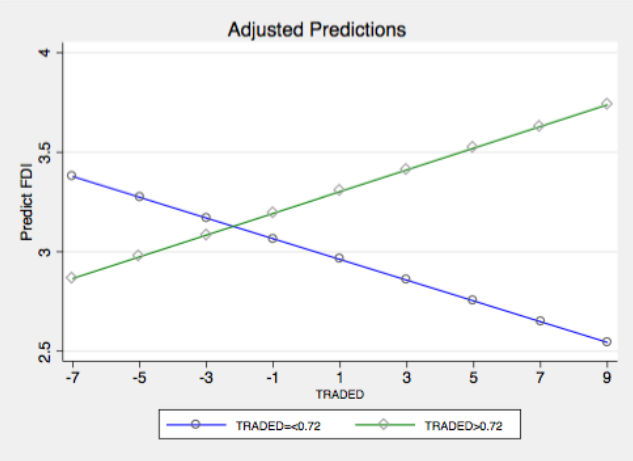
Considering that the supplementary effect of institutions is significant, we estimate a critical level of institutions above which stock market value traded (TRADED) and capitalization (CAPIT) increase the impact of this variable on FDI. This threshold is 0.72 for TRADED and 0.75 for CAPIT (Table III-6, columns (3) and (4)). For the variable TRADED, we find only 3 countries (Hong Kong, Korea and Singapore) from the developing group that are able to benefit from their high value of stock market value traded to attract FDI. For the developed group, 26 countries out of 36 are above the threshold. In addition, there is only one developing country (Singapore) and 23 out of 36 from the developed group can benefit from the development of their stock market capitalization to have greater FDI inflows.

We highlight that the institutional thresholds of stock market development are higher than those of the banking sector development. Korea and Hong Kong should higher their institutional level to 0.79 to attract FDI through the mechanism of stock market. Countries must have high level of institutional quality which means government stability, strong legal and judiciary system, low level of corruption etc.

Figure III.6 points that without a high level of institutional quality countries cannot benefit from the development of stock market value traded to attract FDI inflows. We highlight a great gap between countries below and above the threshold. For CAPIT (capitalization) we found an institutional threshold of 0.75.

Figure III.6: The impact of TRADED on FDI inflows

(lower VS higher institutional level)

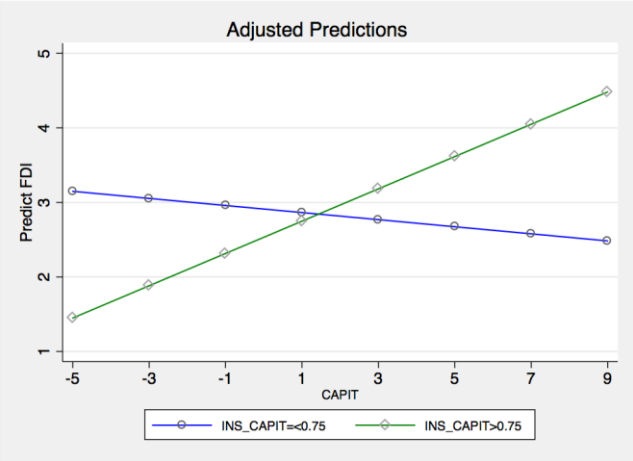


Author's calculation

Figure III.7 indicates the higher the institutions, the greater the effect of capitalization on attracting FDI inflows was. FDI is directed towards countries that are financially developed and institutionally strong.

Figure III.7:The impact of CAPIT on FDI inflows

(lower VS higher institutional level)



Author's calculation

The purpose in this section III.1 is to estimate a threshold level of institutions beyond which KAOPEN, BANKING INDEX and MARKET INDEX impact positively FDI. Then we divide the sample into countries that are under and above the institutional threshold to capture the appropriate effects of KAOPEN and financial development

variables on FDI. After determining the threshold, in the next section we test the effect of capital account openness on FDI using the PSM methodology for countries under and above the threshold.

III.2. Propensity Score Matching (PSM) estimation

In this section we present in the first part the methodology of the PSM, which follows two steps: the propensity scores and the matching effects. Then we comment the results of the effect of capital account openness on FDI inflows using the PSM.

III.2.1. The methodology of the PSM

III.2.1.1. The propensity scores (PS)

Our objective is to evaluate the treatment effect of capital account openness (CO) on FDI in countries having adopted CO (COer hereafter), the so-called average treatment effect on the treated (ATT).

Equation III-3

$$\mathbf{ATT= E[(Y_{i(1)} – Y_{i(0)}) \mid CO_i=1] = E [Y_{i(1)} \mid CO_i=1] - E[(Y_{i(0)} \mid CO_i=1]}$$

Where CO_i is a dummy variable. In order to assert capital account openness, Chinn and Ito (2008) have inverted the binary variables so that they are equal to 1 if there is no restriction (opened capital account) and 0 (closed capital account) otherwise. To get the data we used the updated index of (Chinn, 2015). It is an index based on binary dummy variables that creates codes on the restrictions on external accounts of one country reported in the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER). It attempts to measure the intensity of capital controls, insofar as the intensity is correlated with the existence of other restrictions on international transactions.

$Y_{i(1)}$ is the value of the outcome variable when the country i has adopted CO and $Y_{i(0)}$ if not. $Y_{i(0)} \mid CO_i=1$ is the outcome value that would have been observed if a COer had not adopted CO regime, and $Y_{i(1)}) \mid CO_i=1$ the outcome value really observed on the same

CO country. Equation III-3 is telling us that a simple comparison between the outcome value (FDI in our case) observed in the treatment group (COers) and the outcome value observed in the same countries if they had not adopted CO would give us an unbiased estimate of the ATT. Unfortunately, it is not possible to observe this latter outcome value since we cannot observe the FDI flowing into a capital opened country if it had not adopted capital account openness. We face here, as it is common in non-experimental studies, an identification problem.

A common approach to circumvent this difficulty is to compare the sample mean FDI of the treatment group (COers) with that of the control group (non COers) if and only if assignment to the treatment is random. However, CO adoption may be non-random, as it may be correlated with a set of observable variables that also affects the outcome variable, leading to the so called self-selection problem[54]. A simple comparison of the sample mean FDI between the two groups would then produce biased estimates of the ATT. As in Flood & Rose (2010), Lin & Ye (2007, 2009), Vega & Winkelried (2005) and C. E. Walsh (2009), to address this problem of selection on observables, we make use of a variety of propensity scores matching methods recently developed in the treatment literature.

III.2.1.2. Matching on the propensity scores

Propensity Scores Matching (PSM hereafter) consists in pairing the COers with non-COers that have similar observed characteristics so that the difference between the outcome of a COer and that of a matched counterfactual is attributable to the treatment (CO adoption). A key assumption needed to apply the PSM is "conditional independence" ($Y_0, Y_1 \perp CO|X$) which requires that conditional on the observables (X), the outcome be independent of the treatment variable. Under this assumption, Equation III-3 can be rewritten as:

$$ATT = E[Y_{i(1)}|CO_i = 1, X_i] - E[Y_{i(0)}|CO_i = 0, X_i]$$

[54] It is worth noting that the Propensity Scores-Matching method does not implicitly account for the unobservables; as a result, the issues it addresses differ from those related to selection on unobservables (omitted variables) as well as from a Heckman-type sample selection problem (see Heckman et al., (1998), Dehejia & Wahba (2002) and Caliendo & Kopeinig (2008) for further details).

where we have replaced $E[Y_{i(0)}|CO_i=1,X_i]$ with $E[Y_{i(0)}|CO_i=0, X_i]$ which is observable. Yet, as the number of covariates in X increases, matching on X would be difficult to implement in practice. Rosenbaum & Rubin (1983) suggested overcoming this high dimension problem by basing the matching on the propensity scores instead of X. The propensity score is the probability of adopting the CO regime conditional on the observable covariates (X):

$$p(X_i)= E[CO_i |X_i]= Pr (CO_i=1|X_i)$$

The validity of the PSM needs a further assumption, the so-called "common support" assumption ($p(X_i) < 1$), which requires the existence of some comparable control countries for each treated countries. Hence, the ATT can be estimated as:

$$ATT= E[Y_{i(1)} |CO_i =1, p(X_i)] - E[Y_{i(0)}|CO_i=0, p(X_i)]$$

Developing and developed groups have set up the process of capital account liberalization at different times. Although developed countries have liberalized between 1970 and 1980 (Reisen & Fischer, 1993) and developing countries started to liberalize at the beginning of 1990s (Mathieson & Rojas-Suarez, 1992).

Our dataset consists of 36 developed, 95 developing and 13 transition countries examined over the period 1984-2013. This is an unbalanced panel because of missing data on some variables such as financial development variables. The sample is composed of 28 developed countries that have adopted capital account openness (CO) by the end of 2013 (called COers or treatment group) and 8 non-COers (control group). For the developing countries, 23 of them have adopted CO by 2013, and 72 non-COers. For the transition group only 2 are COers and 13 are non COers.

COers along with their starting dates from Chinn & Ito (2010) can be found in APPENDIX III-2, Table B III-7 and Table B III-8. CO is an index available until 2013 and measuring a country's degree of capital account openness. The index was initially introduced in Chinn & Ito (2006).

CO is based on the binary dummy variables that codify the tabulation of restrictions on cross-border financial transactions reported in the IMF's Annual Report on Exchange

Arrangements and Exchange Restrictions (AREAER). It attempts to measure the intensity of capital controls, insofar as the intensity is correlated with other restrictions on international transactions.

III.2.2. The impact of capital account openness on FDI

III.2.2.1. Results of the propensity scores

After determining the groups of countries according to the institutional threshold of KAOPEN, we apply the PSM methodology to compare the effect of capital account openness on FDI between countries that have opened their capital account and those that did not [55].

The method of the propensity scores consists in estimating the explanatory variables on capital account openness (CO) (Equation III-4 below). The aim of this is to give to each country a score (probability) of opening the capital account taking into consideration the determinants of FDI (explanatory variables). The equation of the propensity scores is the following:

Equation III-4

$$CO_i = \alpha_1 INFL_i + \alpha_2 HK_i + \alpha_3 TRADE_i + \alpha_4 INST_i + \alpha_5 INFRA_i + \alpha_6 FD_i + \alpha_7 Nat\_Resr_i + \varepsilon_i$$

The dependent variable CO is capital account openness. It is a dummy variable which takes 1 if the country has opened its capital account in 2013 and 0 otherwise. The explanatory variables are the same as in Equation III-1 but without KAOPEN.

Taking into account the threshold level of institutions (0.59) above which capital account openness impacts positively FDI, we divide the sample into countries that are below 0.59 and above 0.59.

[55] By groups of countries we mean here countries below and above the threshold of KAOPEN (0.59). We consider two groups those that are below 0.59 and those above 0.59. In each group we test the effect of capital account openness on FDI.

Table III-7 reports the results estimating Equation III-4 over the sample from 1984-2013. Columns (1) and (2) show the regression results on the relationship between banking development and CO, whereas columns (3) and (4) highlight the relationship between stock market development and CO.

The results of the propensity scores in Table III-7 highlight that for countries that are below and above 0.59, the effect of BANKING INDEX impacts positively the probability of opening capital account. The group of countries which have an institutional level lower than 0.59 have a higher impact of banking development on CO (0.342, column (1)) than the group above 0.59 (0.215, column (2)). This is explained by the fact that for countries that are below 0.59, the room for further improvement of the banking sector is higher than for countries with strong institutional indicators. Chinn & Ito (2002) find for the less developed group, and emerging countries that private credit has a strong relationship with capital account openness.

Looking at the market index, the effect of the latter is negative on CO for countries below the threshold of 0.59 (column (3)). This indicates that the weakness in level of stock market is one of the arguments to keep closed capital account. It may merely be the case that the effects of equity market have not yet been felt, and that time will tell.

Chinn & Ito (2006) found that a rapid growth in equity markets, in terms of the size of the markets (CAPIT) or the liquidity of the markets (TRADED or TURN) is sometimes associated with financial crises, and that policy makers lower the degree of financial openness during periods of crises (Ito, 2004). If the level of stock market remains low, countries will keep their capital account closed.

In contrast countries that are above the institutional level of 0.59 (column (4)), are able to gather from stock market development to open their capital account. Increasing stock MARKET INDEX raises the probability of opening the capital account. In fact, stock market liberalizations decrease the cost of capital, which leads to greater investment and increased per-worker output, at least in the immediate aftermath of liberalization (Bekaert & Harvey, 2000; Henry, 2000)

Table III-7 Probit estimates of the propensity scores: the effect of financial development on capital account openness (CO)

Dependent variable : CO (capital account openness)						
VARIABLES	**INST<0.59 (1)**	**INST>0.59 (2)**	**INST<0.59 (3)**	**INST>0.59 (4)**	**INST<0.59 (5)**	**INST>0.59 (6)**
INFRA	0.114**	0.220**	-0.087	-0.129	0.103**	0.199**
	(0.0475)	(0.088)	(0.148)	(0.425)	(0.0427)	(0.0829)
HK	0.263***	0.095**	0.202***	0.130*	0.254***	0.098*
	(0.056)	(0.0395)	(0.071)	(0.077)	(0.086)	(0.057)
TRADE	-0.124	0.290***	-0.088**	0.216***	-0.246***	0.328***
	(0.122)	(0.0779)	(0.0352)	(0.08)	(0.080)	(0.106)
INFL	0.158	-0.0291**	0.110	-0.05***	0.0659	-0.102**
	(0.1377)	(0.0116)	(0.164)	(0.0183)	(0.0716)	(0.0408)
NAT_RESR	-0.147***	-0.075***	0.0591	-0.16***	0.0232	-0.148***
	(0.0470)	(0.0168)	(0.0831)	(0.0207)	(0.0903)	(0.0236)
BANKING INDEX	0.342***	0.215***			0.170	0.0427
	(0.0675)	(0.0664)			(0.181)	(0.0917)
MARKET INDEX			-0.101**	0.269**	-0.192**	0.299**
			(0.0404)	(0.0421)	(0.091)	(0.1196)
Constant	0.293***	-0.129***	0.102	-0.227***	0.160	-0.091***
	(0.092)	(0.026)	(0.125)	(0.041)	(0.125)	(0.028)
Observations	1,218	1,593	441	1,202	1,119	1,029
R^2_Pseudo	0.112	0.305	0.154	0.293	0.148	0.287
Chi2	105.62	384.13	51.20	481.74	42.92	402.87

* 0.59 is the institutional threshold above which KAOPEN impact positively FDI inflows. It is the threshold estimated in Section III.1. Standard errors in parentheses *** p<0.01, ** p<0.05, p<0.1.

Obstfeld et al., (2005) highlight that financial development played an important role on international capital flows among financially open economies. Klein (2005) finds that the effect of capital account liberalization on financial depth is concentrated among OECD countries. These countries enjoy better institutional and macroeconomic environments.

Given these results, in countries with relatively strong institutions, the stock markets tend to be larger in terms of both size and activeness. Moreover, banking and stock markets can grow with capital liberalization, with the latters developing even further if capital liberalization is coupled with a highly developed legal environment. Chinn & Ito (2002) point that countries can benefit more from financial openness when the financial system is coupled with a high level of institutions.

Furthermore, we point that the BANKING INDEX variable seems to have a greater impact on CO for countries below the institutional threshold of 0.59. In this context, Ozkok (2015) confirms that the link between financial openness and financial development exists even for developing countries. However, results point that the stock MARKET INDEX has more effect on CO in countries above 0.59.

Clearly, there is a sharp difference in the effect of financial development on capital account openness, in terms of both banking and stock market development, between the two institutional categories. Estimating together the BANKING and the MARKET INDEX makes the BANKING INDEX not significant (column (5) and (6)). It is better to estimate them one by one to catch the specific effects of each financial development variable.

After analyzing the propensity scores, which attribute scores of probability of opening the capital account in countries. We move in the next section, to analyze the matching results, which mean the effect of capital openness on FDI.

III.2.2.2. Matching results

After determining a score of probability of opening capital account for each country in the previous section, we run the matching procedure. The matching consists in comparing the FDI inflows for a country *i* that has opened its capital account with the estimated FDI inflows if the country *i* had not opened its capital account.

Table III-8 summarizes the matching results of the effect of CO on FDI for the sample in terms of the institutional threshold of KAOPEN (0.59). The first method, Nearest Neighbor Matching, consists of comparing countries that have the same scores of probability of opening the capital account. The second method is the radius matching, it performs the matching based on PS falling within a certain radius or "caliper" R (we use a small radius R=0.01, a medium radius R=0.05 and a wide radius R=0.1). The third method represents the Stratification matching which divides the COer and the non COers into blocks. Then it performs the matching between COers to non COers belonging to the same block. The forth one is the Kernel matching which matches a COer to all non-COers weighted proportionally to their closeness to the COer.

Let’s remember that we have used two financial development (FD) measures (BANKING INDEX and MARKET INDEX) in Equation III-4 for the propensity scores. Indeed, line [1] and [2] sum up the effect of CO on FDI inflows using the BANKING INDEX, and line [4] and [5] using the MARKET INDEX. Furthermore, we distinguish two groups: countries that are below the institutional threshold (INST<0.59) and those above (INST>0.59).

For INST<0.59, the Nearest Neighbor Matching method indicates that the effect of CO on FDI is positive (ATT=0.172, line [1]). This means that countries that have opened their capital account receive more FDI than those that did not. Using three other methods of matching to test the robustness of the results, the sign remains the same. For example, the effect of CO on FDI is still positive in the case of radius matching (ATT=0.153, Radius matching r=0.01), stratification matching (ATT=0.181, Stratification matching) and Kernel matching (ATT=0.171, Kernel matching).

For INST>0.59, the Nearest Neighbor Matching method shows that the effect of CO on FDI is negative (ATT=-0.231, line [2]). It indicates that countries that have opened their capital account receive less FDI by 0.231 than those that did not. Results remain the same using the other methods of matching. In fact, with open capital accounts, developed countries tend to experience net capital outflows and, less developed countries tend to experience net capital inflows controlling for numerous determinants of the current account.

We get the same results when the MARKET INDEX (line [4] and line [5]) is included in the pscore estimation instead of BANKING INDEX.

Reinhardt et al., (2013) point that the prediction of the standard neoclassical theory (capital should flow from more developed to less developed countries) can be confirmed only for countries with opened capital accounts. They highlight in countries with a closed capital account, capital inflows are not systematically correlated with the level of economic development.

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Table III-8: Matching results of the effect of capital account openness (CO) on FDI

	Dependent Variable: FDI	Nearest Neighbor Matching	Radius Matching			Stratification Matching	Kernel Matching
			r=0.01	r=0.05	r=0.1		
	Treatment effect of CO on FDI						
Using the Banking index in the Propensity Scores	**[1] INST < 0.59 (threshold)**	0.172***	0.153***	0.166***	0.147***	0.181***	0.171***
		(0.051)	(0.028)	(0.031)	(0.041)	(0.057)	(0.03)
	Number of Treated Obs.	158	153	152	144	151	158
	Number of Controls Obs.	122	1047	1047	1043	1042	1047
	Total Observations (Obs.)	280	1200	1199	1187	1193	1205
	[2] INST > 0.59 (threshold)	-0.231***	-0.142***	-0.148**	-0.176***	-0.191**	-0.251***
		(0.077)	(0.054)	(0.0592)	(0.064)	(0.096)	(0.097)
	Number of Treated Obs.	805	805	805	794	805	805
	Number of Controls Obs.	256	787	787	717	721	787
	Total Observations (Obs.)	1061	1592	1592	1511	1526	1592
	[3] INST > 0.59 (threshold) (Without outliers[56])	0.397***	0.197**	0.198***	0.218***	0.221***	0.279***
		(0.091)	(0.079)	(0.068)	(0.071)	(0.065)	(0.084)
	Number of Treated Obs.	805	805	805	754	805	805
	Number of Controls Obs.	227	682	682	584	451	682
	Total Observations (Obs.)	1032	1487	1487	1338	1256	1487
Using the Market index in the Propensity Scores	**[4] INST < 0.59 (threshold)**	0.148***	0.127***	0.168**	0.141**	0.121**	0.162***
		(0.051)	(0.042)	(0.068)	(0.064)	(0.055)	(0.034)
	Number of Treated Obs.	55	55	53	53	55	55
	Number of Controls Obs.	44	274	274	235	241	274
	Total Observations (Obs.)	99	329	327	288	296	329
	[5] INST > 0.59 (threshold)	-0.066**	-0.057**	-0.037**	-0.026**	-0.046**	-0.031**
		(0.0264)	(0.029)	(0.0186)	(0.011)	(0.021)	(0.0127)
	Number of Treated Obs.	696	412	412	696	696	696
	Number of Controls Obs.	174	24	24	345	380	404
	Total Observations (Obs.)	870	436	436	1041	1076	1100
	[6] INST > 0.59 (threshold) (Without outliers)	0.197***	0.184**	0.179**	0.161***	0.201***	0.241***
		(0.030)	(0.021)	(0.011)	(0.009)	(0.045)	(0.051)

[56] The outliers in this case are China with the 7 countries of the East and Central European.

	Number of Treated Obs.	696	696	696	597	696	696
	Number of Controls Obs.	112	315	315	293	251	315
	Total Observations (Obs.)	808	1011	1011	890	947	1011

This confirms our result in the sense that countries above the threshold of 0.59 (line [2]) with closed capital account received more capital inflows (FDI). This case may arise because a more restrictive capital account increases the incentives for domestic firms to avoid capital markets generally. This leads them to look for financing by allowing themselves to be (partly) purchased by a foreign firm (Hausmann & Fernandez-Arias, 2000). In addition, these authors conclude that FDI often substitutes for alternative means of financing. Companies that have difficulties to access to domestic capital markets may sell part or their firm to a foreign company. Furthermore, the advantage of a restrictive policy on capital account as a mean is to avoid major capital outflows in case of financial crises and to diversify the composition of capital flows toward long-term investments (FDI) (Rogoff, 2002). Similarly, Montiel & Reinhart (1999) point that restrictions on capital account tend to increase the share of FDI.

Ostry et al., (2010) clarify that for both macroeconomic and prudential reasons, thus, there may be circumstances in which capital controls are a legitimate component of the policy response to surges in capital inflows. They also state that: "A key conclusion is that, if the economy is operating near potential, if the level of reserves is adequate, if the exchange rate is not undervalued, and if the flows are likely to be transitory, then use of capital controls in addition to both prudential and macroeconomic policy is justified as part of the policy toolkit to manage inflows. Such controls, moreover, can retain potency even if investors devise strategies to bypass them, provided such strategies are more costly than the expected return from the transaction: the cost of circumvention strategies acts as *sand in the wheels*".

Indeed, the sample of countries with an institutional level higher than 0.59 and that didn't open their capital account includes two types of outliers. Firstly it is about China and secondly it is composed of the East and Central European countries. These countries have undertaken special reforms to attract FDI even if they have closed capital account.

China can be seen as an outlier as it is the second largest recipient of FDI inflows in the world. Its FDI current stock has increased by 232% during the period 1984 to 2013. China has implemented gradual openness policy since 1980. Indeed, it has established Special Economic Zone (SEZ) in its coastal provinces (Shenzhen, Xiamen, Shantou,

and Zhuhai) which aim is to attract FDI. It has introduced financial policies regarding taxation[57], customs and labor regulation so that companies in this zone can produce at lower price and be globally competitive. Catin & Van Huffel (2004) highlight that policy openness in China has led to institutional choices widely in favor of the coastal areas. They add that China became in 2003 the first recipient of FDI and that 80% of FDI were concentrated in coastal provinces[58].

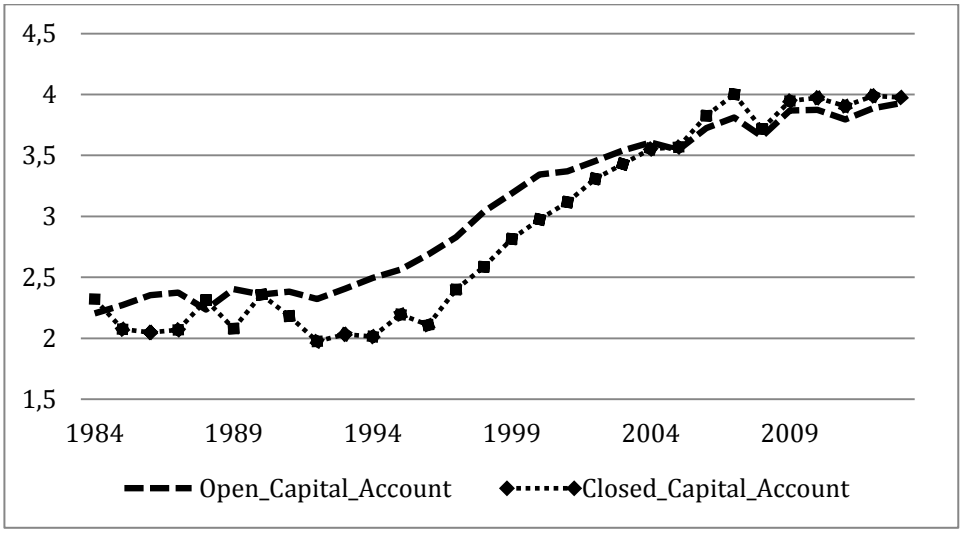
The sample also includes the East and Central European countries. In our sample we point 7 countries, which are: Croatia, Cyprus, Iceland, Lithuania, Poland, Slovakia and Slovenia. Recent contributions showed that the process of economic integration (in particular monetary and financial liberalization) among European countries resulted in capital flows towards relatively poorer countries, resulting in a declining correlation of savings with investment (Blanchard & Giavazzi, 2002; Lane & Milesi-Ferretti, 2008; Coeurdacier & Martin, 2009).

Figure III.8 indicates that in these countries (closed capital account), FDI inflows have increased mainly from 1996 to 2007. In 2007, FDI of these closed capital account countries has overcome FDI of the open capital account countries. Table III-9 points that FDI rose from 1997 to 2007 at a rate of 4463% in Iceland, 1642% in Slovakia and 691% in Croatia. Similarly, the annual average growth rate of FDI between 1997 and 2007 was 57.77% in Iceland, 57.10% in Slovakia and 22% in Croatia. FDI begin massively to flow to these countries because of the fall of the USSR[59]. Governments in these countries have privatized a big part of public firms whether by selling their shares to national or to foreign investors. This pulled an increase of FDI by the Merging and Acquisitions (M&A). Then, these countries undertook reforms to attract foreign investors (Picciotto, 2003). They adopt measures such as:

- a regulatory and legal framework with a low level of corruption
- developing their infrastructure (Transport, telecommunications , ...)
- improving the level of education to get skilled labor
- tax incentives

[57] Once a company is established in the zone they are granted a period of lower taxation.
[58] Catin & Van Huffel (2004) find that despite the massive inflows of FDI to China, the regional disparities between rural and urban coasts could cause economic instability in the country.
[59] Union of Soviet Socialist Republics

Figure III.8: FDI inflows (Millons $)



Source: UNCTAD (2016).

Table III-9: FDI inflows (Millions $)

	Mean_FDI (1984-1995)	1997	2001	2004	2007	Growth rate of FDI 1997-2007 (%)	Growth rate Annual Average 1997-2007 (%)
Croatia	86,27	580	1011	1270	4590	691,89	22,99
Cyprus	99,25	548	929	1084	2226	305,95	27,10
Iceland	8,45	150	174	737	6824	4463,61	57,77
Lithuania	36,28	354	446	774	2015	468,42	36,90
Poland	705,87	4910	5579	12440	21643	340,77	20,93
Slovakia	1007,15	231	2275	4029	4017	1642,06	57,10
Slovenia	125,52	334	359	675	757	126,44	37,57

Source: UNCTAD (2016). Author's calculations

We conclude that dividing the sample depending on the institutional threshold level gives a clear view of the effect of capital openness on FDI.

Given the results found previously, we delete the outliers from the sample. The results in Table III-8 show that for countries above the threshold (line [3], 0.397), the effect of CO on FDI is higher in opened capital account countries. Furthermore, this effect is greater in comparison with countries below the threshold (INST<0.59) given that 0.397 is higher than 0.172. Furthermore, results are similar when the stock MARKET INDEX

(line [6]) is included in the pscore instead of the BANKING INDEX). The robustness of our results is checked whether we use the radius or the stratification method.

We conclude that, taking into account the level of institutions clarifies the relation between capital account openness and FDI. This study shows that countries with high level of institutions gather more from the capital account openness to attract FDI. It also points that opening capital account have a positive effect on FDI with greater effect in the institutional developed countries. In this sense, institutions act as a means to reinforce the relation between capital account openness and FDI.

V. Conclusion

This chapter aims at investigating the impact of financial development and capital openness on FDI by level of institutions using a sample of developed, developing and transition countries. Our key results highlight that institutions improve the effect of capital account openness, private credit and stock market value traded on the attractiveness of FDI.

Studying the effect of capital account openness on the attractiveness of FDI by level of institutions has showed differences. In fact, countries above the institutional threshold can gather more from capital account openness to attract FDI inflows. Considering the financial development variables, the results are different between the banking and the stock market. On the one hand, private credit and liquid liabilities have a positive effect regardless the institutional level. However, we clearly note that countries with higher institutional quality benefit more from the development of the banking sector to attract FDI. On the other hand, countries will not be able to attract FDI through stock market value traded and capitalization unless they reach the institutional threshold. We highlight that the threshold of the institutional index of stock market is higher than the one of banking development. Singapore, Korea and Hong Kong were the only developed countries able to attract FDI through stock market. The weakness of the level of financial development is a constraint for the developing countries to attract FDI inflows. However, financial development is less important for the attractiveness of FDI in the natural resource endowed countries because the aim of foreign investors is to exploit the natural resources.

Along this line, the Propensity Score Matching implemented allows comparisons between homogenous groups by computing scores, which represents the probability of opening capital account. It seems that the banking development measures matter more for capital account opened countries below the institutional threshold. The room for further improvement of banking sector is higher in these countries in comparison with the developed (above the threshold). Looking at stock market development, it is found to positively impact capital account openness policy in countries with high institutional quality.

Considering the matching results, countries that have opened their capital account received more FDI in comparison with those that did not. However, the impact of capital account openness is higher in countries that reach the institutional threshold. Indeed, when we take off the outliers from the control group, we get a positive ATT. It appears clearly that opening capital account allows attracting more FDIs. Furthermore, opening capital will let firms financing on equity markets. This can solve in part the funding problem in these countries. Nevertheless, a good institutional level conditions this result.

With regards to the results obtained, financial development, capital openness and better institutional conditions generate a favorable environment to attract FDI inflows. Therefore, only countries that gradually built solid financial regulation institutions may face efficiently acute crises. Unfortunately, this requirement is rarely filled in the majority of developing economies.

APPENDIX III-1

Table A III-1: Data and sources

LABEL	DESCRIPTION	SOURCES
FDI	Foreign Direct Investment: inward stock, in percentage of GDP. It is the value of the share of their capital and reserves (including retained profits) attributable to the parent enterprise, plus the net indebtedness of affiliates to the parent enterprises.	UNCTAD, 2014
KAOPEN	Capital account openness index ranges between −2.5 and 2.5, with higher values indicating that the country is open to cross border capital flows. This index is a component of four binary variables reported in the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER). The first variable k1 gives information on the existence of multiple exchange rates. Furthermore, the second k2 and the third k3 components detail the existing of restrictions on current and capital account transactions, respectively. Finally, the fourth k4 component provides information of the requirement of the surrender of export proceeds.	Chinn & Ito (2008) (updated to 2013)
CO	The value of Capital Account (KA) is presented for each country, being 1 the most liberalized and 0 for no liberalized. **Criteria for Full Liberalization**: -Borrowing abroad by banks and corporation: banks and corporations are allowed to borrow abroad mostly freely. They may need to inform the authorities, but the authorization is granted almost automatically. Reserve requirements might be in place but are lower than 10 percent. The required minimum maturity is not longer than two years. -Multiple exchange rates and other restrictions: there are no special exchange rates for either current account or capital account transactions. There are no restrictions to capital outflows. **Criteria for** no **Liberalization**: -Borrowing abroad by banks and corporation: banks and corporations are mostly not allowed to borrow abroad. Reserve requirements might be higher than 50 percent. The required minimum maturity might be longer than five years. There might be caps in borrowing and heavy restrictions to certain sectors. -Multiple exchange rates and other restrictions: there are special exchange rates for current account and capital account transactions. There might be restrictions to capital outflows.	Chinn & Ito (2008)

Financial Development (FD)	**Banking development indicators:** **Liquid liabilities (LL)**: Ratio of liquid liabilities to GDP. Liquid liabilities are also known as broad money, or M3. They are the sum of currency and deposits in the central bank (M0), plus transferable deposits and electronic currency (M1), plus time and savings deposits, foreign currency transferable deposits, certificates of deposit, and securities repurchase agreements (M2), plus travelers checks, foreign currency time deposits, commercial paper, and shares of mutual funds or market funds held by residents. **Private credit (CREDIT)**: Private credit by deposit money banks to GDP (%): The financial resources provided to the private sector by domestic money banks as a share of GDP. Domestic money banks comprise commercial banks and other financial institutions that accept transferable deposits, such as demand deposits. **Deposit money banks' assets to GDP (%) (ASSETS)**: total assets held by deposit money banks as a share of GDP. Assets include claims on domestic real nonfinancial sector, which includes central, state and local governments, nonfinancial public enterprises and private sector. Deposit money banks comprise commercial banks and other financial institutions that accept transferable deposits, such as demand deposits. **Stock Market data set** **Market Capitalization (CAPIT)**: Total value of all listed shares in a stock market as a percentage of GDP. **Total value traded (TRADED):** Stock market total value traded to GDP (%) is the total value of all traded shares in a stock market exchange as a percentage of GDP. **Turnover ratio (TURN):** Stock market turnover ratio (%) is the total value of shares traded during the period divided by the average market capitalization for the period.	Global Financial Development Database, World Bank (2014)
Natural Resources (Nat_Resr)	Total natural resources rents (%GDP) are the sum of oil rents, natural gas rents, coal rents (hard and soft), mineral rents, and forest rents.	WDI, 2014

Table A III-2: List of countries

Group	Income level	Countries
Developed (36 countries)	High income	Austria Belgium Canada Croatia Cyprus Czech Republic Denmark Estonia Finland France Germany Greece Iceland Ireland Israel Italy Japan Latvia Lithuania Malta Netherlands New Zealand Norway Poland Portugal Slovakia Slovenia Spain Sweden Switzerland United Kingdom United States
	Middle Income	Bulgaria Hungary Romania
Developing (97 countries)	High income	Bahrain Chile Hong Kong Korea Kuwait Oman Qatar Saudi Arabia Singapore St. Kitts and Nevis Trinidad and Tobago United Arab Emirates Uruguay
	Middle Income	**Algeria** Argentina Bolivia Botswana Brazil **Cameroon** China Colombia Costa Rica **Dominica Dominican Republic** Ecuador Egypt El Salvador **Gabon** Ghana Guatemala Guyana **Honduras** India Indonesia Iran **Iraq** Jamaica Jordan Lebanon **Libya** Malaysia **Maldives Mauritania** Mauritius Mexico Mongolia Morocco Namibia **Nicaragua** Nigeria Pakistan Panama Papua New Guinea Paraguay Peru Philippines **Senegal Seychelles Solomon Islands** South Africa Sri Lanka **St. Lucia St Vincent and the Grenadines Sudan Suriname** Swaziland **Syria** Thailand **Tonga** Tunisia Turkey **Vanuatu** Venezuela Vietnam **Yemen** Zambia
	Low Income	Bangladesh **Burkina Faso Cambodia Central African Republic Guinea Guinea-Bissau** Kenya **Liberia Madagascar** Malawi **Mali Mozambique Myanmar** Nepal **Niger Rwanda Sierra Leone** Tanzania **Togo** Uganda Zimbabwe
Transition (13 countries)	High income	Russia
	Middle Income	**Albania** Armenia **Azerbaijan Belarus Bosnia and Herzegovina** Georgia Kazakhstan Kyrgyz Republic Macedonia Moldova Tajikistan Ukraine

*Stock market measures are not available for countries in bold.

APPENDIX III-2

Table B III-1: The institutional threshold of capital account openness and financial development: the effect on FDI inflows

	Dependent Variable FDI inflows			
VARIABLES	(1)	(2)	(3)	(4)
INFRA	0.100**	0.464	0.0737***	0.115***
	(0.0405)	(0.405)	(0.0189)	(0.0240)
HK	0.133	-1.022	0.0172	-0.69***
	(0.170)	(1.193)	(0.124)	(0.181)
TRADE	1.193***	1.324*	1.154***	1.029***
	(0.148)	(0.760)	(0.0706)	(0.0871)
INFL	0.0182	0.0917	-0.0417**	-0.0231
	(0.0271)	(0.230)	(0.0205)	(0.0289)
NAT_RESR	0.133***	-0.316	0.0288	0.104***
	(0.0329)	(0.648)	(0.0200)	(0.0240)
KAOPEN	0.135	0.102	0.159	0.110
	(0.092)	(0.081)	(0.108)	(0.159)
KAOPEN*(INST<= γ_1)	0.075	0.042		
	(0.122)	(0.052)		
KAOPEN*(INST> γ_1)	0.073**	0.041**		
	(0.0304)	(0.019)		
δ1	0.118	0.082		
	(0.151)	(0.077)		
BANKING_INDEX	0.175**		0.097*	
	(0.0729)		(0.057)	
BANKING_INDEX*(INST<= γ_2)			-0.065	
			(0.075)	
BANKING_INDEX*(INST> γ_2)			0.161**	
			(0.073)	
δ2			-0.153	
			(0.166)	
MARKET_INDEX		0.096*		0.0357
		(0.051)		(0.034)
MARKET_INDEX*(INST<= γ_3)				-0.012
				(0.042)
MARKET_INDEX*(INST> γ_3)				0.122**
				(0.048)
δ3				0.087
				(0.31)
Constant	-0.218***	-0.295	-0.259***	-0.266***
	(0.075)	(0.225)	(0.092)	(0.0886)
Observations	3682	2480	3682	2480
Number of id	144	105	144	105
AR(2) P-value	0.290	0.290	0.347	0.345
Sargan P-value	0.498	0.579	0.534	0.248

*Column (1) presents estimation of the institutional threshold above which KAOPEN boost the attractiveness of FDI using the BANKING INDEX and Column (2) using the market index. This threshold γ_1=0.59. Column (3) indicates the estimation of the institutional threshold above which BANKIG INDEX improve FDI inflows, γ_2=0.70. Column (4) shows the threshold under which MARKET INDEX impact positively FDI inflows γ_3=0.79.

- Equation to estimate the threshold of INST ($\gamma 1$) that allows KAOPEN to impact positively FDI: $FDI_{it} = \mu_i + \alpha_1 INFL_{it} + \alpha_2 HK_{it} + \alpha_3 TRADE_{it} + \alpha_4 INST_{it} + \alpha_5 INFRA_{it} + \alpha_6 FD_{it} + \alpha_7 Nat\_Resr_{it} + \alpha_7 \text{KAOPEN}_{it} + \beta_1 \text{KAOPEN}_{it} * I(INST_{it} \leq \gamma 1) + \delta_1 * I(INST_{it} \leq \gamma 1) + \beta_2 \text{KAOPEN}_{it} * I(INST_{it} > \gamma 1) + \varepsilon_{it}$ *FD is financial development, it is measured in column (1) by BANKING INDEX and in column (2) by MARKET INDEX	**- Equation to estimate the threshold of INST ($\gamma 2$) that allows the BANKING INDEX to impact positively FDI:** $FDI_{it} = \mu_i + \alpha_1 INFL_{it} + \alpha_2 HK_{it} + \alpha_3 TRADE_{it} + \alpha_4 INST_{it} + \alpha_5 INFRA_{it} + \alpha_6 Nat\_Resr_{it_{it}} + \alpha_7 KAOPEN_{it} + \alpha_7 \text{BANKING INDEX}_{it} + \beta_1 \text{BANKING INDEX}_{it} * I(INST_{it} \leq \gamma 2) + \delta_2 * I(INST_{it} \leq \gamma 2) + \beta_2 \text{BANKING INDEX}_{it} * I(INST_{it} > \gamma 2) + \varepsilon_{it}$	**- Equation to estimate the threshold of INST ($\gamma 3$) that allows the MARKET INDEX to impact positively FDI:** $FDI_{it} = \mu_i + \alpha_1 INFL_{it} + \alpha_2 HK_{it} + \alpha_3 TRADE_{it} + \alpha_4 INST_{it} + \alpha_5 INFRA_{it} + \alpha_6 Nat\_Resr_{it_{it}} + \alpha_7 KAOPEN_{it} + \alpha_7 \text{MARKET INDEX}_{it} + \beta_1 \text{MARKET INDEX}_{it} * I(INST_{it} \leq \gamma 3) + \delta_3 * I(INST_{it} \leq \gamma 3) + \beta_2 \text{MARKET INDEX}_{it} * I(INST_{it} > \gamma 3) + \varepsilon_{it}$

Table B III-2 List of countries below and above the institutional threshold of KAOPEN (0.59)

Developing	Countries above 0.59	High income	Bahrain Chile Hong Kong Korea Kuwait Oman Qatar Saudi Arabia Singapore St. Kitts and Nevis Trinidad and Tobago United Arab Emirates Uruguay
		Middle Income	Argentina Botswana Brazil China Costa Rica Dominica Dominican Republic Ecuador Gabon Jamaica Jordan Malaysia Maldives Mauritius Mexico Mongolia Morocco Namibia Panama Papua New Guinea Seychelles South Africa St. Lucia St. Vincent and the Grenadines Thailand Tonga Tunisia Turkey Venezuela
		Low Income	-
	Countries below 0.59	High income	-
		Middle Income	Algeria Bolivia Cameroon Colombia Egypt El Salvador Ghana Guatemala Guyana Honduras India Indonesia Iran Iraq Lebanon Libya Mauritania Nicaragua Nigeria Pakistan Paraguay Peru Philippines Senegal Solomon Islands Sri Lanka Sudan Suriname Swaziland Syria Vanuatu Vietnam Yemen Zambia
		Low Income	Bangladesh Burkina Faso Cambodia Central African Republic Guinea Guinea-Bissau Kenya Liberia Madagascar Malawi Mali Mozambique Myanmar Nepal Niger Rwanda Sierra Leone Tanzania Togo Uganda Zimbabwe
Transition	Countries above 0.59	High income	Russia
		Middle Income	Albania Belarus Bosnia and Herzegovina Macedonia
	Countries below 0.59	High income	-
		Middle Income	Armenia Azerbaijan Georgia Kazakhstan Kyrgyz Republic Moldova Ukraine

Table B III-3: List of countries below and above the institutional threshold of Banking development (0.73)

Developing	Countries above 0.73	High income	Hong Kong South Korea Singapore
		Middle Income	-
		Low Income	-
	Countries below 0.73	High income	Bahrain Chile Kuwait Oman Qatar Saudi Arabia St. Kitts and Nevis Trinidad and Tobago United Arab Emirates Uruguay
		Middle Income	Algeria Argentina Bolivia Botswana Brazil Cameroon China Colombia Costa Rica Dominica Dominican Republic Ecuador Egypt El Salvador Gabon Ghana Guatemala Guyana Honduras India Indonesia Iran Iraq Jamaica Jordan Lebanon Libya Malaysia Maldives Mauritania Mauritius Mexico Mongolia Morocco Namibia Nicaragua Nigeria Pakistan Panama Papua New Guinea Paraguay Peru Philippines Senegal Seychelles Solomon Islands South Africa Sri Lanka St. Lucia St Vincent and the Grenadines Sudan Suriname Swaziland Syria Thailand Tonga Tunisia Turkey Vanuatu Venezuela Vietnam Yemen Zambia
		Low Income	Bangladesh Burkina Faso Cambodia Central African Republic Guinea Guinea-Bissau Kenya Liberia Madagascar Malawi Mali Mozambique Myanmar Nepal Niger Rwanda Sierra Leone Tanzania Togo Uganda Zimbabwe
Developed	Countries above 0,73	High income	Australia Austria Belgium Canada Czech Republic Denmark Finland France Germany Greece Iceland Ireland Italy Japan Malta Netherlands New Zealand Norway Portugal Spain Sweden Switzerland United Kingdom United States
		Middle Income	Hungary
	Countries below 0,73	High income	Croatia Cyprus Estonia Israel Latvia Lithuania Poland Slovakia Slovenia
		Middle Income	Bulgaria Romania

Table B III-4: The impact of capital account openness and financial development on FDI: Resource Endowed Countries (Sample A)

	Dependent variable : FDI inflows					
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
INFRA	-0.0811	0.124***	0.184***	0.0344	0.176	0.0359
	(0.0830)	(0.047)	(0.07)	(0.0432)	(0.144)	(0.0346)
HK	0.119***	0.057***	0.183***	0.0499	0.094***	-0.136
	(0.039)	(0.019)	(0.044)	(0.284)	(0.0240)	(0.268)
TRADE	0.162**	0.116***	0.136***	0.188**	-0.212	0.146*
	(0.073)	(0.0451)	(0.042)	(0.0783)	(0.237)	(0.0811)
INFL	0.0681	0.0517	0.0217	-0.0642**	-0.063***	-0.0465*
	(0.0579)	(0.0402)	(0.0631)	(0.0262)	(0.0235)	(0.027)
INST	0.138**	0.0820*	0.191**	-0.0293	0.077***	-0.0302
	(0.0641)	(0.045)	(0.079)	(0.0302)	(0.0264)	(0.0329)
KAOPEN	0.104***	0.073**	0.0813*	0.103	0.194	0.130**
	(0.029)	(0.033)	(0.045)	(0.128)	(0.132)	(0.057)
LL	0.174					
	(0.145)					
ASSETS		0.180				
		(0.298)				
CREDIT			0.161**			
			(0.066)			
TRADED				0.0352		
				(0.0422)		
TURN					0.0446	
					(0.0452)	
CAPIT						0.103***
						(0.022)
Constant	-0.088**	-0.111***	-0.118**	0.0698***	-0.082**	-0.156***
	(0.04)	(0.042)	(0.048)	(0.027)	(0.034)	(0.051)
Observations	1,060	1,060	1,060	682	682	682
Number of id	42	42	42	27	27	27
AR(2) P-value	0.349	0.268	0.333	0.195	0.172	0.172
Sargan P-value	0.140	0.161	0.159	0.163	0.170	0.147

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table B III-5: The impact of capital account openness and financial development on FDI: Non Resource Endowed Countries (Sample B)

Dependent variable : FDI inflows						
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
INFRA	0.0931**	0.102**	0.119**	-0.0294	0.160	0.104**
	(0.0422)	(0.0440)	(0.0472)	(0.0372)	(0.143)	(0.0471)
HK	0.237**	0.155	0.110	0.131***	0.148***	0.261***
	(0.108)	(0.148)	(0.140)	(0.05)	(0.041)	(0.0920)
TRADE	0.277***	0.121***	0.186***	0.148***	0.107	0.179**
	(0.107)	(0.031)	(0.025)	(0.042)	(0.165)	(0.079)
INFL	-0.219***	-0.129***	-0.231***	-0.121**	-0.0453	-0.0714**
	(0.0426)	(0.0364)	(0.0414)	(0.0492)	(0.0832)	(0.0338)
INST	0.216**	0.183	0.147**	0.121**	0.198	0.151***
	(0.098)	(0.150)	(0.064)	(0.051)	(0.188)	(0.046)
KAOPEN	0.1590	0.098**	0.139**	0.074***	0.151**	0.081
	(0.144)	(0.0420)	(0.0619)	(0.027)	(0.0648)	(0.0384)
LL	0.229***					
	(0.088)					
ASSETS		-0.111				
		(0.160)				
CREDIT			0.242***			
			(0.0789)			
TRADED				0.103***		
				(0.0297)		
TURN					-0.177	
					(0.115)	
CAPIT						0.153***
						(0.0375)
Constant	-0.143***	-0.157***	-0.148***	-0.087***	-0.072*	-0.090**
	(0.048)	(0.057)	(0.051)	(0.021)	(0.0418)	(0.044)
Observations	2,922	2,922	2,922	2,098	2,098	2,098
Number of id	102	102	102	78	2,098	2,098
AR(2) P-value	0.296	0.307	0.294	0.227	0.456	0.197
Sargan P-value	0.145	0.120	0.145	0.168	0.259	0.173

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table B III-6: The institutional effect of the components of financial development and the effect on FDI inflows

Dependent Variable : FDI inflows				
VARIABLES	(1)	(2)	(3)	(4)
INFRA	0.0560*	0.279***	-0.00977	0.0588
	(0.0329)	(0.0661)	(0.0465)	(0.0448)
HK	0.467	-0.379	-1.180***	-0.596***
	(0.309)	(0.255)	(0.359)	(0.184)
TRADE	1.165***	0.835***	1.060***	0.978***
	(0.133)	(0.126)	(0.0653)	(0.0568)
INFL	-0.0136	0.0880**	0.0881**	0.0607**
	(0.0328)	(0.0405)	(0.0415)	(0.0263)
NAT_RESR	0.0888	0.00595	0.114***	0.0843***
	(0.0779)	(0.0288)	(0.0263)	(0.0175)
KAOPEN	-0.0364	-0.105***	0.0153	-0.00161
	(0.0443)	(0.0332)	(0.0245)	(0.0217)
LL	-0.0440			
	(0.535)			
LL*(INS<= γ_4)	0.051			
	(0.065)			
LL*(INS> γ_4)	0.171**			
	(0.075)			
δ4	0.126			
	(0.143)			
CREDIT		0.084**		
		(0.038)		
CREDIT*(INS<= γ_5)		0.052		
		(0.051)		
CREDIT*(INS>γ_5)		0.042***		
		(0.007)		
δ5		-0.068**		
		(0.027)		
TRADED			0.137**	
			(0.062)	
TRADED*(INS<= γ_6)			-0.110**	
			(0.054)	
TRADED*(INS>γ_6)			0.084**	
			(0.042)	
δ6			-0.0827	
			(0.151)	
CAPIT				0.089***
				(0.007)
CAPIT*(INS<= γ_7)				-0.035**
				(0.0159)
CAPIT*(INS>γ_7)				0.179**
				(0.0864)
δ7				0.0138
				(0.164)
Constant	-1.525	-3.146***	-2.574***	-2.441***
	(1.559)	(0.787)	(0.516)	(0.368)
Threshold	0.68	0.70	0.72	0.75
Observations	3,682	3,682	2480	2480
Number of id	144	144	105	105
AR(2) P-value	0.241	0.232	0.283	0.359
Sargan P-value	0.337	0.432	0.243	0.260

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table B III-7: Starting dates of capital openness Chinn & Ito (2015)

	Countries	Starting dates	Countries	Starting dates
Developed	Austria	1995	Italy	1994
	Belgium	1990	Japan	1983
	Bulgaria	2007	Latvia	2003
	Canada	1970	Malta	2008
	Czech Republic	2002	Netherlands	1981
	Denmark	1992	New Zealand	1988
	Estonia	1995	Norway	1999
	Finland	1998	Portugal	1997
	France	1994	Romania	2007
	Germany	1970	Spain	1998
	Greece	2002	Sweden	1997
	Hungary	2005	Switzerland	1996
	Ireland	1996	United Kingdom	1993
	Israel	2004	United States	1970
Developing	Bahrain	1976	Panama	1970
	Botswana	2006	Peru	1997
	Costa Rica	2011	Qatar	1976
	Guatemala	1977	Seychelles	1981
	Guyana	2000	Singapore	1982
	Haiti	2007	Trinidad and Tobago	1998
	Hong Kong	1970	Uganda	2001
	Jordan	2001	United Arab Emirates	1977
	Liberia	1970	Uruguay	2000
	Mauritius	2003	Yemen	2000
	Nicaragua	2000	Zambia	2000
	Oman	1977		
Transition	Armenia	2000		
	Georgia	2013		

*Guatemala: 1977-1979; 2001-2013
*Liberia: 1970-1984; 2000-2013
*Oman: 1977-1995; 2003-2013
*Seychelles: 1981-1992; 2009-2013

Table B III-8: Country List

	Treatment group			Control group
Developed	Austria Belgium Bulgaria Canada Czech Republic Denmark Estonia Finland France Germany	Greece Hungary Ireland Israel Italy Japan Latvia Malta Netherlands New Zealand	Norway Portugal Romania Spain Sweden Switzerland United Kingdom United States	Australia Croatia Cyprus Iceland Lithuania Poland Slovakia Slovenia

	Treatment group		Control group		
Developing	Bahrain Botswana Costa Rica Guatemala Guyana Haiti Hong Kong Jordan Liberia Mauritius Nicaragua Oman Panama	Peru Qatar Seychelles Singapore Trinidad and Tobago Uganda United Arab Emirates Uruguay Yemen Zambia	Algeria Argentina Bangladesh Bolivia Brazil Burkina Faso Cambodia Cameroon Central African Republic Chile China Colombia Dominica Dominican Republic Ecuador Egypt El Salvador Gabon Ghana Guinea Guinea-Bissau Honduras India Indonesia Iran	Iraq Jamaica Kenya Korea Kuwait Lebanon Libya Madagascar Malawi Malaysia Maldives Mali Mauritania Mexico Mongolia Morocco Mozambique Myanmar Namibia Nepal Niger Nigeria Pakistan Papua New Guinea Paraguay Philippines	Rwanda Saudi Arabia Senegal Sierra Leone Solomon Islands South Africa Sri Lanka St. Kitts and Nevis St. Lucia Vincent and the Grenadines Sudan Suriname Swaziland Syria Tanzania Thailand Togo Tonga Tunisia Turkey Vanuatu Venezuela Vietnam Zimbabwe
Transition	Armenia Georgia		Albania Azerbaijan Belarus Bosnia and Herzegovina Kazakhstan Kyrgyz Republic Macedonia Moldova Russia Tajikistan Ukraine		

GENERAL CONCLUSION

GENERAL CONCLUSION

This thesis aims to investigate first the role of the quality of institutions on economic growth, the effect and the attractiveness of FDI through an empirical model using developing and developed countries. In another words, it analyzes the importance of the level of development in explaining the relation between institutions and economic growth. Furthermore, this thesis examines the effect of FDI on growth through institutions and highlights the existence of an institutional threshold. Finally, it studies the major role of institutions on capital account openness and financial development to create a better environment for the attractiveness of FDI inflows into the host country. To this end, we reviewed theoretical and empirical works on the effect of institutions on growth and FDI. We present in this conclusion the main contributions of our work, putting in evidence the relations between institutions, FDI and growth.

Economic institutions are essential for economic growth because they shape the incentives of key economic actors in society, in particular, we find that institutions impact foreign direct investment, capital account openness and financial development.

Our study analyzes these macroeconomic policy frameworks and develops the existing literature in several directions. First of all, the thesis starts in the first chapter with the impact of institutions on growth by level of development. The empirical results highlights that the impact of the institutional quality is different depending on the region and on the level of income. Considering the institutional index, the analyzes point that the effect of institutional index on economic growth is higher in the middle income than in the high income countries. Using the subcomponents of this institutional index, results indicate differences by region and by level of income. We find that government stability, socioeconomic conditions and corruption are relevant at the beginning phase of development specifically in the middle income countries of the MENA, Asia and SSA group. Nevertheless, investment profile and law and order become more significant afterwards the phase of development. These indicators are more important in the high income countries of the Europe and America group. We conclude that considering the developing status of countries indicate that basic political institutions (like corruption, government stability and democracy) are particularly important at early stage of economic development as Lee & Kim (2009) who find the same conclusions.

Recognizing the importance role of institutions on GDP growth, we investigate its conditionality on the effect of FDI in GDP growth. Chapter II relies on the idea that the effect of FDI on GDP growth goes through the institutional channel. We tried to bring an answer to the ambiguity of the effect of FDI on GDP growth through institutions. We argue that the additional impact of institutions on FDI can mask specific effect of FDI on growth for countries that are below and above the threshold. The method of Caner & Hansen (2004) following the transformation by Kremer et al., (2013) can be applied to the dynamic panel specification. This technique estimates a threshold level of institutions above which FDI impacts positively GDP growth. The extent of the impact of FDI on GDP growth through institutions is different across the regions. Using the institutional index, the results indicate that FDI improve GDP growth via institutions only for countries above the institutional level of 0.51 for the SSA group, 0.54 in the MENA region, 0.60 in the Asia group, 0.63 in the America group and 0.70 in the Europe group. This means that decreasing the political risk is fundamental so that FDI can contribute to GDP growth.

Considering the subcomponents of institutions, we find that FDI higher GDP growth through government stability, socioeconomic conditions and bureaucracy quality for the MENA and the SSA group. Furthermore, we point that the strength of the legal system measured by law and order that condition the positive impact of FDI on GDP growth for the America and the Europe group above the level of law and order of 0.57 and 0.69 respectively. Looking to the Asia group and the Europe group, results highlight that FDI higher GDP growth only in democratic countries. This means only for economies under the level of democracy of 0.54 for Asia and 0.61 for the Europe group. However, results indicate that above the institutional threshold, the impact of FDI on growth can be different in each region depending on the income level. It is found, like in the work of Nawaz (2015), that above the index of the institutional threshold, the positive effect of FDI on GDP growth is more relevant in the middle income countries than in the high income countries. Along this line, the results depend on the components of the institutional index.

When we consider the aspect of bureaucracy, we find for countries of the MENA and the Europe, which are above the bureaucracy threshold, that the positive impact of FDI on growth is greater in the middle income countries than in the high income. In

addition, we found that under the critical level of law and order, the positive effect of FDI on growth in the America and the Europe group is more important in the high income countries. According to these results, some institutional indicators could payoff faster in terms of marginal effect of FDI on growth. Therefore, priority should be given to these specific features, as further institutional complementarities would eventually lead to an incremental effect on FDI and growth. The estimation of a threshold level of institutional quality that conditions the positive effect of FDI on growth highlight that policies will have no benefit for host countries unless there is an improvement of their institutional framework. The finding of "better institutions (above threshold) attract more FDI" should also encourage policy makers to upgrade the local institutional environment before engaging in FDI attraction policies.

Foreign Direct Investment has been affirmed in chapter II as an important determinant of economic growth. Therefore countries aim to carry out strategies to attract FDI. In this context, in Chapter III, we investigate the role of two policies to attract FDI inflows: capital account openness and financial development. This effect is analyzed by level of institutions (high and low). Results indicate that capital account openness foster the attractiveness of FDI and this effect is higher for countries with better institutional quality. Looking to the financial development effect on FDI inflows, dissimilarity incur between the banking development and the stock market variables. In fact, for the banking development variables: the increase in the ratio of private credit and liquid liabilities improve the attractiveness of FDI inflows. This effect is higher for countries above the institutional threshold. However, considering the stock market variables: the effects of stock market value traded and capitalization are significant and positive only above certain level of institutions. We also apply a new methodology in the study of the effect of capital account openness on FDI inflows. It is called the Propensity Score Matching (PSM). The results of the first step (Propensity Score) of this method indicate that the BANKING INDEX has a greater effect on capital account openness for countries below the institutional threshold than above. These results could be explained by the fact that countries located above the institutional threshold have already gathered the benefits of banking development and its improvement is less high than countries below the critical institutional level like proposed by Eggoh & Villieu (2013). Stock MARKET INDEX has a positive effect on the decision of opening the capital account only in countries with a high institutional level. The second step of the PSM consists on

the matching effects. Firstly, we analyze the effect of capital account openness on FDI for countries below the institutional threshold. We find for this sample that countries that have opened their capital account have received more FDI than those that did not. The same results are found for countries above the threshold. However, this result is different when outliers like Eastern and Central Europe Countries and China are included in the group. In this case, we found that countries that have opened capital account have received less FDI in comparison with those that did not. Furthermore, for countries above institutional threshold, the impact of capital account openness on FDI is greater than those below the threshold.

We conclude that the institutional level conditions the effect of capital account openness and financial development on FDI. In this case financial openness and financial development create a great environment for foreign investors in the host country. These effects are less important in the natural resource endowed countries. Hence countries should improve their institutional quality to reap the benefit of capital account openness and financial development to attract FDI.

We highlight from Chapter II and Chapter III that the institutional level through which financial development impact the attractiveness of FDI (0.7 in average) is higher than the institutional level through which FDI contributes to growth (0.6 in average). In another words, the thresholds in term of attractiveness are higher than in terms of growth. Furthermore, we only found that Hong Kong, Korea and Singapore from the developing countries are above the institutional threshold that enables them to attract FDI through financial development. All the others developing countries are below the threshold. This means that developing countries have attracted few FDI into their countries because they were under the institutional threshold. In the developing group, the level of institutions is an important constraint in term of attractiveness. For this group the blockage is more important for attractiveness than the effects on GDP growth.

We conclude in this thesis that institutions impact growth differently. Firstly, they have a direct effect on growth through control over corruption, the strength of the legal and judiciary system and the socioeconomic conditions. However these effects can be less or more important depending on the region and the level of income. Secondly, institutions have an indirect impact on growth through the FDI mechanism. Indeed, it

appears that the positive effect of FDI on economic growth is strengthened when institutions guarantee a certain level of political stability, freedom of expression, quality of bureaucracy and control of internal conflicts. This institutional threshold varies by country depending on their geographical location. Moreover, institutions stimulate the attractiveness of FDI. From a threshold level, they higher the impact of capital account openness, credit to the private sector and stock market value traded on FDI.

In this study, we can highlight some limits. For example, the quality of institutions could be measured by other databases like Kauffmann and Kraay and Institutional Profiles (IP). We could also have taken into consideration the FDI outflows and FDI nets instead of FDI inflows. Although, data on stock market was not available for all countries like: Albania, Algeria and Central African Republic among many others. This has reduced our sample.

This thesis can be extended by applying the method of Panel Smooth Transition Regression (PSTR) to estimate the threshold level of institutions. Furthermore, all the mechanisms have not been considered, other variables than FDI or financial development can be considered like trade and human capital in which institutions can have an effect. Although, even if the country has a good level of financial development and has opened its capital account could face financial instability. This can impact the attractiveness of FDI. In this case, we can consider financial instability in the model of chapter III. Finally, we can analyze FDI by sector, which can bring precision for which sector of FDI is more sensitive to the quality of institutions. The analysis could be conducted in this case trying to investigate the database provided by FDI.markets of the Financial Times.

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