Institutional determinants of foreign direct investment inflows: evidence from emerging markets

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Abstract

Purpose – Foreign direct investment (FDI) is a strategic decision for achieving competitive advantage by multinational enterprises. The purpose of this paper is to explore the role of institutional determinants of FDI using data from 24 emerging markets including China, India, Indonesia, Turkey, Thailand, Malaysia and Pakistan.

Design/methodology/approach – In order to identify factors that attract FDI in emerging markets, this study has used data from sources such as the World Bank, Index of Economic Freedom and UNCTAD.

Findings – The findings of this research indicate that infrastructure quality, trade cost measured by tariff and non-tariff barriers, institutional quality measured by effective rule of law, political stability, regulatory quality and control on corruption are significant determinants of FDI in emerging markets.

Originality/value – This is the first study to analyze the sectoral institutional determinants of Inward FDI in the important emerging economies, to the best of authors' knowledge.

Keywords Globalization, Emerging markets

Paper type Research paper

1. Introduction

Due to globalization, emerging markets have become important targets for investment and business (Welsh *et al.*, 2006; Fornes and Butt-Philipp, 2011; Paul, 2016). Emerging markets in the world market are filled with tremendous business opportunities. As the continuous growing trend in businesses worldwide is to globalize, firms established in developed economies would benefit from exploring these new emerging markets to expand their operations, and maintain global competitiveness (Mudambi and Mudambi, 2002; Bhasin and Paul, 2016; Merchant, 2016). Given the vast geographic size with huge cultural differences and multifaceted consumer population, these emerging markets cannot be treated as a single market. In spite of this we have seen the surge in the volume of foreign direct investment (FDI) and internationalization activities (Paul and Singh, 2017; Alon *et al.*, 2018). As the seminal theoretical work ownership, location and internalization (OLI) paradigm explains, multinational enterprises (MNEs) carry out FDI to take advantage of their ownership (*O*), specific advantages in foreign markets characterized by specific features also known as location (*L*), specific, recognizing and executing the most suitable mode of entry relating to these two sets of advantages via internalization (*I*) (Dunning, 2009).

Recent success stories of development and growth of the emerging markets has brought the importance of FDI to the limelight (Paul and Singh, 2017; Crespo and Fontoura, 2007). FDI inflow is thereby a significant factor for economic development in the emerging market economies (EMEs) like Asia, as domestic investments are not enough to initiative the actual capital stock up to the desired level of investment (Hasli *et al.*, 2015; Noorbakhsh *et al.*, 2001;

JEL Classification — F21, F23

Hayami, 2001). FDI inflow facilitates economic growth of a country by bringing non-debt creating capital flows, transferring new technology into the host country, and generating more employment opportunities in the host country. FDI also helps related industries by creating backward and forward linkages within the host economy (Alfaro and Rodriguez-Clare, 2004; Giroud and Scott-Kennel, 2009; Ho and Rashid, 2011; Javorcik, 2004; Quazi and Mahmud, 2006). FDI also enhances tax revenues, which are used by the government on different development activities like building basic infrastructure and human capital for the growth of industries (Adhikary, 2011; Bhavan *et al.*, 2011; Azam, 2010). Given these positive linkages, many countries today, try to attract a significant amount of inward FDI by creating favorable conditions, which tends to improve growth, bring in new technology, new management practices, improves productivity and generates more employment.

However, distribution of FDI inflows is not symmetric across countries and sectors; in reality, there's a wide-range of variations in FDI inflows in countries as well as in major sectors in emerging markets. The top five countries, among EMEs, which attracted more than 66 percent of total FDI inflows during 2002–2015 are China followed by Brazil, Russia, Chile and India. Countries like Romania, Estonia, Latvia, Pakistan and Lithuania were found to have a very small share into total FDI inflows in emerging markets. The sectoral data on FDI inflows in emerging markets indicates that highest amount of FDI has flown in the tertiary sector followed by secondary and primary sector during 2002–2015 (see Appendix 3). The difference between tertiary and secondary sector was low as compared to the difference between secondary and primary sector. The inter-sectoral variation in FDI inflows has made the distribution highly skewed toward manufacturing and service sector. It is very important to address the dynamics of such inter-country and inter-sector variance in FDI inflows in order to balance regional and sectoral development into emerging markets.

We develop a theoretical model to underline the sector-specific FDI determinants in emerging markets, and empirically investigate how political and institutional variables from host markets affect its inward FDI stocks in three important sectors using a sample of 24 emerging economies, which include the majority of Asian countries like China and India. The main research question addressed in this paper is to identify the factors, which can increase FDI inflows in particular sector, as they can play a vital role in enabling senior managers of MNEs to plan their strategies, and policy-makers to formulate an FDI policy that is most conducive to attracting higher flows.

The rest of the paper is planned as follows: the next section describes recent trends in emerging markets. The following section reviews the theoretical and empirical literature related to the institutional and political determinants of FDI. The subsequent session is designed for discussion of the data and methodology. The results are presented in the section six followed by the conclusion.

2. Literature review

Several researchers (Kumari and Sharma, 2017; Saini and Singhania, 2018; Ullah and Khan, 2017; Demirbag *et al.*, 2010; Çeviş and Çamurdan, 2007; Frenkel *et al.*, 2004; Uygur, 2005; Mercereau, 2005; Moosa and Cardak, 2006) have made attempts to empirically investigate economic and institutional determinants of FDI. These studies may only offer a limited amount of insight, given their focus on just limited countries, but there is some evidence that shows that opening up of economies in some emerging markets and the process of systematic reforms have been crucial in attracting FDI (Çeviş and Çamurdan, 2007). These developments in emerging markets and also the growth in international capital flows have motivated many researchers to understand the behavior of MNEs and the determinants of FDI.

According to Walsh and Yu (2010) these is a significant difference between determinants of FDI into different sectors. The results of the study indicate that primary sector FDI has no strong linkages with economic and institutional variables. FDI in services intensely

impacted by macroeconomic conditions than FDI in manufacturing, a weaker real effective exchange rate appears to draw more manufacturing FDI into an economy, it can reduce the amount of tertiary FDI. Additional flexible labor markets and deeper financial markets attract extra secondary FDI, while better infrastructure and a more independent judiciary attract more tertiary FDI.

According to Kemp (1964), FDI tends to flow in a location where it obtains more profit because of lower production cost and exchange rate risks. During the early period, the capital-market approach and theory of portfolio flows were used to describe the FDI initiation (Kindleberger, 1969; Nayak and Choudhury, 2014). This approach states that, assuming no uncertainties or risks, capital tends to flow within the region where it gets the highest return. However, this approach fails to include the fundamental difference between foreign institutional investment and FDI.

Hymer (1976) developed the industrial organization approach of FDI theories, and was the first to explain the concept of ownership advantage. Dunning (1977, 1979, 1988) developed the eclectic paradigm, also referred to as the OLI paradigm. This paradigm is considered as one the most important theoretical frameworks to explain FDI determinants and integrated the theories of industrial organization, the internalization and location to explain the important reasons for firms to operate internationally. The researcher argued that the ownership advantages (O), locational advantages (L) and internalization (I) are preconditions for a firm to produce its goods internationally.

There is plenty of literature on the key determinants of FDI in emerging economies, these studies found that government effectiveness, regulatory quality, exchange rate, GDP, market size, labor cost, trade openness, financial and institutional-related factors, R&D and a favorable FDI policy are some of the important determinants of FDI (Dhingra and Sidhu, 2011; Singhania and Gupta, 2011; Zheng, 2013; Wei, 2005; Jadhav and Katti, 2012; Palit and Nawani, 2007; Mugableh, 2015; Blomkvist and Drogendiji, 2016). Some of these factors are country specific for example, Buckley *et al.* (2007), Streak and Dinkelman (2000), Zheng and Tan (2011) has also noted that different types of FDI are driven by different sets of factors. Researchers like Asiedu (2006), Cleeve (2008), Dunning (1988), Mohamed and Sidiropoulos (2010), Jadhav *et al.* (2016) has also found that variables such as market size, openness of the country, inflation rate, exchange rate and tax rates are important determinants of FDI. According to Kumari and Sharma (2017), market size, trade openness, interest rate and human capital are determining the capital inflow for the panel of developing countries.

Similarly, Saini and Singhania (2018) found that for developed countries market size, trade openness and freedom index are important determinants of FDI and for developing countries gross fixed capital formation, trade openness and efficiency variables are important determinants of FDI. According to Ullah and Khan (2017) there is significant difference between institutional and economic variables in ASEAN, Central Asian and SAARC countries.

Better infrastructure of a country is positively related its economic development and growth. Any improvements in the quality of infrastructure and facilities are bound to increase the productivity and the investment climate of a country. According to Mengistu and Adhikary human capital, infrastructure, lending rate and GDP growth rate, also have a significant influence on FDI inflows.

According to sectoral FDI inflows, secondary sector are mostly affected by the quality of infrastructure as manufacturing sector needs the better infrastructure which can decline the cost of production. Service sector does not need a much physical infrastructure as the nature of the service sector is different. Service sector required IT infrastructure rather than physical infrastructure. FDI in primary sector are motivated by natural resource availability rather than availability of Infrastructure. Therefore, we can assume that:

H1. Improvement in quality of infrastructure impacts FDI inflows in all sectors.

Similarly, the openness of a country is also estimated to have a positive influence on FDI, with most extant literature on FDI using the trade share as a percentage of GDP as a proxy for openness (Cleeve, 2008; Mhlanga *et al.*, 2010; Bhavan *et al.*, 2011; Leitao, 2010). Most studies find that trade openness is positively related to FDI in the host country, although the impact depends on whether the investment is market-seeking or export-oriented (Cleeve, 2008; Mhlanga *et al.*, 2010). According to the "tariff jumping" hypothesis, less open economies with trade restrictions can have a positive effect on FDI (market-seeking). However, export-oriented MNEs prefer investments in more open economies where transaction costs associated with exporting are lower.

Higher trade cost affect majorly on secondary sector as these investments are sometimes in the form of export- oriented units or for increasing intra-industry trade as a part of global value chain. But tertiary sector investment is mainly looking for low labor cost and not trade in services, hence tertiary sector is not much affected by the trade cost. Primary sector FDI flows are mainly motivated by the natural resource availability not by trade cost. Therefore, it is hypothesized that:

H2. Higher the trade cost in host economy, lower the amount of FDI inflow for all sectors.

Inflation and exchange rates are usually employed as an indicator of macroeconomic stability, with an expected positive effect on FDI. Higher inflation rates indicate higher production costs and lower demand into that location, hence decreasing FDI inflows. Higher tax rates increase the cost of production, increasing the price of final products, thereby leading to lower demand for goods and services, cascading on to a negative effect on FDI inflows. Finally, a depreciated real exchange rate estimated to have escalation of vertical FDI as depreciation creates assets in the host country cheaper than assets in the home country (Froot and Stein, 1991; Walsh and Yu, 2010). Conversely, Blonigen deliberate a "firm-specific asset" argument and explain that exchange rate depreciation in host countries incline to upsurge FDI inflows. When the domestic real exchange rate appreciates that gives incentives to MNCs produce domestically. Therefore, the exchange rate is considered as an obstacle to entry in the foreign market and hence lead to more horizontal FDI.

Market entry in another foreign location is also influenced by institutional factors like quality of governance, government incentive to set up business, political stability, etc. Normally, it is understood that improved governance in the host country fascinates more FDI inflow. Existing literature on institutional determinants of FDI recommends that better economic and political institutions, effective Rule of Law, Regulatory Quality, lower Corruption and effective IPRs attract more FDI inflow into a host country (Acemoglu and Johnson, 2005; Kaufmann and Kraay, 2002; Rodrik and Subramanian, 2003). However, a deprived institutional environment in terms of higher level of corruption and weak enforcement of contracts enforces extra cost for MNCs and discourages foreign investment in the host economy (Shleifer and Vishny, 1993; Wei, 2000). Generally, it is understood that FDI has huge sunk costs and hence it is very challenging for foreign investors to make investment decisions, therefore MNCs first ensure long-term contracts to decrease all types of uncertainty in the host country. (Busse and Carsten, 2007; Naudé and Krugell, 2007). Time consumed by MNCs dealing with paperwork to obtain the necessary certificates and licenses has an unfavorable effect on FDI inflow across 69 countries confirmed by a world bank study (World Bank, 2003). From the discussion above, it may be concluded that the business environment of a host country is one the most important factors considered by MNEs in emerging markets. As per the doing business report, the countries having more business friendly environment increases the investment in that nation and improve the secondary and tertiary sector. As the motivation of primary sector FDI is natural-resource seeking therefore business environment is not that relevant with respect to secondary and tertiary sector.

Therefore, it is hypothesized that:

H3. Countries that provide a better business friendly environment with stable macroeconomic environment, receive more FDI. For all sectors.

According to various empirical studies institutional factors also impact significantly on FDI inflows (Abdul, 2007; Dumludag, 2009; Banga, 2003; Edwards, 1990; Globerman and Shapiro, 2002; Hanson, 1996; Jaspersen *et al.*, 2000; Kirkpatrick *et al.*, 2006; Loree and Guisinger, 1995; Schneider and Frey, 1985; Wheeler and Mody, 1992). Prior studies (Schneider and Frey, 1985; Edwards, 1990) find that political instability decreases FDI inflows while others (Loree and Guisinger, 1995; Hanson, 1996; Jaspersen *et al.*, 2000) do not find any significant relationship between political instability and FDI inflows. Some recent studies (Robins, 2013; He *et al.*, 2016; Paul and Benito, 2018) have analyzed the role of institutional and political factors on FDI flows from developing countries, such as China. Aleksynska and Havrylchyk (2011), explained that when foreign investors from emerging countries invest in countries with better institutions, the institutional distance can be viewed as an encouraging factor, as most of the emerging countries acquire new technologies, patents, IPRs, trademarks and brands. Foreign investor assumed that their ownership-specific advantages would be safe in better institutional environments. They also found that the FDI inflow is lower when emerging countries invest in countries with worse institutions. Some of the studies found the weak effect of institutions on FDI inflow between emerging to emerging countries as these MNCs have previous experience with weak or incompetent institutions (Cuervo-Cazurra, 2006). Habib and Zurawicki (2002) and Bénassy-Quéré *et al.* (2007) used the idea of psychic distance, which states that foreign investors tend to invest a market where they find psychological familiarity; accordingly, they concluded that larger institutional distance decreases FDI flows and small institutional difference increases the FDI between the countries. Claessens and Van Horen (2008) empirically investigate that FDI flow in the banking industry is affected adversely by large distances among institutions.

Therefore, it is hypothesized that:

H4. Improvement in the quality of governance leads to higher FDI inflows at the aggregate level for all sectors.

There exists mixed evidence in the literature with respect to the relationship between the level of corruption and FDI inflow. Corruption has a negative impact on the level of investment. Corruption raises the cost of investment, decreases expected profitability and hence acts as tax for investors, because corruption in the investing economy creates extra costs in the form of bribes in order to obtain various government permits and licenses (Al-Sadig, 2009; Bardhan, 1997). Therefore, MNCs/foreign investors have a tendency to avoid investing in countries with high levels of corruption. According to Javorick and Wei, corruption impacts inward FDI negatively wherein it shifts the ownership structure toward joint ventures in emerging markets. According to Habib and Zurawicki (2002), corruption generates a negative impact on FDI inflow into 89 countries, which include developed, developing, and transition economies. Al-Sadig (2009) empirically tested that FDI inflows are affected adversely by the corruption level in the host country. According to Wei (2000), an increase in corruption level and taxes in the host country will decrease inward FDI. This study examines the effect of corruption on firm-level investments decisions and growth. The results suggest that corruption plays a vital role in investment growth compared to other variables like market and firm size, trade orientations, openness to trade, etc. Corruption generates a negative impact for transition countries but has no significant effect for Latin American, Sub-Saharan and Caribbean countries. Empirical analyses with respect to the relationship between FDI and corruption have not always confirmed the negative relationship between corruption and FDI (Habib and Zurawicki, 2002). There are some empirical studies, which state that there are non-significant relationships between FDI and its impact on corruption (Hines, 1995; Wheeler and Mody, 1992).

Based on the above discussion, it is evident that most of the studies found that higher level of corruption decreases FDI in a host country, therefore the fifth hypothesis, as per literature corruption increases the cost of production and it is more relevant for secondary and tertiary sector as FDI decisions in primary sector are primarily determined by the location of those resources, with easily movement of equipment (Walsh and Yu, 2010). Hence:

H5. A higher level of corruption in the host economy corresponds to a lower level of FDI in all sectors.

From preceding discussions, it is evident that a large number of empirical studies have analyzed the determinants of FDI, but the empirical results are mixed and inconclusive on this issue. These differences in results may be due to the inconsistencies in types of data used, choice of country, time-periods, selection of independent variables, data selection and applied methodology, etc. For example, several studies (Nunnenkamp and Stracke, 2007; Noorbakhsh, *et al.*, 2001) have used data on proposed/approved FDI and not data on actual inflows. As there is a substantial difference between these variables, conclusions are likely to differ. Some of the research studies do not find any statistically significant relationship between FDI and some of the variables like institutional quality, financial and fiscal incentives, market size, corruption and openness of the economy. Besides, there is a lack of research on institutional-related variables, which have impact on sectoral FDI inflows in emerging economies (Mehic *et al.*, 2009).

Some of the research studies emphasis on very specific regions and countries, such as Africa Brazil, Russia, India and China, Middle East and North Africa, China, India, Eurasia, Ex-Soviet Union (Asiedu; Mohamed and Sidiropoulos, 2010; Cheung and Xingwang, 2009; Kumar and Chadha, 2009; Deichmann *et al.*, 2003; Mhlanga *et al.*, 2010; Vijayakumar *et al.*, 2010; Assunção *et al.*, 2011). Prior studies have made use of cross-sectional or time series data which may have their inherent limitations, while analytical work based on panel data model are not many.

Sectoral data collected on FDI in emerging markets indicate that more FDI has flown in the tertiary sector followed by the secondary and the primary sector. The inter-sectoral variation in FDI inflows has made the distribution highly skewed toward the manufacturing and service sector. China tops the list among emerging countries in attracting FDI in the secondary and tertiary sector. China received US$244.8bn of FDI in our reference period. China was followed by Mexico and Brazil in both categories. Here, the difference between the amount of FDI received by China and Mexico is also, more than double. India received FDIs of US$23.9bn and US$67.7bn in the secondary and tertiary sector, respectively (see Appendix 1) for the sub-sectors that contributes to primary, secondary etc. sectors).

2.1 Gaps in the existing literature

Most of the studies have broadly took country-level, industry-level and firm-level data to analyze the determinants of the FDI, but these studies do not explain much of the fact why FDI is not equally distributed among different sectors at the same time. There is a difference between sector and country specific determinants of FDI; therefore, it is important to understand the sectoral level determinants of FDI for attracting FDI in particular sectors. As sector-specific dynamics vary, macroeconomic factors are expected to create varying impacts. Therefore, it is vital to identify sector-specific determinants of FDI, which hardly exist in the context of emerging markets due to lack of availability of sectoral data.

Therefore, the present study attempts to fill these gaps. Accordingly, the objectives of the study are:

- to identify the sector-specific institutional determinants of FDI; and

- to examine the role sector-specific institutional determinants in influencing FDI inflow to the emerging economies.

3. Data and methodology

The data used for sector level analysis are from 2003 to 2015. The analysis focuses on 24 EMEs (list in Appendix 2). Data on FDI inflows have been divided into primary, secondary and tertiary sector. This data set is collected from the investment map composed by the International Trade Centre.

The dependent variable in the model below is sectoral FDI inflows in 24 EMEs. The independent variables in our model are explained in Table I. This study also uses two indices, namely, infrastructure and governance index to solve the problem of multicollinearity (Appendix 4). Institutional/qualitative indicators are the infrastructure index; the governance index includes business environment, trade cost, and corruption collected primarily from the World Bank's worldwide governance indicator and the Heritage Foundation's Index of Economic Freedom. Time-series analysis for such a short period (15 years) is not appropriate, therefore this study used panel data analysis to find out significant determinants of FDI. The panel data model allows us to study the dynamic as well as cross-sectional aspects of a problem.

3.1 Endogeneity

Determining the relationship between dependent and independent variables in this study, especially governance quality and FDI, raises some endogeneity apprehensions in the sector level data. To address these, this study used generalized method of moments (GMM) dynamic estimator based on the Arellano-Bond methodology. Arellano and Bond (1991) have shown that GMM estimators allow controlling for unobserved individual effects which is present in the static model, endogeneity and simultaneity of explanatory variables and its lagged values and the use of the lagged dependent variables. The Arellano-Bond methodology specifies a dynamic model which allows for time-invariant sector-specific effects. The Arellano-Bond methodology specifies a dynamic model which allows for time-invariant sector-specific effects.

The equation estimated is as follows:

$$y_{i,t} = \alpha + \lambda y_{i,t-1} + X^i_{i,t}\beta + \mu_i + v_{i,t}. \tag{1}$$

According to this equation y_{it} denotes FDI inflow in sector i at time period t, X^i is the vector of institutional/qualitative variables explained under Table I, and μ represents the time-invariant

Explanatory variables	Indicators	Expected sign	Data sources
Infrastructure index	Electricity consumption Internet user Air travel	+	World Bank
Policy variables	Business environment: overall indicator of the efficiency of government regulation of business (0 = Worst, 100 = freest business environment)	+	Index of Economic Freedom, Heritage foundation
	Trade barriers: tariff and non-tariff Barriers (0 = high trade barriers, 100 = low trade barriers)	+/−	Index of Economic Freedom, Heritage Foundation
Governance index (Institutional quality)	Rule of law, political stability and no violence, government effectiveness, regulatory quality (0 = Low level of Governance, 100 = Better Governance)	+	Worldwide Governance Indicators, World Bank
	Freedom from corruption (0 = High Level of corruption 100 = Low level of corruption)	+	Index of Economic Freedom, Heritage Foundation

Table I.
List of explanatory variables

sector-specific effects estimated in our model. Compelling first difference of the equation one removes the time-invariant sector-specific effects, constructing the following equation:

$$y_{i,t} - y_{i,t-1} = \alpha + \lambda \left(y_{i,t-1} - y_{i,t-2} \right) + \left(X_{i,t}^i - X_{i,t-1}^i \right) \beta + \left(v_{i,t} - v_{i,t-1} \right). \tag{2}$$

To validate for possible endogeneity between the independent variables X and the dependent variable Y, the equation is estimated using the lagged values for both the side of equation in levels as instruments. There are some statistical limitations using a straightforward instrumental variable to estimation in the above equation because of lagged value it leads to weak instruments.

To overcome these limitations, Blundell and Bond (1998) established the GMM dynamic model, which syndicates the regression in first differences above with an estimation run in levels, using both lagged levels and lagged differences as instruments. First, this study performs a stationarity test using the first-generation panel unit root tests. The results of first-generation test indicate that all the variables except for infrastructure and business environment are stationary at level.

4. Results and discussion
4.1 Summary of findings
Results for the primary sector indicate that (see Table II), infrastructure quality in the host government is positively associated with primary FDI, which supports the first hypothesis of the study. Trade cost is negatively associated with FDI inflows in emerging markets, particularly for the primary sector, which supports the third hypothesis of the study. Freedom form corruption indicates that higher level of corruption is positively associated with primary sector FDI which indicates that though the corruption level in emerging markets are higher, FDI tends to flow into primary sector as FDI decisions in primary sector are primarily determined by the location of those resources, with easily movement of equipment (Walsh and Yu, 2010). Two variables, namely, business environment and quality of governance are not statistically significant.

Results for the secondary sector (Table II) indicate that FDI inflow is positively associated with infrastructure, which supports the first hypothesis of the study. FDI inflows are negatively associated with governance and business environment, which indicates that though governance quality and business is not supportive in EMEs, FDI is still flowing into these economies motivated by other factors like infrastructure and trade cost. Thus, for the secondary sector, governance quality and business environment hypothesis do not prove by empirical analysis. Level of corruption is not statistically significant in the case of secondary sector. Results (Table II) for the tertiary sector indicate that trade cost lowers the FDI inflow.

Variable	Primary FDI	Secondary FDI	Tertiary FDI
Infrastructure	0.10 (0.00)***	0.04 (0.00)***	0.21 (0.26)
Governance	−0.001 (0.77)	−0.08 (0.00)***	0.01 (0.66)*
Business environment	0.002 (0.339)	−0.077 (0.00)***	0.03 (0.21)
Trade cost	−0.02 (0.00)***	−0.07 (0.00)***	−0.06 (0.01)***
Corruption	−0.13 (0.00)***	−0.04 (0.26)	−0.02 (0.79)
Constant	0.15 (0.00)***	0.12 (0.01)**	0.07 (0.79)
	Sargan p-value 0.99	Sargan p-value 0.99	Sargan p-value 1.00

Table II.
Results of GMM estimation

Notes: Against each variable, the first row represents the coefficient followed by p-value in the parenthesis. +(ve): positive and statistically significant; −(ve): negative and statistically significant. *,**,***Significant at 10, 5 and 1 percent, respectively

FDI inflow is positively associated with good governance. Other variables are not statically significant in the case of the tertiary sector.

The overall findings indicate that using macro-level FDI inflows in emerging economies are likely to result in biased results, given the statistical noise provided by sectoral differences in determinants of FDI inflow in emerging markets. Hence, it may be concluded that emerging markets should develop sector-specific FDI strategies and policies to attract FDI in their targeted sector.

4.2 Conclusion
We investigated the main institutional determinants of inward FDI in emerging markets, mainly Asian markets, from a sectoral perspective. It was found that infrastructure quality, trade cost measured by tariff and non-tariff barriers, institutional quality measured by effective rule of law, political stability, regulatory quality and control on corruption are significant determinants of FDI in EMEs, which supports the finding of prior research (Bénassy-Quéré *et al.*, 2007; Bhavan *et al.*, 2011) discussed in the literature. These variables influence FDI inflows differently in the three major sectors – primary, secondary and tertiary.

4.3 Implications for theory and practice
Infrastructure quality is important and significant determinants of FDI for particularly for primary and secondary sectors, hence emerging markets need to improve quality of infrastructure to attract more FDI. The trade cost is an important barrier for all three sectors. Therefore, the governments should eliminate/substantially reduce the tariff and non-tariff barriers if they want to attract more vertical FDI, so that MNEs can subdivide a manufacturing procedure according to cost of production into different countries. This process will increase FDI as well as trade from emerging markets. The business environment is not a significant determinant for primary and tertiary sector, this variable is negatively related to the secondary sector in emerging markets; however, other factors like infrastructure, trade cost are found to be significant. It is found that good governance in the tertiary sector can attract more FDI inflow in emerging markets. Hence, efforts should be made toward the improvement of governance by redefining the role of government to improve efficiency in governance by creating an efficient rule of law, regulatory quality and creating sound political stability with effective government quality. This also indicates that countries must decline transaction costs and corruption levels, and provide efficient institutions with good administrative capabilities and political stability to increase FDI. Similarly, political stability of the government draws larger investment inflows. It is, therefore, necessary to maintain political stability in those emerging countries. Fundamentally, institutional and governance factors do not impact FDI inflow in emerging markets significantly in secondary and primary sector, but in the long run; however, these markets need to improve their institutional and governance quality to attract additional inflow of FDI into these markets. Thus, emerging countries as developing nations have to address themselves in the path of institutional and governance reforms to attract additional inflow of FDI in the long run.

4.4 Limitations and future research directions
This study considers the sector-specific determinants of FDI using only broad sectors, while an ideal analysis would be based on investment-level data classified by industry, such data set is not readily available and there is no continuity in the industry level data across the emerging markets. Another perception for future researchers is to test the model based on firm level data. Another limitation is that the present study covers only the small time period; hence the number of observations is less. This limits the efficiency of the estimated models and hence of the analysis. Hence, future research can be carried out by extending the

time frame of the study. The study does not include the sector-specific factors responsible for determining FDI inflow in each country due to the non-availability of requisite data sets. Thus, further research can be carried out on country-specific and industry specific institutional determinants of FDI.

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Appendix 1

Index	ISIC Rev.3 code	Level of aggregation	Label (English)
1		0	Total (merchandise and services)
2		1	Unspecified total (merchandise and services)
3	A-B-C	1	Primary
4	A	2	Agriculture and hunting
11	B	2	Forestry and fishing (PRODUCTS)
15	C	2	Mining and quarrying
27	11	2	Petroleum
31		2	Unspecified primary
32	D	1	Secondary
33	15	2	Food, beverages and tobacco
42	17	2	Textiles, clothing and leather
52	20	2	Wood and wood products
58	22	2	Publishing, printing and reproduction of recorded media
63	23	2	Coke, petroleum products and nuclear fuel
68	24	2	Chemicals and chemical products
74	25	2	Rubber and plastic products
79	26	2	Non-metallic mineral products
83	27	2	Metal and metal products
91	29	2	Machinery and equipment
96	31	2	Electrical and electronic equipment
110	33	2	Precision instruments
115	34	2	Motor vehicles and other transport equipment
125	36	2	Other manufacturing
129	37	2	Recycling
134		2	Unspecified secondary
135	E-Q	1	Tertiary
136	40	2	Electricity, gas and water
142	45	2	Construction
149	G	2	Wholesale and retail trade
170	55	2	Hotels and restaurants
174	I	2	Transport, storage and communications
178	J	2	Finance
186	K	2	Business activities
209	75	2	Public administration and defense
214	80	2	Education
220	85	2	Health and social services
225	N	2	Community, social and personal service activities
236	93	2	Other services
238		2	Unspecified tertiary
236		2	Mixed goods (trade data)
237		2	Transportation services (trade data)
238		2	Travel services, business & personal (trade data)
239		2	Other commercial services (trade data)
239		1	Unspecified total (merchandise trade)

Source: United Nation Statistical division

Appendix 2

China	Brazil	Russian Federation	Chile	India	Indonesia
Colombia	Mexico	Turkey	Peru	Thailand	Malaysia
Hungary	Ukraine	Poland	South Africa	The Philippines	Venezuela
Bulgaria	Romania	Estonia	Latvia	Pakistan	Lithuania

Table AII.
List of emerging market economies included in this study

Source: IMF World Economic Outlook (The IMF World Economic Outlook Database is more precise and classifies countries as advanced economies or emerging market and developing economies based on the per capita income level, export diversification, and level of integration into the global financial system)

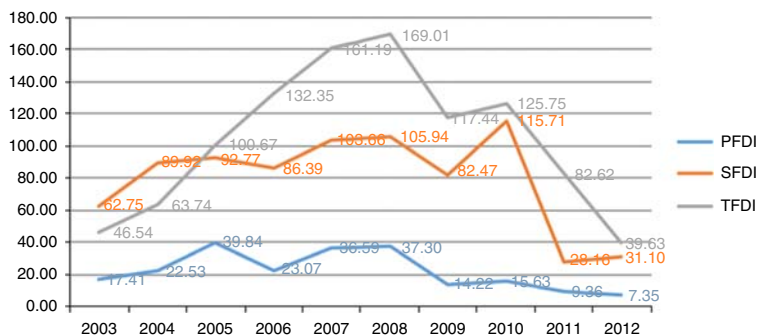**Appendix 3. Sector level trends of FDI inflows in EMEs**

Figure A1.
Sectoral trends of FDI

Sources: Investment Map, International Trade Centre

The data reveals that highest amount of FDI has flown in the tertiary sector followed by secondary and primary sector. The difference between tertiary and secondary sector was low as compared to the difference between secondary and primary sector. The inter-sectoral variation in FDI inflows has made the distribution highly skewed toward manufacturing and service sector.

FDI inflow in the tertiary sector was only US$46.54bn in 2003 which reached to the peak in the year 2008. After 2008 the value sharply fell in the next year and again increased a slight in 2010 and again declined sharply for the next two years of our reference period. Almost similar trend is also visible in case of secondary sector. The fluctuation in the data also reflects the impact of global economic meltdown in FDI inflows.

Appendix 4

Variable	LLC	IPS	Order of integration
FDI	−2.05 (0.02)	0.13 (0.05)	I (0)
Infrastructure	−0.37 (0.35)	3.00 (0.99)	I (1)
Governance	−3.86 (0.00)	−0.52 (0.03)	I (0)
Business environment	0.88 (0.81)	1.47 (0.9)	I (1)
Trade cost	−5.30 (0.00)	−0.01 (0.43)	I (0)
Corruption	−2.57 (0.00)	1.47 (0.09)	I (0)

Notes: LLC represents panel unit root test of Levin *et al.*; IPS represents panel unit root test of Im, Pesaran and Shin. The probability values are in parenthesis

Table AIII.
First generation unit
root test

Appendix 5. Construction of governance and infrastructure index
In the present study, in order to find out role of infrastructure and governance quality different components of infrastructure and governance are combined and two, namely, infrastructure and governance have been created. This study includes electricity consumption, internet users, air travel components for measuring the infrastructure index and Rule of Law, Political Stability and No Violence, Government Effectiveness, Regulatory Quality. The impact of corruption is measured separately as there are contradictory results for corruption.

In order to construct index current study first normalized all the data points. This study uses *Z*-scores to convert the underlying data to a common normally distributed scale, with a mean of zero and a standard derivation of one. This leads to the result that variables with extreme values have a great effect on the index. *Z*-scores are defined as.

The rescaling method is used to normalize index items to an identical range by linear transformation. When the rescaling method is used in this study, all variables of the particular sub-indices are converted to a scale from 1 to 100 points, where 100 represents the best score and 1 represents the worst. It is defined as.

Rescaling is vulnerable to extreme values or outliers that can distort the transformation. However, it can widen the range of indicators lying within small intervals more than using the *z*-scores transformation. Considering data used for this study, where the values of the variables are rather close to each other for some determinants, the rescaling method seems most appropriate because it widens the countries' spread and, thus, allows easier interpretations.

In addition to the normalization and standardization of the data series, the weightings of the index items have to be determined before the aggregation can be conducted. This study has given equal weights for all data series.

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