Foreign Direct Investment, Institutional Quality, and Economic Growth

Hayat, Arshad

IES, Charles University Prague, Metropolitan University Prague

2 January 2019

Foreign direct investments, institutional quality, and economic growth

Arshad Hayat[1]

Abstract

Institutional quality is considered to be an important factor in boosting economic growth of a country. This paper explores the role of institutional quality in economic growth and more specifically the role it plays via the channel of foreign direct investments. This paper uses a larger dataset of 104 countries and applies GMM estimation method to a dynamic panel data to evaluate the direct impact of institutional quality on economic growth and the indirect impact of institutional quality on economic growth through enhancing the FDI-induced economic growth. This paper provides evidence that both FDI inflows and institutional quality cause stronger economic growth. The FDI-led growth, however, was only experienced in the low and middle-income countries. In these countries, better institutional quality was also found to be enhancing the FDI-led economic growth. An important finding of this paper is that in the high-income countries, FDI was found to slow down the economic growth. The results are robust and consistent for individual institutional quality indicators and controlling for endogeneity.

---

[1] The author is a PhD candidate at IES, Charles University Prague. Email: 85684626@fsv.cuni.cz and a lecturer at Metropolitan University Prague. Email: arshad.hayat@mup.cz. The author is grateful to Tomas Cahlik, Michal Paulus and two anonymous referees for their valuable comments.

Foreign direct investments, institutional quality, and economic growth

1. Introduction

Globalization has led to a greater opening of the world economies to foreign trade and investments. Foreign direct investments (FDI) have been one prominent feature of this phenomenon. Countries around the world have opened up their economies and created conditions to attract foreign investments in the hope of fostering economic growth. Theoretical support for such policies is provided by the endogenous growth model which suggests an FDI spillover to domestic firms and a positive effect on productivity and growth (see (Helpman & Grossman, 1991) (Barro & Sala-i-Martin, 1997)). The increase in cross-border investments has led to an enormous amount of energy and time being allocated to finding out the impact of FDI on the host economies.

However, while theoretical studies consistently report a positive effect of FDI on the host country's economy, empirical studies are still producing conflicting results. Therefore, the FDI-growth relationship is considered to be mixed at best (Gorg & Greenaway, 2004)[2]. In a metadata study of 1102 estimates, Bruno and Campos (2013) found that about 44% of the research papers discover a positive and significant impact of FDI on growth, 44% were insignificant while 12% of the studies reported a negative and significant effect of FDI on the host country's economic growth.

Many recent studies have concluded that the FDI-growth relationship is contingent on other factors. These factors are related to the absorptive capacity of the host country and empirical studies have identified the following ones: level of economic development (Blomstrom, Lipsey, & Zejan, 1994), financial markets development (Hermes & Lensink, 2003) (Alfaro L. , Chanda, Kalemli-Ozcan, & Sayek, 2004) (Azman-Saini, Siong, & Ahmad, 2010), human capital (Borensztein, De Gregorio, & Lee, 1998), economic stability and liberal markets (Bengoa & Sanchez-Robles, 2003), trade liberalization (Balasubramanyam, et.al. 1996), technology gap between the host and origin country (Havranek & Irsova, 2011) and shared ownership of the FDI firm (Javorcik, 2004). In a recent study, Gonel and Aksory (2016) investigated sector-wise FDI inflow and concluded that FDI inflow into information and communication technologies (ICT) and non-ICT sectors don't contribute to economic growth.

---

[2] Gorg and Greenaway (2004) reviewed a large number of firm-level studies conducted on FDI spillovers and found that a mere 24% reported a positive spillover.

However, host countries with a sufficient level of human capital, financial resources and technological infrastructure tend to receive FDI-induced economic growth.

This paper agrees with the idea of absorptive captivity and its importance in defining the FDI-growth relationship. This paper, however, focuses on another vital and slightly less explored link in the literature, which is the role of institutional quality in defining the FDI-growth relationship. James and Yanikkaya (2006) found that countries with better institutions demonstrate better economic performance. In a similar study, Stephen and Keefer (1995) concluded that property rights are strongly associated with investment and economic growth. Institutions and different institutional quality variables like corruption (Shleifer & Vishny, 1993; Mauro, 1995) the rule of law, political rights and civil liberties (Sala-i-Martin, 1997) are consistently found to be significantly affecting economic growth.

Institutional heterogeneity is strongly associated with variations in economic performance across countries and regions; i.e. countries with weaker institutions perform poorly while countries with better institutions tend to perform better. It is, therefore, an imperative to assume a significant role for institutional quality altering the FDI-growth nexus. While stronger institutions like good and efficient governance, the rule of law and lack of corruption can speed up the process of technology spillover to domestic firms, week institutions like presence of corruption, lack of rule of law and property rights could prevent domestic firms from reaping the benefits of the knowledge spillover from the FDI firms. Therefore, the same level of FDI could be expected to induce a different level of growth in different countries with heterogeneous levels of institutional quality. While there is a strong focus in exploring the role of institutional quality in attracting foreign direct investments and studies have found institutional quality to be a strong determinant of FDI inflow (see Daude & Stein, 1997; Busse & Hefeker, 2007; Ali, Fiess, & MacDonald, 2010), very limited research is focused on exploring the FDI-growth altering effect of institutional quality (see Farole & Winkler, 2012; McCloud & Kumbhakar, 2012; Jude & Levieuge, 2015). Therefore, this study is an attempt to investigate the impact of some of the most relevant and precise institutional indicators like the rule of law, control of corruption, government effectiveness and absence of violence and regulatory quality on economic growth, and on the FDI-growth relationship.

The main contribution of this paper is as follows. This paper develops conceptual arguments exploring the channels through with institutional quality might affect economic growth and more important to show how the institutional quality differences might explain the

heterogeneous FDI-growth relationship across countries. Secondly, this paper divides countries included in the study based on income level into low-income, middle-income, and high-income categories according to World Bank classification and investigate the potential impact of FDI inflow on economic growth of the host country in each category. This study further analyzes the role of institutional quality of the host country in each group in boosting economic growth and altering the FDI-growth relationship.

Thirdly, the paper uses a larger dataset of 104 countries, and it uses comprehensive and the most economic performance-relevant indicators of institutional quality. These indicators are based on the Worldwide Governance Indicators (WGI)[3] project (Kaufmann, Kraay, & Zoido-Lobatón, 2002).

This paper uses a dynamic panel data model and uses generalized method of moments (GMM) estimation based on Arellano and Bond (1991) to investigate the FDI-growth relationship and the potential role that the institutional quality plays in altering this FDI-growth relationship. GMM and the dynamic nature of the model enable us to capture the impact of any relevant variables ignored in the model through the lagged value of the dependent variable. The model uses lagged FDI as an instrument for the FDI which is considered to be endogenous. In this way, the paper also takes care of the potential endogeneity issues of FDI inflow. FDI-induced growth enhancement effect of institutional quality is further explained in the next section. The role of each institutional quality indicator is estimated to distinguish among different institutional quality indicators and evaluate the relative importance of each indicator in attracting foreign direct investments and boosting economic growth.

This paper finds a strong positive impact of institutional quality on economic growth. Further, this paper also concludes that better institutional quality of the host country enhances the FDI-induced economic growth. These findings are consistent across countries of different income groups, except for the high-income countries, where FDI inflow was found to slow down economic growth.

Investigating individual institutional quality indicators, this study finds that control of corruption, the rule of law, and government effectiveness all have a strong and significant positive impact on economic growth as well as enhancing the FDI-induced growth. Regulatory

---

[3] WGI indicators database and methodology can be accessed at http://info.worldbank.org/governance/wgi/#home
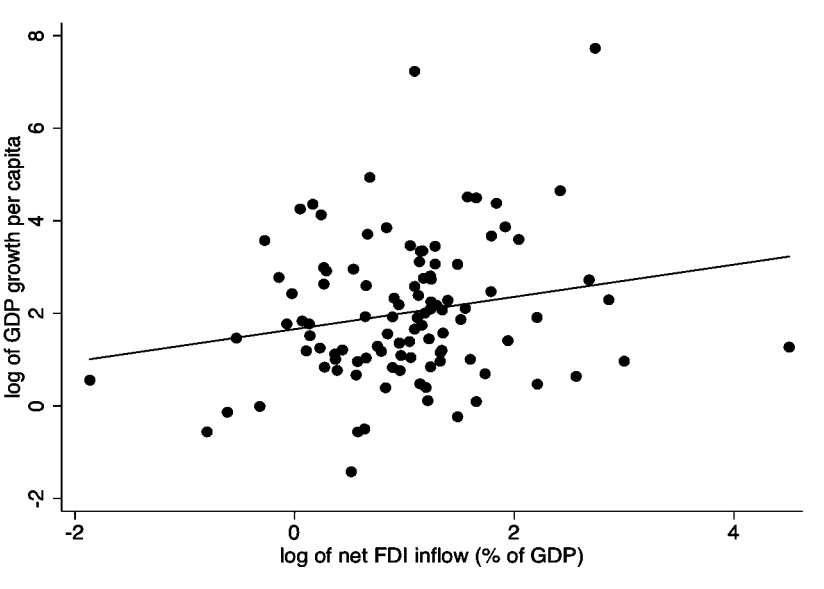
quality was found to have a significant negative effect on economic growth of the country. Regulatory quality, however, was found to provide a boost to FDI-induced economic growth.

This paper is organized as follows: Section 2 describes the main arguments explaining the channels through which institutional quality might affect economic growth and the channels through which it might alter the FDI-growth relationship. Section 3 describes the data and methodology used in the paper while section 4 presents the findings of the paper. Finally, section 5 concludes the paper.

2. Why Institutional Quality may Alter the FDI-Growth Relationship?

Many studies have investigated the impact of FDI inflow on the host country economic growth. As mentioned above, a majority of the studies on the role of FDI inflow conclude a positive impact of FDI on the host country's economic growth (see for example Helpman & Grossman, 1991; Barro & Sala-i-Martin, 1997). Figure 1 below depicts a positive relationship between the net FDI inflow and economic growth of the host country for the sample of 104 countries used in this paper.

Figure 1: FDI inflows and Economic Growth

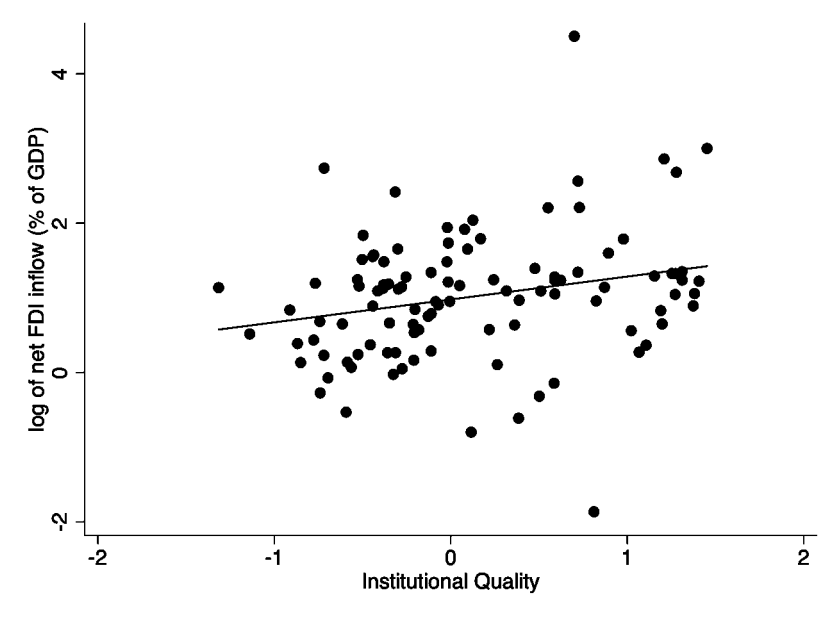Notes: Figure shows a positive relationship between the net FDI inflows and economic growth for the sample of 104 countries. The Horizontal line represents the natural logarithm of net FDI inflows as a percent of GDP, the vertical line represents the natural logarithm of the growth rate of real GDP per capita. (variables represent the average of FDI inflows and real GDP growth rate for countries over the 20 years period)

However, as Gorg and Greenaway (2004) and Bruno and Campos (2013) found, the evidence on the FDI-growth relationship is mixed. In a recent study on the impact of FDI on economic growth in Spain Carbonell and Werner (2018) found no growth-enhancing impact of FDI.

The mixed results on the FDI-growth relationship, therefore, has led to the focus of research on the host country's absorptive capacity. Forte and Moura (2013) found that the FDI-economic growth relationship depends on the host country's domestic conditions including human capital, economic and technological progress and openness of the economy.

Institutional quality of a country is considered to be an important factor affecting the economic growth of a country. Many studies have looked into the role of institutional quality in attracting FDI into the country (see (Bénassy-Quéré, Coupet, & Mayer, (2005); (Daude & Stein, 2007); (Ali, Fiess, & MacDonald, 2010)). Net FDI inflow variable is plotted below against the institutional quality measure from the data used in this paper. Figure 2 below depicts a positive relationship between the institutional quality of the host country and net FDI inflow.

Figure 2: Institutional Quality and Economic Growth

Notes: Figure shows a positive relationship between the measure of institutional quality and economic growth for the sample of 104 countries. The horizontal line represents the measure of institutional quality, the vertical line represents the natural logarithm of net FDI inflows as a percentage of GDP. (variables represent the average of institutional quality and FDI inflows for countries over the 20 years period)

However, there are very few studies conducted that investigate the impact of cross-country institutional quality heterogeneity on FDI-growth relationship. In this section, this paper focuses on building up the conceptual framework of the channels through which institutional quality is expected to affect the FDI-growth relationship.

The role of FDI in economic growth of the host country is threefold. The first and most significant effect of FDI on the host country economic growth is the knowledge spillover. The spillover happens through domestic firms imitating the technology demonstrated by the multinational enterprise (MNE), competition, skilled labor mobility and backward and forward linkages as found by Crespo and Fontoura (2007). In another study of the FDI spillovers, Fosfuri, Motta and Ronde (2001) concluded that knowledge spillovers are generated through MNE skilled labor moving to the domestic firms. Good institutions like the rule of law, lack of corruption, efficient government and good regulations can create synchronization between the domestic and foreign firms by providing them with competitive playfield and encourage them for healthy competition. Bad institutions, on the other hand, lead to increasing transaction costs and higher risks which will further lead to a lowering of investments and long-term commitment of the foreign firms towards the country. At the same time, many studies have shown that institutional heterogeneity and differences in government efficiency and political freedom are responsible for differences in capital accumulation and labor productivity (see for example Hall & Jones, 1999; La Porta, et. al. 1999). Therefore, for the host countries to benefit from FDI inflows and experience positive spillovers the quality of its institutions is considered to be vital and essential to maintain. According to Meyer and Sinani (2009), quality institutional framework motivates and enables domestic firms to react to the foreign firms entering the country which creates the spillover effect of FDI. Jude and Levieuge (2015) conclude that sound quality institutions are associated both with better economic performance and the ability to attract FDI with high spillovers potential into the country. The study also found that bad institutional quality is very much likely to attract resource extracting FDI which have just a limited potential for spillover and growth. Better institutional quality like the rule of law and efficient governance also provide confidence to the investor, and it might affect the mode of FDI entry into the country, making Greenfield entry more likely than merger and acquisitions, which would be the FDI mode of choice in a riskier environment. Wang and Wong (2009) suggested that Greenfields are associated with larger growth-enhancing potential. Therefore, by encouraging Greenfield investments instead of mergers and acquisitions, better institutional quality enables greater FDI spillovers.

The second channel through which institutional quality affects economic growth in the host country is by enhancing competition in the country. Blomstrom and Kokko (2003), and Driffield and Love (2007) explored the role of FDI in enhancing competition in the host country and argued that foreign investments are expected to increase competition which will lead to efficiency and innovations in the industry as a whole. In response, the leading domestic firms adopt innovations and ensure efficiency to meet the challenge of intensified competition. Brahim and Rachdi (2014) argue that institutional quality creates incentives and influences competition in the market and knowledge spillovers. Quality institutional framework incentivizes investments into innovations and enable firms to meets the challenges of increased competition (see (Peng, Wang, & Jiang, 2008)).

The third main channel through which institutional quality affects the FDI-growth relationship in the host country is through the capital accumulation. While studies like Mody and Murshid (2005) have shown that FDI has a crowding out effect in the short run, others have argued that better institutional quality would encourage foreign investors to invest into industries with the lesser density of domestic firms. This will encourage greater capital accumulation in the sector, and the potential benefits for the domestic economy are expected to be high. Sound institutions lead to a surge in demand in industries propelled by the presence of foreign firms. Contrary to that, studies have shown that low institutional quality shifts exports from manufacturing goods to non-manufacturing goods which in turn lower domestic economic performance (see (Kaufmann, Kraay, & Zoido-Lobaton, 1999)).

In line with all the above arguments, this paper expects the FDI-growth relationship to be conditional on the quality of institutions in the host country. Better institutional quality is expected to contribute to the FDI-induced growth through spillovers enhancement, furthering competition and through capital accumulation.

3. Methodology and Data

There are numerous studies conducted which are focused on the impact of FDI on economic growth, and absorptive capacity of the host country. The role of different variables as absorptive capacity enhancement variables and their impact on the FDI-growth relationship has been extensively explored. In a cross-country study Alfaro, et al. (2010) studied the role that financial markets play in enhancing the absorptive capacity of the country and ultimately enabling the country to receive higher FDI spillovers. Harms and Meon (2011) studied the comparative

impact of Greenfield FDI and mergers and acquisitions and found no role of political stability or corruption in the FDI-growth relationship.

Most of the existing studies conducted on the absorptive capacity of the host country are based on panel data fixed/random effect models or least square dummy variable (LSDV) models. Most of these models are based on the assumption of homogeneity of effect across the panel which is a strong assumption to make. This paper uses a dynamic panel data model and generalized model of moments (GMM) estimation method to investigate the impact of FDI inflow on economic growth and the role of institutional quality in altering that FDI-growth relationship. The dynamic panel data model and GMM estimation take care of the potential FDI endogeneity issue.

In the first step, the following two simple dynamic panel data models are estimated to evaluate the impact of FDI and institutional quality on economic growth.

$$Y_{it} = \alpha Y_{it-1} + \gamma \, FDI_{it} + X_{it} \, \beta + \nu_{it} \tag{1}$$

$$Y_{it} = \alpha Y_{it-1} + \gamma \, FDI_{it} + \theta \, Inst_{it} + X_{it} \, \beta + \nu_{it} \tag{2}$$

where Y_{it} is the annual real GDP growth rate per capita, Y_{it-1} is the lagged value of the annual real GDP growth rate per capita, FDI is the ratio of net foreign direct investments inflow to GDP and $Inst_{it}$ is the institutional quality. **X** represents the control variables for the determinants of economic growth including population growth rate, initial real GDP per capita, inflation rate (CPI), ratio of domestic investments to GDP, ratio of government spending to GDP, average years of secondary schooling, ratio of trade volume to GDP and the ratio of money supply (M2) to GDP and ν_{it} is the random error term.

Adopting from numerous similar studies (see for example Carkovic and Levine (2003), Alfaro et al. (2004)), we used domestic investment, initial GDP, the population growth rate, trade openness, the annual inflation rate and the government expenditure as explanatory variables of economic growth. Trade volume is used as a proxy variable for trade openness, and government expenditure is used as a proxy variable of the government fiscal policy. Adopting from Barro and Lee (1996) average years of secondary schooling is used as a proxy for human capital. Money supply is used as an instrument for the size of the financial sector of the host country (see Alfaro et al. (2004)).

The estimation of the above model will enable us to see what impact does the FDI inflow and institutional quality have on the real economic growth of the host country. However, with the estimation of the above model, some specification issues are expected, first and foremost is the endogeneity of FDI. Many studies have adopted different techniques and used different variables to deal with the issue of FDI endogeneity. Lagged value of FDI is widely used as an instrument for FDI to deal with the issue (see (Alfaro L. , Chanda, Kalemli-Ozcan, & Sayeknomics, 2004). This is because FDI is considered to be reinforcing itself over time, as found by Wheeler and Mody (1992). The dynamic nature of the model enables us to deal with this issue and therefore lagged value of FDI is used to deal with the endogeneity issue. The above models are estimated both for the combined data set as well as for the dataset divided into three income groups including the low, the middle, and the high-income group based on the World Bank classification.

To investigate the role of institutional quality on economic growth and further its role in altering the FDI-growth relationship, the following equation (3) is estimated using GMM estimation.

$$Y_{it} = \alpha Y_{it-1} + \gamma \, FDI_{it} + \theta \, Inst_{it} + \varphi \, (FDI_{it} * \, Inst_{it}) + X_{it} \, \beta + \eta_{it} \qquad (3)$$

Where $\quad \eta_{it} = \mu_i + \delta_{it}$

$Inst_{it}$ is the institutional quality and $(FDI_{it}*Inst_{it})$ is the interaction term between the FDI inflow and institutional quality. This equation quantifies the impact of institutional quality, FDI, lagged value of economic growth and the control variables on economic growth. The dynamic nature of the equation with the lagged value of the dependent variable included as an explanatory variable enables us to capture any relevant variable excluded from the model. This equation enables us to check if institutional quality and FDI inflow have an impact on economic growth and if the inclusion of an institutional quality variable in the model will alter the FDI-growth relationship or not. A similar dynamic panel data model was used by Acemoglu and Johnson (2005) to estimate the role of democracy in economic growth. This paper adopts a similar dynamic panel data model to evaluate the impact of institutional quality on economic growth and FDI-growth relationship. In order to test that the model parameters are identified, this paper adopts the Sargan test of overidentifying restrictions in case of each regression model.

Data:

In order to investigate the impact of FDI on host country economic growth and the FDI-growth relationship, this paper uses the annual real GDP per capita growth rate and FDI inflows as a share of GDP. FDI as a share of GDP is used by most of the studies conducted on the subject,

and it allows us to take into account the relative size of the country's economy. Data on all these variables are obtained from the World Bank database[4].

In order to measure the institutional quality and governance, this paper uses the data on institutional and governance variables from the Worldwide Governance Indicators (WGI). The WGI database is produced by the World Bank group, and this paper considers all the institutional quality and governance indicators produced by the WGI: the rule of law, control of corruption and political stability and absence of violence, regulatory quality, and government effectiveness. These indicators range from −2.5 to +2.5 where −2.5 reflects weak institutional and governance quality and +2.5 reflects strong institutional and governance quality.

Table 1: Descriptive Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Real GDP Growth/Capita	2.516	3.761	-18.874	33.030
FDI/GDP	0.056	0.197	0.00	4.767
Initial GDP/Capita	13789.14	17728.53	155.764	102910.4
Population Growth	1.423	1.520	-3.820	17.624
Inflation	0.223	5.996	-0.048	244.1
Domestic Investment/GDP	0.231	0.067	0.002	0.579
Trade/GDP	0.816	0.462	0.156	4.396
Government Spending/GDP	0.155	0.048	0.020	0.330
Schooling	2.963	1.561	0.088	8.284
M2/GDP	0.584	0.374	0.085	2.504
Institutional Quality Variables				
Institutional Quality	0.152	0.877	-1.629	1.985
Government Efficiency	0.253	0.951	-1.604	2.431
Control of Corruption	0.160	1.035	-1.513	2.585
Rule of Law	0.140	0.982	-1.841	2.120
Regulatory Quality	0.278	0.878	-2.205	2.262

The data sample used in the paper comprises of 104 countries from high, middle, and the low-income countries classified according to the World Bank database. This paper is based on the yearly balanced panel data from the year 1996–2015. The time period and selection of countries

[4] World Bank database can be accessed from http://databank.worldbank.org/data/home.aspx

is mainly due to the availability of data and due to the fact that WGI started reporting the index from the year 1996.

Table 1 above presents descriptive statistics for all the variables including macroeconomic indicators that affect real GDP growth per capita as well as the institutional quality and governance variables. The table shows a great deal of variation in the variables with FDI ranging from a zero FDI inflow to a maximum of 400.7% of GDP in Malta. The same is true for real GDP growth per capita, where a minimum of −18.87% growth was recorded, and a maximum of 33.03% growth was recorded. Population growth rate ranges from a minimum of −3.82 to a maximum value of 17.62%. A constant number 4 is added to the population growth rate before taking logarithm to avoid the logarithm of negative numbers. Thus, the variable used in this paper is the log (4+pop growth rate). Negative numbers in inflation are dealt with in the same way, and inflation is the log (1 + average inflation rate). Schooling is the average years of secondary schooling, M2 is the log of the ratio of money supply (M2) to GDP log[(M2/GDP)], and government spending is the log (the ratio of government spending to GDP). The trade volume is the log (sum of exports and imports as a share of GDP) for the period. The institutional quality variables all vary between the −2.5 and 2.5 range - that was described above in the data section. Besides, GDP, FDI, and institutional quality variables, all other variables are used in natural logarithm form.

4. Analysis of Results

This section of the paper presents and analyzes the results of the estimated models. Table 2 below shows estimated results of equation 1, 2 and 3. Model (1) in the first column shows the estimation of the first equation where the impact of FDI inflow on the host country is analyzed while controlling for variables like initial GDP, domestic investment, population, inflation, trade volume, money supply, and government spending. We can see that the coefficient of FDI is positive and significant which is an indication that FDI inflow significantly enhances economic growth of the host country. The coefficient of our interest in equation (1) is dY/dFDI=γ which shows the magnitude of change in the host country's economic growth caused by changes in FDI inflow. The estimated coefficient is $\hat{\gamma} = 10.951$ which is significant at 1% confidence interval and it means that a single standard deviation increase in FDI inflow leads to a 0.10% points increase in economic growth of the host country. This result is very much in line with major studies on the role of FDI in economic growth. The rest of the coefficients of the explanatory variables are very much as expected. Lagged value of GDP

growth per capita is positive and significant which shows that economies that grew faster in the previous year grow faster in the following year as well. Coefficients of trade volume and domestic investment and schooling (which is used as an indicator for human capital) are all positive and significant. The coefficients of these variables are expected to be positive as these variables are expected to positively affect the economic growth of a country. Coefficients of population growth rate, inflation and government spending are negative and significant. This again is according to the expectations as all these variables are expected to have a negative effect on the real GDP growth rate of a country.

As discussed in the previous chapter, the institutional quality of a country is expected to boost the economic growth rate of a country. Therefore, after analyzing the impact of FDI inflow on the host country's economic growth rate, equation (2) is estimated to find the impact of FDI inflow on host country's economic growth while controlling for institutional quality of the host country besides all other relevant variables as before. The institutional quality variable is constructed as an average value of six different indicators of institutional quality: control of corruption, the rule of law, regulatory quality and government efficiency, voice and accountability and political stability.

The results of the regression estimation from equation (2) are presented in column (2) of table 2 below. The coefficient of institutional quality is positive and strongly significant which clearly shows the positive role of institutional quality in boosting the economic growth rate of a country. The coefficient of FDI inflow remains positive and significant which is a sign that even after controlling for the institutional quality of the host country, FDI inflows still has a strong growth-boosting role to play in the host countries.

In the next step, Equation (3) is estimated with explanatory variables of FDI inflow, institutional quality and an interaction term between the FDI and institutional quality (FDI X Institutional Quality). The interaction term enables us to estimate the impact of institutional quality on the FDI-growth relationship. The results of the regression are presented in column (3) of table 2 below.

The coefficient of our interest here is γ, where, dY/dFDI=γ. Therefore, the estimated coefficient of FDI inflow is $\hat{\gamma} = 11.294$ which tell us about the size of the impact of FDI on economic if we ignore the institutional quality of the host country. However, after taking into account the

institutional heterogeneity of the host country, the net effect of FDI inflow on economic growth of the host country can be estimated with the following formula.

$$\frac{dY}{dFDI} = \hat{\gamma} + \hat{\varphi} * (Inst)$$

The estimated impact of FDI inflow on economic growth after taking into account institutional heterogeneity thus is given as *dY/dFDI=11.294 + 5.146* (Inst)*. Therefore, considering the average level of institutional quality *Inst = 0.173*, the net impact of FDI inflow on economic growth would be dY/dFDI= 11.294+5.146*(*0.173*) =12.184, which is a larger impact than the impact of FDI without taking into account the institutional quality. The statistical significance of the estimate 12.184 is tested by re-running the regression by replacing the simple interaction term (i.e. FDI*Inst) with FDI*(*Inst-Mean Inst)* (as described by (Wooldridge, 2012)). Running this new regression gives the new standard error for $\frac{dY}{dFDI} = \hat{\gamma} + \hat{\varphi} * (\overline{Inst}) = \hat{\gamma} + \hat{\varphi} *$ (0.173)=12.184 as 1.516 which yields the t-statistics of $t = 12.184/1.516= 8.036$. Therefore, at an average institutional quality value (i.e. 0.173) the FDI is statistically significant and positively affects economic growth. The sample included in the study consist of countries of varying institutional quality. Therefore, with the given results, the impact of FDI inflow on economic growth can be analyzed for countries while taking into account their specific institutional quality level.

Table 2. FDI-Growth Nexus: The Role of Institutional Quality. GMM Estimation of the Dynamic Panel Data Models: Dependent Variable: Real GDP Per Capita Growth (1996-2015)

Explanatory Variables	Arellano and Bond Estimation of the Dynamic Panel Data Model		
	(1)	(2)	(3)
GDPGPC$_{t-1}$	0.090***	0.0836***	0.141***
	(0.005)	(0.005)	(0.007)
FDI	10.951***	11.297***	11.294***
	(1.120)	(0.679)	(2.031)
Initial GDP	0.975***	1.107***	1.494***
	(0.135)	(0.127)	(0.167)
Population	-5.211***	-5.055***	-8.459***
	(0.659)	(0.821)	(0.419)
Inflation	-1.987***	-1.882***	-2.179***
	(0.189)	(0.174)	(0.141)
Domestic Investment	4.543***	4.555***	3.718***
	(0.24)	(0.374)	(0.210)
Schooling	0.059***	0.076***	0.095***
	(0.015)	(0.015)	(0.033)
Government Spending	-4.189***	-4.012***	-4.757***
	(0.261)	(0.49)	(0.471)
Trade	9.531***	9.530***	9.157***
	(0.357)	(0.485)	(0.325)
M2	-9.526***	-9.646***	-9.492***
	(0.049)	(0.272)	(0.383)
Institutional Quality		3.229**	1.878***
		(0.510)	(0.644)
(FDI X Institutional Quality)			5.146***
			(1.890)
Sargan Test (p-value)	0.993	0.995	0.4
Observations	815	815	815
Number of Instruments	86	87	88

*** indicates a significance at a 1% confidence interval, **indicates a significance at a 5% confidence interval and * indicates a significance at a 10% confidence interval. Standard Errors are reported in parentheses.*
Sargan test H0: Over-identifying restrictions are valid

Notes: The regressions have a constant term. Population growth is the average growth rate for the period. FDI is the ratio of FDI inflow to GDP. Institutional quality is the average of six different institutional indicators: Rule of Law, Government Efficiency, Regulatory Quality and Control of Corruption Political Stability and Voice and Accountability.

For instance, for countries with the highest institutional quality, i.e. Finland with an institutional quality of *Inst=1.985,* the impact of FDI on economic growth would be dY/dFDI= 11.294+5.146*(1.985) = 21.50, which means a unit increase in FDI inflow brings about 0.21% point increase in per capita GDP. Again, the statistical significance is tested by re-running the regression with the interaction term replaced by the term FDI*(Inst-Inst$_{Finland}$) =FDI*(Inst-1.985). Running this new regression gives the standard error for $\frac{dY}{dFDI} = \hat{\gamma} + \hat{\varphi} *$ $Insti_{Finaland} = \hat{\gamma} + \hat{\varphi} * (1.985) = 21.508$ as 1.742, which yields the t-statistics of t= 21.508/1.821=11.746 which indicates statistical significance. Therefore, it is clear that better institutional quality boosts the FDI-induced economic growth. However, FDI inflow also has a direct significant positive impact on economic growth of the host country. Similarly, the results can be interpreted for countries with an average or low level of institutional quality.

The countries included in the analysis are classified as low-income countries, middle-income countries and high-income countries by the World Bank databank from where the data is obtained. Therefore, the same regression is estimated for different income groups to estimate the impact of FDI inflow on economic growth and the role that institutional quality plays in altering the FDI-growth relationship in courtiers across different income levels. Table 3 below show results from the regression of FDI inflow on economic growth of the host country across different income levels while controlling for institutional quality besides other control variables. The coefficient of FDI is negative and significant for high-income countries and positive and strongly significant for the middle income as well as low-income countries. The strongest of the growth-enhancing impact of FDI inflow is seen in the low-income countries where one standard deviation change in FDI inflow causes a 0.66% points increase in economic growth compared to 0.07% points increase in economic growth in the middle-income countries. This is not unexpected as earlier studies have shown that FDI inflow has boosted economic growth in the developing countries where it doesn't have any such positive effect on economic growth of the developed countries (Johnson 2006). Thus, this study further proves the importance of FDI inflows for economic growth in middle and especially low-income countries. The coefficient of the Institutional quality variable is also positive and statistically significant in all three groups of countries, which indicate the importance of good quality institutions for economic growth in all three groups of countries.

Table 3. *FDI, Institutional Quality and Economic Growth Nexus by Income Group: Dependent Variable: Real GDP Growth per Capita*

Explanatory Variable	Arellano and Bond Estimation of the Dynamic Panel Data Model		
	High-Income Countries	Middle-Income Countries	Low-Income Countries
GDPGPC$_{t-1}$	-0.142***	-0.179***	-0.694***
	(0.010)	(0.009)	(0.046)
FDI	-28.082***	7.449***	66.407***
	(1.818)	(1.326)	(5.622)
Institutional Quality	4.477***	2.013***	4.576***
	(0.552)	(0.428)	(1.975)
Initial GDP	4.481***	3.905***	2.838***
	(0.283)	(0.154)	(1.009)
Population	-3.182***	-9.550***	-30.554***
	(1.214)	(0.684)	(1.867)
Domestic Investment	6.99***	2.715***	12.115***
	(0.404)	(0.187)	(1.594)
Inflation	-1.042***	-2.135***	-0.840***
	(0.210)	(0.109)	(0.531)
Trade	10.417***	7.741***	5.132***
	(0.430)	(0.544)	(0.986)
Government Spending	-2.546***	-7.218***	12.495***
	(0.864)	(0.483)	(2.123)
M2	-6.124***	-8.827***	-12.763***
	(0.388)	(0.380)	(1.307)
Schooling	0.054***	0.254***	-0.282***
	(0.024)	(0.023)	(0.092)
Sargan Test (p-value)	0.991	0.990	0.991
Observations	372	375	68
Number of Instruments	189	187	68

*** indicates a significance at a 1% confidence interval, **indicates a significance at a 5% confidence interval and * indicates a significance at a 10% confidence interval. Standard Errors are reported in parentheses.
Sargan test H0: Over-identifying restrictions are valid.

Further, the interaction term (FDI × Institutional Quality) is introduced into the regressions of FDI inflow on economic growth for the three groups of countries. The results are presented in table 4 below. It can be seen that both the coefficients of FDI and institutional quality are positive and significant. This again reaffirms the results about the positive impact of FDI inflow and institutional quality on economic growth of the host country. The coefficient of interaction term is also positive and significant for both the low, and middle-income countries which indicate that institutional quality also further enhances the FDI-induced growth in the low, and middle-income countries. The same, however, is not true for the high-income countries. While the coefficient of institutional quality for the high-income countries is positive and significant, the coefficient of FDI and the interaction term both are negative for the high-income countries which shows that FDI inflows in the high income countries tend to slow down the economic growth of the country. It also shows that in high-income countries, better institutional quality doesn't enhance any FDI-induced economic growth. Similar studies have found disparities in the impact of FDI on economic growth in the developing, and the developed countries (see (Johnson, 2006)). The negative impact of FDI on economic growth in the high-income countries could be due to FDI inflow crowding out domestic investment in the host country as concluded by Jude (2018). This happens as foreign firms borrow money in the host country's financial markets and it tends to increase interest rate and crowd out domestic investment (Johnson, 2006). This result, however, needs further investigation and while the focus of most of the research in this area is on the developing countries, the impact of FDI on the developed countries economies need to be further investigated.

In the last step, individual institutional quality indicators are used to differentiate between the different indicators and to assess their respective importance in altering the FDI-growth relationship. The results are presented in table 5 below. GMM estimation based on Arellano and Bond for each measure of institutional quality is applied. Controlling for the institutional measure "control of corruption" the impact of FDI on economic growth is $\frac{dY}{dFDI} = \hat{\gamma} + \hat{\varphi} * (CC)$. The estimated impact is dY/dFDI=11.063+7.387* (CC). Therefore, for a country with an average level of control of corruption i.e. $\overline{CC} = 0.184$ the impact of FDI inflow on economic growth is dY/dFDI=11.063+7.387* (0.184) =12.422. Similar to as done above, the statistical significance is tested by re-running the same regression only to replace the interaction term (FDI*CC) by the FDI*(CC-0.184). The standard error for term $\frac{dY}{dFDI} = \hat{\gamma} + \hat{\varphi} * (0.184) = 12.422$ obtained from the new regression is 1.411.

Table 4. *Institutional Quality and Economic Growth Nexus by Income Group: Dependent Variable: Real GDP per Capita Growth*

Explanatory Variables	Arellano and Bond Estimation of the Dynamic Panel Data Model		
	High-Income Countries	Middle-Income Countries	Low-Income Countries
GDPGPC$_{t-1}$	-0.165***	-0.364***	-0.877***
	(0.011)	(0.004)	(0.089)
FDI	-39.357***	8.209***	72.902***
	(2.470)	(1.098)	(10.634)
Institutional Quality	6.688***	1.259**	8.4190***
	(0.658)	(0.719)	(3.448)
(FDI x Institutional Quality)	-21.961***	2.488***	26.868***
	(2.808)	(1.072)	(12.753)
Initial GDP	4.179***	2.242***	4.040***
	(0.355)	(0.206)	(1.490)
Population	-10.225***	-14.396***	-44.681***
	(1.883)	(0.694)	(5.452)
Domestic Investment	8.251***	4.744***	11.465***
	(0.577)	(0.164)	(1.810)
Inflation	-0.415	-0.497***	0.847
	(0.280)	(0.140)	(0.625)
Trade	9.090***	6.751***	4.710***
	(0.583)	(0.436)	(1.980)
Government Spending	-4.103***	-6.255***	8.398***
	(0.918)	(0.402)	(1.914)
M2	-4.710***	-6.082***	-11.621***
	(0.589)	(0.343)	(1.723)
Schooling	-0.086**	0.219***	-0.270
	(0.049)	(0.020)	(0.206)
Sargan Test (p-value)	0.999	0.990	0.991
Observations	292	290	54
Number of Instruments	95	95	54

*** indicates a significance at a 1% confidence interval, **indicates a significance at a 5% confidence interval and * indicates a significance at a 10% confidence interval. Standard Errors are reported in parentheses.
Sargan test H0: Over-identifying restrictions are valid

The subsequent t-statistics for the coefficient 6.081 is t= 12.422/1.411=8.803 which indicates a significant positive impact of FDI on economic growth in a country with an average level of institutional quality.

For a country, e.g. Finland with CC=2.585, the impact of FDI inflow on economic growth grows up to dY/dFDI=11.063+7.387* (2.585) =30.158. The standard error for the coefficient 30.158 is 2.172, and the t-statistic is t=30.158/2.172=13.884 which indicates that stronger control over corruption leads to significantly faster economic growth and it also enhances FDI-induced economic growth. The variable control of corruption also has a direct positive and significant effect on economic growth.

The second measure of institutional quality used is the rule of law (ROL). The impact of FDI inflow on economic growth taking into account the ROL measure is estimated to be dY/dFDI=9.776+4.541* (ROL). The impact of FDI inflow on economic growth for a country with an average level of $\overline{ROL} = 0.163$ is dY/dFDI=9.776+4.541* (0.163) =10.516. The relevant standard error is 1.422 and the t-statistics is t=10.516/1.422=7.395, which shows the significance of the coefficient. This means that on an average level of ROL a single standard deviation increase in FDI inflow will lead to 0.068% points increase in the GDP per capita. However, for a country with the highest level of ROL, i.e. Finland with a ROL=2.120, the impact of FDI on economic growth is estimated to be dY/dFDI=9.776+4.541* (2.120) =19.402 with a standard error 1.661 and t-statistics t=19.402/1.661=11.680 which indicates a significant and sizeable increase on the impact of FDI on economic growth for countries with an average level of ROL. Besides the FDI channel, ROL is also estimated to have a positive and significant impact on economic growth. Similarly, the measure of government effectiveness (GE) and regulatory quality (RQ) are estimated to have a positive and significant role in enhancing FDI-induced economic growth. This is evident from the positive coefficient of the interaction term in case of each of these institutional quality indicators.

Table 5. *Institutional Quality and Economic Growth Nexus: Alternative Measures of Institutional Quality- Dependent Variable: Real GDP per Capita Growth*
Arellano and Bond Estimation of the Dynamic Panel Data Model

Institutional Variable	Control of Corruption (CC)	Rule of Law (ROL)	Government Effectiveness (GE)	Regulatory Quality (RQ)
GDPGPC$_{t-1}$	0.136***	0.1450***	0.138***	0.142***
	(0.007)	(0.006)	(0.007)	(0.007)
FDI	11.063***	9.776***	7.938***	4.635***
	(2.164)	(2.262)	(2.147)	(1.861)
Institutional Quality	2.88***	2.385***	0.657**	-0.539**
	(0.414)	(0.292)	(0.347)	(0.325)
(FDI X Institutions)	7.387***	4.541***	7.745***	4.245***
	(1.140)	(1.573)	(1.212)	(1.665)
Initial GDP	1.736***	1.431***	1.412***	1.518***
	(0.166)	(0.176)	(0.172)	(0.162)
Population	-8.071***	-8.041***	-8.768***	-8.531***
	(0.527)	(0.467)	(0.430)	(0.396)
Domestic Investment	3.556***	3.791***	3.712***	3.897***
	(0.247)	(0.253)	(0.239)	(0.223)
Inflation	-2.129***	-2.136***	-2.147***	-2.175***
	(0.159)	(0.128)	(0.152)	(0.172)
Trade	9.404***	9.196***	9.117***	9.093***
	(0.379)	(0.343)	(0.378)	(0.401)
Government Spending	-4.541***	-4.602***	-4.904***	-4.928***
	(0.473)	(0.499)	(0.470)	(0.481)
M2	-9.63***	-9.650***	-9.169***	-9.149***
	(0.313)	(0.380)	(0.419)	(0.382)
Schooling	0.082***	0.094***	0.094***	0.113***
	(0.038)	(0.034)	(0.032)	(0.035)
Sargan Test (p-value)	0.437	0.414	0.418	0.385
Number of Instruments	88	88	88	88
Number of Observations	815	815	815	815

*** indicates a significance at a 1% confidence interval, **indicates a significance at a 5% confidence interval and * indicates a significance at a 10% confidence interval. Standard Errors are reported in parentheses.
Sargan test H0: Over-identifying restrictions are valid.

5. Conclusion

Institutional quality is believed to have a positive effect on economic growth of a country. However, the debate about the role of FDI inflow on the host country economic growth is far from over. This paper investigates the still debated question of FDI-growth relationship and the impact of institutional quality heterogeneity on the FDI-growth relationship.

This paper uses different indicators of institutional quality to distinguish between the usefulness and show economic growth-relevance of different institutional quality variables. This paper uses a larger dataset of 104 countries and applies GMM estimation based on Arellano and Bond to a dynamic panel data model to show the impact of institutional quality on economic growth as well as FDI-growth relationship. The impact of FDI, institutional quality and the role institutional quality plays in altering FDI-growth relationship is investigated across countries of different income groups including low-income, middle-income, and high-income groups. The problem of endogeneity is controlled for by using a lagged value of FDI inflow as an instrument.

This paper finds that better institutional quality leads to stronger economic growth in the host country. The highest FDI-induced economic growth was experienced in the low-income countries followed by the middle-income countries. High-income countries, however, experienced a slowdown of economic growth caused by the inflow of FDI. Institutional quality was also found to have a strong positive impact on economic growth of the country. Low and high-income countries, however, experienced higher economic growth caused by institutional quality improvements compared to the middle-income countries. The paper further finds that better quality institutions enhance the FDI-induced economic growth. This is true, especially in the low-income and middle-income countries. In high-income countries, however, FDI is found to slow down economic growth of the host country even after taking into account the institutional quality of the country.

This paper also explored the impact of different institutional quality indicators and investigated the impact of those indicators on economic growth and the FDI-growth relationship. The study finds that control of corruption, the rule of law and government effectiveness all have a strong and positive direct effect on economic growth of the country. These variables are also found to enhance the FDI-induced economic growth in the host country. Regulatory quality, on the other

hand, was found to have a negative direct effect on economic growth. However, it is still found to enhance the FDI-induced economic growth.

This clearly shows the importance of institutional quality and the role it plays in attracting foreign investment and in boosting economic growth directly and indirectly through foreign direct investment. The clear policy implications of this paper are that countries that aspire to grow faster need to improve their institutional quality especially control corruption and establish the rule of law in the country. This improved institutional quality will lead to speeding up economic growth in the country as well as attract FDI and will result in enhanced FDI-induced economic growth. Specifically, this paper suggests governments should allocate time and resources to ensure the rule of law, governance effectiveness, regulatory quality and corruption control in the country in order to see the economy grow faster and attract foreign investment. Domestic governments by ensuring these institutions will be able to pave the way for experiencing FDI-led economic growth in the country.

The policy implications are especially more relevant the low-income and middle-income countries as these countries experienced FDI-led economic growth as well as institutions led economic growth. In these countries, institutional quality also enhanced FDI-led economic growth. In low-income countries specifically, the FDI-led economic growth was reported to be very strong, and institutional quality strongly enhanced this growth. In low-income countries, there is huge room for improvement in institutional quality. Therefore, these countries can start by improving their institutional quality which will enable these countries to grow their economies, attract FDI, and enhance the FDI-induced economic growth and thus ensure prosperity at home.

Bibliography

Acemoglu, D., & Johnson, S. (2005). Unbundling Institutions. Journal of Political Economy, 113 (5), 949-995.

Alfaro, L., Chanda, A., Kalemli-Ozcan, S., & Sayek, S. (2004). FDI and Economic Growth: The Role of Local Financial Markets. Journal of International Economics, 64, 89–112.

Alfaro, L., Chanda, A., Ozcan, S. K., & Sayek, S. (2010). Does Foreign Direct Investment Promote Growth? Exploring the Role of Financial Markets on Linkages. Journal of Development Economics, 91, 242–256.

Ali, F., Fiess, N., & MacDonald, R. (2010). Do Institutions Matter for Foreign Direct Investment? Open Economies Review, 21 (2), 201–219.

Arellano, M., & Bond, S. (1991). Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations. The Review of Economic Studies, 58 (2), 277-297.

Azman-Saini, W., Siong, H. L., & Ahmad, A. H. (2010). FDI and Economic Growth: New Evidence on the Role of Financial Markets. Economic Letters, 211-213.

Balasubramanyam, V. N., Salisu, M, and Sapsford, D. (1996). Foreign Direct Investment and Growth in EP and IS Countries. The Economic Journal, 106 (434), 92-105.

Barro, R., Lee, J.W., (1996) International measures of schooling years and schooling quality. *American Economic Review 86, 218–223.*

Barro, & Sala-i-Martin. (1997). Technological Diffusion, Convergence, and Growth. Journal of Economic Growth, 2 (1), 1-26.

Bénassy-Quéré, A., Coupet, M., & Mayer, T. (2005). Institutional Determinants of Foreign Direct Investment. CEPII Working paper Number 5.

Bengoa, M., & Sanchez-Robles, B. (2003). Foreign Direct Investment, Economic Freedom, and Growth: New Evidence from Latin America. European Journal of Political Economy, 19, 529–545.

Blomström, M., & Kokko, A. (2003). The Economics of Foreign Direct Investment Incentives" NBER Working Paper, 9489.

Blomstrom, M., Lipsey, R., & Zejan, M. (1994). What Explains Developing Country Growth? Convergence and Productivity: Gross-National Studies and Historical Evidence. Oxford University Press. Oxford.

Borensztein, E., De Gregorio, J., & Lee, J.-W. (1998). How Does Foreign Direct Investment Affect Economic Growth, Journal of International Economics, 45, 115–135.

Brahim, M., & Rachdi, H. (2014). Foreign Direct Investment, Institutions and Economic Growth: Evidence from the MENA Region. Journal of Reviews on Global Economics (3), 328-339.

Bruno, R., & Campos, N. (2013). Re-examining the Conditional Effect of Foreign Direct Investment. IZA Discussion Paper, 7458

Busse, M., & Hefeker, C. (2007). Political risk, Institutions, and foreign direct investment. European Journal of Political Economy, 23 (2), 397–415.

Carbonell, J.B., & Werner, R.A. (2018). Does Foreign Direct Investment Generate Economic Growth? A New Empirical Approach Applied to Spain. Economic Geography, 94(4), 425–456.

Carkovic, M., & Levine, R. (2003). Does Foreign Direct Investment Accelerate Economic Growth? University of Minnesota, Working Paper.

Crespo, N., & Fontoura, M. P. (2007). Determinants of FDI Spillover—What Do We Really Know? World Development, 35 (3), 410-425.

Daude, C., & Stein, E., (2007). The Quality of Institutions and Foreign Direct Investment. Economics and Politics, 19 (3).

Daude, C., & Stein, E. (1997). The Quality of Institutions and Foreign Direct Investment. Economics & Politics, 19 (3), 317–344.

Driffield, N., & Love, J. (2007). Linking FDI Motivation and Host Economy Productivity Effects: Conceptual and Empirical Analysis. Journal of International Business Studies, 38 (3), 460-473.

Farole, T., & Winkler, D. (2012). Foreign Firm Characteristics, Absorptive Capacity, and the Institutional Framework: The Role of Mediating Factors for FDI Spillovers in Low and Middle-Income Countries. The World Bank Policy Research Working Paper Series, 6265.

Forte, R., and Moura, R. (2013), The Effects of Foreign Direct Investment on the Host Country's Economic Growth: Theory and Empirical Evidence, *The Singapore Economic Review, Vol. 58, No. 3, pp.1-28.*

Fosfuri, A., Motta, M., & Ronde, T. (2001). Foreign Direct Investment and Spillovers through Workers' Mobility. Journal of International Economics, 53 (1), 205-222.

Gonel, F and Aksory, T (2016), Revisiting FDI-led Growth Hypothesis: the Role of Sector Characteristics, *The Journal of International Trade and Economic Development, Volume 25, No 8, pp.1144-1166*

Gorg, H., & Greenaway, D. (2004). Much Ado about Nothing? Do Domestic Firms Really Benefit from Foreign Direct Investment? World Bank Research Observer, 19, 171-197.

Hall, R., & Jones, C. (1999). Why Do Some Countries Produce More Output Than Others? Quarterly Journal of Economics, 114, 83–116.

Harms, P., & Meon, P. (2011). Good and Bad FDI: The Growth Effects of Greenfield Investment and Mergers and Acquisitions in Developing Countries. Proceedings of the German Development Economics Conference, Berlin, Verein fur Socialpolitik, Research Committee Development Economics, 38.

Havranek, T., & Irsova, Z. (2011). Estimating Vertical Spillovers from FDI: Why Results Vary and What the True Effect Is? Journal of International Economics, 85 (2), 234-244.

Helpman, & Grossman. (1991). Quality ladders in the theory of growth. The Review of Economic Studies, 58 (1), 43-61.

Hermes, N., & Lensink, R. (2003). Foreign Direct Investment, Financial Development, and Economic Growth. Journal of Development Studies, 40, 142–163.

James, L. B., & Yanikkaya, H. (2006). Institutional Quality and Economic Growth: Maintenance of the Rule of Law or Democratic Institutions or Both? Economic Modelling, 23, 648–661.

Javorcik, B. S. (2004, June). Does Foreign Direct Investment Increase the Productivity of Domestic Firms? In Search of Spillovers through Backward Linkages. The American Economic Review, 605-627.

Johnson, A, (2006), The Effects of FDI Inflows on Host Country Economic Growth, Working Paper Series in Economics and Institutions of Innovation 58, Royal Institute of Technology, *CESIS - Centre of Excellence for Science and Innovation Studies.*

Jude, C. (2018). Does FDI Crowd out Domestic Investment in Transition Countries. Economics of Transition 0(0), 1-38.

Jude, C., & Levieuge, G. (2015). Growth Effect of FDI in Developing Economies: The Role of Institutional Quality. Banque de France Working Paper, 559.

Kaufmann, D., Kraay, A., & Zoido-Lobaton, P. (1999). Governance Matters. Policy Research Working Paper, 2196.

Kaufmann, D., Kraay, A., & Zoido-Lobatón, P. (2002). Governance Matters II Updated Indicators for 2000/01. World Bank Policy Research Working Paper 2772.

La Porta, R. Lopez-de-Silanes, F, Shleifer, A and Vishny, R. (1999). The Quality of Government. Journal of Law, Economics, and Organization, 15 (1), 222–279.

Mauro, P. (1995). Corruption and Growth. Quarterly Journal of Economics, 110 (Augues), 681-712.

McCloud, N., & Kumbhakar, S. C. (2012). Institutions, Foreign Direct Investment and Growth: A Hierarchical Bayesian Approach. Royal Statistical Society, 175 (1), 83–105.

Meyer, K., & Sinani, E. (2009). When and Where Does Foreign Direct Investment Generate Positive Spillovers? A Meta-Analysis. Journal of International Business Studies, 40, 1075–1094.

Mody, A., & Murshid, A. (2005). Growing Up With Capital Flows. Journal of International Economics, 65 (1), 249–266.

Peng, M., Wang, D., & Jiang, Y. (2008). An Institution-Based on View of International Business Strategy: A Focus on Emerging Economies. Journal of International Business Studies, 39 (5), 920-936.

Sala-i-Martin, X. (1997). I Just Ran Four Million Regressions. American Economic Review, 87, 178-183.

Shleifer, A., & Vishny, R.W. (1993). Corruption. Quarterly Journal of Economics, 108, 599-617.

Stephen, K., & Keefer, P. (1995). Institutions and Economic Performance: Cross-Country Tests Using Alternative Institutional Measures. Economics and Politics, 7 (3), 207-227.

Wang, M., & Wong, M. (2009). What Drives Economic Growth? The Case of Cross-Border M&A and Greenfield FDI Activities. Kyklos, 62 (2), 316–330.

Wheeler, D., & Mody, A. (1992). International Investment Location Decisions: The Case of US Firms. Journal of International Economics, 33, 57-76.

Wooldridge, M. J. (2012). Introductory Econometrics: A Modern Approach (5th Edition ed). Mason USA: Cengage Learning

World Bank Database access: www.http://databank.worldbank.org/data/home.aspx

WGI indicators database access: www.http://info.worldbank.org/governance/wgi/#home

Appendix

A1

Variable	Description	Source
FDI	The Ratio of FDI Inflow to GDP	WDI
GDP	Growth Rate of Real GDP Per capita	WDI
Inflation	The rate of growth of consumer price index	WDI
Trade	The ratio of import and export to the gross domestic product	WDI
Government expenditure	The ratio of government expenditure to the GDP	WDI
Initial GDP	Gross domestic product at the start of the period of data	WDI
Population Growth Rate	Growth rate of population of the country	WDI
Domestic Investment	Gross domestic capital formation (Gross domestic investment)	WDI
Schooling	Average years of secondary schooling (aged 16-64)	WDI
Rule of Law	Rule of law reflects the reflects perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.	WGI
Control of Corruption	Control of corruption reflects perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests.	WGI
Regulatory Quality	Regulatory Quality reflects perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.	WGI
Government Effectiveness	Government effectiveness reflects perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation.	WGI

A2 Countries Included in the Study

Albania Algeria Argentina Australia Austria Azerbaijan Bahrain Bangladesh Barbados Belarus Belgium Belize Bolivia Botswana Brazil Brunei Darussalam Bulgaria Burkina Faso Cameroon Canada Chile China Colombia Costa Rica Cote d'Ivoire Croatia Cyprus Czech Republic Denmark Dominican Republic Ecuador Egypt, Arab Rep. El Salvador Fiji Finland France Germany Ghana Greece Guatemala Honduras Hungary Iceland India Indonesia Ireland Israel Italy Jamaica Japan Jordan Kazakhstan Kenya Korea, Rep. Kuwait Madagascar Malawi Malaysia Mali Malta Mexico Morocco Mozambique Netherlands New Zealand Nicaragua Nigeria Norway Oman Pakistan Panama Paraguay Peru Philippines Poland Portugal Qatar Romania Russian Federation Rwanda Saudi Arabia Senegal Singapore Slovak Republic South Africa Spain Sri Lanka Sudan Sweden Switzerland Tanzania Thailand Togo Trinidad and Tobago Tunisia Turkey Uganda Ukraine United Kingdom United States Uruguay Venezuela, RB Vietnam Zimbabwe