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# Determinants of Foreign Direct Investment in Developing Countries: A Comparative Analysis

Khondoker Abdul Mottaleb  
Kaliappa Kalirajan

*By bridging the gap between domestic savings and investment and bringing the latest technology and management know-how from developed countries, foreign direct investment (FDI) can play an important role in achieving rapid economic growth in developing countries. Developing countries have not been considered as favourable destinations for FDI as developed countries. Moreover, among the developing countries a few, such as China, India, Nigeria and Sudan, are the major recipients of FDI, with the rest vying for the scraps. Using panel data from 68 low-income and lower-middle income developing countries, this article strives to identify the factors that determine FDI inflow to developing countries. Based on a comparative discussion focussing on why some countries are successful in attracting FDI, the article demonstrates that countries with larger GDPs, higher GDP growth rates, higher proportion of international trade and a more business-friendly environment are more successful in attracting FDI.*

**Keywords:** Foreign Direct Investment (FDI), Developing Country, Low-income Country, Lower-middle Income Country

**JEL Classification:** F21, F23, O40

## 1. DETERMINANTS OF FOREIGN DIRECT INVESTMENT IN DEVELOPING COUNTRIES: A COMPARATIVE ANALYSIS

It is widely recognised that foreign direct investment (FDI) provides economic benefits to the recipient countries by providing capital, foreign exchange,

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Khondoker Abdul Mottaleb, Post-doctoral Research Fellow, National Graduate Institute for Policy Studies, Roppongi 7-22-1, Minato-ku, Tokyo, Japan; e-mail: mottaleb@grips.ac.jp; Kaliappa Kalirajan, Professor, Crawford School of Economics and Government, Crawford Building, The Australian National University, Canberra ACT 0200; e-mail: kaliappa.kalirajan@anu.edu.au

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technology and by enhancing competition and access to foreign markets (for example, [Crespo and Fontoura, 2007](#); [Romer, 1993](#); [World Bank, 1999](#)). Thus, developing countries, where investment demand is higher than their domestic savings rate, may be able to invest in their priority sectors and thus achieve faster economic growth by importing capital from abroad in the form of FDI. The benefits of FDI are not unknown to developing countries, as most of them compete with each other to attract FDI by liberalising their policy regimes and offering various incentive packages, such as tax rebates, trade liberalisation measures, establishment of special economic zones and incentive packages to foreign investors. For example, during 1997, a total of 76 countries made 151 changes in their FDI-related policies, and 89 per cent of these were to create a more FDI-friendly environment (UNCTAD, 1998). With a few exceptions, however, most developing countries are not very successful in attracting FDI. Thus, the question arises as to what determines the inflow of FDI?

Athukorala (2009) asserts that issue related to the determinants of FDI is multidimensional, because different types of motives work behind the decision of investment in foreign countries by the multinational corporations. For example, some multinational corporations seek large domestic market (market-seeking FDI) and some of them seek the supply of natural resources (resource-seeking FDI). On the other hand, some multinational corporations simply want to relocate their plants to reduce their production cost and to link to the global market more strongly (efficiency-seeking FDI). Thus, candidates for being the determinants of FDI might be multiple. In fact, the literature on FDI has been thickening day by day to identify the determinants of FDI (for example, [Bandera and White, 1968](#); [Jun and Singh, 1996](#); [Nunnenkamp and Spatz, 2002](#); [Petrochilas, 1989](#); [Root and Ahmed, 1979](#); [Schmitz and Bieri, 1972](#); [Schneider and Frey, 1985](#); [Torrise, 1985](#); [Wheeler and Mody, 1992](#)). Although there is consensus on a few economic variables as the major determinants of FDI, such as the size of GDP and its growth, the role of other socio-economic variables, such as the role of business environment, in attracting FDI is still unexplored or sometimes it was wrongly predicted. As a result, empirical findings on the determinants of FDI are quite chaotic and misleading sometimes. This necessitates undertaking more and more empirical study with well-defined variables and new datasets to clearly understand the determinants of FDI.

In this context, the objective of this article is to investigate the underlying factors that affect the inflow of FDI to the developing countries, using panel data covering the period from 2005 to 2007 for 68 developing countries in Asia, Africa and Latin America.

The article is organised as follows. Section 2 presents global trends in FDI inflows and to the sample developing countries. Section 3 advances three testable hypotheses related to the determinants of FDI inflows to developing countries and includes a materials and method section. Model specification and hypotheses testing are carried out in Section 4 followed by the summary of the findings and policy implications in Section 5.

## 2. TRENDS OF FDI INFLOW

### 2.1 Developing Countries are not the Major Recipients of FDI

A trend analysis of FDI inflow reveals that it is not developing countries, but developed countries, that are the preferred destination of FDI. Table 1 shows that in 2007 total inflow of FDI in the world was USD 1,833.32 billion, of which only 27.3 per cent went to developing countries and the rest went to developed countries (UNCTAD, 2009). Moreover, since 1997, developing countries' share in FDI has been falling, as the last column of Table 1 shows. In 1997, the overall share of developing countries in FDI was 40 per cent, which fell to 27 per cent in 2007. In absolute terms, however, the total flow of FDI to developing countries has witnessed a significant increase. The table also shows that there is a one-to-one relationship between the trends in FDI inflows in the world and to developed countries, as both the world FDI inflow and FDI inflows to developed countries fluctuate in a similar pattern. For example, FDI inflow in the world and to developed countries spiked in 1999 and then started to decline in the subsequent years. But after 2002, the inflow of FDI in the world, as well as to developed countries started to increase. On the other hand, as Table 1 shows, the trend of FDI flows to developing countries was almost

**Table 1** Trends in FDI Inflows, 1997–2005 (billion USD)

<i>Year</i>	<i>World</i>	<i>Developed World</i>	<i>Developing World</i>	<i>Share of the Developing World (%)</i>
1997	481.91	269.65	193.22	40.09
1999	1,079.08	824.64	229.29	21.25
2001	823.83	589.38	209.43	25.42
2003	632.59	442.16	166.34	26.29
2005	958.69	611.28	316.44	33.01
2007	1,833.32	1,247.64	499.75	27.25

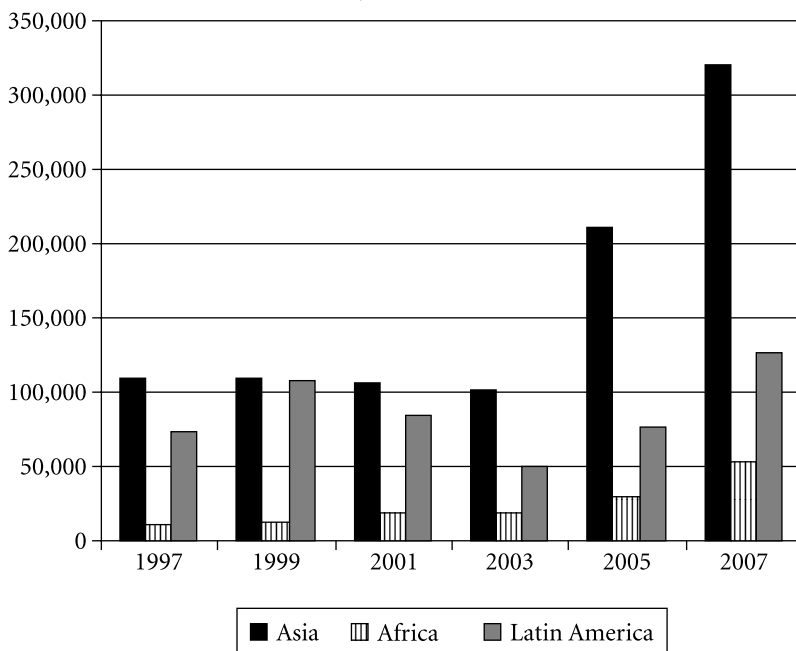
**Source:** UNCTAD (2003, 2005, 2009).

constant and uncorrelated with the world's FDI inflow until 2003. After 2003, a constant increase (in absolute terms) in the inflows of FDI to developing countries can be observed.

## 2.2 Asian Developing Countries are Favoured by Foreign Investors

Table 1 depicts the fact that, in absolute terms, developing countries lag behind in attracting FDI compared to developed countries. Importantly, the performance of developing countries in attracting FDI is highly heterogeneous. Asian developing countries are more successful in attracting FDI than the developing countries in Africa and Latin America. As Figure 1 shows, from 1997 to 2003 both the trend and volume of FDI inflow to Asian and Latin American developing countries were almost the same. From 2003, however, FDI inflow to Asian developing countries increased dramatically compared to Latin America. African developing countries, on the other hand, have been always been less-favoured by foreign investors during the entire sample period than Asian and Latin American developing countries.

**Figure 1 Trends in FDI Inflow in Developing Countries in Asia, Africa and Latin America**



**Sources:** UNCTAD (2003, 2005, 2009).

### 2.3 Lower-middle Income Countries are Highly Favoured by Foreign Investors across Continents

Figure 1 reveals that developing countries in Asia are more successful in attracting FDI compared to Latin American and African developing countries. Interestingly, in every continent, only the lower-middle income countries with per capita gross national income (GNI) ranging from USD755 to USD2,995 have been the major FDI recipient countries. Table 2 presents this uneven pattern of FDI inflow to the developing countries.

**Table 2 Major FDI-Receiving Countries by Continent**

<i>Sample Highest and Lowest FDI-receiving Country by Region</i>	<i>FDI Inflow (Million USD)</i>	<i>% Share in World Inflows</i>	<i>% of Total Inflow to all Developing Countries</i>	<i>% Share in the Region</i>
				<b>% share in Asia</b>
<b>Asia</b>				
China	83,521	4.56	16.71	26.06
Nepal	6.0	0.0003	0.001	0.002
				<b>% share in Africa</b>
<b>Africa</b>				
Nigeria	12,454	0.68	2.49	23.51
Comoros	1.0	0.00	0.000	0.002
				<b>% share in Latin America</b>
<b>Latin America</b>				
El Salvador	1,526	0.08	0.31	1.21
Haiti	75.0	0.004	0.015	0.06

**Sources:** UNCTAD (2009).

The table presents the sample highest and lowest FDI-receiving countries in Asia, Africa and Latin America in 2007. In Asia, China was the highest and Nepal was the lowest FDI recipient countries in 2007. China alone received 4.56 per cent of world's FDI; 28 per cent of total FDI went to Asia and the Oceania region, and 16.71 per cent of total FDI went to all developing countries in 2007. On the other hand, Nepal received only USD6 million FDI in 2007. In Africa, Nigeria was the top FDI recipient in 2007. It received nearly 24 per cent of the FDI that went to Africa and 2.5 per cent of the total FDI to all the developing countries in 2007. The lowest FDI-recipient country in Africa in 2007 was Comoros, which received only USD1 million of FDI. In Latin America El Salvador was the top FDI recipient, receiving 1.21 per cent of the total FDI that went to

Latin America in 2007. The lowest FDI recipient in Latin America was Haiti, which received FDI of only USD75 million.

An important finding is that globally the top FDI-receiving countries are the lower-middle income countries and that the lowest FDI-receiving countries are the low-income countries.

### 3. THEORETICAL BACKGROUND, HYPOTHESES AND MODEL SPECIFICATION

Figure 1 and Table 2 clearly show that Asian countries compared to African and Latin American countries, and lower-middle income countries compared to low-income countries, are the major recipient of FDI. The question arises as to why Asian countries and lower-middle income countries tend to be more successful in attracting FDI? What are the major factors that determine the inflow of FDI?

Basic theoretical discussions on the determinants of FDI might start by posing a simple question as to why a foreign investor invests in other countries. The decision to invest in a foreign country fundamentally depends on the return on investment, which is profit (Kinda, 2010). Profit ( $\Pi$ ) is the difference between total revenue (TR) and total cost (TC). In functional form,  $\Pi$  can be written as

$$\Pi = f(P, Q, TC) \quad (1)$$

$$TC = IC + OC + HC, \quad d\Pi/dP, \quad d\Pi/dQ > 0 \quad \text{and} \quad d\Pi/dIC, \quad d\Pi/dOC, \quad d\Pi/dHC < 0$$

P = price of the output (Q) which is mainly determined in the competitive market

Q = output

TC = total cost

IC = input costs, such as cost of labour, land, raw materials, electricity, gas, water and the interest rate

OC = operation costs; which includes both financial and time costs, such as money and time required to get a business/export–import license, money and time required to get gas, water, electricity connections, land, transaction and transportation costs

HC = hidden cost which is the difference between the time and money costs declared by the government and time and money actually paid by the investors. It also includes hassle costs.

Profits are higher in a country where foreign investors can operate their businesses at a low cost and produce at full scale with competitive prices. Thus,

variables that determine profit also determine the inflow of FDI to a country. This allows us to arrive at the following reduced-form function:

$$FDI_{it} = f(P, Q, TC) \quad (2)$$

Substituting  $TC = IC + OC + HC$  in equation (2) we have:

$$FDI_{it} = f(P, Q, IC, OC, HC) \quad (3)$$

Subscripts  $i$  and  $t$  stands for the individual country and year, respectively.

The reduced-form version of the FDI function in equation (3) clearly shows the factors that may influence the inflow of FDI to host countries. According to equation (3) foreign investors prefer to invest in countries where they can produce large amounts at lower costs. Based on equation (3), we develop three hypotheses to highlight the factors that affect the inflow of FDI to host countries and thus to arrive at why Asian countries and lower-middle income countries tend to be successful in attracting FDI.

The size of an economy and its growth rate might critically affect FDI inflows to a country. Large and fast-growing economies offer economies of scale and also offer low transportation and product marketing costs, as products will mostly be sold in the host economy. In fact, UNCTAD (1998, 2000) classifies a group of foreign investors who mainly invest in foreign countries to serve the domestic market. These market-seeking foreign investors prefer to invest in countries with large domestic markets and in countries which are growing at a fast rate. It is, however, difficult to imagine that market-seeking foreign investors will invest in foreign countries solely to serve the host economies. It is more likely that foreign investors also export a portion of their product to other countries, besides selling in the host economy. Thus, a country with a small domestic market, but well linked and open to the global market through international trade, can also provide economies of scale similar to countries with large domestic market, to the foreign investors. Thus, openness to global markets might significantly determine the inflow of FDI besides the size of GDP and its growth rate. Probably, due to their openness, some small economies like Hong Kong and Singapore receive substantial amounts of FDI (UNCTAD, 2009). Thus, it is reasonable to postulate the following hypothesis:

***H1: Countries with larger GDPs and higher GDP growth rates, and which are more open to the global market through international trade are more likely to be successful in attracting FDI than others.***

Foreign investors prefer to invest in countries where input costs, operation costs and hidden costs are low, because it will ensure higher profit. Countries with abundant cheap and skilled labour, electricity and energy, and countries with improved infrastructure, such as roads, port facilities, telephones and internet, might significantly affect the cost of doing business. Thus, the availability of cheap and skilled labour, electricity, energy and infrastructure can significantly affect the inflow of FDI by attracting cost-cutting and efficiency-seeking foreign investment (Kinda, 2010; UNCTAD, 1998).

Besides labour and physical infrastructure, business environment and rules and regulations relating to investment and business also affect the cost of doing business in a country by affecting the functioning of the market (for example, Kinda, 2010). A business-friendly environment with appropriate rules and regulations could significantly reduce operations and hidden costs and allow the market to function well. Thus, profit-seeking foreign investors might prefer to invest in countries where there is a business-friendly environment and the rules and regulations relating to investment and business are favourable. Socio-economic and socio-political variables, such as regulatory frameworks, bureaucratic hurdles and red tape, regulations relating to setting up a new business, judicial transparency and the extent of corruption in the host country, therefore might significantly affect the inflow of FDI by affecting the efficiency, productivity and cost structure. Thus, it is reasonable to postulate the following hypothesis:

***H2: Countries with more business-friendly environments receive more FDI.***

Finally, profit-seeking foreign investors will prefer to invest in countries that welcome foreign investment. Schneider and Frey (1985) and Kimura and Todo (2010) argued that developing countries that receive larger amount of foreign aid might be more successful in attracting foreign investors than others for the following two reasons. First, the inflow of a large volume of foreign aid might mitigate a country's internal macroeconomic problems and help to promote a business-friendly environment in aid-receiving countries due to conditions imposed by the donors. Second, a high volume of aid inflow to a developing country might assure foreign investors that the aid-receiving host country is friendly to foreign investors. Moreover, aid-dependent host countries may refrain from nationalising or confiscating the property of foreign investors without adequate compensation. However, it may also be the case that a higher dependency on foreign aid provides a negative signal to foreign investors

about the macroeconomic efficiency and the overall business environment of a country. To evaluate the effect of foreign aid on the inflow of FDI, the following hypothesis has been formulated:

***H3: Developing countries that receive more foreign aid are more likely to be successful in attracting FDI.***

Examining the hypotheses that we have developed in this section, we will answer our basic research question, why are Asian and lower-middle income countries more successful in attracting FDI?

### 3.1 Materials and Method

This study is based on information collected from 68 developing countries in 2005, 2006 and 2007. Of the 68 sample developing countries, 31 are low-income and 37 are lower-middle income countries. Furthermore, out of the 68 sample countries, 37 are from Africa, 8 are from Latin America and the rest are from Asia. Among the sample 37 lower-middle income countries, 18 are from Asia, 12 are from Africa and 7 are from Latin America. And among the sample 31 low-income countries, 7 are from Asia, 23 are from Africa and 1 (Haiti) is from Latin America.<sup>1</sup>

To capture the effect of the size of the host economy and its growth potential on FDI inflows, we include GDP measured at current US dollars and the annual GDP growth rate in our empirical model. We also consider trade to capture the effect of the host economy's openness and linkages with the global market. Trade is calculated as the sum of exports and imports of goods and services as a share of GDP. To capture the role of foreign aid in FDI inflow, we consider foreign aid inflows into the host economy as a possible determinant of FDI. Aid is measured as the percentage of GNI that includes both official development assistance (ODA) and official aid. The ratios are computed using values in US dollars converted at official exchange rates. To see the effect of the labour quality on FDI inflow, we consider the variable industrial value-added measured as a percentage of GDP and the growth rate of industrial value-added to GDP. Industrial value-added comprises value-added in mining, manufacturing (also reported as a separate subgroup), construction, electricity, water and gas, measured as a share of GDP.

<sup>1</sup> Data on FDI inflow in 2005, 2006 and 2007 have been compiled from the *World Investment Report 2009* (UNCTAD, 2009). All other data have been compiled from *World Development Indicators, 2009* (World Bank, 2009).

To capture the effect the host economy's resources and infrastructure on FDI inflow, we consider the availability of labour and the number of internet and telephone users (both fixed-line and mobile phone) per 100 people as determinants. The variable total labour force comprises all economically active people both employed and unemployed who are 15 years or older. Internet users per 100 people are those with access to the worldwide network, and mobile and fixed-line subscribers per 100 people are those connected with either fixed-line or mobile phone.

To capture the effects of the host economy's business environment, regulatory framework and macroeconomic stability on FDI inflows, we consider the number of days required to start a business, time required to prepare and pay taxes and inflation, as possible influential variables. Days required to start a business is the number of calendar days needed to complete the procedures to legally operate a business. Time required to prepare and pay taxes is the time, in hours per year, to prepare, file and pay (or withhold) three major types of taxes: corporate income tax, value-added or sales tax and labour taxes. Inflation is measured as the annual growth rate of the GDP implicit deflator which shows the rate of price change in the economy as a whole. Days required to start a business, the time required to prepare and pay taxes and the rate of inflation in a host economy can critically shape the cost structure, business and macroeconomic environment and thus the efficiency of doing business in the host economy. The fewer the bureaucratic hurdles and complexities, the lower will be the days required to start a business and to pay taxes. On the other hand, the lesser the time to start a business and pay taxes, the lower will be the cost of doing business and thus the higher the profit. Thus, days required to start a business and to pay taxes, which present the economic environment and regulatory framework of the host economy, can significantly affect FDI inflows. Inflation rate, on the other hand, provides a signal of the health status of the host economy. Controlled and moderate inflation works as an indicator of the good health of the overall economy and vice versa. The rate of inflation thus might significantly affect the inflow of FDI.

In the next few tables we present the relationship between average FDI inflow to the sample countries during 2005–07 and the possible influential variables. Table 3 presents the coefficient of correlation between FDI inflow to the sample countries and GDP, GDP growth rate, trade, aid, industrial value-added and the growth rate of industrial value-added during 2005–07. The table also presents coefficient correlations among the variables. The *p*-values of the corresponding correlation coefficients and the number of observations for each variable are also presented in the table. The second column of Table 3 presents the coefficient

**Table 3 Relationship between FDI Inflow, Size of the Host Economy and its Linkages/Openness with the Global Market, 2005–07**

	<i>FDI</i>	<i>GDP</i>	<i>GDP Growth Rate</i>	<i>Trade</i>	<i>Aid</i>	<i>Industrial Value-added</i>	<i>Growth Rate of Industrial Value-added</i>
FDI	1.00 [204]						
GDP	0.74*** (0.00) [200]	1.00 200					
GDP growth rate	0.25*** (0.00) [204]	0.11 (0.12) [200]	1.00 [204]				
Trade	0.04 (0.61) [193]	0.13* (0.06) [189]	0.03 (0.69) [193]	1.00 [193]			
Aid	0.23*** (0.00) [203]	0.33*** 0.00 [199]	0.05 (0.45) [203]	0.09 (0.21) [192]	1.00 [203]		
Industrial value-added	0.31*** (0.00) [187]	0.27*** (0.00) [183]	0.16** (0.03) [187]	0.27*** (0.00) [187]	0.36*** (0.00) [186]	1.00 [187]	
Growth rate of industrial value-added	0.16** (0.03) [186]	0.03 (0.65) [182]	0.65*** (0.00) [186]	0.11 (0.15) [181]	0.05 (0.50) [185]	0.12* (0.10) [181]	1.00 [186]

**Source:** Authors.

**Note:** *p*-values are in parentheses. \*, \*\* and \*\*\* represents significance at the 10, 5 and 1 per cent levels, respectively.

of correlations and the corresponding *p*-values between FDI and the variables under consideration. According to column 2 of Table 3, the relationship between FDI inflow and GDP, GDP growth rate, trade, aid, industrial value-added and its growth rate is positive and all coefficients are highly statistically significant except for trade. For example, the coefficient of correlation between FDI inflow and GDP is +0.74 and it is statistically significant at the 1 per cent level. The finding shows that FDI inflow is biased towards economies with high GDP values. Similarly, FDI inflow is also biased towards economies with high GDP growth rates, which receive more aid and with higher industrial value-added ratio to GDP. The coefficient of correlation between FDI inflows and trade is positive, but statistically insignificant. This is difficult to explain, although it might be that Table 3 simply presents the one-to-one relationship between FDI and one variable at a time without considering the effects of other variables at the same time. The findings in Table 3 thus provide partial support to hypothesis 1, that the size of the host economy and its growth potential positively affect the inflow of FDI.

Table 4 presents the relationship between FDI inflow and the total labour force, internet and phone users during 2005–07. The second column shows that all the coefficients of correlation between FDI inflows, total labour force and number of internet and phone users are positive and statistically significant at the

**Table 4 Relationship between FDI Inflow and Total Labour Force and Infrastructure in Host Economy, 2005–07**

	<i>FDI</i>	<i>Labour Force</i>	<i>Internet User (Per 100 People)</i>	<i>Fixed and Mobile Phone Subscribers (Per 100 People)</i>
FDI	1 [204]			
Labour force	0.93*** (0.00)	1 [204]		
Internet user (per 100 people)	0.20*** (0.00)	0.12* (0.08)	1 [198]	
Fixed-line and mobile phone subscriber (per 100 people)	0.18 (0.01)	0.09 (0.23)	0.76*** (0.00)	1 [184]
	[184]	[184]	[181]	

**Source:** Authors.

**Note:** *p*-values are in parentheses. \*, \*\* and \*\*\* represent significance at the 10, 5 and 1 per cent levels, respectively.

1 per cent level. The findings in Table 4 suggest that FDI inflow is biased towards economies with an abundant labour force, and with improved infrastructure and communication systems.

Table 5 presents the relationship between FDI inflow and the business and economic environment in the host economy during the sample period. As expected, the coefficient of correlation between FDI inflow and the days required to start a business and inflation in the host economy is negative, although the coefficients are not statistically significant. The coefficient of correlation between time required to prepare and pay tax appears positive and statistically significant. Again, although it is difficult to explain why the relationship between time required to prepare and pay taxes and FDI inflow is positive and significant, it might be because we have not controlled for any other variables in this simple correlation matrix. Table 5 also presents the coefficient of correlation between FDI inflows and the dummies for Asian countries and lower-middle income countries. The positive and statistically significant correlation coefficients between the Asian dummy and the lower-middle income country dummy confirm that FDI inflows are biased towards Asian and lower-middle income countries.

The correlation matrices in Tables 4, 5 and 6 throw some light on the factors that affect FDI inflows. Based on the findings in Tables 4, 5 and 6, the next section characterises the highly successful lower-middle income countries and Asian countries in order to explain why the lower-middle income countries compared to low-income countries, and Asian countries compared to African and Latin American countries are successful in attracting FDI.

Table 6 presents a comparison of the characteristics of lower-middle income countries and low-income countries. The table shows that the average FDI inflows to a low-income country during the sample period was only USD 972.52 million, whereas the average inflow of FDI to a lower-middle income country was USD 3,592.98 million during the same period. This means that on average a lower-middle income country received USD 2,620.47 million more FDI than a low-income country and the difference is statistically significant at the 5 per cent level. Table 6 also shows that the average GDP of a low-income country is USD 22.71 billion whereas for a lower-middle income country it is USD 53.39 billion. Thus, on average, the GDP of a lower-middle income country is USD 30.67 billion more than a low-income country, and the difference is statistically significant at the 5 per cent level.

The table also shows that, on average, the proportion of trade, share of industrial value-added to GDP, total labour force, and internet and phone users are significantly large in the case of lower-middle income countries compared

**Table 5 Relationship between FDI Inflows and the Business and Economic Environment in Host Economies, 2005–07**

	<i>FDI</i>	<i>Days Required to Start a Business</i>	<i>Time to Prepare and Pay Taxes</i>	<i>Inflation</i>	<i>Asian Countries</i>	<i>Lower-middle Income Countries</i>
FDI	1.00 [204]					
Days required to start a business	-0.04 (0.56) [204]	1.00 204				
Time to prepare and pay taxes	0.37*** (0.00) [192]	0.03 (0.71) 192	1.00 192			
Inflation	-0.06 (0.36) [204]	0.07 (0.34) 204	0.01 (0.86) 192	1.00 204		
Asian countries	0.18*** (0.01) [204]	-0.03 (0.64) [204]	-0.09 (0.23) 192	0.03 (0.67) 204	1.00 204	
Lower-middle income countries	0.14** (0.05) [204]	-0.12* (0.08) [204]	0.05 (0.48) 192	-0.09 (0.19) 204	0.27*** (0.00) 204	1.00 204

**Source:** Authors.

**Note:** *p*-values are in parentheses. \*, \*\* and \*\*\* represent significance at the 10, 5 and 1 per cent levels, respectively.

**Table 6 Comparison of the Characteristics of High-Performing Lower-Middle Income Countries and Low-Performing Low-Income Countries<sup>a</sup>**

<i>Indicators</i>	<i>Lower-middle Income Countries</i>	<i>Low-income Countries</i>	<i>Differences in the Sample Mean and Corresponding t-statistics</i>
	<i>B</i>	<i>A</i>	<i>A – B</i>
Inflow of FDI (million USD)	3,592.98	972.52	2,620.47** (1.96)
GDP (billion USD)	53.39	22.71	30.67** (2.10)
Annual GDP growth rate	6.24	5.60	0.65 (1.44)
Trade as % of GDP <sup>a</sup>	86.29	74.64	11.65** (–2.44)
Aid as % of GNI	6.18	10.25	–4.07*** (–4.12)
Industrial value-added (% of GDP)	31.42	24.76	6.66*** (4.36)
Growth of industrial value-added to GDP	6.59	6.30	0.29 (0.37)

(Table 6 continued)

(Table 6 continued)

<i>Indicators</i>	<i>Lower-middle Income Countries</i>	<i>Low-income Countries</i>	<i>Differences in the Sample Mean and Corresponding t-statistics</i>
	<i>B</i>	<i>A</i>	<i>A – B</i>
Total labour (million persons)	43.59	11.28	32.31** (2.18)
Internet use (per 100 persons)	7.89	3.88	3.99*** (5.19)
Fixed phone and mobile phone use (per 100 persons)	42.29	22.99	19.29*** (5.19)
Days required to start a business	42.19	51.69	-9.45* (-1.78)
Hours required to prepare and pay taxes	338.97	319.69	19.28 (0.71)
Price inflation (GDP deflator)	7.79	9.01	-1.21 (-1.31)

**Sources:** UNCTAD, *World Investment Report* various issues (2009).

**Notes:** a = average per country in the group.

t-values of the differences in the sample mean are in parentheses.

\*, \*\* and \*\*\* indicate that the difference in the sample averages is statistically significant at the 10, 5 and 1 per cent levels, respectively.

to low-income countries. Importantly, in lower-middle income countries, the average days required to start business and average price inflation are lower than in low-income countries. For example, on average it requires only 42 days to start a new business in a lower-middle income country, whereas in a low-income country it takes more than 51 days on average, and the difference is statistically significant at the 10 per cent level.

The findings in Table 6 thus throw light on why lower-middle income countries are successful in attracting FDI compared to low-income countries. Lower-middle income countries are endowed with large domestic markets, abundant labour force, and internet and phone facilities. Additionally, lower-middle income countries are well linked with global market trade compared to low-income countries. Finally, lower-middle income countries have a more profitable and efficient business environment (as the number of days required to start a business is significantly lower) and lower inflation than low-income countries. These may help explain why lower-middle income countries are more successful in attracting FDI than low-income countries. In the next table, we compare the characteristics of Asian countries with African and Latin American countries, to provide some light on why Asian countries are more successful in attracting FDI.

Table 7 presents the differences in the characteristics of the sample Asian and African and Latin American countries. It shows that on average an Asian country received FDI of USD 4,607.45 million during the sample period, whereas on average an African or Latin American country received only USD 1,114.00 million. Thus, on average an Asian country received USD 3,493.45 million more FDI than an African or Latin American country, and the difference is statistically significant at the 5 per cent level. In subsequent rows of Table 7 shows that Asian countries have large domestic markets, high GDP growth rates, are well linked with the global market through international trade, have an abundant labour force, and good internet and telephone facilities compared to African and Latin American countries. Asian countries also offer an efficient and profitable business environment as is evidenced by the fewer days required to start a business and pay taxes, and the lower rate of inflation, compared to African and Latin American countries.

## 4. MODEL SPECIFICATION AND ESTIMATION

### 4.1 Model Specification

The findings in Tables 3–7 provide strong supports to the hypotheses developed in the previous section that countries with large domestic markets and high GDP

**Table 7 A Comparison of the Characteristics of High-Performing Asian and Low-Performing African and Latin American Countries**

<i>Indicators</i>	<i>Asian Countries</i>	<i>African and Latin American Countries</i>	<i>Differences in the Sample Mean and Corresponding t-statistics</i>
	<i>C</i>	<i>D</i>	<i>C – D</i>
Inflow of FDI (million USD)	4,607.45	1,114.00	3,493.45** (2.46)
GDP (billion USD)	60.71	22.24	33.48** (2.20)
Annual GDP growth rate	7.53	5.03	2.51*** (5.79)
Trade as % of GDP <sup>a</sup>	87.51	77.09	10.42** (2.11)
Aid as % of GNI	6.67	8.83	-2.16** (-2.05)
Industrial value-added (% of GDP)	30.19	27.29	2.89* (1.76)
Growth of industrial value-added to GDP	8.74	5.02	3.72*** (4.92)

Total labour (in million persons)	61.57	9.84	51.73*** (3.43)
Internet use (per 100 persons)	7.44	5.23	2.21*** (2.63)
Fixed phone and mobile phone use (per 100 persons)	30.62	37.48	6.48* (1.69)
Days required to start a business	44.89	47.47	-2.58 (-0.46)
Hours required to prepare and pay tax	308.76	342.63	-33.87 (-1.21)
Price inflation (GDP deflator)	8.61	8.19	-0.41 (-0.43)

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**Sources:** UNCTAD, *World Investment Report* various issues and World Bank, and World Development Indicators (2009).

**Note:** a = average per country in the group;

t-values of the differences in the sample mean are in the parentheses;

\*, \*\* and \*\*\* indicate that the difference in the sample averages is statistically significant at the 10, 5 and 1 per cent levels, respectively.

growth rates, which are well linked with the global market through international trade, and offer foreign investors a profitable and business-friendly environment, tend to be successful in attracting FDI. To rigorously assess the effects of GDP size and growth, trade and other variables in determining the inflow of FDI, it is necessary to control for the effects of other variables. This section is devoted to developing an empirical model to identify the factors that affect the inflow of FDI to developing countries. To confront all the hypotheses econometrically, the following model will be estimated:

$$FDI_{it} = \lambda_0 + \lambda_1 X_{it} + \lambda_2 F_{it} + \lambda_3 Z_{it} + \sum \theta_i Y_{it} + \lambda_4 V_i + \lambda_5 U_i + \zeta_{it} \quad (4)$$

Where FDI indicates inflow of FDI in country  $i$  at year  $t$ ,

$X_{it}$  is a matrix including the economic characteristics of the host economy, such as GDP and its growth rate, trade, aid, industrial value-added and the growth rate of country  $i$  at year  $t$ ;

$F_{it}$  is matrix of variables that includes labour endowment and physical infrastructure, such as total labour force, and number of internet and phone users in host country  $i$  at time  $t$ .

$Z_{it}$  is a matrix of variables that present the business environment in the host economy. The matrix includes days required to start a business, hours required to prepare and pay taxes and inflation measured by the GDP deflator in host economy  $i$  at time  $t$ .

$Y_{it}$  includes three-year dummies to control for year-specific effects (if any)

$V_i$  and  $U_i$  are the time-invariant fixed-effects at the income level and location level of the host country

$\zeta$  is the error term with white-noise properties, and

$\lambda_0$  is a scalar parameter  $\lambda_1$ — $\lambda_5$  are the parameters of interest.

Application of a simple pooled OLS estimation method might provide biased estimators, because of the unobserved heterogeneity (if any) in the sample countries. Therefore, an appropriate estimation technique (either the fixed or random-effect estimator) will be used to estimate equation (4). Importantly, FDI determinants could vary across income groups and continents (Kinda, 2010) and thus the estimated functions might suffer from the problem of parameter heterogeneity. To avoid the problem of parameter heterogeneity in the estimated functions we estimate equation (4) separately for lower-middle income and low-income countries and for Asian and African and Latin American countries.

Finally, to check the robustness of the findings, we perform sensitivity analyses by excluding additional insignificant control variables step-by-step from the estimated models.

Tables 8, 9, 10, 11 and 12 present the estimated functions that explain the inflow of FDI to lower-middle income countries, low-income countries, Asian, African and Latin American countries and all the sample developing countries. We estimate regression equation (4) separately for low-income and lower-middle income countries and for Asian and African and Latin American countries with the same explanatory variables. Inclusion of the same explanatory variables allows us to compare both size of the coefficients and their levels of significance across estimated equations. The random effect generalized least square estimation process with clustered standard errors corrected at the country level has been applied to estimate equation (4) as the Hausman test suggests. Finally, we also estimate equation (4) after pooling the data across countries and income groups as the Chow-test suggests.

## 4.2 Estimation Results

Table 8 presents the estimated functions explaining the inflow of FDI to lower-middle income countries. While column 2 in Table 8 presents the estimated function that includes full sets of explanatory variables, in subsequent columns we gradually exclude insignificant control variables from the estimated functions to check the robustness of the findings. The finding is that the size of GDP, trade, aid and the growth rate of industrial value-added positively and significantly affect the inflow of FDI to lower-middle income countries and the finding is robust. This supports the theory that market-seeking and horizontal FDI are attracted by the size of the host economy, its growth potential and openness to the global market (for example, UNCTAD, 1998).

Column 7 of Table 8 shows that a 1 per cent increase in GDP size on average increases the inflow of FDI to a lower-middle income country by 1.04 per cent, and a 1 per cent increase in trade increases FDI inflow by 0.84 per cent. Importantly, the coefficient of the variable days required to start a business is negative and statistically significant at the 10 per cent level. According to column 7 in Table 8, a 1 per cent increase in the days required to start a business in a host economy (for any reason), reduces FDI inflows by 0.33 per cent. The finding supports the widely recognised view that in general FDI is affected by the investment environment of the host economy (Kinda, 2010). Thus, countries with unfavourable business environments and stringent rules and regulation, such as low-income countries and African countries in general, are less successful in attracting FDI.

**Table 8 Determinants of FDI Inflows into Lower-Middle Income Countries**

<i>Dependent Variable</i>	<i>ln(FDI)</i>						
	<i>Column</i>	(2)	(3)	(4)	(5)	(6)	(7)
ln(GDP)		1.14*** (2.61)	1.14*** (9.30)	1.10*** (10.93)	1.10*** (9.69)	1.10*** (9.97)	1.04*** (10.16)
ln(GDP growth rate)		0.27 (1.10)	0.27 (1.12)	0.29 (1.50)	0.26 (1.44)	0.22 (1.29)	0.16 (0.88)
ln(trade)		1.28*** (3.48)	1.28*** (3.32)	1.12*** (4.18)	1.01*** (3.82)	0.95*** (3.91)	0.84*** (2.99)
ln(aid)		0.30* (1.65)	0.30* (1.78)	0.28** (2.33)	0.29** (2.36)	0.29** (2.40)	0.31** (2.47)
ln(days required to start a business)		-0.34* (-1.75)	-0.33* (-1.68)	-0.33* (-1.90)	-0.35** (-2.04)	-0.36** (-2.08)	-0.33* (-1.91)
ln(growth of industrial value-added to GDP)		0.31* (1.79)	0.32* (1.80)	0.24** (2.56)	0.23*** (2.59)	0.24*** (2.60)	0.27*** (2.90)
ln(telephone and mobile user per 100 people)		0.10 (0.27)	0.10 (0.47)	0.10 (0.46)	0.11 (0.49)	0.09 (0.43)	0.29 (1.25)
ln(internet user per 100 people)		0.14 (1.01)	0.14 (1.04)	0.12 (0.92)	0.12 (0.83)	0.13 (0.90)	
ln(inflation)		0.03 (0.19)	0.03 (0.20)	-0.015 (-0.10)	-0.03 (-0.18)		

ln(industrial value-added to GDP)	-0.47 (-1.11)	-0.47 (-1.01)	-0.52 (-1.37)			
ln(days required prepare and pay tax)	-0.09 (-0.48)	-0.09 (-0.43)				
ln(total labour force)	0.002 (0.00)					
Asian dummy	-0.38 (-1.28)	-0.38 (-1.43)	-0.37 (-1.40)	-0.38 (-1.45)	-0.39 (-1.50)	-0.27 (-0.99)
Year 2006 dummy	-0.12 (-0.60)	-0.12 (-0.69)	-0.10 (-0.66)	-0.10 (-0.66)	-0.13 (-0.81)	-0.09 (-0.58)
Year 2007 dummy	0.05 (0.30)	0.05 (0.34)	0.129 (1.08)	0.136 (1.10)	0.12 (0.92)	0.08 (0.66)
Constant	-0.92 (-0.15)	-0.90 (-0.31)	-0.27 (-0.13)	-1.23 (-0.74)	-0.92 (-0.55)	-0.94 (-0.59)
No. of observations	66	66	72	72	73	76
Hausman test fixed over random effect Chi-square	7.68	7.99	8.96	11.19	7.11	8.28
Prob>chi2 =	0.91	0.84	0.71	0.43	0.71	0.51

**Note:** Numbers in parentheses are z-statistics based on standard errors corrected for clustering of observations at the country level. \*, \*\* and \*\*\* indicate significance at the 10, 5 and 1 per cent levels, respectively.

**Table 9 Determinants of FDI Inflows into Low-Income Countries**

<i>Dependent Variable</i>	<i>ln(FDI)</i>					
<i>Column</i>	(2)	(3)	(4)	(5)	(6)	(7)
ln(GDP)	0.81** (1.99)	0.85*** (5.53)	0.91*** (6.11)	0.99*** (7.29)	0.97*** (6.83)	0.98*** (6.91)
ln(GDP growth rate)	0.41* (1.89)	0.42** (2.00)	0.41** (1.99)	0.42** (2.12)	0.40** (2.22)	0.40** (2.22)
ln(trade)	1.10* (1.80)	1.10** (1.96)	1.10** (2.22)	1.30*** (3.13)	1.42*** (3.40)	1.41*** (3.39)
ln(aid)	0.59** (2.17)	0.59** (2.49)	0.67*** (2.79)	0.61*** (2.68)	0.58*** (2.58)	0.59*** (2.66)
ln(days required to start a business)	-0.86*** (-3.91)	-0.84*** (-3.45)	-0.79*** (-3.77)	-0.72*** (-3.71)	-0.72*** (-3.90)	-0.71*** (-4.05)
ln(growth of industrial value-added to GDP)	0.03 (0.18)	0.04 (0.21)	0.02 (0.14)	0.05 (0.27)	0.03 (0.20)	0.03 (0.22)
ln(telephone and mobile user per 100 people)	0.26 (0.80)	0.27 (0.84)	0.24 (0.81)	0.36 (1.45)	0.35 (1.36)	0.33 (1.38)
ln(internet users per 100 people)	0.03 (0.21)	0.01 (0.07)	0.04 (0.26)	-0.04 (-0.36)	-0.04 (-0.34)	
ln(inflation)	-0.06 (-0.41)	-0.06 (-0.42)	-0.07 (-0.46)	-0.03 (-0.22)		

ln(industrial value-added to GDP)	0.46 (0.87)	0.46 (0.87)	0.67 (1.42)			
ln(days required prepare and pay tax)	0.19 (0.47)	0.17 (0.43)				
ln(total labour force)	0.03 (0.09)					
Asian dummy	0.81** (2.47)	0.78** (2.20)	0.62** (2.20)	0.57** (2.23)	0.59** (2.36)	0.61** (2.24)
Year 2006 dummy	0.21 (1.10)	0.21 (1.08)	0.19 (1.00)	0.16 (0.87)	0.14 (0.74)	0.14 (0.78)
Year 2007 dummy	0.20 (0.63)	0.20 (0.65)	0.19 (0.62)	0.12 (0.41)	0.11 (0.40)	0.12 (0.45)
Constant	-3.74 (-0.67)	-3.27 (-1.08)	-3.29 (-1.40)	-2.83 (-1.19)	-3.26 (-1.44)	-3.24 (-1.43)
No. of observations	66	66	67	67	70	70
Hausman test fixed over random effect Chi-square	8.97	8.88	9.69	7.18	6.18	11.88
Prob>chi2 =	0.83	0.78	0.64	0.55	0.80	0.22

**Notes:** Numbers in parentheses are z-statistics based on standard errors corrected for clustering of observations at the country level.

\*, \*\* and \*\*\* indicate significance at the 10, 5 and 1 per cent levels, respectively.

**Table 10 Determinants of FDI Inflows into Asian Countries**

<i>Dependent Variable</i>	<i>Ln(FDI)</i>					
<i>Column</i>	(2)	(3)	(4)	(5)	(6)	(7)
ln(GDP)	1.72*** (3.76)	1.58*** (10.08)	1.28*** (8.49)	1.23*** (8.47)	1.25*** (8.72)	1.22*** (8.55)
ln(GDP growth rate)	0.01 (0.03)	0.04 (0.14)	0.14 (0.39)	0.15 (0.44)	0.20 (0.63)	0.13 (0.40)
ln(trade)	2.17*** (3.77)	2.10*** (4.04)	1.31*** (3.05)	1.19*** (2.85)	1.12*** (2.77)	0.99** (2.29)
ln(aid)	0.81*** (3.92)	0.79*** (4.22)	0.52** (2.51)	0.51** (2.36)	0.54*** (2.62)	0.56*** (2.75)
ln(days required to start a business)	-0.27 (-1.07)	-0.26 (-1.05)	-0.35 (-1.37)	-0.38 (-1.38)	-0.38 (-1.39)	-0.36 (-1.45)
ln(growth of industrial value-added to GDP)	0.34* (1.68)	0.33 (1.48)	0.26 (1.11)	0.21 (0.94)	0.17 (0.67)	0.21 (0.94)
ln(telephone and mobile users per 100 people)	-0.19 (-0.49)	-0.13 (-0.41)	0.09 (0.28)	0.05 (0.17)	0.08 (0.26)	0.29 (0.98)
ln(internet users per 100 people)	0.19* (1.69)	0.22** (2.32)	0.09 (0.77)	0.11 (0.94)	0.13 (1.07)	
ln(inflation)	0.16 (1.12)	0.13 (1.00)	0.19 (1.39)	0.16 (1.24)		

ln(industrial value-added to GDP)	-0.80** (-2.33)	-0.76** (-2.13)	-0.41 (-1.26)			
ln(days required prepare and pay tax)	0.40 (1.28)	0.36 (1.40)				
ln(total labour force)	-0.12 (-0.36)					
Lower-middle income country dummy	0.12 (0.32)	0.10 (0.28)	-0.08 (-0.19)	-0.19 (-0.50)	-0.22 (-0.59)	-0.06 (-0.17)
Year 2006 dummy	0.14 (0.53)	0.12 (0.51)	0.07 (0.34)	0.08 (0.35)	0.08 (0.38)	0.12 (0.52)
Year 2007 dummy	0.42 (1.63)	0.38 (1.58)	0.30 (1.35)	0.31 (1.42)	0.30 (1.47)	0.26 (1.36)
Constant	-6.26 (-1.28)	-4.28 (-1.33)	-2.22 (-1.23)	-2.10 (-1.12)	-2.38 (-1.01)	-4.40 (-1.13)
No. of observations	52	52	55	55	55	57
Hausman test fixed over random effect Chi-square	8.17	8.98	8.18	8.75	4.53	4.46
Prob>chi2 =	0.88	0.77	0.77	0.65	0.92	0.88

**Note:** Numbers in the parentheses are z-statistics based on standard errors corrected for clustering of observation at the country level.

\*, \*\* and \*\*\* indicate significance at the 10, 5 and 1 per cent levels, respectively.

**Table 11 Determinants of FDI Inflows into African and Latin American Countries**

<i>Dependent Variable</i>	<i>ln(FDI)</i>					
<i>Column</i>	(2)	(3)	(4)	(5)	(6)	(7)
Ln(GDP)	0.77*** (2.58)	0.84*** (5.96)	0.89*** (6.43)	0.94*** (7.48)	0.90*** (6.77)	0.90*** (6.85)
Ln(GDP growth rate)	0.37** (2.18)	0.37** (2.23)	0.35** (2.30)	0.37** (2.50)	0.34** (2.34)	0.32** (2.33)
Ln(trade)	1.04** (2.44)	1.05** (2.47)	1.16*** (2.99)	1.25*** (3.36)	1.19*** (3.41)	1.20*** (3.34)
Ln(aid)	0.25* (1.73)	0.26** (1.97)	0.30** (2.25)	0.29** (2.21)	0.31** (2.33)	0.30** (2.27)
Ln(days required to start a business)	-0.53*** (-3.12)	-0.52*** (-3.04)	-0.52*** (-3.02)	-0.50*** (-3.00)	-0.56*** (-3.67)	-0.56*** (-3.69)
Ln(growth of industrial value-added to GDP)	0.09 (0.70)	0.09 (0.73)	0.12 (1.61)	0.12* (1.70)	0.12* (1.72)	0.12* (1.75)
Ln(telephone and mobile users per 100 people)	0.33 (0.98)	0.31 (1.07)	0.25 (0.99)	0.31 (1.41)	0.31 (1.44)	0.32* (1.77)
Ln(internet users per 100 people)	-0.02 (-0.11)	-0.03 (-0.18)	-0.001 (-0.01)	-0.03 (-0.22)	-0.02 (-0.13)	
Ln(inflation)	-0.20 (-1.52)	-0.19 (-1.52)	-0.18 (-1.63)	-0.15 (-1.29)		

Ln(industrial value-added to GDP)	0.24 (0.38)	0.24 (0.38)	0.43 (0.88)			
Ln(days required prepare and pay tax)	0.08 (0.29)	0.09 (0.32)				
Ln(total labour force)	0.06 (0.21)					
Lower-middle income country dummy	0.80*** (3.11)	0.78*** (2.98)	0.62** (2.51)	0.66*** (2.66)	0.74*** (3.12)	0.73*** (3.18)
Year 2006 dummy	0.04 (0.27)	0.05 (0.32)	0.04 (0.26)	0.02 (0.16)	-0.03 (-0.20)	0.02 (-0.18)
Year 2007 dummy	0.09 (0.29)	0.10 (0.37)	0.08 (0.34)	0.05 (0.20)	-0.02 (-0.10)	-0.04 (-0.19)
Constant	-3.18 (-0.70)	-2.33 (-0.94)	-2.90 (-1.31)	-2.34 (-1.10)	-2.09 (-1.05)	-2.12 (-1.07)
No. of observations	80	80	84	84	88	89
Hausman test fixed over random effect Chi-square	7.96	7.77	8.78	5.30	6.27	5.60
Prob>chi2 =	0.89	0.89	0.72	0.92	0.79	0.78

**Notes:** Numbers in the parentheses are z-statistics based on standard errors corrected for clustering of observation at the country level. \*, \*\* and \*\*\* indicate significance at the 10, 5 and 1 per cent levels, respectively.

**Table 12 Determinants of FDI Inflows into Developing Countries**

<i>Dependent Variable</i>	<i>ln(FDI)</i>					
<i>Column</i>	(2)	(3)	(4)	(5)	(6)	(7)
ln(GDP)	1.01*** (3.78)	1.05*** (10.17)	1.10*** (11.53)	1.05*** (12.31)	1.04*** (11.62)	1.04*** (11.36)
ln(GDP growth rate)	0.36*** (2.66)	0.35*** (2.72)	0.35*** (2.79)	0.35*** (2.83)	0.31*** (2.58)	0.29** (2.45)
ln(trade)	1.10*** (3.76)	1.11*** (3.78)	1.11*** (4.60)	1.10*** (4.41)	1.10*** (4.54)	1.07*** (4.27)
ln(aid)	0.34*** (2.80)	0.34*** (3.01)	0.35*** (3.43)	0.35*** (3.45)	0.35*** (3.40)	0.36*** (3.39)
ln(days required to start a business)	-0.39*** (-3.28)	-0.38*** (-3.15)	-0.39*** (-3.28)	-0.39*** (-3.30)	-0.39*** (-3.36)	-0.39*** (-3.43)
ln(growth of industrial value-added to GDP)	0.18 (1.54)	0.18 (1.55)	0.16** (2.00)	0.16** (2.07)	0.16** (2.05)	0.17** (2.15)
ln(telephone and mobile users per 100 people)	0.31 (1.41)	0.30 (1.57)	0.28 (1.54)	0.27* (1.64)	0.26 (1.55)	0.28** (1.97)
ln(internet users per 100 people)	-0.02 (-0.16)	-0.03 (-0.23)	-0.02 (-0.17)	-0.02 (-0.15)	-0.02 (-0.03)	
ln(inflation)	-0.06 (-0.57)	-0.06 (-0.57)	-0.06 (-0.63)	-0.07 (-0.68)		
ln(industrial value-added to GDP)	-0.02 (-0.07)	-0.03 (-0.10)	-0.07 (-0.23)			

ln(days required to prepare and pay taxes)	-0.14 (-0.71)	-0.13 (-0.68)				
ln(total labour force)	0.04 (0.16)					
Asian dummy	0.03 (0.12)	0.03 (0.14)	0.03 (0.16)	0.03 (0.16)	0.03 (0.14)	0.05 (0.27)
Lower-middle income country dummy	0.40* (1.74)	0.39* (1.68)	0.35 (1.59)	0.34 (1.56)	0.38* (1.73)	0.38* (1.84)
Year 2006 dummy	0.08 (0.55)	0.08 (0.63)	0.07 (0.60)	0.08 (0.63)	0.05 (0.43)	0.06 (0.56)
Year 2007 dummy	0.11 (0.57)	0.12 (0.70)	0.14 (0.96)	0.15 (1.02)	0.13 (0.92)	0.11 (0.83)
Constant	-2.28 (-0.63)	-1.77 (-0.90)	-2.31 (-1.49)	-2.39 (-1.62)	-2.46* (-1.71)	-2.43* (-1.69)
No. of observations	132	132	139	139	143	146
Chow test for structural difference between low-income and lower-middle income countries (15, 115)	2.08					
Chow test, Asia vs Africa (15, 115)	1.98					
Hausman test fixed over random effect Chi Prob>chi2 =	8.52 0.86	8.39 0.82	8.12 0.89	6.31 0.85	6.84 0.74	5.53 0.79

**Note:** Numbers in parentheses are z-statistics based on standard errors corrected for clustering of observations at the country level. \*, \*\* and \*\*\* indicate significance at the 10, 5 and 1 per cent levels, respectively.

Table 9 presents the estimated functions that explain the inflow of FDI to low-income countries. While column 2 in Table 9 presents the estimated function that includes full sets of explanatory variables, in subsequent columns the insignificant control variables are gradually excluded from the estimated functions to check the robustness of the findings. Qualitatively, the findings in Table 9 that presents the estimated functions explaining the inflow of FDI to low-income countries are the same as the findings in Table 8. Both Tables 8 and 9 show that the coefficients of the variables GDP, trade, aid and days required to start a business are significant across the estimated functions. For example, the last column of Table 9 shows that on average, a 1 per cent increase in GDP size increases the inflow of FDI to a low-income country by 0.98 per cent, and a 1 per cent increase in trade increases FDI inflow by 1.41 per cent. Additionally, Table 9 shows that the GDP growth rate has a significant positive influence on the inflow of FDI to low-income countries, which is insignificant in the case of lower-middle income countries. The finding is plausible in the sense that low-income countries mostly tend to have a small domestic economy compared to lower-middle income countries. Foreign investors, thus, besides considering the size of the economy, also give priority to the growth potential of the economy in the case of low-income countries.

Important noticeable differences in the findings between columns 7 of Tables 8 and 9 are that both size and significance levels of the coefficients of trade, aid and days required to start a business in the case of the function explaining inflow of FDI to low-income countries are high, compared to the estimated functions explaining FDI inflow to lower-middle income countries. This means that low-income countries can also attract substantial amounts of FDI by adopting a more outward-oriented trade regime and by improving their business environments. Among other variables, the dummy for Asian countries is positive and significant in all the estimated functions explaining the inflow of FDI to low-income countries in Table 9. It means that, even among low-income countries, Asian countries are highly preferred by foreign investors probably because of their average large size and more openness to the global market through international trade.

Tables 10 and 11 present the estimated functions explaining the inflow of FDI to Asian, African and Latin American countries. Column 7 of Table 10 shows that only the size of GDP, trade and aid positively and significantly affect the inflow of FDI to Asian countries, whereas column 7 of Table 11 shows that GDP size, GDP growth rate, trade, aid, days required to start a business, growth rate of industrial value-added and the number of telephone and mobile phone users

per 100 people significantly affect the inflow of FDI to African and Latin American countries. Importantly, the size and level of significance of the variables trade and aid are different across continents. Column 7 in Tables 10 and 11 shows that the role of foreign aid in attracting FDI is high in the case of Asian countries compared to African and Latin American countries, whereas the role of trade in attracting FDI is high in the case of African and Latin American countries compared to Asian countries.

A comparison of the determinants of FDI inflow to Asian countries and to African and Latin American countries reveals that while days required to start a business is significant and negative in determining FDI inflow to African and Latin American countries, the variable is negative but insignificant in determining FDI inflow to Asian countries. Additionally, the number of telephone users is positive and statistically significant at the 10 per cent level in the estimated function explaining the inflow of FDI to African and Latin American countries, while the variable is positive but insignificant in the case of estimated functions explaining inflow of FDI to Asian countries. The findings in Table 11 thus reinvigorate the role of business environment and infrastructure for the African and Latin American countries in attracting FDI.

Table 12 presents estimated functions explaining FDI inflow to all the sample developing countries. The data across continents and income groups are pooled in the model as the Chow-test suggests. Similar to the previous findings, the estimated function explaining the inflow of FDI to sample developing countries suggests that GDP size and its growth rate, trade, aid, days required to start a business, growth rate of industrial value-added and number of telephone users significantly affect the inflow of FDI to developing countries. Column 7 in Table 12 shows that a 1 per cent increase in GDP growth rate increases FDI inflow to a developing country on average by 0.29 per cent and a one-day decrease in the days required to start a business increases FDI inflow to a developing country on average by 0.39 per cent. It is important to mention here that the coefficient of GDP ranges between 1.01 at the lowest and 1.10 at the highest across the estimated function explaining inflow of FDI to developing countries and that the level of significance is the same. Similarly, the absolute size of the coefficient and the significance levels of the variables trade, aid and days required to start a new business are almost similar across the estimated functions explaining inflow of FDI to developing countries. Most importantly, the size of the coefficient and level of significance of the variable days required to start a business is the same across the estimated functions in Table 12. Thus, the findings are robust across the estimated equations explaining inflow of FDI to developing countries.

The finding that GDP and its growth rate positively affect the inflow of FDI to developing countries supports the findings by Nunnenkamp and Spatz (2002), Torrisi (1985), Schneider and Frey (1985) and Jun and Singh (1996). Similar to the findings of Daude and Stein (2007) and Disdier and Mayer (2004), our study also confirms that the business environment in developing countries—the proxy for which was days required to start a business—significantly affect the inflow of FDI to developing countries. Importantly, our study clearly shows that foreign aid significantly and positively affects inflow of FDI to developing countries and that the finding is robust. This supports the findings of Kimura and Todo (2010) which, using disaggregated data, show that Japanese aid enhances FDI inflows to aid-receiving countries.

It is important to mention here that variables such as inflation, industrial value-added, hours required to prepare and pay taxes and total labour force are found to be insignificant across the estimated functions in explaining inflow of FDI to developing countries. One reason might be the high multicollinearity among the variables. For example, the coefficient of correlation between GDP growth rate and growth rate of industrial value added is + 0.65 and it is statistically significant. A few earlier studies, however, argued that the availability of cheap labour might not be the only essential factor in attracting FDI, and that the business environment is more important in attracting FDI (Kinda, 2010).

## 5. CONCLUSION AND POLICY IMPLICATIONS

By bridging the gap between domestic savings and investment and enhancing knowledge spillover, FDI can play important role in industrial advancement and economic growth in developing countries. Although most developing countries have been taking measures to attract FDI, such as offering incentive packages and liberalising their trade regimes, only a few, mostly lower-middle income countries and Asian countries with large domestic markets, have been successful in attracting FDI. In this study, we have tried to locate the influential factors that determine FDI inflows to low-income and lower-middle income countries, and to Asian, African and Latin American countries. To find out the influential factors, we first examine the simple correlation coefficient between FDI inflows and the seemingly influential variables and second, we compare the characteristics between lower-middle income countries and low-income countries and Asian, African and Latin American countries. We found that, in general, lower-middle income countries and Asian countries are highly successful in attracting FDI compared to low-income and African and Latin American countries.

Our findings show that most lower-middle income countries and Asian countries, besides their large domestic markets, are highly linked with the global market through international trade and offer a more business-friendly environment to investors. Finally, in the estimated empirical model it is also found that besides GDP size and its growth rate, linkages with the global market through international trade, relationships with major donor countries in the form of foreign aid and a business-friendly environment measured by the days required to start a business are the most important and significant factors in determining FDI inflows to developing countries. Interestingly, our findings reinvigorate the positive role of foreign aid to developing countries in attracting FDI. The findings are robust across countries and income groups. Thus, the article concludes that small, developing countries across the globe can attract substantial amounts of FDI just by adopting more outward-oriented trade policies and providing a more business-friendly environment to foreign investors.

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