Economics Bulletin

Volume 37, Issue 1

Home and Host country determinants of financial investment flows to Pakistan

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Abstract

This study examines the home and host-country economic, geographical and institutional factors that determine the volume of foreign direct investments (FDI) coming to Pakistan from the country's major investment partners. We find that host-country GDP, government spending, financial development, shared language and geographical distance play a significant role in driving FDI inflows. Regulatory environment and efficient and accountable government too are important. In contrast, infrastructure availability, current growth rates and occurrence of natural catastrophes do not appear to significantly influence FDI. Distance and linguistic affinity are stronger determinants of FDI than home or host GDP.

Citation: Irfan Ahmad Khan and Mazhar Mughal and Junaid Ahmed and Hongbo Cai, (2017) "Home and Host country determinants of financial investment flows to Pakistan", *Economics Bulletin*, Volume 37, Issue 1, pages 361-376
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Submitted: January 12, 2016. **Published:** February 22, 2017.

1. Introduction

Foreign Direct Investment (FDI) inflows are seen as an important stimulus for productivity, technological progress, employment and productivity improvements which ultimately drive economic growthin the host country (Jensen, 2003; Tarzi, 2005). Developing countries are adopting increasingly liberal trade and investment policies in order to attract more FDI (Dutta & Roy, 2009). During the past few decades, foreign capital flows have assumed an important role in the world economy. The share of net foreign direct investments has grown several folds since the 1980s, and the stock of foreign investment now makes up over twenty percent of the world GDP (World Bank, 2016). Several developing countries which faced debt crises during the 1980s and 90s have been able to reduce their reliance on foreign loans and debts thanks to FDI inflows. This, in turn, has given them more liberty to pursue indigenous economic policies. Consumption and savings have picked up, and FDI has helped countries increase their exports.

This raises the question as to which economic, geographical or institutional factors in the home or the host country determine the amount of foreign investments? Knowing the answer to this question can help developing countries understand the factors that require more attention so that resources could be accordingly oriented.

In this study, we focus our attention on the South Asian country of Pakistan. Pakistan is the world's sixth most populous country with a growing economy and an annual output in excess of $232.29 billion. We examine home and host country determinants of FDI by using annual data on FDI to Pakistan from 16 major source countries and employing a modified Gravity model. For the purpose of this study, FDI is defined as the investment made to acquire lasting interest in enterprises operating in another economy. The parent firm must own at least 10 percent of the ordinary shares or voting power of the incorporated firm. FDI does not simply consist of financial flows but contains know-how, skills and technology, and can add to the host country capital, both physical and human through training, skill acquisition and technology diffusion as well as through introduction of better management techniques.

2. FDI flows to Pakistan

Pakistan has witnessed ups and down in FDI inflows over the last three decades. Late 1980s and early 1990s saw gradual opening up of the economy with tariff rationalization, privatization and investment promotion measures, (Khan, 2007). FDI increased from $129 million in 1987 to $722 million in 1995 (Figure 1). Investment flows slowed in late 1990s due to the Asian financial crisis, arbitrary changes in investment policies, the 1998 nuclear tests by the South Asian rivals Pakistan and India and the ensuing economic sanctions. FDI flows fell to as low as $308 million in 2000.

In the mid 2000s, the country saw an economic boom and the country's output growth reached as high as 8.6% in 2007. FDI inflows, mainly in the telecom and banking sectors, also grew sharply to cross $5 billion in 2007. The inflows slowed down subsequently in the wake of the 2008 global financial crisis and rising terrorism activity in the country.

In 2015, about 86 percent of FDI flows to Pakistan came from the US, UK, UAE, China, Switzerland, Norway, Saudi Arabia, Hong Kong, Japan and other major investment partner countries (Table 1). The flows are concentrated in a few sectors, with oil and gas exploration, telecommunications, financial, chemical and power production sectors accounting for 70 percent of the total volume.

3. Brief overview of empirical literature on FDI determinants

A growing body of literature has examined host country characteristics that attract FDI flows to developing and emerging countries. Several host country characteristics (pull factors) and home country characteristics (push factors) have been identified. Aleksynska and Havrylchyk (2013), for instance,analyse bilateral investment flows to 82 host countries originating from 163 countries for the 1996-2007 period, and find that countries with abundant natural resources attract considerable FDI even in the presence of poor institutions. Frenkel and Stadtmann (2004) study the determinants of bilateral FDI flows between major industrial countries and a total of 22 emerging economies for the period 1992 to 2002 using different specifications of gravity model. Their findings suggest that market size, risk and economic growth play an important role in determining the extent of FDI flows. Furthermore, distance seems to be inversely related to FDI.

Hattari and Rajan (2009) examine intra-Asian FDI flows over the 1990–2005 period. They find that in addition to host country market size and distance, export intensity, real exchange rate, financial depth, institutional factors (such as political risk and origin of legal system) and the level of financial openness of the host country exert a positive impact on FDI flows.

Likewise, Alfaro et.al (2004), using cross-country data from 1975 to 1995 show that countries with better financial institution attract more FDI. Asiedu (2006) shows that good infrastructure, large domestic market, natural resource endowment, low inflation, efficient legal system and good investment framework encourage FDI to SubSaharan Africa. Regional economic cooperation favours FDI flows to the region, while corruption and political instability affect them negatively.

Escaleras and Register (2011) consider the relation between FDI in 94 countries between 1984 and 2004 and the number of disasters striking those countries, and find natural disasters to be negatively associated with a country's FDI.

In contrast to the above mentioned studies, Blonigen and Piger (2014) conduct a meta analysis of studies on the determinants of FDI and suggest that the effect of several variables generally included in the literature, such as host-country institutions and infrastructure is not robust.

In a country study on Pakistan,Khan (2011) examines the impact of liberalization policies on FDI flows to Pakistan over the 1972–2009 period and concludes that deterioration of U.S Pakistan relationship have no impact on private capital flows in the long run, even though the short term impact might be significant.

This brief overview suggests that the role of factors driving FDI to various developing countries varies from country to country, and depends on home- as well as host-country economic and social characteristics.

4. Model, Data and Estimation Strategy

4.1. Gravity model specification for FDI

We define a simple gravity equation for inward FDI. The amount of FDI between two countries is taken as a function of their respective economic size and the geographical distance between them. More specifically , the amount of FDI between home (i) and the host country (j) is assumed to increase in their economic size measured by their GDPs in the two countries and decrease with the transport cost of undertaking foreign investment activities measured by the geographic distance between them (DISTij) (see Wei, 2000).
The gravity model has been extensively used in trade literature (see Anderson van Wincoop, 2003). Of late, the model has been employed to study the drivers of foreign investments (see for example Bellos and Subasat 2012a, 2012b; Bénassy-Quéré et al., 2007; Daude and Stein, 2007). The gravity model for FDI can be given by,

$$\mathrm{FDI}_{ijt} = \mathrm{A}\frac{\left(\mathrm{GDP}_{it} * \mathrm{GDP}_{jt}\right)^{\alpha_1}}{\left(\mathrm{Dist}_{ij}\right)^{\alpha_1}} \qquad (1)$$

Model (1) can be re-written in the linear form as:

$$\begin{aligned}\ln(\mathrm{FDI}_{ijt}) &= \alpha_0 + \alpha_1 \ln(\mathrm{GDP}_{it}) + \alpha_2 \ln(\mathrm{GDP}_j) + \alpha_3 \ln(\mathrm{DIST}_{ij}) \\ &+ \alpha_4 \ln(\mathrm{GovtExp}_j) + \alpha_5 \ln(\mathrm{Phoneline}_j) \\ &+ +\alpha_6 \ln(\mathrm{ComLang}_{ij})\ \mu_i + \varepsilon_{ijt} \qquad (2)\end{aligned}$$

Where $\ln\mathrm{FDI}_{ijt}$ is the logarithm of bilateral uni-directional FDI flows from the home country i to the recipient or host country j at time t, $\ln\mathrm{GDP}_{it}$ and $\ln\mathrm{GDP}_j$ in logarithm represents the economic size of the home and the host country, and lD_{ij} logarithm of geographical distance in kilometers between the two. $\ln\mathrm{GovtExp}_j$ is the host country general government final consumption expenditure (% of GDP). $\mathrm{Phoneline}_j$ is the number of telephone lines per 100 population as an indicator of the country's infrastructure availability. $\mathrm{ComLang}_{ij}$ is a dummy variable equal to 1 if host and home countries share a common language. $\alpha_1, \alpha_2, \alpha_3, \alpha_4, \alpha_5$ and α_6 are the coefficients to be estimated.

The baseline model (Equation 2) is extended with additional home and host country characteristics that are reported in the literature to drive FDI (Equation 3).

$$\ln(FDI_{ijt}) = \alpha_0 + \alpha_1 \ln(GDP_{it}) + \alpha_2 \ln(GDP_j) + \alpha_3 \ln(DIST_{ij}) + \alpha_4 \ln(GovtExp_j) + \alpha_5 \ln(Phoneline_j) + \alpha_6 \ln(ComLang_{ij}) + \sum_{K=1}^{K} \alpha_k Z_{ijkt} + \mu_i + \varepsilon_{ijt} \quad (3)$$

Zijt is the vector of control variables that relate to either the home or the host country or both, μ_i denotes the country specific unobserved time-invariant specific effects included in order to control for unobserved heterogeneity. ε_{ijt} captures the error term.

The definitions and expected association with FDI inflows for various economic, geographical, cultural and institutional variables thus included in the study are given in the appendix.

4.2. Data

The dataset consists of a panel of 16 countries and covers the period from 1985 to 2014. Data on bilateral investments come from the State Bank of Pakistan (SBP). Indicators of time invariant bilateral geographical and cultural characteristics (such as distance and common language) are taken from the CEPII database, whereas bilateral export and imports statistics used for computing the bilateral trade openness measure are obtained from the International Monetary fund. Data for the disaster dummy are obtained from UniversitéCatholique de Louvain's EM-DAT Disaster Database. The remaining variables come from the World Bank World Development Indicators (WDI) and Worldwide Governance Indicators database. Table 2 presents summary statistics of the selected variables.

4.3. Estimation Procedure

We first apply Pooled OLS as the benchmark technique to estimate the model specifications outlined earlier. The pooled OLS, however, is only consistent if there is no correlation between unobserved fixed effects and explanatory variables (Wooldridge, 2002). To deal with unobserved heterogeneity, panel data approach is employed. Subsequently, we include fixed-(FE) and random-effects (RE) models outlined in Eq. (1) and Eq. (2). Hausman test indicates that the use of random effects model is preferable. Consequently, additional specifications are estimated using random-effects model. Standard errors in the models are heteroscedasticity robust. As robustness check, the baseline model is also estimated using the Feasible Generalized Least Squares as well as Arellano and Bond dynamic panel techniques. The two help deal with possible autocorrelation and cross sectional contemporaneous correlation.

5. Results

Table 3 shows results of the baseline gravity model. All the variables in the model are found to be statistically significant at least at the 10% level of significance and with expected signs, with the exception of the infrastructure variable which is found to be insignificant. Both the home and the host country GDP are found to play a significant and positive role in attracting FDI, though the coefficient for home-country GDP is weakly significant.

A one percent increase in host-country GDP, ceteris paribus, is associated with a 1.24 percent increase in FDI inflows to Pakistan, suggesting that the relationship is unit elastic. Geographical distance and existence of a common language between the home and the host country show stronger relationship with FDI inflows than GDP does. English is commonly spoken and understood in Pakistan, and the existence of an English-speaking labour appears to be an important factor driving FDI flows to the country. A strong negative relationship with geographical distance shows that the share of investments from more distant countries is proportionally lower, and investors from nearby countries in Asia play a more important role.

Government expenditures are positively associated with FDI. Higher public spending indicates a growing economy, reflecting the economy's attractiveness to the foreign investors. Given a big role of the public sector in developing country economies, high public spending also suggests a foreign investor the availability of a major buyer for its products.

In addition to this baseline model, we carry out a number of estimations by including other potential drivers of FDI. Table 4 presents estimations including various macroeconomic and trade-related indicators. Inflation in the home economy pushes investment outward (Column 2). Financial development in the host economy (proxied by domestic credit to private sector as a share of GDP) too seems to positively influence FDI inflows (Column 3). Higher tax load on the productive sector however discourages FDI (Column 5). In contrast, host-country exchange rate, terms of trade and degree of trade openness do not appear to significantly drive FDI flows.

Pakistan has suffered several important natural disasters in the last two decades, including the Kashmir earthquake in 2005 that killed over 70 thousand people in the north of the country. Such strong negative shocks hurt domestic production and could hurt investor confidence in the economy. We include a natural disaster dummy to check whether or not natural disasters influence the amounts of foreign investments. We find that the relationship between disasters and FDI inflows is expectedly negative. However, the relationship is not significant at the 10% level of significance (Column 7).

Table 5 shows six specifications with various institutional indicators alternately included in the baseline model. Host economy's regulatory quality, government effectiveness and accountability appear to strongly attract FDI (Columns 1 – 3).This means that foreign investors prefer investing in the country as the regulatory setup improves and the investors consider government oversight to be adequate.

Political situation in the host country (political instability, rule of law and control of corruption), in contrast, does not significantly appear to deter foreign investors (Columns 4 – 6).

In addition to telecommunication network density, we employ five other indicators of host-economy physical infrastructure (Table 6). While internet and transport infrastructure (proxied by rail lines and railway passenger kilometers) do not appear to be important (Columns 1, 4 and 5), energy infrastructure (per capita energy and electricity consumption) seems to be a strong determinant of FDI inflows to Pakistan (Columns 2 and 3).

We also examine the possibility that growth in the home or host economy influences FDI flows. Results given in Table 7 suggest that none of the home or host economy growth rate indicators (GDP growth, per capita GDP growth, GNI growth, per capita GNI growth) have a significant association with FDI.

We carry out different estimations to test the robustness of our estimations. Column 1 of Table 8 employs cluster robust standard errors whereas Columns 2 and 3 estimate the baseline model using GLS and dynamic techniques. The signs and significance of our coefficients stay intact.

6. Conclusion

In this study, we examined the bilateral economic, geographical and institutional factors that have determined the volume of foreign direct investments coming to Pakistan from major investor countries duringthe 1985–2013 period. We find that economic size, host government spending, shared language and geographical distance have played a significant role in driving foreign investments to Pakistan. In contrast, political instability, corruption, and telecommunication and transport infrastructure do not play a significant role in attracting FDI inflows to Pakistan.

Even though FDI is reported to hurt the country's competitiveness (Makhlouf and Mughal, 2013), it has been showed to improve Pakistan's short term economic growth (Mughal, 2008). The country's government is actively seeking foreign investments. The findings of this study can provide some policy recommendations in this regard. The importance of host-country factors such as the GDP, government effectiveness and tax burden suggests that improving governance, accountability and regulatory environment can enhance the attractiveness of the Pakistani economy. The government can therefore expect more investments as the country's institutions are strengthened. Focusing on building and strengthening national institutions and providing the investors better regulatory environment is therefore more important than merely improving the country's physical infrastructure.

Finally, contrary to popular perception, natural disasters do not significantly make the Pakistani economy less attractive for foreign investment. Disasters may cause significant short run losses to the economy, but they do not undermine the economy's underlying strengths such as market size, productivity level, cheap labour and availability of raw materials.

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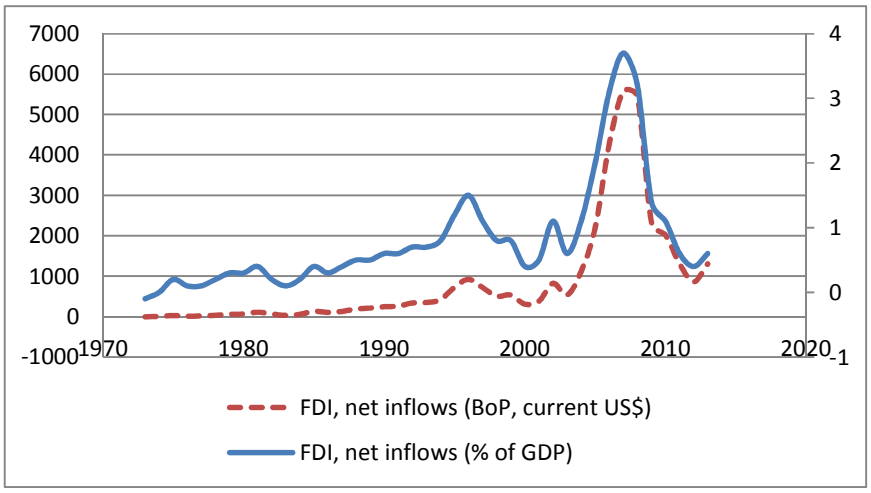
Figure and Tables

Figure 1. Trends of FDI inflows to Pakistan



Source: World Development Indicators, World Bank (2014)

Table 1. Country wise share of FDI net inflows in Pakistan (Million US dollar)

Country/Year	FY1985	FY1990	FY1995	FY2000	FY2005	FY2010	FY2015
Canada	0.3	0.9	0.4	-	1.9	1.1	-29.9
Australia	-	-	-	1.7	1.6	64.0	1.2
France	1.2	6.0	13.5	1.6	-3.6	8.0	-214.3
China	-	-	-	-	0.4	-3.6	256.8
Germany	6.4	11.2	17.6	10.5	13.1	53.0	-20.3
Korea	-	-	40.8	9.3	1.4	2.3	14.3
Hong Kong	0.6	0.9	2.2	0.8	32.4	9.9	136.2
Singapore	-	-	-	3.4	8.0	122.8	23.4
Italy	0.1	3.8	0.3	0.5	-	-	115.4
Switzerland	-	-	-	3.2	137.5	170.6	3.2
Japan	6.7	16.1	16.3	17.7	45.2	26.8	71.1
Netherlands	0.5	5.3	4.5	10.7	36.7	278.6	-34.5
SaudiArabia	3.8	1.1	0.9	28.6	18.4	-133.8	-64.8
U.A.E.	11.9	15.9	46.8	5.7	367.5	242.7	218.8
U.K.	8.9	22.8	38.7	169.0	181.5	294.6	169.6
U.S.A.	17.2	93.9	176.4	166.9	326.0	468.3	208.9
Others	12.7	38.3	84.0	40.1	356.1	545.5	67.8
Total	**70.3**	**216.2**	**442.4**	**469.7**	**1524.0**	**2150.8**	**922.9**

Source: State Bank of Pakistan

Table 2. Summary Statistics

VARIABLES	Mean	Standard Deviation	min	max
Ln(FDI)	2.481	2.111	-2.303	7.262
LnGDPi	13.44	1.418	9.828	16.63
LnGDPj	11.25	0.616	10.35	12.36
Ln(Geographical distance)	8.602	0.443	7.642	9.314
Common language	0.375	0.485	0	1
Ln(Governament expenditure)	11.32	2.300	7.781	16.78
Telephone lines	2.048	1.026	0.500	3.600
Ln(Real exchange rate)	4.711	0.167	4.540	5.264
Inflationi	2.701	2.923	-4	24.20
Inflationj	8.634	3.917	2.900	20.30
Financial Developmentj	24.33	3.381	16.04	29.79
Trade openness	1.294	1.104	0.117	5.032
Ln (Taxes)	1.900	0.106	1.734	2.152
Ln(Term of trade)	4.540	0.288	4.037	5.011
Disaster	0.241	0.428	0	1
Governament regulation	0.439	0.161	0.180	0.640
Voice of accountability	0.812	0.222	0.250	1
Governament effectiveness	0.856	0.182	0.500	1
Political statibility	0.584	0.129	0.410	0.780
Rule of law	0.537	0.0574	0.500	0.670
Control of corruption	0.638	0.198	0.170	1
Ln(interest rate)	1.355	0.975	0	2.695
Ln(Electricity consumption_pc)	5.880	0.249	5.293	6.191
ln (energy consumption per capita)	6.097	0.109	5.858	6.260
Ln (Railway passengers carried)	9.913	0.130	9.704	10.15
Ln (Railway line)	9.006	0.0578	8.961	9.081
GDP growthi	3.538	3.712	-14.96	18.33
GNI_pc growthi	2.385	3.673	-15.21	17.99
GNI growthi	3.450	3.609	-6.600	20.10
GDP_pc growthi	2.190	3.868	-19.72	13.60
GDP growthj	4.449	1.970	1.014	7.706
GNI_pc growthj	1.771	2.156	-3.183	6.872
GNI growthj	4.289	2.198	0.0126	10.35
GDP_pc growthj	1.924	1.802	-1.454	5.499

Table 3. Determinants of FDI – Baseline Gravity model

VARIABLES	lfdi	lfdi	lfdi
Ln(GDPi)	0.928***	1.244***	0.992***
	(0.0941)	(0.391)	(0.286)
Ln(GDPj)	1.316**	0.828	1.011*
	(0.538)	(0.540)	(0.535)
Ln(Geographical Distance)	-2.935***		-2.931***
	(0.353)		(1.038)
Common Language	1.960***		2.045**
	(0.236)		(0.851)
Telephone lines	-0.0113	0.0110	0.0343
	(0.375)	(0.216)	(0.211)
Ln(Govt Expenditure)	0.175***	0.159***	0.162***
	(0.0622)	(0.0437)	(0.0448)
Constant	-2.390	-25.51***	0.116
	(5.848)	(4.949)	(10.81)
Observations	363	363	363
R-squared	0.419	0.378	
Number of host	16	16	16

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 4 . Macroeconomic and trade-related determinants of FDI

VARIABLES	(1) lfdi	(2) lfdi	(3) lfdi	(4) lfdi	(5) lfdi	(6) lfdi	(7) lfdi
Ln(GDPi)	0.975***	0.977***	1.023***	0.702**	1.017***	0.986***	0.968***
	(0.276)	(0.284)	(0.270)	(0.327)	(0.288)	(0.283)	(0.285)
Ln(GDPj)	1.026*	0.655	1.308**	1.237**	0.742	1.080	1.032*
	(0.537)	(0.591)	(0.522)	(0.560)	(0.566)	(0.781)	(0.530)
Ln(Geographical distance)	-2.892***	-2.451**	-3.008***	-2.235*	-2.898**	-2.917***	-2.875***
	(1.042)	(1.060)	(1.016)	(1.280)	(1.135)	(1.038)	(1.041)
Common language	2.022**	1.956**	2.084**	1.631*	2.040**	2.038**	2.012**
	(0.838)	(0.864)	(0.842)	(0.932)	(0.911)	(0.843)	(0.847)
Telephone lines	0.0281	0.141	0.00378	0.0625	-0.00914	0.0254	0.0360
	(0.224)	(0.250)	(0.212)	(0.208)	(0.241)	(0.250)	(0.210)
Ln(Governament expenditure)	0.163***	0.113**	0.192***	0.160***	0.265***	0.162***	0.162***
	(0.0459)	(0.0486)	(0.0438)	(0.0437)	(0.0405)	(0.0448)	(0.0447)
Inflationi		0.0132					
		(0.0355)					
Inflationj		0.0588***					
		(0.0179)					
Ln(Real exchange rate)	-0.0563						
	(0.372)						
Financial Developmentj			0.105***				
			(0.0367)				
Trade openness				0.209			

				(0.181)			
Ln (Taxes)					-3.970***		
					(0.931)		
Ln(Term of trade)						0.110	
						(0.965)	
Disaster							-0.00281
							(0.133)
Constant	0.115	-0.0773	-5.849	-4.680	9.106	-1.176	-0.262
	(10.71)	(10.20)	(10.55)	(11.97)	(11.81)	(15.44)	(10.80)
Observations	363	329	363	352	310	363	363
Number of host	16	16	16	16	16	16	16

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 5. Institutional determinants of FDI

VARIABLES	(1) lfdi	(2) lfdi	(3) lfdi	(4) lfdi	(5) lfdi	(6) lfdi
LnGDPi	0.713*	0.825***	0.813**	0.813**	0.808**	0.789**
	(0.368)	(0.320)	(0.322)	(0.379)	(0.381)	(0.356)
LnGDPj	0.408	1.075*	1.122**	0.490	1.108*	1.095**
	(0.688)	(0.567)	(0.527)	(0.836)	(0.586)	(0.545)
Ln(distance)	-2.505**	-3.861***	-4.325***	-2.724**	-2.705**	-2.778**
	(1.188)	(0.937)	(0.789)	(1.226)	(1.227)	(1.089)
Common language	2.022**	2.022**	2.717***	2.154**	2.142**	2.100**
	(1.004)	(0.835)	(0.759)	(1.011)	(1.008)	(0.988)
Telephone lines	-0.323	-0.0281	-0.0745	-0.0818	-0.0750	-0.0509
	(0.215)	(0.270)	(0.289)	(0.275)	(0.277)	(0.257)
Ln(Governament expenditure)	-0.0178	0.272***	0.240***	0.297***	0.340***	0.276***
	(0.138)	(0.0479)	(0.0512)	(0.0426)	(0.0628)	(0.0465)
Governament regulation	4.336***					
	(1.463)					
Governament effectiveness		4.436***				
		(1.344)				
Voice of accountability			3.801***			
			(1.012)			
Political statibility				-2.419		
				(1.523)		
Rule of law					-2.131	
					(1.902)	
Control of corruption						0.456
						(1.539)
Constant	8.187	4.973	9.500	7.239	-0.751	-0.542
	(12.75)	(8.747)	(7.684)	(14.26)	(11.80)	(9.956)
Observations	244	244	244	244	244	244
Number of host	16	16	16	16	16	16

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6. Infrastructure and FDI

VARIABLES	(1) lfdi	(2) lfdi	(3) lfdi	(4) lfdi	(5) lfdi
Ln(GDPi)	0.858**	0.891***	0.828***	0.979***	0.995***
	(0.334)	(0.274)	(0.272)	(0.285)	(0.273)
Ln(GDPj)	1.467***	0.749	0.471	0.939**	0.718
	(0.552)	(0.482)	(0.486)	(0.461)	(0.460)
Ln(distance)	-2.704**	-2.693***	-2.551**	-2.905***	-2.940***
	(1.154)	(1.023)	(1.021)	(1.039)	(1.017)
Common language	2.032**	1.905**	1.818**	2.033**	2.045**
	(0.975)	(0.840)	(0.838)	(0.847)	(0.836)
Ln(Interest rate)	-0.215				
	(0.291)				
Ln(Governament expenditure)	0.177***	0.189***	0.237***	0.199***	0.157***
	(0.0535)	(0.0546)	(0.0489)	(0.0433)	(0.0561)
Ln(Electricity consumption_pc)		1.261**			
		(0.556)			
ln (energy consumption per capita)			5.657***		
			(1.449)		
Ln (Railway line)				-3.195	
				(2.139)	
Ln (Railway passengers carried)					1.992
					(1.403)
Constant	-5.006	-5.229	-30.08**	29.30	-16.19
	(11.51)	(10.05)	(12.08)	(23.57)	(14.31)
Observations	252	363	363	363	363
Number of host	16	16	16	16	16

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 7. Home- and host-country growth rates and FDI

VARIABLES	(1) lfdi	(2) lfdi	(3) lfdi	(4) lfdi
Ln(GDPi)	0.965***	0.945***	1.088***	1.064***
	(0.277)	(0.276)	(0.283)	(0.275)
Ln(GDPj)	1.040*	1.064*	0.742	0.727
	(0.576)	(0.589)	(0.542)	(0.546)
Ln(distance)	-2.885***	-2.822***	-3.303***	-3.266***
	(1.078)	(1.020)	(1.083)	(1.039)
Common language	2.016**	1.985**	2.278***	2.262***
	(0.847)	(0.835)	(0.849)	(0.847)
Telephone lines	0.0315	0.0120	0.131	0.142
	(0.211)	(0.217)	(0.226)	(0.235)
Ln(Governament expenditure)	0.162***	0.163***	0.152***	0.154***
	(0.0427)	(0.0425)	(0.0504)	(0.0491)
GDP growthi	-0.00550			
	(0.0249)			

GDP growthj	0.00349			
	(0.0419)			
GDP_pc growthi		-0.0361		
		(0.0366)		
GDP_pc growthj		0.0139		
		(0.0453)		
GNI growthi			0.00905	
			(0.0214)	
GNI growthj			-0.0490	
			(0.0344)	
GNI_pc growthi				-0.0336
				(0.0336)
GNI_pc growthj				-0.0382
				(0.0377)
Constant	-0.217	-0.671	5.085	5.188
	(11.39)	(10.87)	(11.41)	(10.94)
Observations	363	363	318	318
Number of host	16	16	15	15

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 8. Robustness measures

VARIABLES	(1) lfdi	(2) lfdi	(3) lfdi
Ln(FDI(-1))			0.360***
			(0.0510)
Ln(GDPi)	0.992***	0.928***	1.038***
	(0.286)	(0.0889)	(0.333)
Ln(GDPj)	1.011*	1.316***	0.219
	(0.535)	(0.478)	(0.373)
Ln(Geographical distance)	-2.931***	-2.935***	-1.990***
	(1.038)	(0.325)	(0.453)
Common language	2.045**	1.960***	0
	(0.851)	(0.232)	(0)
Telephone lines	0.0343	-0.0113	0.156
	(0.211)	(0.336)	(0.224)
Ln(Governament expenditure)	0.162***	0.175***	0.170***
	(0.0448)	(0.0614)	(0.0425)
Constant	0.116	-2.390	0
	(10.81)	(5.151)	(0)
Observations	363	363	312
Number of host	16	16	16

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix

Definitions of selected variables and signs of expected association with FDI:

GDP, the gross domestic product (in current US$, expressed in millions) - used as a indicator for market size. We expectan a priori positive associationsincethe indicator reflects demand and market potential for the investor.

Geographical distance (measured in kilometers) represents the resistance to investment flows between the host and the home countries. A negative association between distance and FDI flows can be expected.

Common language, a dummy variable, equals to one if the two countries share the same language. Common language facilitates communication and can therefore be positively related with FDI flows.

The level of government consumption expenditure suggests the extent of state's involvement in the host economy. Higher government spending may imply lower space for private firms, and therefore lower FDI inflows. At the same time, increasing public spending may imply improving economic situation and greater national consumption. The sign can therefore be either negative or positive.

Real effective exchange rate (REER) index (2010 taken as reference year) is used as an indicator of a country's external competitiveness. An appreciating REER implying a more competitive economy should attract higher FDI. A positive sign can therefore be expected.

Inflation rate is used as a measure of the level of a country's macro-economic stability. The more stable is a country's economic environment, the more attractive will be the economy for foreign investors. A negative association can therefore be expected with FDI.

The development of the host country's financial sector (proxied by domestic credit to private sector as a share of GDP) is considered an important precondition for seeking FDI. Financial development improves allocation of resources and enhances the economy's absorptive capacity

Trade openness, defined as the ratio of bilateral trade (exportij + importji) to GDP * 100 represents the country's trade policy. More open markets attract higher foreign investments. The expected sign is therefore positive.

Taxes on goods and services as a share of industry and services value added indicates the extent of tax burden on the production sector in an economy. Higher tax rates suggest low profitability and therefore fewer foreign investments.

Net barter terms of trade index (2000 taken as reference year) reflects the relative prices of a country's exports and imports. Increasing terms of trade implies rising export or falling import prices which may deter foreign investment to the country.

Natural catastrophes can affect the productive capital of an economy leading to decrease in productivity. This may indicate higher risk and prevent foreign investments (Escaleras and Register, 2011). Following Makhlouf and Mughal (2013), we construct a dummy for disaster variable by taking the value of one if catastrophe causes a loss of at least 1000 lives or one million casualties, or economic losses of one billion dollars or more. We subsequently identify seven disasters years during the 1985 – 2014 period.

The six Worldwide Governance Indicators (WGI) are used to reflect a country's institutional environment. Ineffective institutions in general discourage FDI (Dupasquier& Osakwe, 2006). The more effective the institutional environment, the better is the host country in attracting foreign investment (Dupasquier& Osakwe, 2006; Daude and Stein 2007).

The indicators include regulatory quality, government effectiveness, voice and accountability, political stability, rule of law and control of corruption.

Infrastructure availability reflects the efficiency of the host economy. Better infrastructure implies lower production and transportation costs, and can be expected to be positively associated with FDI. Among the five infrastructure indicators used, tnumber of mobile telephones per 100 persons and a number of internet users per 1000 population indicate the sophistication of telecommunication network.

Energy use per capita and electric power consumption per capita are used as proxies for power infrastructure, while rail route and railway passenger kilometers stand for the size and strength of a country's transport infrastructure.

Higher rates of economic growth measured by the indicators GDP growth, GDP growth per capita, GNI growth and GNI growth per capita indicate greater investment and better returns to a foreign investor.