Foreign Direct Investment, Institutional Framework and Economic Growth

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14 October 2016

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Abstract:

The paper explores the role of institutional quality on economic growth and more specifically the role it plays through foreign direct investment. The paper uses an economic performance relevant indicators of institutional quality (both in aggregate and individual indicators) to evaluate its direct impact on economic growth and an indirect impact on economic growth via foreign direct investment. The paper applied instrumental variable model to a larger dataset of 106 countries and found that besides a strong direct positive effect on economic growth the aggregate institutional quality variable as well as all individual variables except for the rule of law have a small but significant indirect impact on economic that takes place through boosting foreign direct investment.

Keywords: Foreign Direct Investment, Institutional Quality, Economic Growth, Instrumental Variable

JEL Classification: F23, F43, E23

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1. Introduction

Globalization has led to greater opening of the world economies to foreign trade and investment. Foreign direct investment has been one big feature of this phenomenon. Countries around the world opened up their economies and created conditions to attract foreign investment 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 (Helpman & Grossman, 1991) (Barro & Sala-i-Martin, 1997). The increase in cross border investment has led to an enormous amount of energy and time being allocated to towards finding out the impact of FDI on the host economies.

However, while theoretical studies consistently report of a positive effect of FDI for the domestic economy, empirical studies are still producing conflicting results. Therefore, the FDI-growth relationship is considered mixed at best (Gorg & Greenaway, 2004)[2]. (Bruno & Campos, 2013) in a metadata study of 1102 estimates 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 home country economic growth.

Many recent studies have concluded that the FDI-growth relationship is contingent on other factor. These factors are considered as absorptive capacity of the host country and empirical studies have identified these variables to be level of economic development (Blomstrom et al., 1994), financial markets development (Hermes & Lensink, 2003) (Alfaro et al., 2004) (Azman-Saini et al., 2010) human capital human capital (Borensztein et al., 1998) economic stability and liberal markets (Bengoa & Sanchez-Robles, 2003), trade liberalization (Balasubramanyam, 1996), technology gap between the host and origin country (Havranek & Irsova, 2011) and shared ownership of the FDI firm (Javorcik, 2004). This paper agrees with the idea of absorptive captivity and its importance in refining the FDI-growth relationship. The paper however, focuses on one very important and rather less explored link in the literature of the role the

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

institutional quality plays in defining the FDI-growth relationship. Countries with better institutions demonstrate better economic performance (James & Yanikkaya, 2006). Property rights are found to be strongly associated with investment and economic growth (Stephen & Philip, 1995). Institutions and different institutional quality variables like corruption (Shleifer & Robert, 1993; Mauro, 1995) rule of law political rights and civil liberties (Sala-i-Martin & Xavier, 1997) are consistently found to be significantly affecting economic growth.

While Institutional heterogeneity is strongly associated with variation in economic performance across countries and regions i.e. countries with weaker institutions perform badly while countries with better institutions tend to perform better. It is therefore, imperative to assume a significantly role for institutional quality altering the FDI-growth nexus. While stronger institutions like good and efficient governance, rule of law and lack of corruption can speedup the process of technology spillover to domestic firms, week institutions on the other hand like presence of corruptions, 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 difference level of growth in different countries with heterogeneous levels of institutional quality. However, while there is strong focus on exploring the role of institutional quality on attracting foreign direct investment and studies found intuitions to be a strong determinant of FDI inflow (see (Busse & Hefeker, 2007; Ali et al., 2010; Daude & Stein, 1997)) very limited research is focused focus on exploring the FDI-growth altering effect of institutional quality (see (Nadine & Subal, 2012) (Farole & Winkler, 2012) (Cristina & Gregory, 2015). Therefore, this study is an attempt to investigate impact of some of the most relevant and precise institutional indicators like rule of law, control of corruption, government effectiveness and absence of violence and regulatory quality on the FDI-growth relationship.

This paper develops a theoretical background to show that the institutional quality of the host country can enhance the FDI induced economic growth. The study uses a comprehensive and the most economic performance-relevant indicators of institutional quality. The indicators are based on worldwide governance indicators (WGI)[3] project. Further the study uses a larger dataset of 106 countries from developed, developing and least developed countries based on the world bank database classification and estimate role of institutions in altering the FDI-

[3] WGI indicators database and methodology can be accessed at http://info.worldbank.org/governance/wgi/#home

growth relationship across regions. The paper estimate the direct effect that FDI and institutional quality has on the economic growth of the host country and also estimate the indirect effect that institutional quality has on the economic growth through the foreign direct investment. Further the role of each institutional quality variable is estimated in order to distinguish between the institutional quality indicators and evaluate the relative importance of each indicator in attracting foreign direct investment and boosting economic growth.

The paper applies instrumental variable model and estimate the impact of institutional quality variables on FDI in the first stage regression and in turn its impact on economic growth. The model also enables us to cover for the endogeneity of foreign direct investment. The paper uses lagged value of FDI as an instrument. The study finds a strong direct effect of institutional quality on economic growth and a small but significant impact on economic growth via foreign direct investment. In individual institutional quality except regulatory quality and all the indicators were estimated to have a strong significant direct impact on economic growth. A small but significant indirect impact for all institutional quality was estimated except for the rule of law. The rule of law still however, was estimated to have a strong direct impact on economic growth.

The paper is organized as the following. Section II describes the main arguments supporting the theoretical foundation of the role the natural resources play in altering the FDI-Growth relationship. Section III describes the data and methodology used in the paper while section IV presents the findings of the paper. Section V concludes the paper.

2. FDI-Growth Relationship: The Role of Institutions

Many studies have look into the role of institutional quality in attracting FDI into the country (see (Bénassy-Quéré et al., 2005; Daude & Ernesto, 2007; Ali et al., 2010)). However, there are very few studies conducted that investigate the FDI-growth relationship altering effect of institutional heterogeneity across countries. In this section, the paper focuses on building up theoretical framework of the channels through which institutional quality effect the FDI-growth relationship.

The role of FDI in economic growth of the host country is twofold. First and most important effect of FDI on the host country economic growth is the knowledge spillovers. The spillover happens through domestic firm imitating the technology demonstrated by the multinational

enterprise (MNE),competition, skilled labor mobility and backward forward linkages (Crespo & Fontoura, 2007). In another study about the FDI spillovers (Fosfuri et al., 2001) conclude that Knowledge spillovers are generated through MNE skilled labor moving to the domestic firms. Good institutions like rule of law, lack of corruption, efficient government and good regulations can create synchronization between the domestic and foreign firms by providing them level playfield for competition and encourage them for health competition. Bad institutions on the other hand, will lead to increase transactions costs and higher risks which will further lead to lowering of investment 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, political freedom is responsible for differences in capital accumulation and labor productivity (see for example (Hall & Jones, 1999) (La Porta, 1999)). Therefore, we consider the institution quality to be vital for the knowledge spillovers to take place. Quality institutional framework motivates and enables domestic firms to react to the foreign firms entering the country which creates the spillover effect of FDI (Meyer & Sinani, 2009). While good quality institutions are associated both with the better economics performance[4] and the ability to attract FDI into the country creating the possibility of high spillovers, bad institutions quality and governance is very much likely to attract resource extracting FDI which has a limited potential for spillover and growth (Cristina & Gregory, 2015). Better institutional quality like rule of law and efficient governance would also provide confidence to the investor and it might effect the mode of FDI entry into the country making greenfield entry more likely rather than merger and acquisition which would be the FDI mode of choice in a riskier environment. Greenfields are associated with larger growth enhancing potential (Wang & Wong, 2009). Therefore, by encouraging greenfield investment instead of mergers and acquisitions institutional quality is potentially influencing the spillover effect of FDI.

Another very important channel of effect is that foreign investment is expected to increase competition in the industry (Blomström & Kokko, 2003) (Driffield & Love, 2007) while will in tern lead to efficiency and innovation in the industry as a whole leading and especially on part of the domestic firms adopting and insuring efficiency in order to meet the challenge of intensified competition. (Brahim & Rachdi, 2014) argues that institutional quality creates incentives and it influences competition in the market and knowledge spillovers. Quality

[4] (see (Rodrik et al., 2004) (Acemoglu & Johnson, 2005)

institutional framework incentivize investment into innovation and meet the challenges of increased competition (Peng et al., 2008).

The second main channel through which FDI effects economic growth in the host country is through the capital accumulation. While some studies have shown that FDI has a crowding out effect in the short run (Mody & Murshid, 2005), others have argued that better institutional quality would encourage foreign investors to invest into industries with the lessor density of domestic firms. This will encourage greater capital accumulation in the sector dearly needed the potential benefits of which are expected to be greater for the domestic economy. Sound institutions could lead a surge in upstream and downstream demand in the industry propelled by the presence of foreign firm. Finally, studies have shown that low institutional quality shifts exports from manufacturing good to non-manufacturing goods (Kaufmann et al., 1999) which in turn in turn would lover domestic economic performance.

In line with all the above argument, the paper expects the FDI-growth relationship to be conditional on the quality of institutions in the host country and better intuitional quality to contribute to the FDI induced growth both through spillover enhancement and through capital accumulation.

3. Methodology and Data

There are many studies conducted which are focused on the absorptive capacity of the receiving country. The role of different variables as absorptive capacity enhancement variable and its impact on the FDI-growth relationship has been explored. In a cross-country study (Alfaro et al., 2010) studied the role that financial markets play in enhancing the absorptive capacity of the home country and ultimately enabling the country to receive higher FDI spillovers. (Harms & Meon, 2011) studied the comparative impact of greenfield FDI and mergers and acquisitions and concluded against any role of political stability or corruption in the FDI-growth relationship.

The estimates the direct effect of the institutional quality Most of the existing studies conducted on the absorptive capacity of the host country are based on panel data fixed/random effect models or LSDV models. Most of these models are based on the assumption of homogeneity of effect across the panels which is a strong assumption to make.

This paper doesn't assume cross panel homogeneity assumption and therefore cluster standard errors across country. The paper uses instrumental variable model and try to separate the direct effect of institutional quality and FDI on economic growth and further find out the indirect impact of institutional quality on economic growth that takes place via its impact foreign direct investment inflows. The following model is estimated to evaluate the impact of FDI and institutional quality on economic growth.

$$Y_{i,t} = \beta_1 + \beta_2 X_{i,t} + \beta_3 FDI_{i,t} + \beta_4 Institutions_{i,t} + \mu_{i,t} \text{-------(1)}$$

where Y is real GDP growth rate per capita, FDI is inflow of foreign direct investment, institutions is the average value of the different institutional quality variables (described in detail in appendix 1) and X represent the control variables including population growth rate, initial real GDP per capital, inflation rate, domestic investment, government spending, volume of trade and money supply (M2). Where as $\mu_{i,t}$ is random error term. The estimation of the above model will enable to see what impact does FDI inflow and institutional quality have on the real economic growth of the host country.

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 in order 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 et al., 2004). This is because FDI is considered to be reinforcing itself overtime (Wheeler & Mody, 1992). In order to take care of the endogeneity issue the paper estimate the following equation. This will be the first stage equation for FDI.

$$FDI_{i,t} = \eta_1 + \eta_2 X_{i,t} + \eta_3 Institutions_{i,t} + \eta_4 FDI_{i,t-1} + \varepsilon_{i,t} - - - (2)$$

The above equation will enable us to check if institutional quality has any impact on the economic growth of a country through foreign direct investment. This is besides the direct effect that institutional quality would have on economic growth (captured in equation 1).

3.1 Data

In order to investigate the effect of FDI on host country economic growth and the FDI-growth relationship dependence on the host country absorptive capacity especially the institutional quality, the paper uses the annual real GDP per capital growth rate and net FDI inflows as 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. In order to control for the determinants of economic growth, the study uses gross domestic capital formation, the population growth rate, trade openness, the annual inflation rate and the government expenditure. Trade volume is used as an instrument for trade openness and government expenditure is used as an instrument of the government fiscal policy. There is a unanimity about the usage of these variables in the recent literature about the economic growth (see for example (Barro, 1991) (Alfaro et al., 2004). Data on all these variables is obtained from the world bank database[5].

In order to measure the institutional quality and governance, the study 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 study considers all the institutional quality and governance indicators produced by the WGI which are rule of law, control of corruption and absence of violence, regulatory quality and government effectiveness. The indicators ranges from -2.5 to +2.5 where -2.5 reflects weak institutional and governance quality and +2.5 reflects strong institutional and governance.

The data sample used in the paper comprises 106 countries all from developed, developing and the least developed countries classified according to the world bank database. The paper is based on the data from the year 1996 to 2012. The time period and selection of countries is mainly due to the availability of data and due to the fact that WGI started reporting the index from the year 1996.

4. Analysis of Results

Table 1 below present descriptive statistics for all the variables including macroeconomic indicators that affect real GDP growth per capital as well as the institutional quality and

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

governance variables. The table shows a great deal of variations in the variables with FDI ranging from a negative inflow (net outflow) of 16.4% to a maximum of 53.8% of GDP. The same is true for real GDP growth per capita, where a minimum of -16.58% growth was recorded and a maximum of 16.19% growth was recorded. The institutional quality variables all vary between the -2.5 and 2.5 range that was described early in the data section.

Table 1:
Descriptive Statistic

Variable	Mean	Standard Deviation	Minimum	Maximum
Real GDP Growth/Capita	2.502	3.761	-16.589	16.196
FDI/GDP	0.042	0.052	-0.164	0.538
Initial GDP/Capita	10494.74	13276.11	221.876	55556.26
Population Growth	1.290	1.422	-3.820	17.314
Inflation	1.074	0.269	0.955	11.583
Investment/GDP	0.233	0.059	0.002	0.581
Trade/GDP	0.857	0.526	0.155	4.499
Govt Spending/GDP	0.154	0.052	0.034	0.300
M2/GDP	0.318	0.300	-0.253	1.875
Institutional Quality Variables				
Government Efficiency	0.3052203	0.9530377	-1.60469	2.42965
Control of Corruption	0.1985994	1.050761	-1.51216	2.58562
Rule of Law	0.1929616	0.9701381	-1.68562	1.99964
Regulatory Quality	0.3679287	0.8471694	-1.73052	2.24735

Results from equation 1 and equation 2 estimating the GDP growth and FDI are presented in the tables 2-3. Table 2 presents the results from estimation of instrumental variable with the institutional quality variable as a single cumulative variable which is constructed as an average value of the different indicators of institutional quality including control of corruption, rule of law, regulatory quality and government efficiency. The tables contain two panels B presents the estimation of first stages regression for FDI which is based on equation 2 and panel A presents the results from estimation of the second stage regression for real GDP growth per capita. The first stage equation includes a dependent variable FDI_1 which is the lagged value of foreign direct investment in order to take care of the problem of endogeneity in FDI. The same first stage equation also includes the institutional quality dependent variable which will enable us to quantify the impact of institutional quality on the economic growth of the country via the channel of FDI.

In order to evaluate the indirect impact of home country institutional quality on the economic growth of the country via the channel of foreign direct investment, the first stage equation in panel B of the table 2 express FDI as dependent variable to other variables including institutional quality. The standard deviation of institutional quality in data is 0.875211 (with a given mean value of 0.214). The coefficient of variable institutional quality in the equation is 0.149 this means that a single unit standard deviation increase in the institutional quality would bring about a 0.130 (0.8752111*0.149= 0.130) increase in the ratio of FD/GDP inflow into the country. Which simply means a 0.130 standard deviation change in the inflow of FDI/GDP ratio. Refer to the first stage equation in the same table to compute the ultimate effect on the economic growth. It can be seen here that the coefficient of variable FDI is significant and it positively effect economic growth. The result of the change on economic growth is estimated to be 0.0193 (0.130*0.318=0.0193). therefore, we can see that a single standard deviation increase in the institutional quality of the home country lead to a 0.019 percentage increased growth rate in the home country via the channel of enhanced foreign direct investment inflow.

Besides the growth boosting role that the institutional quality plays through the FDI channel, the institutional quality also matters in a direct way for the economic growth of the country. The panel A in the same table also captures that very direct effect of institutional quality on economic growth. The coefficient of institutional quality is 0.530 which is positive and significant at 10% confidence indicates that a one standard deviation increase in the quality of institutions in the country lead to a 0.530 percent in economic growth of the country. This clearly demonstrate the importance of the quality of institutions in the country and the role it plays in the economic growth of the country. However, this also demonstrate the importance of FDI for the economic growth of the country. FDI has a positive and significant effect on economic growth of the country after controlling for the institutional heterogeneity and endogeneity. FDI_1 is significant in determining FDI which is inline with the earlier studies that concluded FDI to be reinforcing itself overtime (Wheeler & Mody, 1992). The coefficient of FDI is 0.393 which indicates that a single standard deviation change increase in FDI/GDP ratio will result in a 0.393 percent increase in the growth rate of the country. The confidents of Initial period GDP and population growth are negative and significant. The coefficients of government expenditure and inflation are insignificant after controlling for FDI while domestic investment and money supply both has positive and significant impact on economic growth.

Table2: *FDI Institutions and Growth*

Variable	*Panel A: Second Stage: Dependent Variable: Real GDP growth per capita*	*Panel B: First Stage Regression: Dependent Variable Foreign Direct Investment*
FDI	0.393**	
	[0.175]	
Institutional Quality	0.530**	0.193**
	[0.278]	[0.085]
Initial GDP	-0.612*	-0.103*
	[0.202]	[0.038]
Population	-0.895*	0.0066**
	[0.208]	[0.035]
Investment	3.564*	0.263***
	[0.533]	[0.161]
Inflation	-0.395	-1.22
	[1.658]	[0.79]
Trade Volume	-0.470*	0.402*
	[0.220]	[0.000]
Government Spending	-1.176*	-0. 069
	[0.53]	[0.110]
M2	0.449*	0.008
	[0.138]	[0.043]
FDI_1		0.540*
		[0.046]
Observations	1159	1159
Adjusted R-Squared	0.2361	0.449

*** *indicates a significance at a 10% confidence interval*
** *indicates a significance at a 5% confidence interval.*
* *indicates a significance at a 1% confidence interval.*

Notes: The regressions have a constant term. Country clustered robust standard errors are given in parentheses. Population growth is the average growth rate for the period. FDI is the log of FDI to GDP ratio. Institutional quality is the average of all the different institutional indicators including Rule of Law, Government Efficiency, Regulatory Quality and Control of Corruption. Government Spending is the log (the ratio of government spending to GDP), inflation is log (1 + average inflation rate) for the period. The trade volume of is the log (sum of exports + imports as a share of GDP) for the period and M2 is the ratio of money supply (M2) to GDP and FDI_1 is the lagged value of FDI to GDP ratio.

Table3: *FDI Institutions and Growth: Alternative Measures of Institutional Quality*

	Panel A: Second Stage: Dependent Variable: Real GDP growth per capita				*Panel B: First Stage Regression: Dependent Variable Foreign Direct Investment*			
Institutional Variable	Government Efficiency	Control of Corruption	Regulatory Quality	Rule of Law	Government Efficiency	Control of Corruption	Regulatory Quality	Rule of Law
FDI	0.398*	0.390**	0.388**	0.424*				
	[0.170]	[0.180]	[0.179]	[0.168]				
Institutional Quality	0.732*	0.396**	0.421	0.377***	0.103***	0.139**	0.284*	0.088
	[0.239]	[0.207]	[0.305]	[0.220]	[0.077]	[0.063]	[0.088]	[0.072]
Initial GDP	-0.736*	-0.608*	-0.578*	-0.567*	-0.081**	-0.099*	-0.134*	-0.070**
	[0.193]	[0.199]	[0.215]	[0.196]	[0.040]	[0.039]	[0.040]	[0.038]
Population	-0.891*	-0.929*	-0.912*	-0.918*	0.059***	0.054	0.065**	0.057***
	[0.207]	[0.211]	[0.205]	[0.209]	[0.035]	[0.035]	[0.035]	[0.035]
Investment	3.478*	3.581*	3.662*	3.495*	0.267***	0.270***	0.307**	0.258*
	[0.516]	[0.543]	[0.524]	[0.548]	[0.169]	[0.164]	[0.154]	[0.169]
Inflation	-0.129	-0.515	-0.374	-0.444	-1.29***	-1.274***	-1.061	-1.310***
	[1.572]	[1.642]	[1.622]	[1.654]	[0.779]	[0.788]	[0.826]	[0.789]
Trade	-0.504*	-0.423***	-0.458**	-0.642**	0.418*	0.419*	0.379*	0.419*
	[0.219]	[0.224]	[0.218]	[0.218]	[0.088]	[0.090]	[0.085]	[0.090]
Government Spending	-1.239*	-1.132**	-1.09**	-1.167**	-0.031	-0.051	-0.075	-0.040
	[0.529]	[0.539]	[0.505]	[0.517]	[0.108]	[0.106]	[0.107]	[0.113]
M2	0.441*	0.443*	0.433*	0.441*	-0.047	0.005	0.014	0.003
	[0.135]	[0.135]	[0.138]	[0.138]	[0.042]	[0.042]	[0.044]	[0.042]
FDI_1					0.548*	0.540*	0.528*	0.549*
					[0.046]	[0.045]	[0.047]	[0.064]
Observations	1159	1159	1159	1159	1159	1159	1159	1159
Adjusted R-Squared	0.241	0.235	0.291	0.235	0.445	0.447	0.456	0.465

Country Clustered Robust Standard Errors in parenthesis
*** *indicates a significance at a 10% confidence interval*
** *indicates a significance at a 5% confidence interval.*
* *indicates a significance at a 1% confidence interval.*

The estimated results presented in table 3 are based on the different institutional quality indicators. This is an attempt to differentiate between the different measures of institutional quality and to measure the relative importance of each institutional quality indicator in affecting economic growth direct and indirectly via the channel of foreign direct investment. Regressions based on instrumental models are estimated for each indicator of institutional quality. Again panel B presents estimation results based on the first stage regression for estimation of the impact of different variables including the different institutional quality variables and the lagged value of FDI.

To estimate the indirect effect of the institutional quality variable "government efficiency", consider the first stage equation in presented in panel B of table 3. The standard deviation of government efficiency is 0.956 (with the mean value of the variable as 0.306). the estimated efficiency of government efficiency is 0.103, which means that a one standard deviation increase in the government efficiency would bring about 0.098 (0.956*0.103) in the inflow of FDI/GDP ratio. The impact in turn on the economic growth is estimated the second stage equation of the model which is presented in panel A. the coefficient of FDI is significant at 1% confidence interval and affects economic growth positively. Thus the indirect effect of one standard deviation improvement in the "government efficiency" is estimated to be 0.039 (0.098*0.398) increase in economic growth. The government efficiency is also estimated to boost economic growth in a direct way the coefficient of which is estimated to be 0.732 which is significant at 1% confidence interval. All other institutional quality variables including "corruption control" and "regulatory quality" are estimated to be boosting the FDI/GDP ratio by a standard deviation of 0.145 (1.049*0.139), 0.243 (0.857*0.284) respectively. All these coefficients are estimated to be significant. However, the variable rule of law is estimated to be insignificant in boosting any FDI inflows into the country. The indirect effect of the different institutional quality indicators on economic growth is estimated to be a one standard deviation improvement in the corruption control, regulatory quality is estimated to increase the economic growth of the country by 0.056 (0.145*0.390) and 0.094 (0.243*0.388) percent increase in the economic growth. The indicators of institutional quality are also estimated to have a significant direct economic growth boosting effect except for the variable regulatory quality, the impact of which is statistically insignificant. The variable rule of law while doesn't have an indirect effect on economic growth through the FDI channel, does have a significant positive direct effect on economic growth.

5. Conclusion

Institutional quality is believed to have a positive effect on the economic growth of a country. This paper shows a twofold effect of institutional quality on economic growth i.e. the direct effect on the economic growth and the indirect effect via FDI. The paper attempts to separate both the growth inducing roles of the institutional quality and apply the same to different indicators of institutional quality in order to distinguish between the usefulness of different institutional quality variables. The paper applies instrumental variable model to distinguish between the direct and indirect effect of institutional quality on economic growth and to take care of the endogeneity problem of foreign direct investment. The paper uses lagged value of FDI as an instrument.

While the institutional quality as an aggregate is estimated to have a strong and significant direct effect on economic growth it is also estimated to have a small but significant indirect effect on economic growth via the channel of foreign direct investment. It is estimated to boost FDI inflow and enhance the FDI induced growth. The same estimation method was applied to individual institutional quality variables and the results show that the institutional quality variables government efficiency, corruption control and rule of law is estimated to have strong positive direct effect which is statistically significant. However, the institutional quality variables and regulatory quality are estimated to have an insignificant direct effect on economic growth of the country. All the institutional quality variables except for rule of law are estimated to have a small but significant FDI attracting and an ultimate growth boosting effect. 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 paper has clear policy implications, i.e. one way of achieving rapid economic growth is to improve the institutional quality of the country.

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Appendix

Variable	Description	Source
FDI	The Ratio of net FDI Inflow to GDP	WDI
GDP	Growth Rate of Real GDP Per capita	WDI
Inflation	Rate of growth of consumer price index	WDI
Trade	Ratio of import and export to the gross domestic product	WDI
Government expenditure	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
Investment	Gross domestic capital formation (Gross domestic investment)	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