

## DETERMINANTS OF INWARD FOREIGN DIRECT INVESTMENT: COMPARISON ACROSS DIFFERENT COUNTRY GROUPS, 1996-2016

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**Abstract.** This paper analyses the factors determining inward foreign direct investment, particularly the role of economic, natural endowments and political characteristics of the host country. It expands on the existing literature by focusing on four broad groups of countries—advanced, emerging-market, developing and transition economies, comprising of more than 100 countries in a panel data setting for the period 1996 – 2016. The paper also examines the scenario during the major economic crises— Asian crisis, Dotcom Bubble, Global Financial crisis and Sovereign Debt crisis. The results indicate that the determinants of inward foreign direct investment have changed over time and that the patterns are not uniform across the four country groups. These results have important implications for the policy makers as they can help to identify the regional factors that attract capital inflows.

**JEL classification:** F21, F23, L6, Q51, Q57, O52

**Key words:** foreign direct investment, multinational enterprises, determinants, panel data

### 1. Introduction

Foreign direct investment (FDI) is an important aspect of globalization and a dominant component of economic development strategies of both home and host countries. As Figure 1 shows, inward FDI have been rising rapidly since 1990. In the recent years, the emerging-market and developing economies have surpassed advanced economies in receiving capital inflows. This is a manifestation of the increasing receptive attitude towards inward FDI and the consequent changes undertaken by governments to institutions and incentives in order to facilitate these flows. Countries with insufficient domestic savings traditionally relied on foreign aid or foreign debt. But rapid accumulation of external borrowing can result in unsustainable debt dynamics with consequent negative effect on growth performance.

A major reason for the present positive attitude towards FDI is the certainty that these flows benefit both the home and host nations. Moreover, it also assures more stable source of external financing than portfolio investment. FDI flows are essentially non-debt-creating and have other direct and indirect advantages, such as transfer of advanced technology, managerial expertise, creation of job opportunities, spillover effects that involve ancillary supply chains, etc. from the host countries' point of view. These benefits have persuaded the host nations to reduce the barriers of inward FDI. However, these benefits are assessed by the host countries against costs, such as loss of managerial control and risk of losing sovereignty. Some nations still resist the idea of inward FDI and are sceptical about opening up certain sectors due to state security considerations. Taking all these factors into account, it is not surprising that understanding the forces attracting inward FDI is of considerable interest to both economists and policy makers.

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*Acknowledgements:* I would like to acknowledge my supervisor, Dr. Črt Kostevc<sup>1</sup> for his invaluable guidance and Dr. Biswajit Banerjee<sup>2</sup> for his insightful comments and suggestions.

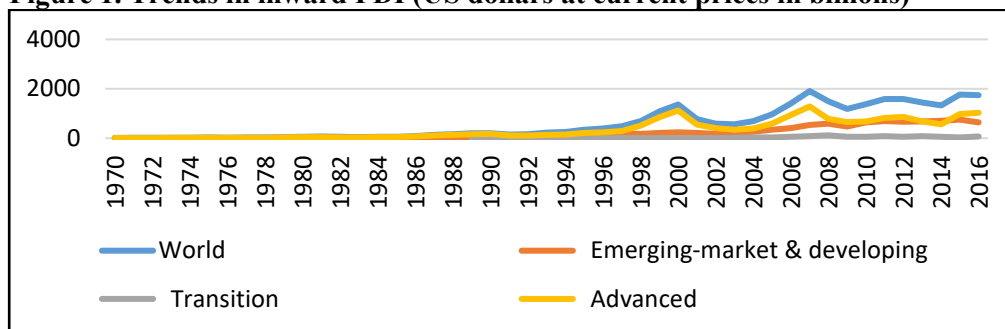
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Some nations still resist the idea of inward FDI and are sceptical about opening up certain sectors due to state security considerations. Taking all these factors into account, it is not surprising that understanding the forces attracting inward FDI is of considerable interest to both economists and policy makers.

Not surprisingly, much attention has been given to empirically identifying the important determinants of inward FDI and the implication of the findings for policy formulation and implementation. The bulk of the empirical literature is focused on studies of a single country or a small set of countries.

**Figure 1. Trends in inward FDI (US dollars at current prices in billions)**



Source: Authors' compilation from UNCTAD<sup>1</sup>

This paper builds on and extends the existing literature by examining the determinants of FDI inflows over a longer time horizon and with broader country scope. I contribute to the literature by analysing a wide set of determinants associated with FDI inflows into the four country groupings (advanced, emerging-market, developing and transition economies). In particular, the main contributions of this paper are that I compare the determinants of FDI inflows for the four broad groups of countries and also examine how the evolution of FDI flows to the different country groups that have been impacted by economic crises. The results indicate that the determinants of inward FDI have changed over time and that the patterns are not uniform across the four country groups. It also supports the general observation that some factors are indeed relevant determinants of inward FDI in almost all countries but to different extents, thereby suggesting that policies to attract FDI into those areas should focus improving these country groups' determinants.

The remainder of the paper is organized as follows. Section 2 recalls the literature of theoretical and empirical studies that have examined various factors attracting capital inflows. Section 3 describes the data and the methodology. Section 4 reports the empirical results, and Section 5 concludes.

## 2. Determinants of inward FDI: theoretical and empirical background

The literature on determinants of inward FDI is extensive. Some notable surveys of the literature include— Blonigen (2005), Iršová & Havránek (2013), Tang, Yip, & Ozturk (2014), Donnelly (2014), Paul & Singh (2017) and Teixeira, Forte, & Assunção (2017). In this section, the theoretical considerations behind inward FDI are reviewed and the findings of selected recent empirical studies are summarized.

<sup>1</sup>UNCTAD is United Nations Conference on Trade and Development

## **2.1. Theories of inward FDI**

There are many theories, which explain why multinational enterprises (MNEs) are interested in investing abroad and why they choose one particular country over another for investment. MacDougall (1958) was one of the earliest researchers to analyse FDI flows within the framework of a model that assumed a perfectly competitive market structure. Later, Kemp (1964) proposed a two-country model, and stated that capital moves freely from a capital-abundant country to a capital-scarce country. As a result, the marginal productivity of capital tends to equalize between the two countries.

Hymer (1960) relaxed the assumption of a perfectly competitive market structure and developed a theory based on an imperfect market setting. This approach was subsequently followed by Lemfalussy (1961), Kindleberger (1969), Knickerbocker (1973), Caves (1974), Dunning (1974), and Vaitsos (1976). Hymer used the term “firm-specific” advantage to build his theory. His theory states that firms operating abroad have to confront a number of challenges, the biggest of which is to compete with domestic firms that possess a number of advantages in terms of culture, language, legal system, etc. Also, foreign firms should have some form of market power in order to gain profit from the international investment which compensates these local factors. In the reality of imperfect competition, firms are able to take advantage of their market power to reap profits by investing abroad. Some other researchers also supported this argument. For example, according to Graham & Krugman (1989), the main reason why European firms invest in the United States is because of technological advantage.

On the other hand, Robock & Simmond (1983) claimed that investing abroad is not the only way for firms to exploit firm-specific advantage as firms could manifest their advantages through exporting or licensing. The choice between FDI and licensing/exports is influenced by a host of factors, including local market conditions and size, local government policy, and the riskiness of investment, etc.

Though Hymer’s (1960) theory was supported by many researchers, it fails to explain in which locations and when FDI takes place. Later, his theory was extended by Kindleberger (1969) on the basis of monopolistic market framework. Kindleberger claimed that the advantages enjoyed by MNEs could be valuable only when the market is imperfect. He also added that, as long as firms’ monopoly profits are high, they are more inclined to invest abroad. Firms with advanced technology prefer to invest in a foreign country instead of sharing it with potential competitors in the foreign market.

Balassa (1966) hypothesized that investors are attracted to economies with large market size as it facilitates cost minimization and specialization of the factors of production. This hypothesis was confirmed in a study by Edward (1991) on FDI flows from OECD<sup>2</sup> countries to least developed countries (LDCs). He found that bigger the market size of a country, the larger was its share in the total FDI inflows of the world.

A prerequisite for exploitation of a firm’s monopolistic advantages abroad is the support of the host country’s policy. It may be that for the purpose of national interest, the host government does not permit free entry of foreign firms into the country. Several hypotheses fall under this imperfect market assumption, of which the location hypothesis and the eclectic theories are the two main models.

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<sup>2</sup>OECD is Organisation for Economic Cooperation and Development

According to location hypothesis (first theory), location determinants of FDI play a vital role in attracting good number of funds. For instance, the locational advantage of labour with low wage rates (cheap labour) is an immobile factor of production. But evidence in support of this locational hypothesis is varied. Riedel (1975) found that lower wage rates is one the main factors that determines export-oriented FDI in Taiwan. Furthermore, Saunders (1983), Schneider & Frey (1985), and Culem (1988) found that a rise in labour cost discouraged capital inflows. In contrast, Hale & Xu (2016) claimed that a higher wage rate will not deter FDI inflows if the host country has a skilled labour force.

The second theory under the imperfect market assumption was developed by Dunning (1977, 1979 and 1988) that is known as the eclectic theory or the OLI theory. According to Dunning's theory, there are three main groups of determinants of inward FDI, namely: OLI, where O stands for ownership, L stands for location and I stand for internalization.

Ownership advantage is based on Hymer's firm-specific advantages which address the question of why some firms but not others go abroad, and suggest that a successful MNE has some firm-specific advantages which allow it to overcome the costs of operating in a foreign country. It includes a firm's superiority over its competitors in terms of marketing practices or on the technological front. Location advantages focus on the question of where an MNE chooses to locate. It determines the country-specific advantages, which a firm gain when investing abroad. Finally, internalization advantages influence how a firm chooses to operate autonomously in the foreign country rather than licensing them to another party.

**Table 1. Main motives of inward FDI**

<b>Inward FDI motives</b>	<b>Description</b>
<b>Market-seeking FDI</b>	Invest in a host country market in order to be closer to customers and to serve that market directly rather than through exporting (horizontal FDI). Market-seeking investors will rate the attractiveness of a host country mostly with respect to its market size and demand potential. They basically aim to serve the local and regional markets, by practicing tariff-jumping or export-substituting.
<b>Efficiency-seeking FDI</b>	Enterprises try to exploit economies of specialization and scope across the value chain, and will slice its production chain by allocating different parts (or tasks) to countries that allow low-cost production (vertical fragmentation), particularly where the cost of labor is taken into account.
<b>Asset-seeking FDI</b>	Aims to get access to advanced technologies, skills and other highly developed productive capabilities. Asset-seeking investors value locations depending on the quality of scientific, technological, and educational infrastructure they provide and on the availability of a rich pool of highly skilled labor.
<b>Resource-seeking FDI</b>	In order to exploit natural resources or agricultural production in the host country

Source: Dunning (1977)

In addition to OLI, there are several other institutional factors which also play an important role in determining inward FDI (Agarwal, 1980; Lizondo, 1991 and Moosa, 2002). For instance, political risk, good governance, natural resources, tax policy, trade barriers, etc. Wang & Swain (1995) found that political stability of host nations had a positive impact on FDI. Schneider & Frey (1985) concluded that without considering the governing factors

of the host nations the analysis of inward FDI will be incomplete. Furthermore, Campos & Kinoshita (2003) states that a part of inward FDI can be motivated by the availability of natural resources of the host country.

Finally, four main motives of inward FDI are presented in Table 1, which are not only the embodiment of the theories mentioned above, but also the model (Equation (1) in Sub-section 3.2) to be further tested in the later section (Section 4, Empirical results).

## **2.2. Empirical studies of inward FDI**

Since inward FDI helps in promoting growth and employment and facilitating a strong balance of payments position there has been a sharp rise in worldwide FDI since the 1980s (Carp, L., 2012; Inekwe, 2014 and Table 1, Section 1). This development has spawned a rapidly growing literature studying the drivers of inward FDI. As discussed in the previous sub-section (2.1) above, the existing literature is vast and reports a variety of theoretical models and frameworks that attempt to explain inward FDI and the location decision of MNEs.

Empirically, there are three main approaches used so far. Firstly, some studies use micro level data to get a deeper understanding of the factors driving inward FDI decisions of MNEs. In the second approach, bilateral inward FDI flows between countries is examined, inspired by the gravity-type model. And the third approach looks at the aggregate inward FDI flows into a country or a panel of countries. The various approaches reflect the availability of data and the research focus but also reflect the absence of a consensus as to how to model FDI flows.

The specifications in the empirical studies have included a variety of variables to test the hypotheses elaborated in the theoretical literature reviewed in Section 2.1. However, certain variables are common to most of the studies. These include (openness, market growth and potential, natural endowments, etc.). The inclusion of the other variables is guided by data availability and the main objectives of the paper. While most empirical studies included conventional variables, the inclusion of the less conventional ones differs between the various studies depending on the specific focus of the research.

A short summary is shown in Table 2. The variables included in the empirical models and the results obtained by 25 recent studies shown in Tables C1 to C5 in the Annex.

Variables such as openness and proxies for market size and growth (level of GDP and GDP growth, respectively) are common to virtually all the studies. The results are consistent with a priori expectations and support the hypothesis that inward FDI are positively associated with these variables. However, other macroeconomic variables are more sparsely included in the studies. Among these, of note, is the finding on the real exchange rate (REER) variable. Only 7 out of the 25 studies reviewed in Table 2 include the REER variable, and the results are mixed. In 5 of the studies, the coefficient on the REER is negative but not statistically significant, while in 2 others the coefficient is positive and statistically significant. However, for some variables like, firing cost, trade and public debt are considered in very few empirical studies. Despite the emphasis placed on the resource-seeking hypothesis, it is found that the natural endowment variable is entered in only 7 out of 25 studies. Out of those 7 studies, 5 appears with the expected positive and statistically significant sign in. When the measures of human capital, labour force and research & development were entered in the regression equations, all of them were positively related to FDI inflows.

**Table 2. Short summary of results of selected empirical studies published in year 2017**

Dependent variable FDI/GDP

	1	2	3	4	5
Author s	Dellis, Sondermann & Vansteenkiste	Stack, Ravishankar & Pentecost	Aziz	Shan, Lin, Li & Zeng	Kumari & Sharma
Year of publica tion	2017	2017	2017	2017	2017
<b>Sample description</b>					
Country coverage	Advanced economies	10 Eastern European countries	10 Arab countries	22 African countries	20 developing countries
Period coverage	2005 – 2014	1996 – 2007	1984 – 2012	2008 – 2014	1990 – 2012

Explanatory Variables: Those studies include several of the following variables: FDI stock, Openness, Market growth (proxied by GDP growth), Market size (proxied by GDP PPP), Gross Fixed Capital Formation, Inflation Rate, Real Interest Rate, Real Exchange Rate, Domestic Investment, Labour Force, Unemployment, Labour cost, Firing cost, Corporate Tax Rate, Corruption, Natural Endowments, human capital, Infrastructure, Political Stability, Public Debt, R&D.

		6	7	8	9	10
Authors		Akther & Akter	Teixeiraa, Fortea & Assunçãoa	Ahmad, Ismail & Nordin	Kaliappana, Khamis & Ismail	Hunady & Ovriska
Year of publication		2016	2016	2015	2015	2014
<b>Sample description</b>						
Country coverage		Banglades h	125 countries	Malaysia	ASEAN	EU- 15
Period coverage		2005 – 2015	1995 – 2012	1980 – 2013	2000 – 2010	004 – 2011

	<b>11</b>	<b>12</b>	<b>12</b>	<b>14</b>	<b>15</b>
<b>Auth ors</b>	Tang, Yip & Ozturk	Tintin	Liu, Daly & Varua	Buchanan, Le & Rishi	Castiglione, Gorbunova, Infante & Smirnova
<b>Year of publicatio n</b>	2014	2013	2013	2012	2012
<b>Sample description</b>					
Country coverage	Malaysia	CEEC	China	164 countries	Russia
Period coverage	1980 – 2008	1996 – 2009	2001 – 2009	1996 – 2006	1996 – 2006

	<b>16</b>	<b>17</b>	<b>18</b>	<b>19</b>	<b>20</b>
<b>Authors</b>	Anwara & Nguyenb	Cuyvers, Soeng, Plasmans & Bulcke	Vijayakumar, Sridharan & Rao	Kinda	Demirhan & Masca
<b>Year of publicati on</b>	2011	2011	2010	2010	2008
<b>Sample description</b>					
Country coverage	Vietnam	Cambodia	BRICS	77 developin g countries	38 developin g countries
Period coverage	1990 – 2007	1995 – 2005	1975 – 2007	1996 – 2006	2000 – 2004

	<b>21</b>	<b>22</b>	<b>23</b>	<b>24</b>	<b>25</b>
<b>Authors</b>	Moosa & Cardak	Bevan & Estrin	Sun, Tong & Yu	Cheng a, & Kwan	Kimu ra & Lee
<b>Year of publication</b>	2006	2004	2002	2000	1998
<b>Sample description</b>					
Country coverage	138 countries.	EU	China	China	Korea
Period coverage	1994 – 2005	1991 – 2001	1986 – 1998	1985 – 1995	1981 – 1995

### 3. Data and methodology

The first sub-section (3.1) gives a detailed description of the dataset to be used for empirical estimation. It also includes a table (Table 3) that shows the expected sign and sources of the variables to be used for empirical estimation. In the second sub-section (3.2), the baseline specification (regression equation) and the empirical methodologies to be used is discussed.

### 3.1. Data description

The variables that are considered in this study are in line with the theoretical considerations behind inward FDI and with the variables that appear in most empirical studies. However, because the data on certain variables are not uniformly available across countries or are not available consistently across time, the list of variables is limited. Due to issues with data availability I had to forego the inclusion of some potentially relevant variables. For instance, labour force with tertiary education, political stability, air transport, etc. While it would have been desirable to include of human capital and doing business indicators, many observations would be lost had I included these variables in the specification. For example, the inclusion of labour force with tertiary education and doing business results in the number of valid observations falling from 2200 to 450 and 1500 to 222 respectively.

Table 3 describes the list of variables used in the econometric estimation, their source and expected sign.

**Table 3. Description of variables**

Variable	Description	Expected sign	Source
<b>Dependent variable</b>			
IFDI	Inflow of FDI (% of GDP)		WB-WDI
<b>Independent variables</b>			
OPEN	Trade openness index=(exports+imports)/GDP	+	WB-WDI
GDPG <sub>(t-1)</sub>	GDP per capita growth (annual %) lagged by 1 year.	+/-	WB-WDI
GDPP	GDP, PPP (constant 2011 international \$)	+	WB-WDI
REER <sub>(t-1)</sub>	Real Effective Exchange Rate index (2010=100) lagged by 1 year.	+/- (?)	International Monetary Fund
GFCF	Gross fixed capital formation (% of GDP)	+	WB-WDI
ORES	Ores and metals exports (% of merchandise exports)	+	WB-WDI
INFRA	Fixed telephone subscription (per 100 person)	+	WB-WDI
GOV	Control of Corruption captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests. Estimate gives the country's score on the aggregate indicator, in units of a standard normal distribution, i.e. ranging from approximately -2.5 to 2.5.	+/-	WB-Governance Indicator

Source: Authors' compilation. Note: WB-WDI: World Bank - World Development Indicators.

The descriptive statistics and correlation matrix is presented in the Appendix (Table A1 and Tables A2 respectively). The sample is grouped into 4 different country groups (listed in Appendix Table A3), namely— advanced, emerging-market, developing and transition economies. The country groupings follow the classification by UNCTAD. However, UNCTAD's classification includes many emerging-market economies simultaneously as



developing economies. These cases of emerging-market economies have been removed from the developing country group.

### 3.2. Econometric specification

Several regression equations are estimated for the entire sample and for each country group. The basic specification consistent with theory and hypotheses espoused in literature is shown below.

$$\text{IFDI} = \alpha + \beta_1 \text{OPEN} + \beta_2 \text{GDPG}_{(t-1)} + \beta_3 \text{GDPP} + \beta_4 \text{REER}_{(t-1)} + \beta_4 \text{GFCF} + \beta_5 \text{ORES} + \beta_5 \text{INFRA} + \beta_6 \text{GOV} + \mu \quad (1)$$

Subsequently I add to the basic specification in two important ways. I include dummies for the four country groups and time dummies for crises periods. Then, I estimate several regression equations for the entire sample, each country group and then examine if there is significant difference in the coefficients on the explanatory variables between different country groups, particularly between emerging-market and developing economies by considering the dummies representing the major economic crises.

The regression equations are estimated by the Ordinary Least Square (OLS) method, as has been done by 21 out of 25 studies reviewed earlier in Table 2. As a means of robustness check this paper includes time fixed-effects (FE) in the main regressions, including the dummies representing economic crises. Additionally, to deal endogeneity problem and to allow for the possibility of causation, this paper applies system generalized method of moments (GMM) as proposed by Arellano & Bover (1995) and Blundell-Bond (1998) building on Arellano-Bond (1991). This is also done to check for possible dynamic effects in the regressions, i.e. to see whether inward FDI is correlated with past observations. Compared to the baseline regression, this means adding the lagged dependent variable on the right-hand side.

## 4. Empirical results

This section presents the empirical results, where the first section (4.1) gives an overall view of the determinants of FDI inflows for the entire sample. The second section (4.2) reports the determinants of FDI inflows by the major country groups, followed by a comparison of the determinants of FDI inflows between emerging-market and developing economies in section 4.3. The last section (4.4) does a robustness check of main results with other empirical methods.

### 4.1. Determinants of inward FDI for the entire sample

Table 4 shows the determinants of inward FDI for the entire sample of countries that includes— advanced, emerging-market, developing and transition economies. The specification includes the standard macroeconomic variables discussed in the literature survey and four time dummies representing the economic crises periods (Asian crisis, Dotcom Bubble, Global Financial crisis and Sovereign Debt crisis), in order to allow for variations in the dynamics of FDI inflows over time.

Table 4, column 1 shows that inward FDI are positively related to OPEN, ORES (natural resource intensity) and INFRA. These findings are in line with expectations and with the findings of the existing literature. However, I find that contrary to expectations, coefficients on  $\text{GDPG}_{(t-1)}$  i.e. lagged GDP growth, GDPP (the market size variable) and the  $\text{REER}_{(t-1)}$  i.e. lagged REER are not statistically significant. These results have to be treated with a degree of caution because the responsiveness of inward FDI flows are likely to be different

for different groups of countries. So, the estimates of consolidated sample, might not be representative for country heterogeneity. Therefore, in an alternative specification, I include dummies for advanced, emerging-market and developing countries (considering transition economies as the omitted category). Results show that the coefficients on emerging-market and developing economies are negative and statistically significant (see Table 4, column 2), suggesting that other things remaining the same, inward FDI flows are smaller to these countries groups relative to advanced and transition economies. The coefficient on the emerging-market dummy is more negative than the coefficient on developing economies indicating relatively weaker inflows to emerging-market economies compared to developing economies. Now looking at the economic crises, there was a negative inflow of FDI during the Dotcom Bubble (2001) crisis while in case of Global Financial crisis (2007 – 2008) it experienced an increase in capital inflows.

**Table 4. Determinants of inward FDI for entire sample**

Dependent variable: IFDI (the ratio of IFDI flow to GDP)

	<b>1</b>	<b>2</b>
	<b>Full-sample<sup>1</sup></b>	<b>Full-sample<sup>2</sup></b>
OPEN	0.0942*** (0.0161)	0.0963*** (0.0172)
GDPG <sub>(t-1)</sub>	-0.0158 (0.0544)	-0.0224 (0.0554)
GDPG	1.29e <sup>-7</sup> (2.62e <sup>-7</sup> )	1.03e <sup>-7</sup> (2.60e <sup>-7</sup> )
REER <sub>(t-1)</sub>	0.00017 (0.00022)	0.000175 (0.000215)
GFCF	0.0551 (0.0433)	0.0599 (0.0401)
ORES	0.0508*** (0.00959)	0.0494*** (0.00983)
INFRA	0.0772*** (0.0248)	0.0457** (0.0205)
GOV	-0.37 (0.342)	-0.53 (0.396)
<b>Country groups</b>		
Advanced		0.967 (1.138)
Emerging-market		-2.264*** (0.681)
Developing		-1.161* (0.691)
<b>Economic crisis</b>		
Asian crisis (1997-1998)	-0.576 (0.421)	-0.569 (0.425)
Dotcom Bubble (2001)	-0.916* (0.487)	-0.831* (0.475)
Global Financial crisis (2007-2008)	3.017* (1.718)	3.042* (1.72)
Sovereign Debt crisis (2011-2012)	1.121 (1.125)	1.078 (1.111)
<b>Constant</b>	-6.739*** (1.514)	-5.525*** (1.508)
<b>Observations</b>	2,669	2,669
<b>R-squared</b>	0.121	0.124
<b>F-ratio</b>	30.53	25.04
	(0.000)	(0.000)

<sup>1</sup>Full-sample without any country group dummy. <sup>2</sup>Full-sample with omitted country group as the transition economies. Figures in parentheses are robust standard errors

\*\*\*, \*\*, \* are significant respectively to p<0.01, p<0.05, p<0.1 e=10

#### 4.2. Investigating the determinants of inward FDI by major country groups

Now as I look at the determinants of FDI inflows by major country groups (see Table 5), the results are more profound. It is clear that OPEN is positively significant for advanced, emerging-market and developing economies as these country groups might have adopted

policies that favour foreign trade, encouraging domestic producers to export, increasing their profitability and attracting foreign investors. Additionally, the market-growth (GDPG) has a positive impact on emerging-market and transition economies, which is in line with many previous studies (Kinda, 2010; Carp, L., 2012 and Kumari & Sharma, 2017). These economies offer more opportunities for higher profits to the foreign investors as they are at their growing stage.

Surprisingly, the market-size determinant (GDPP) is negatively related to developing economies but positively significant in case of advanced economies. In support of the negative relation between GDPP and developing economies, Holland & Pain (1998) and Asiedu (2002) too found that market-size as insignificant determinants of FDI inflows. Again, the developing economies has a negative significant relationship between inward FDI and real exchange rate (REER) indicating that it receives smaller amount of FDI with a more appreciated lagged exchange rate. In this situation, the investors choose to produce domestically rather than investing abroad. In contrast, the REER have a positive impact on transition economies which states that as the currency depreciates, the purchasing power of the investors in foreign currency terms is enhanced, increasing the inflow of FDI to the transition economies.

The negative and insignificant effect of GFCF makes it clear that the privatization and ownership changes do not affect GFCF of emerging-market economies which is in line with the findings of Lipsey (2000) and Krkoska (2001). On the other hand, the GFCF of developing and transition economies has a positive impact on FDI inflows. It is also evident that FDI inflows of emerging-market and developing economies is largely driven by natural resources (ORES). In short, my results are consistent with the resource-seeking strategy (Dunning & Lundan, 2008). With respect to infrastructure, fixed telephone subscription per 100 inhabitants helps to build up the confidence of foreign investors and increase FDI inflows for three main country groups– advanced, emerging-market and developing economies which is similar to the findings of several extant studies (Asiedu, 2006 and Xaypanya et. al., 2015).

Global financial crisis (2007-2008) which originated in the advanced economies and caused a pronounced slowdown in the global economy had a positive significant impact on emerging- market and developing economies. In other words, during the crisis both these country groups attracted FDI inflows.

There might be two main reasons behind this attractiveness to investors.

First, due to large exchange rate depreciation the domestic production costs of foreign firms is reduced making the crisis-affected region more attractive for export-oriented investment.

Second, the sudden fall of asset prices offer attractive buying opportunities to the foreign investors. In case of the Sovereign Debt crisis (2011-2012), which started in the Eurozone and later intensified by the Greek crisis affected the emerging-market economies the most. Emerging-market and developing economies were statistically significant throughout that period where OPEN, ORES and INFRA were the main determinants in attracting capital inflows. However, the inward FDI of emerging-market economies were negative during that crisis period. The developing economies attracted foreign investors may be due to their liberal regime (due to crisis and falling of asset prices), encouraging “fire-sale” FDI (leading to mergers and acquisitions).

**Table 5. Determinants of inward FDI by major country groups**

Dependent variable: IFDI (the ratio of IFDI flow to GDP)

	1	2	3	4
	<b>Advanced</b>	<b>Emerging-market</b>	<b>Developing</b>	<b>Transition</b>
OPEN	0.213*** (0.0558)	0.0386*** (0.00479)	0.0546*** (0.00599)	0.00673 (0.017)
GDPG <sub>(t-1)</sub>	-0.402 (0.306)	0.126*** (0.0377)	0.0215 (0.0325)	0.129* (0.0661)
GDP	4.91e <sup>-13</sup> ** (2.28e <sup>-13</sup> )	8.86e <sup>-14</sup> (7.14e <sup>-14</sup> )	-2.43e <sup>-12</sup> *** (9.08e <sup>-13</sup> )	-3.17e <sup>-13</sup> (4.70e <sup>-13</sup> )
REER <sub>(t-1)</sub>	0.000429 (0.000615)	-0.000132 (0.000128)	-0.000140* (7.99e <sup>-5</sup> )	0.000375** (0.000188)
GFCF	0.049 (0.192)	-0.0393 (0.0321)	0.138*** (0.0303)	0.436*** (0.144)
ORES	-0.0304 (0.135)	0.0866*** (0.0163)	0.0445*** (0.0094)	-0.0343 (0.0311)
INFRA	0.218** (0.0909)	0.0494*** (0.0134)	0.0953*** (0.018)	-0.146*** (0.0494)
GOV	-0.354 (0.928)	-0.00962 (0.206)	-0.227 (0.291)	-0.717 (0.708)
<b>Economic crisis</b>				
Asian crisis (1997-1998)	-0.00242 (1.52)	0.25 (0.342)	-0.463 (0.421)	-0.682 (1.374)
Dotcom Bubble (2001)	-0.364 (1.642)	-0.306 (0.535)	-0.619 (0.457)	-0.796 (1.745)
Global Financial crisis (2007-2008)	8.717 (6.669)	2.010** (1.016)	1.888*** (0.492)	0.657 (1.394)
Sovereign Debt crisis (2011-2012)	2.358 (3.545)	-0.650* (0.333)	1.066* (0.585)	0.649 (0.75)
<b>Constant</b>	-24.24** (9.89)	-0.43 (0.621)	-4.292*** (0.814)	-3.828 (3.868)
<b>Observations</b>	697	648	1,234	231
<b>R-squared</b>	0.16	0.364	0.419	0.34

Figures in parentheses are robust standard errors. \*\*\*, \*\*, \* are significant respectively to  $p < 0.01$ ,  $p < 0.05$ ,  $p < 0.1$   $e=10$

### 4.3. Comparison of determinants of inward FDI between emerging-market and developing economies

Now when I look at the estimates for emerging-market and developing economies (Table 6, column 1), I find that inward FDI flows are more attracted to open (OPEN) economies with huge stock of physical assets (GFCF), good telecommunication service (INFRA) and natural resources (ORES). However, level of GDP which is traditionally proxy for market size appear with an unexpected negative sign, but statistically significant at 10% level. But the size of the coefficient suggest that the impact is small. This finding could be interpreted that FDI flows go to destinations with less growth and lower level of GDP because the returns may be higher. I also find a negative significant relationship between inward FDI and real exchange rate (REER) indicating that inward FDI are smaller in countries with a more appreciated lagged exchange rate. Feenstra (1998) also obtained a similar result and

noted that this could be suggestive that host country appreciation reduces the wealth of foreign investors and will reduce investments. In addition, inward FDI which are governed by locational advantages that serves as a springboard for markets for exports to developing countries will be deterred by exchange rate appreciation in the host country because it makes exports more expensive.

**Table 6. Contrasting determinants of inward FDI for emerging-market and developing economies.** Dependent variable: IFDI (the ratio of IFDI flow to GDP)

	1	2	3	4
	Emerging-market & developing	Emerging- market	Developing	Interaction with emerging- market
OPEN	0.0458*** (0.00231)	0.0386*** (0.00305)	0.0546*** (0.00339)	-0.0160*** (0.00479)
GDPG <sub>(t-1)</sub>	0.043 (0.0279)	0.126*** (0.04)	0.0215 (0.0361)	0.104* (0.0579)
GDPP	-3.04e <sup>-13</sup> *** (9.20e <sup>-14</sup> )	8.86e <sup>-14</sup> (9.87e <sup>-14</sup> )	-2.43e <sup>-12</sup> ** (9.98e <sup>-13</sup> )	2.53e <sup>-12</sup> *** (9.40e <sup>-13</sup> )
REER <sub>(t-1)</sub>	-0.000158** (6.64e <sup>-5</sup> )	-0.000132 (0.000103)	-0.000140* (8.30e <sup>-5</sup> )	7.93e <sup>-6</sup> (0.000144)
GFCF	0.122*** (0.0154)	-0.0393 (0.0329)	0.138*** (0.0178)	-0.178*** (0.0422)
ORES	0.0638*** (0.0111)	0.0494*** (0.0149)	0.0953*** (0.0176)	-0.0460* (0.024)
INFRA	0.0560*** (0.00715)	0.0866*** (0.0129)	0.0445*** (0.00857)	0.0421** (0.0172)
GOV	-0.0576 (0.183)	-0.00962 (0.239)	-0.227 (0.272)	0.218 (0.379)
<b>Economic crisis</b>				
Asian crisis (1997-1998)	-0.369 (0.381)	0.25 (0.524)	-0.463 (0.5)	0.774 (0.313)
Dotcom Bubble (2001)	-0.413 (0.475)	-0.306 (0.681)	-0.619 (0.607)	0.982 (0.123)
Global Financial crisis (2007-2008)	1.941*** (0.357)	2.010*** (0.509)	1.888*** (0.455)	-1.717** (0.735)
Sovereign Debt crisis (2011-2012)	0.542 (0.359)	-0.65 (0.522)	1.066** (0.457)	0.749 (0.427)
<b>Constant</b>	-3.390*** (0.461)	-0.43 (0.786)	-4.292*** (0.571)	-4.292*** (0.534)
<b>Observations</b>	1,882	648	1,234	1,882
<b>R-squared</b>	0.37	0.364	0.419	0.41
<b>F-ratio</b>	91.66 (0.000)	30.25 (0.000)	73.32 (0.000)	51.61 (0.000)
<b>RSS</b>	39161.5822	9051.856	27646.389	36697.405

Figures in parentheses are standard errors. \*\*\*, \*\*, \* are significant respectively to  $p < 0.01$ ,  $p < 0.05$ ,  $p < 0.1$   $e=10$

It is of interest to determine whether there is significant difference in the coefficients on the other explanatory variables between emerging-market and developing economies. It is performed in two alternative ways. First, I test for the equality of all the coefficients for emerging-market and developing economies by conducting Chow test for equality of coefficients (this is the test of homogeneity of the FDI equations for emerging-market and developing countries). The second method, estimates a regression equation for the combined sample of emerging-market and developing countries with the same explanatory variables but with the addition of a set of intercept and slope dummy variables representing the products of each of the independent variables and the dummy variable for emerging-market economies. In this specification, I focus on the interaction terms to determine which of the particular variables are different between the two country groups.

For the Chow test the computed F-ratio is given by:

$$\frac{\{RSS_{EMER+DEVG} - (RSS_{EMER} + RSS_{DEVG})\}/K}{(RSS_{EMER} + RSS_{DEVG})/(N_{EMER} + N_{DEVG} - 2K)}$$

where, K is the number of independent variables including the constant term, N is the number of observations and RSS is the residual sum of squares.

The Chow test yields an F-ratio of 10.353 (critical value:  $F_{0.01} = 2.77$ ): the FDI equation for the two country groups are significantly different at the 1% level.

When I look at the equation with interaction terms (see Table 5, column 4), it is found that the coefficients on corruption index (GOV) for emerging-market economies are not significantly different from comparable coefficients for developing country group. The coefficients on openness (OPEN), GFCF, natural endowments ORES and the time dummy representing Global Financial crisis (2007 – 2008) for emerging-market economies are statistically significant and negative compared to those for developing economies. In other words, for a given degree of openness, inward FDI is lower for emerging-market economies compared to developing countries, GFCF and ORES matters less for inward FDI flows to emerging-market economies compared to developing economies and other things remaining the same, emerging-market economies experienced a smaller flow of FDI during Global Financial crisis compared to developing economies.

In contrast, the regression result indicates the economic growth (GDPG) and market size (GDPP) have a stronger positive influence on inward FDI flow to emerging-market than to developing economies.

#### **4.4. Robustness checks**

Later on, FE and system GMM estimations are performed as a robustness check which also adds to the existing literature. For the system GMM to be valid, it is essential that its preconditions are met, as otherwise instrumental variable (IV) regression is actually preferable. With a view to testing whether GMM is actually more desirable than IV, I will need to see whether estimating a dynamic model is justified (i.e. is the lagged dependent variable significant) and whether heteroskedasticity is present. In this case, the GMM estimator is more efficient than the simple IV estimator. By contrast, if heteroskedasticity is not present, the GMM estimator is no worse asymptotically than the IV estimator. In case of homoscedasticity and if the lagged dependent variable is not significant I would use

simple IV regressions. However, for this approach I will need to ensure that two assumptions are satisfied. First, relevant instruments would need to be distributed independently of the error process, and second, they would need to be sufficiently correlated with the included endogenous regressors.

The robustness check results are reported in Appendix B which validates the baseline findings.

## **5. Conclusion**

FDI flows have increased manifold in the last two decades. Increasingly these flows have shifted towards emerging-market and developing economies. In view of the potential beneficial effects of FDI for both the home and host countries researchers have devoted considerable attention in analysing the determinants of inward FDI flows.

This paper sheds light on the determinants of inward FDI flows across a very large group of countries— advanced, emerging-market, developing and transition economies over a time period that spans the Asian crisis, Dotcom Bubble, Global Financial crisis and Sovereign Debt crisis. The focus is on the traditional variables such as— openness, market growth and size, competitiveness, capital and resource endowments, physical infrastructure and governance. However, lack of data on certain variables uniformly across countries have precluded from inclusion of wider range of explanatory variables.

The results are in line with earlier studies of the literature. Inflows are positively influenced by openness, market growth and potential and are also attracted to destinations that are resource-rich having adequate infrastructure. In addition, the likelihood of inward FDI flows increases for countries with the depreciation of the real exchange rate.

Within this pattern of results that apply qualitatively for all country groups, it is observed that the sensitivity of inward FDI flows by various variables are different for advanced, emerging-market, developing and transition economies. Notably, the openness factor is stronger for developing than for emerging-market economies. Whereas, growth and potential of GDP are more significant for emerging-market economies. It is also notable that the sensitivity of inflows to quality of governance is not significantly different between emerging-market and developing economies. The results confirm the increasing importance of good INFRA for inward FDI flows to advanced economies whereas for emerging-market and developing economies the importance of this variable was strongest during the period of Global Financial crisis (2007-2008).

Such results highlight the prominence of governmental actions over improving the investment environment, in particular the importance of investing in infrastructure, improving the quality of institutions (by controlling corruption and enforcing contracts and property rights), and promoting policies to open/ liberalise the economy (by adopting export-oriented policies and eliminating/lowering taxes on corporate profits).

The results of the estimation should be treated with caution as it is based on aggregate inward FDI flows and not on bilateral inward FDI flows (since suitable data on bilateral inward FDI flows is available only for a few developing countries and years). Further research could be devoted to examining the relevance of these factors at the bilateral and firm levels (that extends beyond the case of an individual country) and also examine the role played by various domestic regulatory and institutional bottlenecks that might attract inward FDI flows.

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**Appendices****A. Description of the dataset****Table A1. Descriptive statistics**

Variable	Observations	Mean	Std. Dev.	Min	Max
IFDI	8,711	3.385762	11.97421	-82.8921	466.5622
OPEN	13,200	53.45661	53.11015	0	531.7374
GDPG <sub>(t-1)</sub>	10,063	2.086261	5.782488	-64.99726	141.6418
GDPP	5,978	2.73e <sup>12</sup>	8.56e <sup>12</sup>	2.13e <sup>10</sup>	1.08e <sup>14</sup>
REER <sub>(t-1)</sub>	5,221	2465.133	1503.353	1	5038
GFCF	8,612	22.581	9.040297	-2.424358	219.0694
ORES	7,507	7.847904	14.16915	0	99.0677
INFRA	10,128	15.44875	18.32691	0	132.9533
GOV	3,914	0.4166123	28.23524	-2.574585	1765.154

**Table A2. Correlation matrix**

	IFDI	OPEN	GDPG <sub>(t-1)</sub>	GDPP	REER <sub>(t-1)</sub>	GFCF	INFRA	ORE S	GOV
<b>IFDI</b>	1.000								
	(8711)								
<b>OPEN</b>	0.2714 *	1.000							
	0.000								
	(8711)	(13200)							
<b>GDPG<sub>(t-1)</sub></b>	0.0940 *	0.0982 *	1.000						
	0.000	0.000							
	(8353)	(10063)	(10063)						
<b>GDPP</b>	- 0.0462 *	- 0.1493 *	0.0237	1.000					
	0.0005	0.000	0.0696						
	(5723)	(5978)	(5888)	(5978)					
<b>REER<sub>(t-1)</sub></b>	0.0141	0.0328 *	0.0412*	- 0.0336 *	1.000				
	0.3269	0.0177	0.0033	0.0254					
	(4866)	(5221)	(5100)	(4423)	(5221)				
<b>GFCF</b>	0.1815 *	0.3071 *	0.3048*	0.0769 *	0.0003	1.000			
	0.000	0.000	0.000	0.000	0.9858				
	(7630)	(8612)	(8332)	(5428)	(4572)	(8612)			

<b>INFRA</b>	0.1243 *	0.1059 *	0.0272*	0.1304 *	0.0056	0.0581 *	1.000		
	0.000	0.000	0.0111	0.000	0.6911	0.000			
	(8169)	(10128)	(8694)	(5901)	(4986)	(7779)	(10128)		
<b>ORES</b>	0.0077	- 0.0364 *	-0.0507*	- 0.0831 *	0.0061	- 0.0643 *	- 0.1645 *	1.000	
	0.5376	0.0016	0.000	0.000	0.7073	0.000	0.000		
	(6447)	(7507)	(6948)	(4497)	(3815)	(6465)	(6515)	(7507 )	
<b>GOV</b>	0.0014	-0.0152	0.0145	0.0013	-0.0147	0.0646 *	0.0133	- 0.013 2	1.000
	0.9343	0.3432	0.3738	0.9386	0.3791	0.0002	0.4093	0.471 8	
	(3666)	(3914)	(3762)	(3721)	(3584)	(3410)	(3859)	(2984 )	(3914 )

Figures in parentheses are number of observation.

\* are significant at  $p < 0.05$

**Table A3. List of country groupings**

Advanced economies		
1. America	Canada, United States	
2. Asia	Israel, Japan	
3. Europe	Austria, Belgium, Cyprus, Denmark, Estonia, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, United Kingdom	
4. Oceania	Australia, New Zealand	
Emerging-market economies		
1. Africa	Egypt, Nigeria & South Africa	
2. America	Argentina, Brazil, Chile, Colombia, Ecuador, Mexico, Peru, Uruguay, Venezuela	
3. Asia	China, Korea, India, Indonesia, Malaysia, Philippines, Singapore, Thailand	
4. Middle-East	Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, Turkey, United Arab Emirates	
5. Europe	Bulgaria, Croatia, Czech Republic, Hungary, Poland, Romania, Russian Federation	
Developing economies		
1. Africa	Eastern Africa	Burundi, Djibouti, Ethiopia, Kenya, Madagascar, Malawi, Mauritius, Mozambique, Rwanda, Somalia, Uganda, United Republic of, Tanzania, Zambia, Zimbabwe
	Middle Africa	Angola, Cameroon, Central African Republic, Chad, Congo, Dem. Rep. of the Congo, Gabon
	Northern Africa	Algeria, Libya, Morocco, Sudan, Tunisia
	South Africa	Botswana, Lesotho, Namibia

	Western Africa	Benin, Burkina Faso, Cabo Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Senegal, Sierra Leone & Togo
2. America	Caribbean	Antigua and Barbuda, Barbados, Cuba, Dominica, Dominican Republic, Grenada, Haiti, Jamaica, Trinidad and Tobago
	Central America	Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua
3. Asia	Eastern	Mongolia
	Southern	Afghanistan, Bangladesh, Bhutan, Iran (Islamic Republic of), Maldives, Nepal, Pakistan, Sri Lanka
	South-Eastern	Cambodia, Lao People's Dem. Rep., Myanmar, Viet Nam
	Western Asia	Iraq, Jordan, Lebanon, Yemen
4. Oceania		Fiji, Guam, Kiribati, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu,
<b>Transition economies</b>		Albania, Armenia, Azerbaijan, Bosnia & Herzegovina, Georgia, Kazakhstan, Kyrgyzstan, Montenegro, Moldova, Serbia, Tajikistan, Macedonia, Turkmenistan, Ukraine, Uzbekistan

Sample include developed countries, emerging-market economies, developing countries and transition economies. Groupings follow the classification by UNCTAD. However, countries classified as emerging-market economies have been removed from developing country group if they also appear there.

## B. Additional empirical results

**Table B1. Determinants of inward FDI- full sample**

Dependent variable: IFDI (the ratio of IFDI flow to GDP)

	FE	System GMM
IFDI <sub>(t-1)</sub>		0.440**
		(0.188)
OPEN	0.0397	0.132*
	(0.0253)	(0.0697)
GDPG <sub>(t-1)</sub>	-0.0709	-0.176
	(0.0836)	(0.129)
GDPP	-1.18e <sup>-10***</sup>	-1.46e <sup>-5*</sup>
	(3.09e <sup>-7</sup> )	(1.48e <sup>-6</sup> )
REER <sub>(t-1)</sub>	-4.70e <sup>-5</sup>	-0.000754
	(0.000238)	(0.00588)
GFCF	0.221***	0.836
	(0.0686)	(0.815)
ORES	0.00138	-0.0019
	(0.0503)	(0.269)

INFRA	0.0449	0.00176
	(0.0325)	(0.276)
GOV	2.636	5.853
	(2.471)	(5.603)
<b>Economic crisis</b>		
Asian crisis	-0.983	-0.908
(1997-1998)	(0.745)	(1.605)
Dotcom Bubble	-0.716	-1.142
(2001)	(0.607)	(1.712)
Global Financial crisis	3.270*	1.286
(2007-2008)	(1.919)	(4.717)
Sovereign Debt crisis	1.31	2.468
(2011-2012)	(0.803)	(4.73)
<b>Constant</b>	-3.489	-15.2
	(2.597)	(25.3)
<b>Observations</b>	2,669	2,658
<b>R-squared</b>	0.021	
<b>Number of countries</b>	162	162

Figures in parentheses are robust standard errors.

\*\*\*, \*\*, \* are significant respectively to  $p < 0.01$ ,  $p < 0.05$ ,  $p < 0.1$   
e=10

**Table B2. Determinants of inward FDI at the time of major economic crises- FE**

Dependent variable: IFDI (the ratio of IFDI flow to GDP)

	Advanced	Emerging-market	Developing	Transition
OPEN	-0.0806	0.0234**	0.0547***	0.104*
	(0.102)	(0.0109)	(0.0188)	(0.0489)
GDPG <sub>(t-1)</sub>	-0.645	0.0644**	0.011	0.0279
	(0.658)	(0.027)	(0.0451)	(0.0422)
GDPP	2.36e <sup>-11</sup>	2.36e <sup>-11</sup>	2.36e <sup>-11</sup>	2.36e <sup>-11</sup>
	(1.86e <sup>-11</sup> )	(1.86e <sup>-11</sup> )	(1.86e <sup>-11</sup> )	(1.86e <sup>-11</sup> )
REER <sub>(t-1)</sub>	2.86e <sup>-5</sup>	-0.000176	-9.10e <sup>-5</sup>	0.000151
	(0.000957)	(0.000157)	(8.25e <sup>-5</sup> )	(0.000162)
GFCF	0.0417	0.0192	0.193***	0.548*
	(0.363)	(0.0514)	(0.0631)	(0.27)
ORES	0.0741	0.0423	-0.00579	-0.133

	(0.0677)	(0.0533)	(0.0549)	(0.129)
INFRA	-0.0256	0.184	0.0288	-0.0375
	(0.363)	(0.131)	(0.0219)	(0.0313)
GOV	12.05	0.808	-0.1	-0.0841
	(11.73)	(0.526)	(0.445)	(1.255)
<b>Economic crisis</b>				
Asian crisis	-3.133	0.0675	-0.172	1.731
(1997-1998)	(2.325)	(0.405)	(0.348)	(1.073)
Dotcom Bubble	-1.294	-0.0169	-0.463	0.668
(2001)	(1.801)	(0.355)	(0.309)	(1.312)
Global Financial crisis	11.56	2.18	1.630***	-0.000392
(2007-2008)	(9.065)	(1.463)	(0.43)	(1.678)
Sovereign Debt crisis	5.950*	-0.605	0.987*	-0.564
(2011-2012)	(3.407)	(0.417)	(0.524)	(0.594)
<b>Constant</b>	-3.611	-0.53	-4.933**	-14.71*
	(13.71)	(2.536)	(2.223)	(7.833)
<b>Observations</b>	697	648	1,234	231
<b>R-squared</b>	0.035	0.106	0.199	0.473
<b>Number of countries</b>	36	35	84	15

Figures in parentheses are robust standard errors.

\*\*\*, \*\*, \* are significant respectively to  $p < 0.01$ ,  $p < 0.05$ ,  $p < 0.1$

e=10

**Table B3. Determinants of inward FDI at the time of major economic crises- System GMM**

Dependent variable: IFDI (the ratio of IFDI flow to GDP)

	<b>Advanced</b>	<b>Emerging-market</b>	<b>Developing</b>	<b>Transition</b>
IFDI <sub>(t-1)</sub>	0.499***	0.223*	-0.174*	0.523***
	(0.182)	(0.121)	(0.102)	(0.0998)
OPEN	0.178***	0.0307**	0.140***	0.0595**
	(0.0582)	(0.0144)	(0.0219)	(0.0227)
GDPG <sub>(t-1)</sub>	-0.66	0.13	-0.0930*	-0.0212
	(0.867)	(0.101)	(0.0548)	(0.0419)
GDPP	2.36e <sup>-11</sup>	2.36e <sup>-11</sup>	2.36e <sup>-11</sup>	2.36e <sup>-11</sup>
	(1.86e <sup>-11</sup> )	(1.86e <sup>-11</sup> )	(1.86e <sup>-11</sup> )	(1.86e <sup>-11</sup> )
REER <sub>(t-1)</sub>	-0.00193	0.000289	-2.83E-05	0.000337
	(0.00564)	(0.000448)	(0.000715)	(0.000456)
GFCF	1.808	-0.214	0.440**	0.432*

	(1.555)	(0.198)	(0.187)	(0.232)
ORES	-0.543	0.235**	0.0408	0.028
	(0.822)	(0.114)	(0.053)	(0.0811)
INFRA	0.233	0.0235	-0.0154	-0.0646
	(0.711)	(0.116)	(0.173)	(0.105)
GOV	5.557	1.313	-0.0643	-0.962
	(11.71)	(1.215)	(2.387)	(1.275)
<b>Economic crisis</b>				
Asian crisis	0.318	0.325	0.274	2.759***
(1997-1998)	(2.628)	(0.716)	(1.136)	(0.903)
Dotcom Bubble	-1.334	-0.262	-0.127	1.441
(2001)	(1.303)	(0.605)	(0.918)	(1.506)
Global Financial crisis	-2.907	2.709	1.916***	-0.384
(2007-2008)	(5.949)	(1.786)	(0.686)	(0.834)
Sovereign Debt crisis	4.392	0.0635	0.616	-0.7
(2011-2012)	(9.197)	(0.977)	(1.364)	(0.851)
<b>Constant</b>	-54.25**	1.988	-16.07***	-13.73**
	(25.2)	(4.283)	(4.874)	(5.494)
<b>Observations</b>	694	648	1,227	230
<b>Number of countries</b>	36	35	84	15
Figures in parentheses are robust standard errors. ***, **, * are significant respectively to $p < 0.01$ , $p < 0.05$ , $p < 0.1$ e=10				



## C. Results of selected empirical studies

<i>Authors</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
	Dellis, Sondermann & Vansteenkiste	Stack, Ravishankar & Pentecost	Aziz	Shan, Lin, Li & Zeng	Kumari & Sharma
<i>Year of publication</i>	2017	2017	2017	2017	2017
<i>Country coverage</i>	Advanced economies	10 Eastern European countries	10 Arab countries	<i>Sample description</i> 22 African countries	
<i>Period coverage</i>	2005 – 2014	1996 – 2007	1984 – 2012	2008 – 2014	1990 – 2012
<i>Dependent variable</i>	FDI/GDP	FDI/GDP	FDI/GDP	FDI/GDP	FDI/GDP
<i>Independent variables</i>	<b>No. of studies that have included</b>				
<i>FDI stock</i>	1/25	+(sig)			
<i>Openness</i>	25/25	+(sig)	+(sig)	+(sig)	+(sig)
<i>Market growth (proxied by GDP growth)</i>	16/25	+(sig)	+(sig)		+(sig)
<i>Market Size (proxied by GDP PPP)</i>	14/25	+(sig)	+(sig)	+(sig)	
<i>Gross Fixed Capital Formation</i>		+(sig)	+(sig)		
<i>Inflation Rate</i>	8/25		-(not-sig)	-(not- sig)	-(not- sig)
<i>Real Interest Rate</i>	10/25				
<i>Real Exchange Rate</i>	7/25		+(sig)		
<i>Domestic Investment</i>	10/25				
<i>Labor Force</i>	6/25				
<i>Unemployment</i>	5/25				-(not- sig)
<i>Labor cost</i>	5/25	-(not-sig)	+(sig)		+(sig)
<i>Firing cost</i>	7/25				+(sig)
<i>Corporate Tax Rate</i>	7/25	-(not-sig)	-(not-sig)		
<i>Corruption</i>	6/25	+(sig)			-(not- sig)

<sup>3</sup>All dependent variables (FDI/GDP) in Table 2 are in flows and not in stock

<i>Natural endowments</i>	7/25			-(not-sig)	+(sig)	
<i>Human capital</i>	11/25			+(sig)		
<i>Infrastructure</i>	13/25		+(sig)	-(not-sig)	+(sig)	-(not-sig)
<i>Political Stability</i>	13/25	+(sig)	-(not-sig)	+(sig)	-(not-sig)	
<i>Public Debt</i>	8/25					+(sig)
<i>R&amp;D</i>	4/25					
<i>Methodology</i>		OLS, System GMM, 2SLS <sup>4</sup>	OLS	OLS, System GMM	OLS	OLS
<i>Fixed Effects (FE)</i>		No	Yes	No	Yes	Yes
<i>Random Effects (RE)</i>		Yes	No	No	No	Yes

Note: The '+ (sig)' means the coefficient is positive and significant at the 10% level

The '-(not-sig)' means the coefficient is negative and not statistically significant

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<sup>4</sup>2SLS is two-stage least square

		6	7	8	9	10
Authors		Akther & Akter	Teixeiraa, Fortea & Assunçãoa	Ahmad, Ismail & Nordin	Kaliappana, Khamis & Ismail	Hunady & Ovriska
Year of publication		2016	2016	2015	2015	2014
Sample description						
Country coverage		Bangladesh	125 countries	Malaysia	ASEAN	EU-15
Period coverage		2005 – 2015	1995 – 2012	1980 – 2013	2000 – 2010	2004 – 2011
Dependent variable		FDI/GDP	FDI/GDP	FDI/GDP	FDI/GDP	FDI/GDP
Independent variables	No. of studies that have included					
FDI stock	1/25					
Openness	25/25	+(sig)	+(sig)	+(sig)	+(sig)	+(sig)
Market growth (proxied by GDP growth)	16/25		+(sig)			+(sig)
Market Size (proxied by GDP PPP)	14/25	+(sig)	-(not-sig)	+(sig)	+(sig)	
Gross Fixed Capital Formation			+(sig)			
Inflation Rate	8/25	+(sig)	-(not-sig)		-(not-sig)	-(not-sig)
Real Interest Rate	10/25	+(sig)				
Real Exchange Rate	7/25	+(sig)		+(sig)		
Domestic Investment	10/25	-(not-sig)				
Labor Force	6/25	+(sig)				
Unemployment	5/25		+(sig)			-(not-sig)
Labor cost	5/25					+(sig)
Firing cost	7/25					+(sig)
Corporate Tax Rate	7/25	-(not-sig)	+(sig)			
Corruption	6/25		(sig)			-(not-sig)
Natural endowments	7/25		+(sig)			

Human capital	The ‘-(not-sig)’ means the coefficient is negative and not statistically significant					
Infrastructure	13/25		-(not-sig)	-(non-sig)	+(sig)	-(not-sig)
Political Stability	13/25		-(not-sig)			
Public Debt	8/25					+(sig)
R&D	4/25					
<b>Methodology</b>		OLS	OLS	ADRL <sup>5</sup>	OLS	OLS
<b>Fixed Effect (FE)</b>		No	Yes	No	Yes	Yes
<b>Random Effect (RE)</b>		No	No	No	Yes	No

Note: The ‘+ (sig)’ means the coefficient is positive and significant at the 10% level

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<sup>5</sup>ADRL is autoregressive distributed lag

		11	12	12	14	15
<b>Authors</b>		Tang, Yip & Ozturk	Tinti n	Liu, Daly & Varua	Buchanan, Le & Rishi	Castiglione, Gorbunova, Infante & Smirnova
<b>Year of publication</b>		2014	2013	2013	2012	2012
<b>Sample description</b>						
Country coverage		Malaysia	CEE C	China	164 countries	Russia
Period coverage		1980 – 2008	1996 – 2009	2001 – 2009	1996 – 2006	1996 – 2006
<b>Dependent variable</b>		FDI/GD P	FDI/ GDP	FDI/GD P	FDI/GDP	FDI/GDP
<b>Independent variables</b>	<b>No. of studies that have includ ed</b>					
FDI stock	1/2 5					
Openness	25/ 25	+(sig)	+(sig)	-(not- sig)	+(sig)	+(sig)
Market growth (proxied by GDP growth)	16/ 25	+(sig)	+(sig)	+(sig)	-(not-sig)	
Market Size (proxied by GDP PPP)	14/ 25		+(sig)			
Gross Fixed Capital Formation			+(sig)		+(sig)	
Inflation Rate	8/2 5	-(not- sig)				
Real Interest Rate	10/ 25		-(sig)	+(sig)		
Real Exchange Rate	7/2 5	+(sig)				
Domestic Investment	10/ 25	-(not- sig)	-(not- sig)		+(sig)	
Labor Force	6/2 5			+(sig)		+(sig)
Unemployment	5/2 5					
Labor cost	5/2 5		-(sig)	+(sig)		

Note:  
The  
'+'  
(sig)'

Firing cost	7/2 5					
Corporate Tax Rate	7/2 5		-(not- sig)			
Corruption	6/2 5				+(sig)	
Natural endowments	7/2 5					+(sig)
Human capital	11/ 25					+(sig)
Infrastructure	13/ 25	- (not- sig)		-(not- sig)		+(sig)
Political Stability	13/ 25		+(sig )			-(not-sig)
Public Debt	8/2 5					
R&D	4/2 5	+(sig)	+(sig )			
<b>Methodology</b>		OLS, ADRL	OLS	OLS	OLS, IV	OLS, GMM
<b>Fixed Effect (FE)</b>		No	No	No	Yes	No
<b>Random Effect (RE)</b>		No	No	No	Yes	No

means the coefficient is positive and significant at the 10% level

The '-(not-sig)' means the coefficient is negative and not statistically significant

		<b>16</b>	<b>17</b>	<b>18</b>	<b>19</b>	<b>20</b>
<b>Authors</b>		Anwara & Nguyenb	Cuyvers, Soeng, Plasmans & Bulcke	Vijayakumar, Sridharan & Rao	Kinda	Demirhan & Masca
<b>Year of publication</b>		2011	2011	2010	2010	2008
<b>Sample description</b>						
Country coverage		Vietnam	Cambodia	BRICS	77 developing countries	38 developing countries
Period coverage		1990 – 2007	1995 – 2005	1975 – 2007	1996 – 2006	2000 – 2004
<b>Dependent variable</b>		FDI/GDP	FDI/GDP	FDI/GDP	FDI/GDP	FDI/GDP
<b>Independent variables</b>	<b>No. of studies that have included</b>					
FDI stock	1/25					
Openness	25/25	+(sig)	+(sig)	+(sig)	+(sig)	+(sig)
Market growth (proxied by GDP growth)	16/25	+(sig)	+(sig)	+(sig)		
Market Size (proxied by GDP PPP)	14/25		+(sig)		+(sig)	+(sig)
Gross Fixed Capital Formation			+ (sig)			+ (sig)
Inflation Rate	8/25			-(not-sig)		
Real Interest Rate	10/25					-(not-sig)
Real Exchange Rate	7/25	-(not-sig)	-(not-sig)	-(not-sig)		
Domestic Investment	10/25			+(sig)		
Labor Force	6/25					
Unemployment	5/25				-(not-sig)	
Labor cost	5/25			-(not-sig)		

Firing cost	7/25					+(sig)
Corporate Tax Rate	7/25	-(not-sig)				
Corruption	6/25			+(sig)		
Natural endowments	7/25	-(not-sig)			+(sig)	+(sig)
Human capital	11/25	+(sig)	+(sig)	+(sig)	+(sig)	
Infrastructure	13/25				+(sig)	
Political Stability	13/25		-(not-sig)	-(not-sig)	-(not-sig)	-(not-sig)
Public Debt	8/25		-(not-sig)	-(not-sig)		
R&D	4/25					+(sig)
<b>Methodology</b>		OLS	OLS	OLS	2SLS	OLS
<b>Fixed Effect (FE)</b>		No	No	Yes	Yes	No
<b>Random Effect (RE)</b>		Yes	No	Yes	No	No

Note: The ‘+ (sig)’ means the coefficient is positive and significant at the 10% level

The ‘-(not-sig)’ means the coefficient is negative and not statistically significant



		<b>21</b>	<b>22</b>	<b>23</b>	<b>24</b>	<b>25</b>
<b>Authors</b>		Moosa & Cardak	Bevan & Estrin	Sun, Tong & Yu	Chen ga, & Kwan	Kimu ra & Lee
<b>Year of publication</b>		2006	2004	2002	2000	1998
<b>Sample description</b>						
Country coverage		138 countries.	EU	China	China	Korea
Period coverage		1994 – 2005	1991 – 2001	1986 – 1998	1985 – 1995	1981 – 1995
<b>Dependent variable</b>		FDI/GDP	FDI/GDP	FDI/GDP	FDI/ GDP	FDI/ GDP
<b>Independent variables</b>	<b>No. of studies that have included</b>					
FDI stock	1/25					
Openness	25/25	+(sig)	+(sig)	+(sig)	+(sig)	+(sig)
Market growth (proxied by GDP growth)	16/25		-(not-sig)	+(sig)	+(sig)	+(sig)
Market Size (proxied by GDP PPP)	14/25	-(not-sig)	+(sig)			+(sig)
Gross Fixed Capital Formation				+ (sig)		
Inflation Rate	8/25	+(sig)				
Real Interest Rate	10/25		+(sig)	-(not-sig)	+(sig)	
Real Exchange Rate	7/25		+(sig)		-(not-sig)	-(not-sig)
Domestic Investment	10/25			-(not-sig)		
Labor Force	6/25	+(sig)		+(sig)		
Unemployment	5/25				-(not-sig)	
Labor cost	5/25					

Firing cost	7/25					
Corporate Tax Rate	7/25	-(not-sig)				
Corruption	6/25					
Natural endowments	7/25					
Human capital	11/25	+(sig)		+(sig)	+(sig)	
Infrastructure	13/25		+(sig)			
Political Stability	13/25			+(sig)		-(not-sig)
Public Debt	8/25	-(not-sig)	-(not-sig)	-(not-sig)		-(not-sig)
R&D	4/25					+(sig)
<b>Methodology</b>		Extreme Bound Analysis	OLS	OLS, GLS	OLS, GM M	Tobit
<b>Fixed Effect (FE)</b>		No	No	Yes	No	No
<b>Random effect (RE)</b>		No	Yes	No	No	No

Note: The '+ (sig)' means the coefficient is positive and significant at the 10% level

The '-(not-sig)' means the coefficient is negative and not statistically significant

Source: Authors' compilation