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Determinants of Foreign Direct Investment in Middle-Income Countries: New Middle-Income Trap Evidence

Ioannis A. Tampakoudis*

Assistant Professor, School of Business of Business Administration,
Department of Business Administration, University of Macedonia
*Corresponding Author

Demetres N. Subeniotis

Professor, School of Business Administration,
Department of Business Administration, University of Macedonia

Ioannis G. Kroustalis

PhD, School of Economic and Regional Studies,
Department of Balkan, Slavic and Oriental Studies, University of Macedonia

Manolis I. Skouloudakis

PhD Candidate, School of Business Administration,
Department of Business Administration, University of Macedonia

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Abstract

The determinants of FDI have been examined extensively in the literature; however, the empirical findings are inconclusive and often diverging. Developing and emerging countries have attracted the bulk of FDI inflows since the early 2000s, subsequently improving their economic level. Nevertheless, many middle-income countries got stuck in the middle-income trap, failing to make the transition to the high-income level. The study investigates the effects of certain determinants on FDI inflows to middle-income countries, with respect to avoiding the middle-income trap. We employ a panel data analysis for fifteen middle-income countries gathering data from 1980 onwards. The results highlight the significance of trade openness, GDP and population growth on inward FDI, while financial development, inflation, infrastructure and fuel exports are found to be insignificant. Empirical findings may force governments to apply policies in certain areas, with the aim of attracting further FDI while at the same time escaping the middle-income trap.

Keywords: FDI; MNE; middle-income trap; panel data

1. Introduction

Under globalization, both multinational enterprises (MNE) and host countries take a keen interest in the field of foreign direct investments (FDI). National authorities and policy makers intend to prepare the ground for attracting further foreign investments in order to boost domestic economic growth (Agrawal, 2015; Bitzenis, 2005; Borensztein et al., 1998; Choong, 2011; De Mello, 1997; Nair-Reichert and Weinhold, 2001; Tampakoudis et al., 2016). MNE take into consideration the present situation and the future perspectives of host countries with the aim of exploiting business opportunities. The decision-making on internationalization strategies and direct investments is accomplished through the examination of an array of qualitative and quantitative factors that are usually interrelated. Indeed, the investment interest of MNE has shifted since the early 2000s from the major developed economies, such as the US and the EU, to the developing and emerging ones, which have recorded a sharp increase in FDI inflows (Arbatli, 2011; UNCTAD, 2014; Vetter et al., 2014). As a result, the research interest regarding the decisive factors for the canalization of the foreign

investments of MNE to new investment horizons has been augmented.

The investigation of the determinants that affect FDI constitutes an especially promising research field. Recent and previous research studies consider an array of factors in order to explain FDI inflows to developing and emerging countries (Addison and Heshmati, 2003; Akpan et al., 2014; Al-Khouri, 2014; Biswas, 2002; Bitzenis and Marangos, 2007; Blonigen, 2005; Demirhan and Masca, 2008; Jadhav, 2012; Kinoshita and Campos, 2003; Kok and Ersoy, 2009; Noorbakhsh et al., 2001; Ranjan and Agrawal, 2011; Sichei and Kinyondo, 2012; Uttama and Peridy, 2010; Vijayakumar et al., 2010). Natural resources, market size, infrastructure, trade openness, macroeconomic variables, political risk, business environment, human capital and labour cost are among the most widely examined determinants in the literature. However, a review of the related studies demonstrates diverging findings for almost all the determinants being considered. Thus, the empirical research should be enriched in order to address the contemporary developments arising from the evolving and multidimensional nature of FDI.

The definition of developing and emerging countries is vague since there is not a generally accepted classification system for countries based on their level of development (Nielsen, 2011). Among the various indicators used for country classification, there is the economic one according to which countries are classified into low, middle and high-income groups based on their gross national income (GNI) per capita¹ (World Bank, 2016). The group of middle-income economies is constituted primarily of developing and emerging economies, whose ultimate objective is to leap to the next income group, namely to be classified as high-income. In fact, many middle-income countries fail to move to the next level, being stuck in the middle-income trap. This situation occurs when a middle-income economy exhibits a stationary per capita income, failing to achieve growth rates that would allow its transition into the high-income level. (Agénor et al., 2012; Felipe et al., 2012; Griffith, 2011; Kharas and Kohli, 2011; Ohno, 2009; Paus, 2014; World Bank, 2010). In order to avoid falling into the middle-income trap, middle-income countries have to attain a substantial annual growth rate², rendering FDI essential for the achievement of this objective.

The historical trends in FDI activity and its further contribution to the economic development have been investigated extensively in the literature through various groups of countries and long time periods. Indeed, there is no empirical evidence regarding the relationship between FDI inflows and the middle-income trap. Recent studies analyse either the growth slowdowns and the middle-income trap (Aiyar et al., 2013; Eichengreen et al., 2011; 2013; Ye and Robertson, 2016), or the characteristics of the countries being stuck in the middle-income trap (Cai, 2012; Felipe et al., 2012; Kharas and Kohli, 2011; Lee, 2013; Paus, 2012; 2014), or finally suggest public policies that could be implemented by countries in order to avoid the middle-income trap (Agénor et al., 2012; Griffith, 2011; Kharas and Kohli, 2011; Ohno, 2010; Woo, 2010; World Bank, 2010). We believe that since FDI constitute a crucial factor for economic growth, it is highly important to examine whether certain determinants of FDI could push middle-income countries to cross to high-income status, thus avoiding the middle-income trap. This information can assist governments, public authorities and policy makers to focus on certain policies that not only enhance FDI inflows, but also advance the economy to a level corresponding to that of the high-income countries. Overall, this paper contributes to the literature on a recently emerging issue, adding empirical evidence for the linkage between FDI inflows and the transition process from middle to high-income economy.

For the purposes of our study, we utilize a set of FDI determinants stemming from the fundamental theoretical framework on the motives for foreign investments developed by Dunning (1993) and Dunning and Lundan (2008). Considering the empirical literature as well, we select natural resources, financial sector development and infrastructure as determinants for resource seeking investments, GDP and population growth as determinants for market seeking investments and inflation as the main determinant for efficiency seeking investments. Moreover, we include trade openness which is considered either as resource seeking or market seeking determinant based on its effect on FDI (Franco et al., 2010). The extent of the openness of the economy and infrastructure are considered as the two dimensions of the middle-income trap, since they are considered as critical factors for the avoidance of the phenomenon. Trade openness indicates the level of competitiveness of an economy, which is determined by the labour force structure, innovation, technology, education, financial intermediation and infrastructure (Agénor et al., 2012; Felipe et al., 2012; Paus, 2014; World Bank, 2010). Infrastructure and, in particular, telecommunications is a crucial element for a knowledge economy that enhances the effectiveness of both the public and the private sector (Griffith, 2011; World Bank, 2008; 2010). Telecommunications support education, transparency and government services, while also facilitating the access

¹ According to the World Bank Atlas method, low-income economies are those with a GNI per capita of \$1,025 or less, lower middle-income economies are those with a GNI per capita between \$1,026 and \$4,035, upper middle-income and high-income economies are those with a GNI per capita between \$4,036 and \$12,475, and \$12,476 or more, respectively.

² According to Felipe et al. (2012), the annual GDP growth rates for a lower-middle-income and an upper-middle-income country to avoid falling into the middle-income trap are 4.7% and 3.5%, respectively.

to credit and financial services.

The overarching objective of the present paper is to evaluate the effects of certain determinants on FDI inflows to middle-income countries, with the aim of identifying those that could assist the countries examined towards dealing with the middle-income trap. The empirical findings derive from a sample of fifteen middle-income countries and the analysis of a data set from 1980 onwards. The rest of the paper is structured as follows: Section 2 reviews the empirical findings of the literature for the effects of the examined determinants on FDI. Section 3 analyzes the data and the econometric methodology that is followed. Section 4 presents the empirical findings and their implications for policy makers and scholars in the field. Finally, section 5 concludes our study and raises implications for further research regarding the relationship between FDI and the middle-income trap.

2. Literature Review and Hypotheses

According to the generally accepted theory of Dunning (1993) and Dunning and Lundan (2008) firms that make investments abroad can be categorized as resource seekers, market seekers, efficiency seekers and strategic asset or capability seekers. The natural resource seekers intend to take advantage of the physical resources, the labour force and the managerial skills and capabilities of host countries. Market seekers penetrate foreign markets mainly due to their size, growth and structure, while other strategic factors are of equal importance as well. Economies of scale and scope and risk diversification are the main drivers for efficiency seeking FDI, while the strategic asset or capability seekers carry out mergers, acquisitions or joint ventures in order to maintain or further enhance their competitive position. Strategic asset or capability seeking FDI aim at advancing the investing firm's competitiveness in any manner and, thus, their motives usually fall into one of the previous three categories.

Having the above theories as a starting point, many determinants of FDI have been introduced in the literature. For the purposes of our analysis, we constructed a set of FDI determinants which are vital for countries that are in the middle-income level and for which there is robust empirical evidence as well. The selected determinants are natural resources, financial sector development, infrastructure, GDP growth, population growth, inflation and openness. Natural resources, financial sector development and infrastructure trigger resource seeking FDI, GDP and population growth are market seeking motivating factors, while inflation is the primary parameter that induces efficiency seekers. The openness of the economy is considered either as a resource seeking or a market seeking determinant based on its effect (positive or negative) on FDI (Franco et al., 2010). Although the effects of these determinants on FDI inflows have been analyzed extensively in the literature, the empirical findings are often inconclusive and in many cases contradictory. In the following paragraphs, we review the main conclusions of past research regarding the effectiveness of each determinant on FDI.

2.1 *Resource seeking factors*

2.1.1 *Natural endowments*

Considering that raw materials and energy are primary production factors, MNE and countries can take advantage of the existence of natural resources. Jenkins and Thomas (2002) and Onyiewu and Shrestha (2004) suggested that many MNE intend to promote resource seeking investments, since they achieve a steady and cost-effective supply of inputs, especially raw materials and energy sources. Along the same lines, Morisset (2000) argued that African countries with high fuel resources attract considerable FDI inflows, while Oyeranti et al. (2011) observed that Chinese investments in Nigeria are focused on the oil and gas resources. However, resource seeking investments tend to affect the promotion of other kinds of FDI (market seeking and efficiency seeking FDI) negatively, considering that a number of MNE choose to export abroad the subsoil assets of host countries (Poelhekke and Van der Ploeg, 2010). Furthermore, in many countries with rich resource endowments there is a lack of democracy, fact that discourages foreign investments. Apart from political factors, macroeconomic instability is an additional negative parameter for long term investments in countries with natural endowments (Mlambo and Oshikoya, 2001).

Hypothesis 1a: Inward FDI are positively affected by the resource endowments of the host market.

Hypothesis 2b: Inward FDI are negatively affected by the resource endowments of the host market.

2.1.2 *Financial sector development*

An important determinant of FDI is financial sector development which is characterized by the quality, quantity and efficiency of the financial system. The financial structure of the economy and the interaction of activities and institutions define the level of financial development. Considering that in developing countries external sources of financing for domestic and foreign firms are vital, a strong and developed financial system can enhance their attractiveness (Atkin and

Glen, 1992). Claessens et al. (2001) found that FDI increase substantially in countries with an advanced banking system, while Agarwal and Mohtadi (2004) suggested that there is a robust relation between FDI and the ease of financing. Nevertheless, a number of MNE utilize internal means of funding, while they usually raise money from the home countries' financial resources. As Atkin and Glen (1992) suggested, MNE from the group of G7 countries can finance their foreign investments internally, without utilizing the financial system of the host countries. Furthermore, market inefficiencies or institutional constraints in developing countries do not allow the flow of the needed funds to MNE.

Hausmann and Fernandez-Arias (2000) asserted that countries with a volatile and underdeveloped financial system show high FDI inflows, since MNE avoid the transaction costs with local partners, implementing direct investments. Dutta and Roy (2011) also suggested that significantly high levels of financial development can have a negative impact on inward FDI. A developed financial system can promote growth through the provision of financial liquidity to domestic firms, and, as a result, the host economy does not need to attract inward FDI to boost the economy. Consequently, domestic credit is adequate to sustain and accelerate the growth rates of the economy.

Hypothesis 2a: Inward FDI are positively associated with the liquidity of the host market.

Hypothesis 2b: Inward FDI are negatively associated with the liquidity of the host market.

2.1.3 Infrastructure

Another parameter with inconclusive effects on FDI is infrastructure. A number of studies suggests that the level of infrastructure and FDI inflows have a strong and positive relation (Onyeiwu and Shrestha, 2004; Asiedu, 2006; Ang, 2008; Straub and Terada-Hagiwara, 2011). Developed infrastructure lowers production and transportation costs, which in turn maximize the profitability of MNE. In particular, infrastructure in communication networks is a parameter of certain importance for a host country. Bartlett and Ghoshal (1998) suggested that MNE are in need of sharing information worldwide. Communication is a decisive parameter towards multinational and transnational success and, thus, it is likely that businesses are interested in investing in countries with advanced infrastructure. However, Marr (1997) revealed that inadequate infrastructure may create investment opportunities for foreign investors, which in turn could lead to massive promotion of FDI in other sectors as well. For instance, Oyeranti et al. (2011) underlined the growing investment relations between China and Nigeria due to economic complementarities. The former managed to develop an advanced and highly competitive construction industry, while the latter was in need of infrastructure. This fact led to a dramatic increase on FDI inflows from China to Nigeria during the 2000s³.

Hypothesis 3: Inward FDI are positively associated with the level of the infrastructure of the host market.

2.2 Market seeking factors

2.2.1 GDP growth

Inward FDI is determined by market development and, indeed, there is robust empirical evidence regarding the positive and significant role of GDP growth on FDI inflows (Kumar and Pradhan, 2002; Nigh, 1985). Furthermore, fast growing markets display high levels of attractiveness for FDI, if the increased prospects of making profits are taken into consideration (Ancharaz, 2003). Kumar and Pradhan (2002) investigated the link between GDP growth and FDI inflows in developing countries providing a positive relationship between the two variables, while Casi and Resmini (2010) and Mold (2003) found similar results focusing on the EU27 and EU12, respectively. Gregg and Scott-Green (1999) also suggested that high GDP growth can drive MNE to promote FDI since the increased demand of the host country decreases the production costs of the subsidiaries. This cost is sufficiently lower than that of producing abroad and exporting to the target country. Filippaios and Papanastasiou (2008) also suggested that GDP growth captures the potential of the host economy both in terms of future market size as well as of improved market conditions and results in a positive and significant effect on the promotion of inward FDI.

Hypothesis 4: Inward FDI are positively related to the GDP growth of the host economy.

2.2.2 Population growth

Population growth is also considered to be a significant factor with similar findings regarding its effects on attracting FDI. This determinant is also a proxy of market size development, revealing the growth of potential consumers. Large populations provide ample opportunities for increased sales of products and services, while there is a large pool of human resources. MNE pursue the growing needs of a country and opt to implement FDI in order to take advantage of

³ FDI inflows from China to Nigeria doubled between 2003 and 2006, from US\$3 billion to US\$6 billion.

an increasing trend in population growth. Using data from a considerable number of developing countries (28), Nunnenkamp (2002) argued that there is a significantly positive relationship between FDI and population growth. The author distinguished FDI into three types, namely resource-seeking, market-seeking and efficiency-seeking, identifying population growth as one of the prevailing variables⁴ that affect all three categories positively. Examining the determinants of inward FDI in developing countries, Cobrin (2005) argued that population (as a proxy for market size) is one of the most significant parameters in attracting FDI. In the same study, it was suggested that variables related to market size are dominant in attracting FDI. Akin (2009) and Wadhwa and Reddy (2011) also suggested that population growth is a significant determinant of FDI inflows for the developing countries.

Hypothesis 5: Inward FDI are positively associated with the population growth of the host economy.

2.2.3 Trade openness⁵

Trade openness is supposed to be another important variable for a country's FDI attractiveness. This factor reflects the ease of moving capital and goods in and out of an economy by investors (Onyeiwu and Shrestha, 2004). Examining samples of developing countries⁶ the studies of Basar and Tosunoglu (2006) and Won et al. (2008) concluded that trade openness is a factor of major importance for attracting FDI. Chakrabarti (2001) revealed that, given that most investment projects are related to tradable products, a country's degree of openness to international trade should be a decisive factor to the promotion of FDI. Also, Law and Habibullah (2009) suggested that an open economy promotes markets' competitiveness through restraining the power of political and economic elites. Contrary to the majority of research findings, Asiedu (2002) argued that trade openness' impact on FDI relies on the type of investment and, more specifically, market seeking investments have a positive relationship with lower levels of trade openness, as they are linked to trade restrictions. The reason behind this is the "tariff jumping" hypothesis, stating that foreign companies seeking to enter local markets while finding difficulties in importing their goods, may decide to establish subsidiaries in the host country (Liargovas and Skandalis, 2012).

Hypothesis 6a: Inward FDI are positively affected by the level of openness of the host market.

Hypothesis 6b: Inward FDI are negatively affected by the level of openness of the host market.

2.3 Efficiency seeking factor

2.3.1 Inflation

Inflation is also considered a determinant of critical importance. In general, inflation rates may reflect the pace at which consumption advances in an economy. Also, it can be an indication of financial instability. High inflation rates may be the result of increasing consumption levels, which, in turn, stimulate higher productivity and reduced production costs through economies of scale. Sayek (2009) demonstrated that in many cases, inflation may have a positive relationship with FDI inflows since, on the one hand, it affects the diachronic consumption pattern positively and, on the other, it reduces the costs of the investment. However, high inflation rates may indicate economic instability of the host country and constitute a deterrent to foreign investments (Yartey and Adjasi, 2007). Dhakal et al. (2007) also suggested that high inflation rates reflect the central government's inability to maintain an expedient monetary policy. In a high inflationary episode, MNE face uncertainty over product and input pricing, which may drive them to reduce or avoid investments in such countries. Addison and Heshmati (2003) examined the determinants of FDI inflows to a sample of developing countries and demonstrated that inflation has a negative effect in Europe, Central Asia, Middle-East and North Africa. They suggested that erratic macroeconomic policies can cause high inflation rates, which in turn can negatively affect inward FDI. Furthermore, Valli and Masih (2014) found causality between stable inflation and increased FDI inflows for South Africa utilizing data from 1970 to 2012.

Hypothesis 7a: Inward FDI are positively related to the inflation rates of the host market.

Hypothesis 7b: Inward FDI are negatively related to the inflation rates of the host market.

Apparently, there is a lack of a general consensus as to the effects of the above parameters on attracting FDI, since the results of empirical evidence are either divergent or inconclusive. The main reason for this inconsistency lies in

⁴Traditional determinants were supposed to be Population Growth, GDP per Capita, GDP Growth, entry restrictions and risk factors (Nunnenkamp, 2002)

⁵ The effect of trade openness on FDI is inconclusive as it may affect market seeking or resource seeking FDI. Respectively, it can be categorized either under the market or the resource seeking factors.

⁶The examined sample of Basar and Tosunoglu (2006) included Turkey, new EU member states and candidate countries, while Won et al. (2008) focused on newly industrialized Asian economies.

the specific characteristics of the host countries although differences exist among similar samples as well. Our study focuses on middle-income economies, aiming to evaluate the effects of a set of leading determinants on inward FDI. This methodological approach overcomes the criterion of geographical breakdown, which proved to be ineffective. Indeed, we examine countries with similar trends on growth rates, economic structure and policies in order to capture the magnitude of certain parameters on FDI more reliably and coherently.

3. Data and Methodology

3.1 Data specification

In order to investigate the research questions of our study, we use annual data from fifteen middle-income countries, namely Algeria, Argentina, Brazil, Chile, China, Colombia, India, Indonesia, Malaysia, Mexico, Nigeria, Poland, South Africa, Turkey, and Uruguay. Due to data limitations we could not include Armenia, Bulgaria, Cuba, Romania and Russia in the sample. The sample period runs from 1980 to 2013. All data are obtained from The World Bank.

3.2 General estimation model

Intending to investigate the key determinants of FDI flows in middle-income countries, we employ a panel data regression model. In particular, our estimations rely on the following equation:

$$INFDI_{i,t} = \beta_0 + \beta_1 * DOMCR_{i,t} + \beta_2 * INF_{i,t} + \beta_3 * OPENNESS_{i,t} + \beta_4 * TLINES_{i,t} + \beta_5 * GDPGR_{i,t} + \beta_6 * POPGR_{i,t} + \beta_7 * FEXP_{i,t} + \varepsilon_{i,t} \quad (\text{Equation 1})$$

where i refers to the examined countries, t to the time period 1980-2013 and ε is the error term. The dependent variable INFDI is net Foreign Direct Investment inflows measured as percentage of GDP.

DOMCR is the domestic credit provided to private sector (as % of GDP) and is used as proxy of financial sector development. INF is inflation measured by consumer prices, while OPENNESS measures the level of trade openness. TLINES is the number of telephone lines per 100 people and is used as an indicator of infrastructure development⁷. The variables GDP growth (GDPGR) and population growth (POPGR) refer to market potential. Fuel exports as percentage of total merchandise exports (FEXP) is used as proxy of the level of natural resource endowments.

Table 1 summarizes the variables used and the relevant sources.

Table 1: Description of Variables

Variable	Description
INFDI	Foreign Direct Investments, net inflows (as % of GDP) - sum of equity capital, reinvestment of earnings, other long-term capital and short-term capital as shown in the balance of payments, divided by GDP (World Bank).
DOMCR	Domestic Credit to private sector (as % of GDP) - financial resources provided to the private sector, such as through loans, purchases of non-equity securities, trade credits and other accounts receivable (World Bank).
INF	Inflation, consumer prices (annual %) - the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly (World Bank).
OPENNESS	(Imports + Exports)/GDP ⁸ - the sum of annual imports and exports as a percentage of GDP.
TLINES	Number of telephone lines per 100 people - the sum of active number of analogue fixed telephone lines, voice-over-IP (VoIP) subscriptions, fixed wireless local loop (WLL) subscriptions, ISDN voice-channel equivalents and fixed public payphones (World Bank).
GDPGR	GDP Growth (annual %) - annual percentage growth rate of GDP at market prices based on constant local currency (World Bank).
POPGR	Population Growth (annual % change) - exponential rate of growth of midyear population from year t-1 to t, expressed as a percentage (World Bank).
FEXP	Fuel Exports (% of total merchandise exports) - fuels which comprise the Standard International Trade Classification (SITC) section 3 (mineral fuels) (World Bank).

⁷ We use telephone lines as a proxy of infrastructure, since communications networks, information technology and the flow of reliable information are key factors for the avoidance of the middle-income trap (Asiedu, 2002; World Bank 2008; 2010; 2012; Griffith 2011).

⁸ The variable Trade Openness is commonly measured as the sum of export and import divided by GDP (Ezeoha and Cattaneo, 2012; Seim, 2009; Singhania and Gupta, 2011).

We estimate Equation 1, employing a panel data least square procedure. The use of panel data provides the advantages of more informative data, more variability, less collinearity, more degrees of freedom and more efficient econometric estimates (Gujarati, 2004; Hsiao, 2003). Our panel consists of fifteen countries and runs for a time span of 34 years.

3.3 Preliminary econometric analysis

3.3.1 Unit Root tests

Initially, intending to check the stationarity of the used variables, we performed the Levin et al. (2002), Im et al. (2003) and Fisher-ADF panel unit root tests (Maddala and Wu, 1999). The results of the tests are presented in Table 2.

Table 2: Unit Root Tests

Variable	Method	Level		1 st difference	
		Statistic	Prob.	Statistic	Prob.
INFDI	Levin, Lin & Chu	-1.86	0.03		
	Im, Perasan & Shin W - stat	-2.05	0.02		
	ADF – Fisher Chi - square	42.26	0.06		
DOMCR	Levin, Lin & Chu	-1.89	0.02		
	Im, Perasan & Shin W - stat	-1.66	0.04		
	ADF – Fisher Chi - square	10.36	0.09		
INF	Levin, Lin & Chu	-3.66	0.00		
	Im, Perasan & Shin W - stat	-4.45	0.00		
	ADF – Fisher Chi - square	90.99	0.00		
OPENNESS	Levin, Lin & Chu	-0.17	0.56	-11.65	0.00
	Im, Perasan & Shin W - stat	1.15	0.87	-12.13	0.00
	ADF – Fisher Chi - square	20.02	0.91	193.12	0.00
TLINES	Levin, Lin & Chu	-3.72	0.00	0.02	0.50
	Im, Perasan & Shin W - stat	-0.13	0.44	-2.79	0.00
	ADF – Fisher Chi - square	25.92	0.67	57.23	0.00
GDPGR	Levin, Lin & Chu	-9.41	0.00		
	Im, Perasan & Shin W - stat	-10.15	0.00		
	ADF – Fisher Chi - square	158.78	0.00		
POPGR	Levin, Lin & Chu	-5.44	0.00		
	Im, Perasan & Shin W - stat	-3.13	0.00		
	ADF – Fisher Chi - square	71.55	0.00		
FEXP	Levin, Lin & Chu	-2.96	0.00	-6.97	0.00
	Im, Perasan & Shin W - stat	-0.91	0.18	-13.19	0.00
	ADF – Fisher Chi - square	34.39	0.26	213.05	0.00

Table 2, indicates that variables INFDI, DOMCR, INF, GDPGR and POPGR are stationary since the tests employed here fail to reject the null hypothesis of unit root at 1%, 5% and 10% significance level. By contrast, variables OPENNESS, TLINES and FEXP are found stationary in first differences. To provide more reliable conclusions, we use the first differences of the non-stationary variables (Δ OPENNESS, Δ TLINES and Δ FEXP) in our estimations.

3.3.2 Descriptive statistics and pairwise correlation

Table 3 reports the basic descriptive statistics of each variable, and the pairwise correlation matrix coefficients of the independent variables that are calculated in order to determine the existence of multicollinearity.

Table 3: Descriptive Statistics and Pairwise correlation matrix

	Mean	Median	SD	1	2	3	4	5	6	7	8
1 INFDI	0.02	0.01	0.02	1.000							
2 DOMCR	0.62	0.49	0.39	0.134	1.000						
3 INF	4.32	0.08	85.08	-0.032	-0.001	1.000					
4 ΔOPENNESS	0.00	0.00	0.06	0.103	0.037	0.028	1.000				
5 ΔTLINES	0.00	0.00	0.00	0.027	-0.084	-0.008	0.084	1.000			
6 GDPGR	0.04	0.04	0.04	0.199	0.044	-0.078	-0.089	0.076	1.000		
7 POPGR	0.01	0.01	0.00	-0.182	0.046	-0.045	-0.037	-0.040	-0.015	1.000	
8 ΔFEXP	-0.00	0.00	0.03	0.038	0.005	-0.024	-0.004	0.014	0.007	-0.029	1.000

As indicated in Table 3, none of the correlation coefficients takes considerably high value, suggesting that multicollinearity is not a problem.

3.3.3 Hausman Test

In order to determine the estimation method between the fixed cross section effects (FE) and the random cross section effects (RE), we perform the Hausman test (Hausman, 1976). The null hypothesis of the Hausman test is that FE and RE estimators do not differ significantly, which implies that the RE estimation is more appropriate. Considering our panel estimation, the null hypothesis of the test cannot be rejected ($X^2 = 10.14$ with p -value = 0.18). Thus, the Hausman test suggests that the RE method is more appropriate, leading to more efficient results.

4. Empirical Results

The following paragraphs analyze the empirical results of the applied econometric methodology regarding the effects of the selected determinants on FDI inflows in the middle-income countries. Table 4 reports the results of the panel data estimations. Model 1 represents our baseline random effects estimation, while in Model 2 the basic specification is augmented with the lagged value of the dependent variable (INFDI(-1)) as an explanatory variable.

Table 4: Panel OLS Regression Analysis

Independent Variables	Model 1	Model 2
	<i>Dependent Variable: INFDI</i>	
Constant	0.0468* (8.731)	0.0465* (9.015)
INFDI(-1)		0.6099* (17.374)
DOMCR	-0.0024 (-0.838)	-0.0025 (-1.076)
INF	2.41E-06 (0.311)	-2.81E-07 (-0.046)
ΔOPENNESS	0.0367* (3.407)	0.0331* (3.930)
ΔTLINES	0.0324 (0.461)	0.0103 (0.188)
GDPGR	0.0678* (4.187)	0.0354* (2.754)
POPGR	-1.7757* (-10.350)	-0.3789* (-4.770)
ΔFEXPORTS	-0.0010 (-0.050)	-0.0026 (-0.156)
Adjusted R ²	0.215	0.688
F - statistic	20.370 (0.000)	50.558 (0.000)
Durbin – Watson stat.	0.827	—
Total Panel Observations	495	495

The asterisks *, **, *** indicate the significance level at 0.01, 0.05, 0.10 respectively.

Taking into consideration the above estimations, the results highlight variables Δ OPENNESS, GDPGR and POPGR as the most significant determinants of FDI inflows. In contrast, variables DOMCR⁹, INF¹⁰, Δ TLINES¹¹ and Δ FE¹² are found to have an insignificant effect on INF¹³.

In particular, consistently with the majority of previous studies (Basar and Tosunoglu, 2006; Chakrabarti, 2001; Law and Habibullah, 2009; Won et al., 2008) Δ OPENNESS is found to have a highly significant and positive effect on FDI inflows. This finding implies that an increase in the openness level growth rate of the host economies leads to increased inflows of FDI. In fact, MNE pursue investment projects into middle-income economies in order not only to export their products to the host market but also to find access to the neighboring or other countries. Moreover, the significant effect of the selected variable implies that MNE are in need of the production factors that are imported in the host countries. Trade openness can be a distinctive feature of middle-income economies in order to continue promoting inward FDI in the future and remain competitive against low-income and high-income economies. Indeed, policy makers should focus on measures that could further increase the openness level of the national economy with the intention of building a strong competitive advantage in that field, while domestic and foreign firms should maintain a relatively low price level of the exported goods.

Through the enhancement of FDI inflows, policies that will further boost trade openness form the grounds for the avoidance of the middle-income trap. Trade openness is promoted by the level of competitiveness and, thus, labour market reforms, investments in new technologies and innovation, the establishment of a friendly business environment, access to alternative sources of financing for entrepreneurs¹³ and the advanced quality of urban infrastructure should be primary strategic choices for the middle-income countries in order to make the transition to high-income status. Effective structural changes allow firms to shift from low-cost and low-technology activities into more technology-intensive business sectors. Considering that advanced technology and high value-added activities have strong spillover effects to the rest of the economy, growth is further strengthened as well (World Bank, 2012).

As far as GDPGR is concerned, it is found to have highly significant and positive effect on FDI in line with the findings of previous studies (Delitheou, 2011; Filippaios and Papanastasiou, 2008; Kumar and Pradhan, 2002; Nigh, 1985). In fact, high GDP growth rates increase the income per capita and the demand for products and services. Subsequently, firms can achieve economies of scale, minimizing production costs and benefiting from further profit margins. Higher profitability and cost minimization are of major importance for the internationalization of MNE and for that reason inward FDI are positively related with GDP growth. The significant effect of economic growth on FDI inflows underlines the need for the achievement of sustainable development through continuous reforms¹⁴. In particular, financial development, lifelong learning, skills-based education, regulatory quality, improved governance and government capital expenditure together with policies that enhance trade openness play a significant role in promoting economic growth.

It is worth noting that POPGR is found to have a significant but negative effect on FDI inflows. This result rejects Hypothesis 5, according to which inward FDI are positively associated with the population growth of the host economy, in contrast to the theory and findings of several previous studies (Akin, 2009; Cobrin, 2005; Nunnenkamp, 2002; Wadhwa and Reddy, 2011). It is probable that a large population is detrimental to economic growth, diminishing per capita income and, thus, the consumers' purchasing power. Accelerating growth rates of the population is a deterrent factor for MNE, favouring host countries that exhibit low rates due to either policy measures or historical trends.

Regarding the overall performance of Model 1, the *F*-statistic (*p*-value = 0.00) suggests that the model is highly significant; however it demonstrates low explanatory power considering the value of the Adjusted *R*-squared (0.21). Furthermore, the Durbin-Watson statistic indicates the existence of first order serial correlation and in order to address that problem we estimate Model 2, adding the lagged value of INF¹⁵ to the set of explanatory variables.

As far as Model 2¹⁵ is concerned, the added variable of INF¹⁵(-1) is highly significant and positive, suggesting that FDI inflows follow a dynamic procedure. Regarding the other explanatory variables, our results are identical with Model 1.

⁹ This outcome is opposite to the findings of Atkin and Glen (1992), Claessens et al. (2001) and Agarwal and Mohtadi (2004) who suggested that there is a strong and positive relationship between financial sector development and inward FDI.

¹⁰ The reported effect of this variable does not agree with Addison and Heshmati (2003), Dhakal et al. (2007), Yartley and Adjasi (2007) and Sayek (2009).

¹¹ This result rejects Hypothesis 4, while it is inconsistent with the findings of Onyeiwu and Shrestha (2004), Asiedu (2006), Ang (2008) and Straub and Terada-Hagiwara (2011).

¹² The insignificant effect of this determinant is in contrast to the empirical findings of Morisset (2000), Mlambo and Oshikoya (2001), Jenkins and Thomas (2002), Poelhekke and Van der Ploeg (2010) and Oyeranti et al. (2011).

¹³ Interestingly, Goyal et al. (2016) suggest a new category of entrepreneurship known as 'Social Entrepreneurship' which can target better the real needs of the Base of the Pyramid (BoP) in developing countries.

¹⁴ For the link between institutional reforms and macroeconomic performance see also Bitzenis (2007).

¹⁵ We estimate Model 2 using fixed cross section effects (FE) as indicated by Hausman test ($X^2 = 59.31$ with *p* - value = 0.00).

In fact, Model 2 exhibits considerably increased overall explanatory power since the Adjusted *R*-squared takes a relatively high value (0.69). Also, the hypothesis that the residuals follow a first order autoregressive process is rejected at 5% significance level, which indicates that they are serially uncorrelated. The latter finding enhances the reliability of the model.

5. Conclusion and Discussion

The analysis of the factors that drive businesses to implement investments abroad is a multi-faceted research topic. There is vast literature regarding the determinants of FDI inflows to host countries, with respect to their level of development. The redistribution of global FDI inflows and the shift of the investment interest from the developed countries to the developing and emerging ones since the early 2000s has also shifted the research focus to the latter. Based primarily on the theoretical framework of Dunning (1993) and Dunning and Lundan (2008), a number of determinants have been developed in order to identify the critical ones that drive FDI towards new destinations. However, the empirical findings have failed to reach consensus regarding the effects of each determinant on FDI inflows.

Many developing and emerging countries comprise the group of middle-income countries. These economies are squeezed between the labour-intensive, low-income economies and the technology-intensive, high-income economies. Often, middle-income countries fail to make the transition to the next level, getting stuck in the middle-income trap. This phenomenon is characterized by stagnant or slightly increased per capita income which fails to converge with that of high-income countries. The key challenge for middle-income countries is to achieve growth rates of at least 3.5% in order to become high-income ones, thus overcoming the middle-income trap. Considering the significant impact of FDI on economic growth, the question that inevitably arises is whether middle-income countries could focus on certain policies and structural reforms that not only boost FDI inflows but also contribute to the avoidance of the middle-income trap.

In order to address the above research question, we considered a set of FDI determinants, representing resource seeking, market seeking and efficiency seeking investments. In particular, we selected natural resources, financial sector development, infrastructure, GDP growth, population growth, inflation and trade openness. Infrastructure and trade openness are meant to be particularly important for the avoidance of the phenomenon. In this regard, our research intends to shed light on the possible linkage between inward FDI and the middle-income trap.

For the purpose of our study, we applied a panel data regression analysis on a sample of fifteen countries, utilizing a data set from 1980 to 2013. In line with the bulk of previous studies, the empirical results reveal the significance of openness, GDP growth and population growth on inward FDI; the first two variables appear to have a positive effect on the dependent variable while the effect of the latter is negative. On the contrary, the effect of financial development, inflation, infrastructure and fuel exports on inward FDI is found to be insignificant, a fact which stands at odds with the findings of the majority of previous studies.

The significant and positive effect of trade openness on FDI inflows suggests that MNE favor investments in countries that allow them to put their products not only on the domestic but also on the international market. In addition, MNE place particular interest on the opportunity to import production factors to the host countries, considering that a middle-income economy may either lack the required resources or offer them at a high cost. Trade openness is a decisive factor for the avoidance of the middle-income trap and, thus, middle-income economies should focus on policies towards knowledgeable and creative workforce, advanced technology, smart innovation, entrepreneurship, new means of financing and upgraded infrastructure. The ultimate objective for any middle-income country should be the establishment of a new economic model, based on high value-added chains and more sophisticated, innovation-based, products and services.

Another determinant of equal importance with trade openness for attracting FDI inflows is GDP growth. High economic growth increases the available income of citizens, while the demand for products and services is strengthened as well. The profit margins of MNE widen through higher revenue and lower production cost due to the achievement of economies of scale. Middle-income countries should concentrate on policy actions that ensure sustainable economic growth, implementing reforms in the fields of education, regulation, governance, capital expenditure and macroeconomic stability.

The findings of this study could bring forth new subjects for further research. First, our paper examines a set of parameters affecting FDI inflows for a sample of middle-income countries around the world. Future research can focus on additional determinants of FDI, while the initial sample could be further divided based on geographic proximity and economic or non-economic fundamentals. Secondly, we used telephone lines as a proxy for infrastructure considering the significance of communication networks. Alternatively, roads, ports, airports, energy and information technology could be used in order for the significance of infrastructure on FDI inflows to be examined from another perspective. Finally, future

empirical research should determine the level of interaction between FDI and the middle-income trap more precisely, while policy makers and governments should concentrate on certain reforms that could lead to economic growth and social prosperity more decisively.

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