

The Relationship between Economic Development and Foreign Direct Investment Flows

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Abstract

Starting from the theories and studies in the field, this paper emphasizes the relationship between the level of economic development given by GDP per capita, as independent variable, and foreign direct investment received and generated by a country reflected by FDI inflows and respectively FDI outflows, as independent variable. The association between the parameters was analyzed using the Excel software in order to compute the correlation coefficient, create the scatter plots, highlight the best fitting line, and calculate the coefficient of determination (R^2) for different regression equations. The results showed that there is a weak positive relationship between the level of economic development and foreign direct investment flows. Also, the level of economic development given by the GDP per capita does not fully explain worldwide differences in FDI inflows and respectively FDI outflows. Therefore, the analyses presented in this study proved that there are other factors besides the level of economic development that influence the level of foreign direct investment received and generated by an economy.

Keywords: *foreign direct investment; economic development; inflows; outflows; correlation.*

JEL Classification: *F21; F23; O52*

Introduction

As many economists and theorists in the field emphasize, there is an association between economic development and foreign direct investment (FDI) flows. On one hand, as an economy is developing, the conditions offered to domestic and foreign companies, as for example infrastructure, the qualification of workers etc. improve, encouraging the attraction of FDI made by international firms looking to “capitalize in a more cost-effective manner their ownership advantages” (Iacovoiu and Panait, 2015). On the other hand, in order to carry out international investments a firm should reach a certain level of productivity and possess its own "advantages" defined as “resources that have the potential to generate future income” (Dunning, 1992; Matei, 2004; Iacovoiu, 2009).

Starting from this idea, the main purpose of this paper is to analyze empirically the relationship between economic development and foreign direct investment inward and outward flows, using the latest data available for worldwide countries.

Theoretical Aspects

According to the theory of Investment Development Path (Dunning, 1992; Dunning and Narula, 1996; Buckley and Castro, 1998) the level of FDI received and generated by a country changes alongside with its level of economic development. Thus, in less developed countries FDI inflows and outflows have a very low level. That happens because “the production factors and capabilities are placed on a low level” and “the ownership advantages” of domestic companies are weak. As the conditions offered to firms improve, and local companies become more competitive, the inward and outward FDI start to grow. Therefore, in more developed countries, the FDI inflows and outflows are higher.

Regarding the Investment Development Path theory, the results of an empirical analysis done by UNCTAD on 135 countries in different phases of economic development (WIR, 2006) have demonstrated that there is a discrepancy between this theory and practice. Thus, countries with comparable levels of economic development¹ have presented very different investment positions². Also, countries such as China, India, Brazil, Mexico, South Africa and Turkey as well as “countries with a limited industrial tradition” (as for example Kuwait and United Arab Emirates) generated FDI outflows bigger than economies characterized by a much higher level of GDP per capita and/or traditionally industrialized. Consequently, the study conducted by UNCTAD suggested that the investment position of a country is not always related to its level of economic development measured by GDP per capita, and ownership advantages “could be derived from sources other than those specific to the company” (Iacovoiu and Panait, 2014).

Subsequently, other studies (Boudier, 2008; Narula and Guimón, 2010; Narula and Dunning, 2010) with respect to Central and Eastern European Countries that joined the EU in 2004 or 2007 shown that the investment position of a country is also determined by a number of other factors, such as natural resource endowments, economic and political structure, size, population etc. Therefore, the level of FDI received and generated by a country cannot be explained only by its level of economic development given by the value of the GDP per capita.

In what concern the FDI inflows, some theorists in the field (Bonciu and Dinu, 2003; Pournarakis and Varsakelis, 2004; Manea and Pearce, 2004) emphasized the essential attributes of the host country, that are summarized in the table below (Table no.1).

Table 1. Essential attributes of the host country

Inward FDI typology	Essential attributes of the host country
Market-seeking investment (MS)	<ul style="list-style-type: none"> ○ The potential of national markets (size and evolution); ○ Regional economic integration (internationalization).
Resources-seeking investment (RS)	<ul style="list-style-type: none"> ○ Natural resource endowments; ○ The high level of qualification of the local labor force.
Knowledge-seeking investment (KS)	<ul style="list-style-type: none"> ○ The availability of scientific knowledge; ○ The high level of development of research and innovation.
Efficiency-seeking investment (ES)	<ul style="list-style-type: none"> ○ - Availability of the production factors at low costs

Source: Iacovoiu, 2009, pp.60.

¹ The level of economic development was given by the GDP per capita at PPP. The following values of GDP/capita at PPP have been selected: stage 1 (under 2,500\$); stage 2 (2,500-10,000 \$); stage 3 (10,000-25,000 \$); stage 4 (25,000-36,000 \$) and stage 5 (over 36,000 \$)

² Investment position was shown by the level of the net outward investment per capita. Net outward investment was calculated as the difference between outward FDI stock and inward FDI stock.

As underlined above, the factors that influence the level of FDI received by an economy are mainly depending of the motivation of foreign corporations to invest in that country. Thus, some of the factors depend on the level of economic development (such as qualification of the local labor force, development of research activities, innovation etc.) while others are independent of it (population, natural resources etc.).

Therefore, according to the theories and studies in the field, there are many factors that influence the level of foreign direct investment flows, some of them reflecting “exogenously determined characteristics” that are not dependent of the level of economic development.

Methodology

The relationship between the level of economic development and the level of foreign direct investment flows was analyzed using statistical data for the year 2017 regarding *Gross Domestic Product per capita* (GDP/capita) in current US\$, *FDI inflows* and *FDI outflows* calculated by UNCTAD in millions US\$.

We considered the GDP per capita as independent variable and FDI inflows respectively FDI outflows as depending one. The association between the parameters underlined above was emphasized using the Excel software in order to compute the correlation coefficient, create the scatter plots, highlight the best fitting line, and calculate the coefficient of determination (R^2) for different regression equations. The correlation analysis was done in two steps as follows: 1) for all available data regarding the inward and outward FDI namely 177 countries, respectively 145 countries; 2) only for the positive values of the FDI inflows (168 countries) and respectively FDI outflows (122 countries).

The Structure of FDI Flows

The structure of FDI inflows and outflows according to the UNCTAD classification of the world economies is presented below (Table no.2).

Table 2. The structure of FDI inflows and outflows (2017)

Economy	FDI inflows		FDI outflows	
	Millions US\$	%	Millions US\$	%
World	1 429 807.4	100	1 429 972.2	100
Developed economies³	712 382.9	49.82	1 009 208.5	70.57
Developing economies⁴	670 658.0	46.91	380 774.8	26.63
Transition economies⁵	46 766.5	3.27	39 988.9	2.80

Source: UNCTAD, World Investment Report 2018, Annex table 1 and Annex table 2

As shown above, around half of the total FDI inflows are attracted by developed economies, whereas developing countries received almost 47% of total inward FDI. Comparatively, outward FDI flows are generated mostly by the developed economies respectively 70.57% of

³ According to the UNCTAD classification, this category includes countries in North America, namely United States and Canada, Europe, and “Other developed economies”. European developed economies are European Union member states and “other developed Europe”, respectively Gibraltar, Iceland, Norway and Switzerland. “Other developed economies” are Australia, Bermuda, Israel, Japan, and New Zealand (WIR 2018).

⁴ This category includes Mexico (North America) and most countries in Asia, Oceania, Africa, Latin America and the Caribbean except for those classified as developed economies and presented above.

⁵ According to the UNCTAD classification, this category includes South-East European countries, other than EU member states, CIS countries, and Georgia.

the total FDI outflows. As compared to developed countries, developing economies account for only 26.63% of the total FDI outflows.

Therefore, the level of economic development seems to be associated with the level of foreign direct investment flows, in the sense that developed economies generate and receive most of the total outward and respectively inward FDI flows.

The Relationship between FDI Inflows and GDP/capita

As shown below (Figure no.1), only 12.9% ($R^2 = 0.129$) of the variation in the foreign direct investment inflows is explained by the level of economic development given by the GDP per capita. The best fitting line corresponds to polynomial regression equation. The value of correlation coefficient, calculated for the 177 analyzed countries worldwide is 0.3386, emphasizing a weak positive relationship between FDI inflows, as dependent variable (Y), and GDP/capita, as independent one (X).

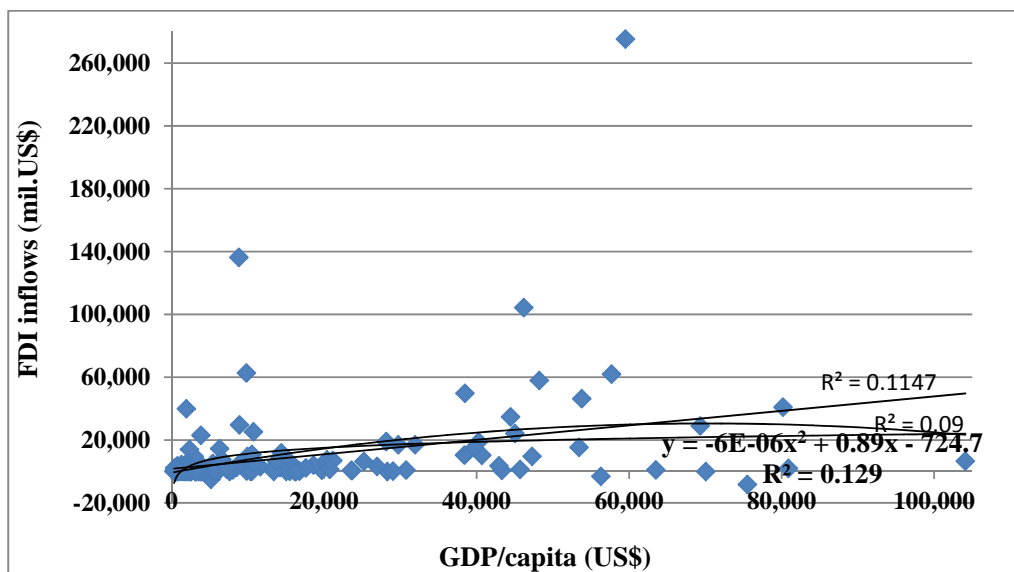


Fig. 1. The correlation between FDI inflows and GDP/capita

Source: FDI inflows -UNCTAD, WIR 2018, Annex table 1; GDP/capita – World Bank, Statistics

Comparatively, if we take into account only the positive values of FDI inflows, the coefficient of determination (R^2) is higher namely 0.258, which means that in this case almost 26% of the variation in the FDI inflows is explained by the level of economic development (figure no.2).

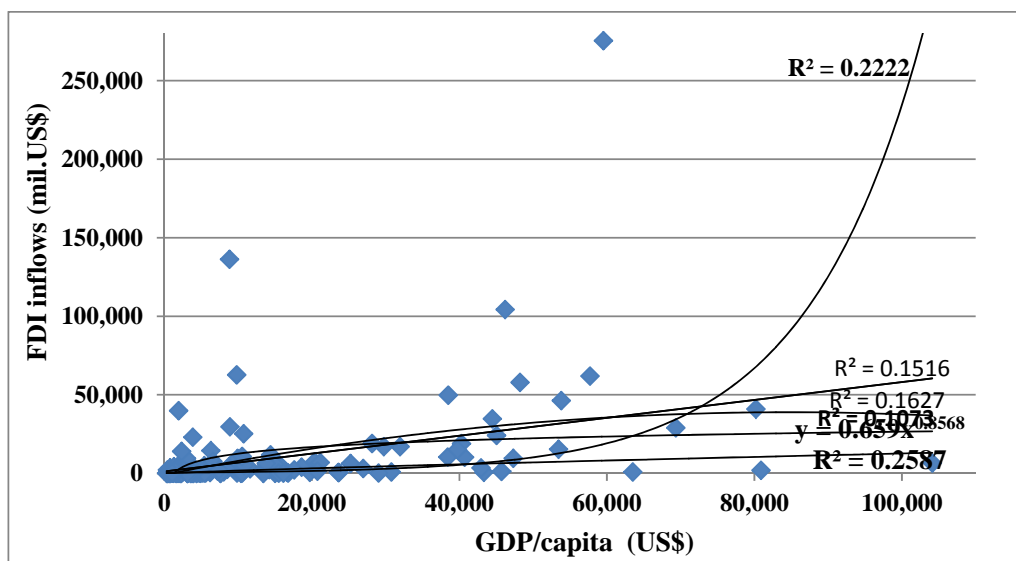


Fig. 2. The correlation between the positive values of FDI inflows and GDP/capita

Source: FDI inflows -UNCTAD, WIR 2018, Annex table 1; GDP/capita – World Bank, Statistics

The best fitting line corresponds to power regression equation. Also, the value of correlation coefficient is 0.3893 which is greater than before but shows the same weak association between the analyzed parameters.

Therefore, the level of economic development given by the GDP per capita does not explain worldwide differences in foreign direct investment received by a country. A good example in this respect is the very first 10 economies according to the level of FDI inflows (Table no.3).

Table 3. Top 10 economies according to the level of FDI inflows (2017)

Crt. No.	Countries	GDP/capita (current US\$)	FDI inflows (Millions US\$)
1	United States	59,531.70	275 381.0
2	China	8,827.00	136 320.0
3	Hong Kong, China	46,193.60	104 333.0
4	Brazil	9,821.40	62 712.6
5	Singapore	57,714.30	62 006.0
6	Netherlands	48,223.20	57 956.7
7	France	38,476.70	49 794.9
8	Australia	53,799.90	46 368.0
9	Switzerland	80,189.70	40 986.1
10	India	1,939.60	39 916.1

Source: UNCTAD, World Investment Report 2018, Annex table 1

As shown above, three of the top ten FDI receivers are developing economies namely China, Brazil, and India with a GDP/capita below 10,000 US\$ but which have benefited in recent years from rapid growth. As compared with developed economies found in top ten FDI receivers, these countries are characterized by a very large population, particularly China and India, as well as a low cost of production factors.

It has to be notice China that occupies the second position after the United States and ahead of several traditionally developed countries such as Netherlands, France, and Switzerland. The level of FDI received by China (136,320 million US\$) is two to three times higher than the one registered by most of the developed economies underlined above (Table no.3).

The relationship between FDI outflows and GDP/capita

As presented in Figure no.3, only 14% ($R^2 = 0.14$) of the variation in the FDI outflows is explained by the level of economic development given by the GDP per capita.

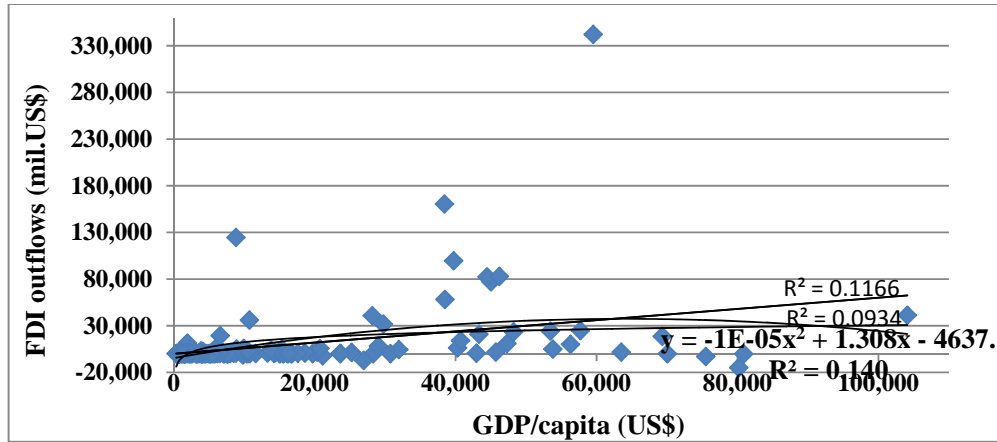


Fig. 3. The correlation between FDI outflows and GDP/capita

Source: FDI outflows -UNCTAD, WIR 2018, Annex table 2; GDP/capita – World Bank, Statistics

The best fitting line corresponds to polynomial regression equation. The value of correlation coefficient, computed for the 145 analyzed countries worldwide is 0.3427, underlining a weak positive relationship between FDI outflows, as dependent variable (Y), and GDP/capita, as independent one (X).

Comparatively, if we take into account only the positive values of FDI outflows, the coefficient of determination (R^2) is much higher namely 0.398, which means that in this case almost 40% of the variation in the FDI outflows is explained by the level of economic development (Figure no.4).

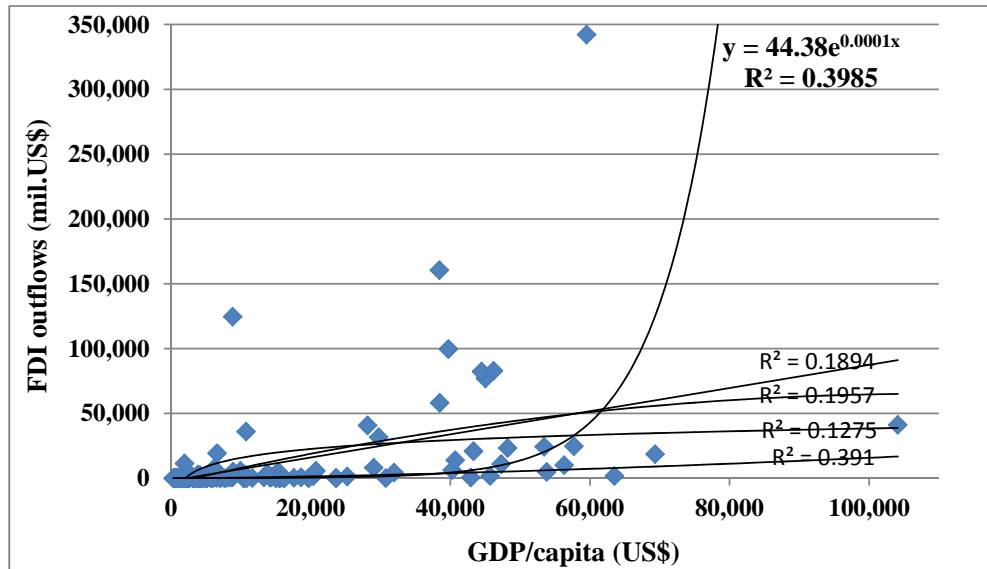


Fig. 4. The correlation between the positive values of FDI outflows and GDP/capita

Source: FDI outflows -UNCTAD, WIR 2018, Annex table 2; GDP/capita – World Bank, Statistics

The best fitting line corresponds to power regression equation. The value of correlation coefficient respectively 0.4352 shows a moderate positive relationship between the analyzed parameters.

Thus, the level of economic development given by the GDP per capita does not fully explain worldwide differences in foreign direct investment generated by a country. In this respect it has to be notice China which is among the top 10 economies according to the level of foreign direct investment outflows (Table no.4).

Table 4. Top 10 economies according to the level of FDI outflows (2017)

Crt. No.	Countries	GDP/capita (current US\$)	FDI outflows (Millions US\$)
1	United States	59,531.70	342 269.0
2	Japan	38,428.10	160 449.4
3	China	8,827.00	124 630.0
4	United Kingdom	39,720.40	99 613.6
5	Hong Kong, China	46,193.60	82 843.5
6	Germany	44,469.90	82 336.5
7	Canada	45,032.10	76 987.9
8	France	38,476.70	58 115.9
9	Luxembourg	104,103.00	41 155.2
10	Spain	28,156.80	40 785.6

Source: UNCTAD, World Investment Report 2018, Annex table 2

As shown above, the level of foreign direct investments generated by China (124,630 million US\$) is much higher than the level of FDI outflows that have been registered by some traditionally industrialized countries such as the United Kingdom (99,613.6 million US\$) or Germany (82,336.5 million US\$).

Conclusion

The results of the analyses carried out showed that there is a weak positive relationship between the level of economic development given by GDP per capita, as independent variable, and foreign direct investment received and generated by a country reflected by FDI inflows and respectively FDI outflows, as independent variable. Thus, the correlation coefficient's values were between 0.3386 and 0.3893 in the case of inward FDI flows, respectively between 0.3427 and 0.4352 regarding the outward FDI flows.

The level of economic development given by the GDP per capita does not fully explain worldwide differences in foreign direct investment flows. In this respect, the presented analyzes showed that between 13 to 26% of the variation in FDI inflows, respectively between 14 to 40% of the variation in FDI outflows, is explained by GDP/capita.

Regarding the level of inward FDI, it have been noticed some developing countries namely China, Brazil, and India, characterized by a large population and a low cost of production factors, that are found between the top ten foreign direct investment receivers. Also, China generated a level of FDI outflows much higher than the one registered by some traditionally developed economies such as United Kingdom and Germany.

Therefore, the analyses presented above proved that there are other factors besides the level of economic development that determine the level of foreign direct investment received and generated by a country. Consequently, we appreciate that any econometric model developed in order to analyze the factors influencing the level of inward or outward FDI flows should take into consideration besides GDP/capita a variety of other factors, such as the rate of economic

growth, size, population, natural resource endowments, qualification of the local labor force, economic and political structure, development of research activities, innovation etc.

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