

Foreign Direct Investment and Domestic Private Investment: Role of Governance and Financial Development in Emerging Markets

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Abstract

This article examines the role that financial development and the quality of governance play in mediating the impact of foreign direct investment on domestic private investment using a sample of 33 emerging economies over the 1996-2013 period. Using the Bias Corrected Least Square Dummy Variable (LSDVC) estimator, the relationship between foreign direct investment and domestic private investment is estimated. Our findings show that the foreign direct investment has a positive and significant effect on domestic private investment. The study finds no strong evidence of positive relationship between the domestic financial development indicators and the level of domestic private investment. Among the governance indicators, the measure of political stability has a negative and significant effect, while the rule and law has positive effect on the level of domestic private investment. Moreover, our findings show that neither the domestic financial sector nor the quality of governance explain the extent to which the FDI inflows translate into domestic private investment in the host countries.

Key Words: Foreign Direct Investment, Financial Development, Governance and Bias Corrected Least Square Dummy Variable Estimator (LSDVC)

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I. Introduction

Although there is a widespread belief among the policy makers that Foreign Direct Investment (FDI) enhances productivity and promotes economic development in host countries, the empirical evidence on the relationship between FDI and economic growth is ambiguous (Navaretti and Venables, 2004; and Alfaro and Rodriguez-Clare, 2004). Most of the available studies have established a similar conclusion that a country's capacity to take advantage of FDI externalities might be limited by local conditions such as the development of local financial markets (Alfaro et al., 2004; Hermes and Lensink, 2003; and Villegas-Sanchez, 2009) or level of human capital (Brenstein et al., 1998). Recently, Alfaro et al. (2010) examined the role of financial markets in enabling FDI to promote growth through backward linkages and show that an increase in the share of FDI leads to higher additional growth in financially developed economies compared to financially underdeveloped regions. Azman-Saini (2010) find supportive evidence that the FDI impacts growth after the financial market exceeds a certain threshold level. However, the other strand of studies focusing on whether FDI has positive spillover effect or not on domestic firm and which effects on domestic investment has arrived at ambiguous results. For example, Luca and Spatafora (2012) show that neither institutional quality nor domestic credit affect the extent to which capital flows translate into domestic investment. Similarly, Alfaro et al., (2009) show that if FDI has an effect on growth, it does not seem to be operate via capital accumulation (financial development) of the host countries. The empirical evidence on the international capital mobility on via FDI or other form, contributes to growth is mixed. The empirical literature on the relationship between FDI inflows and domestic private investment has not reached a consensus on whether FDI crowds in or crowds out private investment in the context of developing economies. While some studies focused on the role of the local financial market in explaining the relationship between FDI and growth, none of the studies investigated the role of financial development in the effects of FDI on domestic investment.

The present study distinguishes itself from the literature on the relationship between FDI and domestic investment in two important ways. *First*, the study examines the role of financial market development as well as governance in explaining the relationship between FDI inflows and domestic private investment using a sample of 33 emerging economies covering from 1996-2013 period. *Second*, to address the endogeneity biases, the present study has employed the recently developed Bias Corrected Least Square Dummy Variable (LSDVC) estimator to examine the relationship between FDI and domestic private investment. This estimator has better statistical properties in terms of bias and Root Mean Squared Error (RMSE) compared to the instrumental variable approach (IV) and GMM approach (Kiviet, 1995; Judson and Owen, 1999; and Bun and Kiviet, 2003). The LSDVC estimator is widely used in other applications¹.

The major findings of the study may be summarized as follows. The study find that FDI inflows have a positive significant effect on domestic private investment in the host (emerging) economies supporting the “crowding-in hypothesis”. The coefficient of the interaction term between FDI and financial development indicator is negative and statistically significant, but the direct effect of financial market development indicator is not significantly different from zero. Among the governance indicators, the measure of political stability has a negative and significant effect, while the rule and law has positive effect on domestic private investment. Moreover, the study finds no strong evidence of a positive relationship between good governance (except the measure of rule and law) and the level of domestic private investment. The study also observed that the interaction between FDI and regulatory quality measure of governance has a negative mediating effect on domestic private investment.

The paper is organised as follows: Section 2 summarizes the review of literature; Section 3 lays out the empirical methodology, econometric method and the data; Section 4 contains a discussion of the empirical findings; and Section 5 concludes.

¹ Meschi and Vivarelli (2009) applied for trade and inequality relationships; Huank (2010) applied for political and financial development; and Nepal and Jamasb (2012) used for power sector reform and growth relationships

II. Literature

Several attempts have been made to examine the relationship between FDI and economic growth in the context of both developed and emerging economies. The empirical evidence on the growth enhancing effects of FDI is mixed-varying from favourable to detrimental effects of foreign direct investment on growth. While most of the studies find growth enhancing effects of FDI in the host country (Borensztein et al., 1998; and Zhang, 2001), others find no significant relationship between FDI and growth (Akinlo, 2004; Fry, 1993; Hermes and Lensink, 2003; and Azman-Saini et al., 2010). Similarly, Helzer (2008) has examined the FDI-growth led hypothesis using a sample of 28 developing countries and finds no association between FDI, level of percapita income, level of education, the degree of openness and the level of financial development. Another strand of literature which focused on the relationship between FDI and domestic private investment has found a mixed result. For example, a small number of studies finds that the FDI stimulates the rate of domestic investment (Borensztein et al., 1998; Bosworth and Collins, 1999; and Agosin and Mayer, 2000; Nidhikumana and Verick, 2008; and Al-Sadig, 2013), others find supporting evidence for the crowding-out hypothesis (Misun and Tomsik, 2002; and Adams, 2009). Similarly, Agosin and Machado (2005) find that the FDI has no significant effect on domestic private investment in emerging economies. A few studies that examined the role of governance and institution in mediating the linkages between FDI and domestic investment find mixed result (Morrissey and Udomkerdmongkol, 2012; and Farla et al., 2014). Morrissey and Udomkerdmongkol (2012) find that the FDI has negative effects on domestic private investment in politically stable regimes. By contrast, Farla et al., (2014) finds a positive effect of FDI on overall domestic investment, while the interaction between FDI and governance has a negative mediating effect on investment.

III. Methodology and Data

The previous estimates of the effect of FDI on domestic private investment has been criticised by some scholars that the private investment measured by subtracting net capital inflow from private domestic investment is unlikely to be an accurate measure for total private investment (Agosin and Mechado, 2005; Ndikumana and Verick, 2008). Farla et al., (2014) also pointed out that this measure of private investment conceptually aggravates the problem because the measure for private

investment now also contains private disinvestments, which are transfers of ownership from domestically owned establishments of foreign investors. Followed by Ndikumana and Verick (2008), we use the gross fixed capital formation as a proxy for private investment which is reported in the World Development Indicators. To examine the linkages between FDI and domestic private investment, we have estimated the following regression including controls and governance indicators (Agosin and Mechado,2005; Morrissey and Udomkerdmongkol ,2012; and Farla et al., 2014).

$$PI_{it} = \alpha_0 + \beta_1 PI_{i,t-1} + \theta_1 GDP_{i,t} + \theta_2 IPR_{i,t} + \theta_3 GIV_{i,t} + \theta_4 FD_{i,t} + \theta_6 GI_{i,t} + \eta + \varepsilon_{i,t} \text{-----}(1)$$

Variables are measured as a percentage of GDP and PI is domestic private investment, FDI is net FDI inflows, GDP is annual growth rate of output, GIV is public investment, IPR is interest rate spread. FD is financial development indicators. We use three different measures to be a proxy for financial market development, such as domestic credit provided by financial sector (DFS), domestic credit to private sector (DS), and domestic credit to private sector by banks (DBS). In addition, the overall index of financial development has been used as a proxy for the domestic financial sector development to account for the multi-dimensional nature of financial development. The empirical model also includes five governance indicators: voice and accountability (VA), political stability, regulatory quality (RQ), rule of law (RL), and control of corruption (CC). The study followed the Morrissey and Udomkerdmongkol (2012) and Farla et al., (2014) methods to construct a binary variable from the ordinal data of governance indicator.

In this dynamic framework, we include one period lag of dependent variable as well as year fixed effects which are likely to play an important role in determining the domestic private investment. While the inclusion of lagged dependent variable as an independent variable partly addresses the reverse causality, it creates another problem of endogeneity bias. The endogeneity bias arises because of the joint presence of the lagged dependent variable and country-specific heterogeneity effects in the model (Baltagi, 2001). A natural solution for the first-order dynamic panel data model is to use the Generalized Method of Movements (GMM) proposed by Arellano and Bond (1991) and Blundell Bond (1998). However, these methods are designed for small T and large N

and can be severely biased and imprecise in panel data with a small number of cross-sectional units. For the present case of small N (33) and large T (18), the above mentioned GMM estimator is inappropriate. It is also well established in the literature that the parameter estimates derived from the dynamic Least Square Dummy Variable model(LSDV) would be biased when the lagged dependent variable is included in a small sample(Roodman,2009).

An alternative approach to the dynamic LSDV panel estimates would be to use other instrumental variables such as Anderson-Hsiao (AH), Arellano-Bond (AB) and Blundell-Bond (BB). These approaches are bias-corrected Least Square Dummy Variable (LSDVC) dynamic panel-data models has recently been popular in econometric literature. We use this LSDVC estimator, a method recently proposed by Kiviet (1995), Judson and Owen (1999), Bun and Kiviet (2003) and extended by Bruno (2005). This estimator has been used by several empirical applications². Monte Carlo evidence by Kiviet (1995) shows that the bias corrected LSDV estimator often outperforms all other estimators (i.e., IV and GMM estimators) in terms of bias and root mean squared error (RMSE). Bun and Kiviet (2003) and Bruno (2005) have proposed three possible nested approximations of the LSDVC bias³ and have extended these bias corrections up to the third order. Since the bias approximation depends upon the unknown population, the procedure has to be initialised by a consistent estimator to make the correction feasible. The task of bias correction in the LSDVC estimation involves selecting consistent estimator (initialize), determination of the order of bias, and selection of iteration for calculating Bootstrap standard error. The possible options for selecting an efficient estimator are the Anderson-Hsiao, Arellano and Bond, and Blundell-Bond. The present study has initialized the Arellano and Bond estimator for bias correction. Since the first order error term approximation evaluated at the true parameter value is capable of accounting for more than 90 percent of the actual bias⁴, we have used first order error

² For example, Meschi and Vivarelli (2009) applied for trade and inequality relationships; Huank (2010) applied for political and financial development; and Nepal and Jamasb (2012) used for power sector reform and growth relationships.

³ These are 1) $O(1/T)$, 2) $O(1/NT)$ and 3) $O(N^{-1}T^{-2})$

⁴ (Bun and Kiviet, 2003)

term approximation. In addition, we have calculated bootstrap standard errors using 50 iterations for the significance of the coefficients from LSDVC.

Data

The data set consists of cross-country observations for 33 emerging economies over the 1996-2013 period. The FDI data was extracted from the World Bank database on World Development Indicators (WDI) and expressed as net FDI over GDP. The growth rate of GDP, public investment, interest rate spread and other financial development indicators were obtained from WDI. A summary measure of financial development index (FD) was taken from the study of Sahay (2005). Governance data were obtained from World Bank database on Worldwide Governance Indicator (WGI).

IV. Results and Discussions

This section discusses a detailed econometric analysis of the relationship between FDI inflows and domestic private investment, with a particular focus on the role of financial development for a sample of 33 emerging economies covering the period 1996-2013.

Table .1: Summary Statistics

Variables	No. observations	Mean	Std.Dev	Minimum	Maximum
PI	594	16.730	7.107	-4.079	52.166
GDP	594	4.314	3.881	-16.70	26.268
GIV	594	6.409	3.677	0.406	25.007
FDI	594	4.752	5.875	-16.588	54.062
IPR	594	11.673	9.848	-2.808	58.36
FD	594	0.251	0.167	0.010	0.721
DFS	594	48.636	43.639	-79.092	192.660
DS	594	37.594	34.379	1.385	166.504
DBS	594	34.417	29.218	1.383	167.504
FDUMMY	594	0.411	0.492	0	1
PS	594	0.294	0.456	0	1
VA	594	0.443	0.497	0	1
RQ	594	0.467	0.469	0	1
RL	594	0.326	469	0	1
CC	594	0.434	0.496	0	1

Table.2 presents the results of the estimating equation (1) using LSDVC estimator. The result (Column 1) shows that the co-efficient of FDI is positive and

statistically significant indicating a 1 percent increase in FDI would increase the private investment level by 0.13 percent in the host countries. This result confirms the hypothesis of complementarity between domestic private investment and FDI. The present findings of the crowding-in effect of FDI is in line with the major empirical studies including Al-Sadig (2013) for developing countries, Ndikumana and Verick (2008) for Sub-Saharan African countries. In addition, the result also shows that the private investment is a positive function of past domestic private investment. The coefficient on GDP growth is positive and significant. The co-efficient on public investment is found to be negative and significant and implies that a 1 percent increase in public investment will result in a reduction of 0.24 percent private investment.

Table: 2. FDI and Private Investment

Variables	(1)	(2)	(3)	(4)	(5)	(6)
	DFS	DS	DBS	DFS	DS	DBS
Lagged Private Investment	0.710*** (0.0358)	0.713*** (0.0361)	0.714*** (0.0362)	0.703*** (0.0369)	0.691*** (0.0360)	0.690*** (0.0362)
GDP Growth rate	0.140*** (0.0461)	0.147*** (0.0455)	0.146*** (0.0453)	0.143*** (0.0465)	0.152*** (0.0455)	0.152*** (0.0453)
Interest Rate spread	0.0168 (0.0299)	0.0153 (0.0301)	0.0140 (0.0299)	0.0165 (0.0300)	0.0170 (0.0300)	0.0176 (0.0299)
Government Investment	-0.237*** (0.0645)	-0.236*** (0.0644)	-0.236*** (0.0644)	-0.244*** (0.0650)	-0.235*** (0.0641)	-0.234*** (0.0641)
FDI	0.125*** (0.0385)	0.131*** (0.0388)	0.133*** (0.0389)	0.149*** (0.0500)	0.240*** (0.0599)	0.243*** (0.0609)
DFS	-0.0116 (0.0109)			-0.00748 (0.0124)		
DS		-0.0139 (0.0160)			0.00743 (0.0191)	
DBS			-0.0164 (0.0169)			0.00834 (0.0207)
DFS*FDI				-0.00072 (0.00102)		
DS*FDI					-0.00335** (0.00150)	
DBS*FDI						-0.00350** (0.00160)
No. of observations	561	561	561	561	561	561
No. of country	33	33	33	33	33	33

Notes: bootstrapped standard errors (300 iterations) in parentheses. Arellano and Bond estimator.

* significance at 10%, ** significance at 5% and *** significance at 1%.

Column (1) of Table 2 considers the role of financial market development using domestic credit provided by financial sector to GDP the measure. The result finds no strong evidence of the positive relationship between the share of domestic credit provided by private sector to GDP and the level of private investment. Column (3) and (4) show a similar result for the other measures of financial market development variables, such as domestic credit to private sector to GDP and domestic credit to

private sector by banks to GDP. The results of the interaction terms between the various measures of financial market development and FDI are presented in Column (5) -(7). The co-efficient of the interaction term between domestic credit provided by financial sector to GDP and FDI is negative and insignificant. Column (6) and (7) show that the interaction between the other measures of financial market development indicators and FDI is negative and statistically significant. This result is consistent with the earlier finding of Luca and Spatafora (2012) that the mediating effects of domestic credit on private investment is weak.

Robustness analysis with Financial Development index

So for, using various measures of financial market development, we consistently find a negative and significant mediating effect of financial development on private investment. Since these measures of financial development indicator do not take into account the complex multidimensional nature of financial development, one needs to look at multiple indicators to measure the financial development in terms of access, depth and efficiency financial markets. Followed by Sahay et al., (2015) and Katsiaryna and Svirydzenka (2015) we use the overall index for financial sector development to investigate whether these findings persist to using summary measure of financial sector development as a proxy for the domestic financial sector development.

Table: 3. Alternative Estimation Results Using Overall Financial Sector Development Index

Variables	(1) FD	(2) FD	(3) FDUMMY	(4) FDUMMY
Lagged PI	0.697*** (0.0365)	0.676*** (0.0363)	0.749*** (0.0360)	0.668*** (0.0372)
GDP	0.155*** (0.0444)	0.157*** (0.0442)	0.176*** (0.0450)	0.158*** (0.0444)
IPR	0.0247 (0.0288)	0.0320 (0.0289)	0.0304 (0.0292)	0.0235 (0.0284)
GIV	-0.228*** (0.0640)	-0.205*** (0.0641)	-0.174*** (0.0638)	-0.208*** (0.0641)
PS	-1.171** (0.585)	-1.080* (0.584)	-1.202** (0.596)	-1.250** (0.584)
FD	1.889 (3.580)	8.224* (4.356)		
FDUMMY			0.557 (0.581)	0.979 (0.686)
FDI	0.125*** (0.0389)	0.292*** (0.0715)		0.199*** (0.0489)
FDI*FD		-0.716*** (0.269)		
FDUMMY*FDI				-0.133** (0.0580)
No. of observations	561	561	561	561
No. of country	33	33	33	33

Notes: bootstrapped standard errors (300 iterations) in parentheses. Arellano and Bond estimator.

* Significance at 10%; ** significance at 5%; and *** significance at 1%.

Column (2) -(3) of Table.3 report the results of the analysis using financial development index as a measure of overall financial development of the country. As in the previous results, the coefficient of financial development remains insignificant in the model. The co-efficient of the interaction terms between financial development and FDI is also negative and significant. The analysis using alternative measure of financial indicator does not alter the sign and significance of other variables. The choice of the financial development proxy does not influence the sign and overall significance of the coefficient of the financial development. The empirical studies on the role of financial markets in mediating the impact of FDI and growth emphasis that the positive response of growth through FDI is seen only if the financial markets exceed a threshold level (Alfaro et al., 2010; and Azman-Saini et al., 2010). We use the binary variable FDUMMY equal to 1 if the country has a high value of the financial development indicators and 0, if otherwise. Thus, each country is allocated a high and low value of financial development index in each year depending on whether or not country is above the mean value of 0.25. The results are presented in column 3 of Table 3. The result finds only a weak evidence of the relationship between high financial development and domestic private investment.

Governance and private investment

Table: 4. Results for Governance Indicators

Variables	(1)	(2)	(4)	(5)	(6)
	VA	PS	RQ	RL	CC
LPI	0.709*** (0.0360)	0.697*** (0.0365)	0.709*** (0.0361)	0.683*** (0.0361)	0.710*** (0.0358)
GDP	0.154*** (0.0448)	0.155*** (0.0444)	0.152*** (0.0447)	0.153*** (0.0445)	0.154*** (0.0447)
IPR	0.0280 (0.0291)	0.0247 (0.0288)	0.0245 (0.0291)	0.0336 (0.0287)	0.0281 (0.0294)
GIV	-0.234*** (0.0643)	-0.228*** (0.0640)	-0.229*** (0.0646)	-0.250*** (0.0643)	-0.234*** (0.0647)
FD	2.611 (3.618)	1.889 (3.580)	2.164 (3.599)	2.224 (3.578)	2.619 (3.599)
FDI	0.122*** (0.0391)	0.125*** (0.0389)	0.122*** (0.0391)	0.135*** (0.0390)	0.122*** (0.0393)
VA	0.00439 (0.532)				
PS		-1.171** (0.585)			
RQ			-0.854 (0.574)		
RL				1.514** (0.625)	
CC					0.0270 (0.540)
No. of observations	561	561	561	561	561
No. of country	33	33	33	33	33

Notes: bootstrapped standard errors (300 iterations) in parentheses. Arellano and Bond estimator.

* significance at 10%; ** significance at 5%; and *** significance at 1%.

Table: 5. Results for Interaction variables

Variables	(1)	(2)	(3)	(5)	(6)
	PS	VA	RQ	RL	CC
L.PI	0.695*** (0.0369)	0.702*** (0.0362)	0.699*** (0.0360)	0.678*** (0.0361)	0.708*** (0.0358)
GDP	0.155*** (0.0445)	0.155*** (0.0448)	0.154*** (0.0445)	0.149*** (0.0445)	0.155*** (0.0450)
IPR	0.0246 (0.0290)	0.0282 (0.0291)	0.0259 (0.0288)	0.0338 (0.0287)	0.0273 (0.0297)
GIV	-0.229*** (0.0646)	-0.237*** (0.0644)	-0.242*** (0.0641)	-0.262*** (0.0646)	-0.233*** (0.0649)
FDI	0.125** (0.0505)	0.147*** (0.0484)	0.161*** (0.0407)	0.180*** (0.0484)	0.118** (0.0486)
FD	1.876 (3.585)	2.441 (3.621)	3.432 (3.631)	2.503 (3.602)	2.541 (3.625)
PS	-1.183** (0.602)				
VA		0.267 (0.635)			
RQ			0.209 (0.744)		
RL				2.013*** (0.665)	
CC					-0.00371 (0.598)
PS*FDI	0.00204 (0.0602)				
VA*FDI		-0.0491 (0.0604)			
RQ*FDI			-0.189** (0.0812)		
RL*FDI				-0.0884 (0.0626)	
CC*FDI					0.00716 (0.0608)
No. of observations	561	561	561	561	561
No. of country	33	33	33	33	33

Notes: bootstrapped standard errors (300 iterations) in parentheses. Arellano and Bond estimator.

* significance at 10%; ** significance at 5%; and *** significance at 1%.

Table.4 summarizes the estimation results for the governance indicators (Column 2 -6), and the results for the estimates of the interaction between governance indicators and FDI are given in Table.5. In column (2), we consider the quality of voice and accountability indicator of governance which appears not to be significant. In contrast to earlier findings, the estimates of the coefficient of political stability is negative and statistically significant to private investment (Column 3). None of the other governance indicators is statistically significant to domestic private investment. The estimated results for the interaction between various governance indicators and FDI are presented in Table. 5. The sign and coefficient of the control variables are largely

unchanged in the model. The interaction terms of voice and accountability, political instability, regulatory quality and control of corruption are statistically insignificant and the coefficient for the interaction term with rule of law and GE are negative and significant. The interaction effects for political stability is insignificant, but there is a direct negative and significant effect on domestic private investment. This result implies that political stability does not affect the FDI and private investment relationships.

V.Conclusion

This study has presented empirical evidence on the role of financial market developments as well as the quality of governance play in mediating the impact of FDI on domestic private investment using a sample of 33 emerging economies over the 1996-2013 period. Our findings suggest that the foreign direct investment positively influences a host country's domestic private investment. Thus, we establish the absence of evidence for the crowding out hypothesis. However, we find no evidence of positive relation between the domestic private credit indicators and the level of domestic private investment. Besides, neither domestic credit to private sector nor the quality of governance explain the extent to which the FDI inflows translate into domestic private investment in the host countries. Since the foreign direct investment has a positive spillover effect on domestic private investment, the policy measures aimed at stimulating FDI inflows are likely to have a positive effect on host emerging economies.

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Appendix- A

List of Sample Countries

Albania	Mongolia
Bangladesh	Mauritius
Belarus	Malawi
Belize	Malaysia
Bolivia	Peru
Brazil	Philippines
Botswana	Romania
Georgia	Sierra Leone
Guatemala	Suriname
Guyana	Seychelles
Honduras	St. Vincent and the Grenadines
Jordan	South Africa
Kyrgyz Republic	Thailand
Lesotho	Tajikistan
Madagascar	Tajikistan
Mexico	Uganda
Macedonia, FYR	
