

The relation between foreign direct investments and some economic indicators. The case of Romanian economy

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Abstract. *Foreign direct investments (FDI) are a force that shapes the world economy. Stocks and flows of FDI (inward and outward) are indicators followed with great attention by national and international entities and they are correlated with other macroeconomic indicators to detect trends at regional, national and international levels and to determine the degree of development of a country. The dramatic changes that occurred in world economy in the last 30 years have generated major changes on the motivations of foreign investors, the emergence of new types of economic agents that generate foreign direct investments and new international regulations regarding FDI. In this article, the authors analyzed the relations between FDI, import, export and GDP for Romania economy for the period 1990-2014. The research methodology applied is based on the Augmented Dickey-Fuller statistic test and the Granger causality test, the datasets for the variables included in the study have been drawn from official data sources, the UNCTAD database and the National Statistics Institute of Romania's database (TEMPO). To present their results, the authors have used graphical and table-based instruments, which provides better understanding of the research outputs. Also, the study is placed within the context and historical landmarks of the Romanian economy, the results and conclusions emphasize the effects of certain actions and events on the indicators and correlations analyzed.*

Keywords: foreign direct investment, transnational corporations; import, export and GDP.

JEL Classification: F1, F2.

Introduction

In international scientific literature, there are many studies on the relationship between FDI, exports and economic growth. The experts have demonstrated the complementary relation between FDI and export:

- on the one hand, certain international flows of goods are replaced by FDI flows, because some foreign markets are no longer accessed via exports, but through the relocation of the production in the economy of that country
- on the other hand, the subsidiaries of transnational companies have a significant contribution on exports of the host country, because they deserve less domestic and more the international market; these are resources seeking FDI or efficiency seeking and less market seeking FDI.

The impact of FDI on the balance of payments is more complex given the multiple influences on certain accounts such as those generated by exports of foreign subsidiaries, their imports of raw materials or equipment, repatriation of profits.

Literature review

At the beginning of 90's, more and more developing countries and countries in transition to market economy have allowed the access of foreign investors to national economies, in advance of the expected positive effects like technology transfer (Sood, 2016), employment of local work force, the boost of export due to integration into global production chains, substantial contributions to state budget, improvement of local competitiveness of firms, restructuring and privatization of state owned companies (Matei, 2004; Iacovoiu, 2007), the use of advanced technical methods (Lipsey, 2004), the development of local industry (Markusen and Venables, 1999). In addition, FDI is an important source of capital, complementary to domestic investment – in the case of privatization of large state owned companies, the foreign capital was the only viable solution because of the existence of modest financial funds in host countries. Alfaro et al. (2004) have approached the role of local financial markets in the scope of the correlation between foreign direct investments and growth. Alin (2010) presented the effects that the ongoing crisis had on the economy, at the global level. Granger (1969) develops on the use of econometric tools in the study of causal type relations. Lazăr and Lazăr (2009) focus on the sustainable development's progress measurement through quantitative indicators. Lazăr and Lazăr (2012) is a thorough study on the analysis of economy through statistic methods, the work covers both microeconomic and macroeconomic statistics. Sima and Gheorghe (2008) have analyzed the types of profiles corresponding to the Romanian entrepreneurial ventures. Stancu and Iacovoiu (2015) applied econometric techniques to study the correlation between net outward investment position and innovation capabilities, by using specific indicators. Raluca (2012) is preoccupied with measuring the competitiveness, through the use of the Global Competitiveness Index. Anghelache et al. (2015) use multiple regression to study the impact of gross investments and final consumption on Romania's GDP, a previous work by Anghelache et al. (2013)

covers a statistical analysis of GDP and foreign direct investments for Romania. Anghel et al. (2016) analyze the influence of import on foreign direct investments.

Many studies have demonstrated the positive potential of FDI on host economies, but reality, and subsequent literature, marked the negative effects of FDI on employment (lay-offs), transfer of technology (in some cases, outdated technology are relocated in developing countries and there are negative effects on corruption or balance of payments (Matei, 2004, Iacovoiu, 2009, Radulescu 2012), a previous work by Radulescu (2003) approached the counter-corruption actions and efforts at the international level. Another trend can be observed in international literature: there are many scientific studies that highlight the different effects of FDI in host countries depending on some variables like the characteristics of the recipient countries (Alfaro and Charlton, 2007), the implantation method or the field of activity specific to transnational corporations (Lipsey and Sjöholm, 2005).

Despite the negative effects recorded by some studies, the general opinion is that FDI have significant consequences on economic growth through multiple channels such as technology transfer, capital formation and human capital (Acaravci and Ozturk, 2012). But the researchers draw attention to the fact that the impact of FDI on economic growth depends on the level of human capital available in the host economy. In addition, FDI is considered a vehicle for the adoption of new technologies in the host Economies, so the FDI has effects on human capital accumulation (Borensztein et al., 1998).

On one hand, FDI flows are attracted by the development's level of host countries, on the other hand, they contribute directly, and indirectly through generated spillover effects on economic growth of the host countries. Some studies realized for former communist countries indicated the importance of FDI as an engine of economic growth, hence the importance of promoting these countries as a location for subsidiaries of transnational corporations, which however require the public authorities to improve the financial system, infrastructure quality, human capital and tax system (Acaravci and Ozturk, 2012) and a sectorial approach in order to register a consolidation of FDI in productive sectors allowing the potentiation of their impact on sustainable development (Anghelache et al., 2014).

Methodology

In this study, we will explore the causality relation between inward and outward flows of FDI, imports, exports and GDP in the case of Romania. First, we will do the unit root test using the Augmented Dickey-Fuller statistic test, then, we will make a Granger causality test to determine the causality between the variables

The variables used for this study are:

- Inward flow of foreign direct investments for the period 1990-2014 extracted from UNCTAD (INW_F).
- Outward flow of foreign direct investments for the period 1990-2014 extracted from UNCTAD (OUT_F).

- Gross domestic product for the period 1990-2014 extracted from UNCTAD (GDP).
- Imports CIF for the period 1991-2014 extracted from INS-Tempo (IMP).
- Exports FOB for the period 1991-2014 extracted from INS-Tempo (EXP).

Unit root test

Before we proceed to the Granger causality test, we will test the variables for unit root using the Augmented Dickey –Fuller (ADF) test.

Null hypothesis is that the variable has a unit root. In order to do the calculation we will be using the ADF test, Schwarz Info criterion to determine the lag length and a maximum number of 5 lags.

The math behind the ADF test can be shortly explained by using the next algorithm.

We start from the basics of a unit root test and consider a simple autoregressive AR(1) process (Eviews):

$$y_t = \rho y_{t-1} + x_t' \delta + \epsilon_t \quad (1)$$

where: x_t – optional repressors, constant or trend;
 ρ and δ – parameters;
 ϵ_t – white noise.

If $|\rho| \geq 1$, y is a nonstationary series and the variance of y increases with time and approaches infinity. If $|\rho| < 1$, y is a stationary series.

The standard DF test starts from equation [1] and subtract y_{t-1} from both sides:

$$\Delta y_t = \alpha y_{t-1} + x_t' \delta + \epsilon_t \quad (2)$$

where $\alpha = \rho - 1$.

The null and alternative hypotheses are written as:

$$\begin{aligned} H_0: \alpha &= 0 \\ H_1: \alpha &< 0 \end{aligned} \quad (3)$$

and evaluated using the conventional t -ratio for α :

$$t_\alpha = \hat{\alpha} / (se(\hat{\alpha})). \quad (4)$$

where $\hat{\alpha}$ is the estimate of α , and $se(\hat{\alpha})$ is the coefficient standard error.

Dickey and Fuller (1979) demonstrated that if the hypothesis of the unit root is null, the statistic stops following a Student t -distribution and they simulate critical values for different test and sample size. MacKinnon (1996) further develop the simulations for a larger set of simulations.

Because the simple DF unit root is valid only for AR(1) process series the ADF was developed which added a parametric correction for higher-order correlation by assuming that the y series follows and AR(p) process by adding p lagged difference terms of the dependent variable y to the right-hand side of the regression:

$$\Delta y_t = \alpha y_{t-1} + x_t' \delta + \beta_1 \Delta y_{t-1} + \beta_2 \Delta y_{t-2} + \dots + \beta_p \Delta y_{t-p} + v_t. \quad (5)$$

This augmented equation is used to test [4] using the t -ratio [3]. The important aspect obtained is that the asymptotic distribution of the t -ratio for α is independent of the number of lagged first differences included in the ADF regression. Even though the assumption that y follows an AR process may seem restrictive, Said and Dickey (1984) demonstrates that the ADF test is asymptotically valid in the presence of a moving average component if sufficient lagged difference terms are included in the test regression.

Granger causality test

Granger (1969) questioned how much of y can be deduced by the past values of y and afterwards he questioned whether if by adding lagged values of x can get a better deduction of y . A variable y is Granger-caused by x when x improves the prediction of y , or when the coefficients of the lagged x are statistically significant. We have to acknowledge that a two-way causation is a frequent case in which x Granger causes y and y Granger causes x .

In order to make a Granger causality test, we have to specify the lag length l . Usually is best to have more lags to catch the relevant information from the past. In our study, we tested for Granger causality by using different lag lengths from 2 to 6 lags to establish what the lag period is where more causality interaction between variables happens.

After establishing the lag length l we run a bivariate regression of the form:

$$y_t = \alpha_0 + \alpha_1 y_{t+1} + \dots + \alpha_l y_{t-l} + \beta_1 x_{t+1} + \dots + \beta_l x_{t-l} + \varepsilon_t. \quad (6)$$

$$x_t = \alpha_0 + \alpha_1 x_{t+1} + \dots + \alpha_l x_{t-l} + \beta_1 y_{t+1} + \dots + \beta_l y_{t-l} + \mu_t. \quad (7)$$

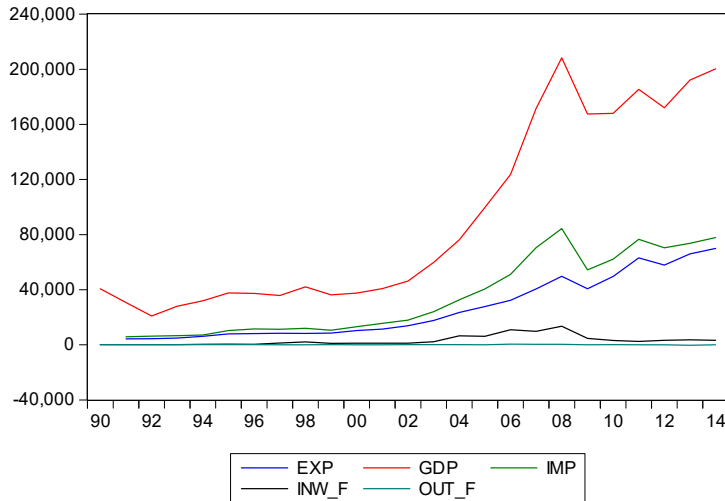
for each possible pair of (x, y) series of the group. The F-statistics reported are the Wald statistics for the joint hypothesis:

$$\beta_1 = \beta_2 = \dots = \beta_l = 0. \quad (8)$$

for each equation. The null Hypothesis is that x does not Granger-cause y in the first regression and y does not Granger-cause x in the second regression.

Results and discussions

We start our investigation by analyzing the graphical evolution of the variables. As we can see from Fig.1 the evolutions of the GDP, imports, exports and inward flow of foreign direct investments registered a positive trend until 2008 when the effect of the international financial crisis determined a decrease of the above mentioned variables. After the shock of 2008 the GDP and imports had an oscillate evolution and, until 2014 they didn't reach the 2008 levels. The exports were influenced less than imports by the financial crisis and even if the shock was obvious they recover quicker and started engaged on a faint ascending trend.

Figure 1. Evolution of variables in the period 1990-2014 (million USD)

Source: authors calculations based on data from UNCTAD and INS.

The inward flow of foreign direct investments remained at a low level from 13 491 million USD in 2008 to around 3 000 million USD. The outward flow of foreign direct investments was very low in the analyzed period in comparison with the inward flow of foreign direct investments, characterized by small spikes of outward investments in some years.

Table 1. Correlation table

	OUT_F	INW_F	IMP	GDP	EXP
OUT_F	1.000000	0.661853	0.090063	0.039804	-0.114798
INW_F	0.661853	1.000000	0.676228	0.643187	0.499121
IMP	0.090063	0.676228	1.000000	0.992722	0.969395
GDP	0.039804	0.643187	0.992722	1.000000	0.970106
EXP	-0.114798	0.499121	0.969395	0.970106	1.000000

Source: author's calculations.

In Table 1, we explore the correlation between the analyzed variables and we consider the next intervals adequate for our analyze: $0 - \pm 0.3$ no correlation; $\pm 0.3 - \pm 0.7$ moderate correlation; $\pm 0.7 - \pm 1$ strong correlation (Fassil, 2009).

According to these intervals we observe that there is a very strong positive correlation between exports and imports of 0.97, GDP and imports of 0.99 and GDP and exports of 0.97. there is a moderate positive correlation between inward flow and outward flow of FDI of 0.66, imports and inward flow of FDI of 0.68, GDP and inward flow FDI of 0.64, exports and inward flow of FDI of 0.50 and GDP and outward flow of FDI of 0.40. There is no correlation between imports and outward flow of FDI and exports of 0.09 and outward flow of FDI of -0.12 .

Forward we test the variables for unit root. We used the ADF test with Schwarz Info criterion to determine the lag length and a maximum number of 5 lags.

Table 2. Unit root test

Variable	Test for unit root in	Lag length	t-statistic	Prob.*
EXP	level	0	2.792126	0.9977
	1 st difference	2	-0.792047	0.3602
	2 nd difference	1	-10.07623	0.0000
GDP	level	0	1.581388	0.9682
	1 st difference	0	-3.498139	0.0013
	2 nd difference			
IMP	level	0	0.990008	0.9093
	1 st difference	0	-4.405980	0.0001
	2 nd difference			
INW_F	level	0	-1.158958	0.2176
	1 st difference	0	-5.644362	0.0000
	2 nd difference			
OUT_F	level	0	-2.825215	0.0068
	1 st difference			
	2 nd difference			

*MacKinnon (1996) one-sided p-values.

Source: author's calculations.

As we can see from Table 2, only the outward flow of foreign direct investments was stationary and the rest of the variables had to be differenced at level 1 or 2. GDP, imports and inward flow of foreign direct investments became stationary at 1st difference, exports became stationary at 2nd difference.

After achieving stationary variables we can proceed with the Granger causality test. In Tables 3, 4 and 5 we can see the results of the test for a number of lags from 2 to 6.

In Table 3 we have the results for the Granger causality tests between the next pairs of variables: inward flow of FDI – outward flow of FDI, imports – outward flow of FDI, GDP – outward flow of FDI and exports – outward flow of FDI.

The first pair of variables shows us that there is Granger causality on both ways statistically significant on almost all lags lengths and we can see that the highest probability is registered in the lag length of 2 for the inward flow of FDI that Granger cause outward flow of FDI and lag length 3 for outward flow of FDI that Granger cause the inward flow of FDI. The second pair show us that there is imports does not Granger cause outward flow of FDI for lag length of 2, 3, 4 and 5 but it does for lag length 6. Outward flow of FDI does Granger cause imports for lag lengths of 3, 4, 5 and 6 but not for a lag length of 2. The third pair shows us that the GDP does not Granger cause outward flow of FDI for all the length lags while outward flow of FDI does Granger cause GDP for lag lengths of 3, 4, 5 and 6 but not for a lag length of 2. The fourth pair show us that exports does not Granger cause outward flow of FDI for all lag lengths, while outward flow of FDI Granger cause exports for a lag length of 4, 5 and 6 and not for lag lengths of 2 and 3.

Table 3. Granger causality test results 1

Null Hypothesis		INW_F does not Granger Cause OUT_F	OUT_F does not Granger Cause INW_F	IMP does not Granger Cause OUT_F	OUT_F does not Granger Cause IMP	GDP does not Granger Cause OUT_F	OUT_F does not Granger Cause GDP	EXP does not Granger Cause OUT_F	OUT_F does not Granger Cause EXP
Lag level									
2	Obs.	22		21		22		20	
	F-Statistic	5.8938	2.007	0.2704	0.5974	0.6049	0.8266	0.3710	0.2538
	Prob.	0.011	0.165	0.766	0.562	0.557	0.454	0.696	0.779
3	Obs.	21		20		21		19	
	F-Statistic	3.7959	6.5256	0.9546	5.6628	1.9030	9.2619	1.1834	1.5475
	Prob.	0.035	0.006	0.443	0.011	0.176	0.001	0.357	0.253
4	Obs.	20		19		20		18	
	F-Statistic	4.2919	5.4747	1.4780	14.267	1.8415	7.6089	0.8362	4.6292
	Prob.	0.025	0.011	0.280	0.000	0.191	0.003	0.535	0.026
5	Obs.	19		18		19		17	
	F-Statistic	5.4409	5.2200	3.2827	25.327	1.3833	9.4155	0.8374	6.6271
	Prob.	0.018	0.020	0.076	0.000	0.325	0.003	0.568	0.020
6	Obs.	18		17		18		16	
	F-Statistic	3.9442	4.2363	10.537	16.31	4.3900	7.2289	1.6308	26.955
	Prob.	0.077	0.067	0.020	0.009	0.063	0.023	0.369	0.011

5% statistical significance; 1% statistical significance.

Source: author's calculations.

In Table 4 we have the results for the Granger causality tests between the next pairs of variables: imports – inward flow of FDI, GDP – inward flow of FDI and exports – inward flow of FDI.

Table 4. Granger causality test results 2

Null Hypothesis		IMP does not Granger Cause INW_F	INW_F does not Granger Cause IMP	GDP does not Granger Cause INW_F	INW_F does not Granger Cause GDP	EXP does not Granger Cause INW_F	INW_F does not Granger Cause EXP
Lag level							
2	Obs.	21		22		20	
	F-Statistic	3.85515	2.43049	6.15952	1.01166	0.62457	1.04388
	Prob.	0.043	0.120	0.010	0.385	0.549	0.376
3	Obs.	20		21		19	
	F-Statistic	2.82692	1.36277	3.22166	1.30934	1.0003	0.42858
	Prob.	0.080	0.298	0.055	0.311	0.426	0.736
4	Obs.	19		20		18	
	F-Statistic	3.96557	1.54463	2.32834	0.40041	0.89308	1.12914
	Prob.	0.035	0.263	0.121	0.805	0.506	0.402
5	Obs.	18		19		17	
	F-Statistic	3.7858	3.89844	2.17027	1.29385	4.082	4.74014
	Prob.	0.056	0.052	0.158	0.355	0.058	0.042
6	Obs.	17		18		16	
	F-Statistic	1.71604	2.1342	0.85433	0.87428	1.61273	4.98629
	Prob.	0.313	0.242	0.580	0.570	0.373	0.108

5% statistical significance; 1% statistical significance.

Source: author's calculations.

The first pair shows us that imports Granger cause inward flow of FDI only in lag length of 2 and does not for lag lengths of 3, 4, 5 and 6, while inward flow of FDI does not Granger cause imports for all lag lengths analyzed. The second pair show us that GDP Granger cause inward flow of FDI only in lag length of 2 and does not for lag lengths of 3, 4, 5 and 6, while inward flow of FDI does not Granger cause GDP for all lag lengths analyzed. The third pair show us that exports does not Granger cause inward flow of FDI

for all lag lengths analyzed, while inward flow of FDI Granger cause exports only in lag length of 5 and does not for lag lengths of 2, 3, 4 and 6.

In Table 4 we have the results for the Granger causality tests between the next pairs of variables: GDP – imports, exports – imports and GDP – exports.

Table 5. Granger causality test results 3

Null Hypothesis		GDP does not Granger Cause IMP	IMP does not Granger Cause GDP	EXP does not Granger Cause IMP	IMP does not Granger Cause EXP	EXP does not Granger Cause GDP	GDP does not Granger Cause EXP
Lag level							
2	Obs.	21		20		20	
	F-Statistic	0.14494	0.12197	1.63693	6.04294	3.30138	2.67487
	Prob.	0.866	0.886	0.228	0.012	0.065	0.102
3	Obs.	20		19		19	
	F-Statistic	0.15278	0.55878	2.4473	5.7404	1.71351	3.16423
	Prob.	0.926	0.652	0.114	0.011	0.217	0.064
4	Obs.	19		18		18	
	F-Statistic	0.29072	0.23003	2.91719	2.86778	0.49156	1.34977
	Prob.	0.877	0.915	0.084	0.087	0.743	0.324
5	Obs.	18		17		17	
	F-Statistic	0.70096	0.46832	4.27559	2.61231	1.55252	1.74556
	Prob.	0.640	0.790	0.053	0.137	0.302	0.258
6	Obs.	17		16		16	
	F-Statistic	0.56426	0.34997	3.19364	1.96062	0.77571	1.59032
	Prob.	0.747	0.879	0.184	0.310	0.639	0.378

5% statistical significance; 1% statistical significance.

Source: author's calculations.

The first pair shows us that GDP does not Granger cause imports for all lag lengths analyzed and imports does not Granger cause GDP for all lag lengths analyzed. The second pair shows us exports does not Granger cause imports for all lag lengths analyzed while exports Granger cause imports for lag lengths of 2 and 3 and does not for lag lengths of 4, 5 and 6. The third pair shows us that exports does not Granger cause GDP for all lag lengths analyzed and GDP does not Granger cause exports for all lag lengths analyzed.

The relations between the analyzed variables show us that there is a complex interconnection between them. Results show us that there is a strong causality relation between inward and outward flow of FDI, which can be explained by the fact that as Romania received inward FDI, domestic companies learn from foreign companies new managerial and technological skills which in turn allow them to invest abroad. On the other hand, as Romanian companies realize investments abroad spread information about the level of development of home country making it interesting for potential foreign investors.

The fact that the level of outward flow of FDI Granger cause imports and GDP show us that as a country starts to invest abroad, its level of development is increasing generating an increase of imports in order to sustain that development.

Another important result is that outward flow of FDI Granger cause exports is in line with other researchers' results (Dunning and Lundan, 2008), as outward FDI tend to replace exports. As outward flow of FDI increases, the level of exports tends to decrease because

the companies that were exporting moved their production in the country or the region where it was exporting before.

Imports Granger cause inward flow only for a lag length of 2, which means that a spike on the imports may generate an inward flow of FDI in the next period, but as time passes this is not true anymore. As the theory say (Dunning and Lundan, 2008; Narula and Pineli, 2016), foreign investors search for the right time for an investment, which will bring them the highest return. The same can be said for the influence of GDP on inward flow of FDI, but in this case, the development of a country may determine the decision of a foreign investor to start a new investment.

In the case of Romania, we must acknowledge that the evolutions of the analyzed variables were influenced by the different policies and events that happened in the research period. Firstly, we must take into account that at the start of the analyzed period Romania was in the process of transition from communism to capitalism, which generated a lot of distortions in the economy (Zaman et al., 2011). Also, we have to acknowledge that until the year 2000, Romania had a positive discrimination treatment for foreign investors which, even if it is not a policy anymore tend to be present this days too.

Conclusions

FDI is probably the most complex package of economic activity because they involve financial, management, material, technological and know-how flows. For this reason, their impact on host economies is much diversified. The main contribution is financially, this becomes especially important for countries in the developing world where the rate of domestic investment is reduced and official assistance fell mostly in relative expression to the total financial flows perceived. Moreover, in the case of the privatization of large state enterprises, the foreign investors are the only bidders because the local companies do not have sufficient financial resources to sustain such transactions.

By spillover effects, FDI contributes to the development of local firms, generating additional demand in upstream sectors and providing products and services for downstream sectors. So FDI generates domestic investment. In addition, FDI has important contributions on human capital development, technology transfer, restructuring, foreign trade and competitiveness of the host country. It should pay attention to the fact that there are situations where FDI has effects negative. Sometimes dissatisfied with quality of local products, foreign affiliates may waive local suppliers, preferring imports of certain goods.

The impact of FDI on the Romanian economy depends on numerous factors such as investment type, method of implantation (greenfield investment or taking over local companies, including the participation to the privatization process), supply of local or foreign factors of production, orientation to local/foreign markets, scope, strategy adopted by transnational corporations. FDI and domestic investment are complementary, both contributing to GDP growth by specific influences and impacts. Besides the relation of

them, there is a certain level of saturation, in time, of the national economy to FDI. This is determined by:

- the capacity to absorb FDI by the national economy;
- the business peculiarities - bureaucracy, corruption, high taxes, unpredictability of the legal system;
- the foreign investors' behavior (after they have recovered the investment in the host country, they enjoy the freedom to leave, to withdraw when faced with some efficiency problems);
- the repatriated profits of foreign subsidiaries are typically higher than the reinvested profit in host countries (Zaman et al., 2011).

This saturation tendency opposes the increasing internationalization and globalization and underutilized economic potential of our country.

Foreign direct investments have very complex relations with different indicators of the host country as well as with the source country economy. As the level of development of a country is more advanced so is the complexity of the relations. In our endeavor to try to find causality relations between the above presented variables we must acknowledge a few drawbacks like a reduced number of observations that can be used to generate suitable results, but with a larger number of observations the results may be more robust, different policies and events that influenced the data in the analyzed period.

In our study, we were able to observe a few effects that are in line with the results of other researchers like the relation between inward and outward flow of FDI, the effect of outward flow of FDI on imports and exports.

We also had some results that are contradictory with the theory of FDI and the most puzzling one is that we couldn't find a causality relation between inward flow of FDI and GDP. This has been observed by other researchers (Narula and Driffield, 2012; Zanfei, 2012) in other studies and it means that the host country didn't transfer the influx of technology and managerial skills of foreign companies to domestic companies. This means that Romania didn't benefit of the full potential of inward FDI effects. This situation could be explained by the fact that the main part of FDI is concentrated in medium and low tech level branches (Zaman, 2012). So, the Romanian authorities must search for a suitable policy to access this resource that may spur future development for its companies and citizens. For example, a selective approach must be used in order to attract FDI in high tech level sectors by using differential incentives in order to increase the high technology transfer and generation.

Regarding the influence of FDI on Romanian foreign trade, according with the data released by the Romanian National Bank for the last years, the foreign affiliated that operated in Romania have an important impact on exports and imports (60-70%). That demonstrate a strong control exercised by foreign subsidiaries on the foreign trade of our country and consequently on the national economy. The main problem is that foreign affiliates have a negative impact on trade balance because the value of import is bigger than the value of exports realized by these entities.

In addition, the Romanian specialists (Zaman and Geamănu, 2010) have mentioned the consistent contributions of some transnational companies like Renault, OMV and Sidex Mittal to Romanian exports and GDP. Because the main part of FDI attracted by Romanian economy are located in non-tradable and services sectors (Zaman, 2012; Anghelache et al., 2015), their contribution to the increase of export is limited.

References

- Acaravci, A. and Ozturk, I., 2012. Foreign direct investment, export and economic growth: Empirical evidence from new EU countries. *Romanian Journal of Economic Forecasting*, 2, pp. 52-67.
- Alfaro, L. and Charlton, A., 2007. Growth and the Quality of Foreign Direct Investment: Is All FDI Equal?, *CEP Discussion Paper*, No. 830, Centre for Economic Performance, London School of Economics and Political Science.
- Alfaro, L., Chanda, A., Kalemli-Ozcan, S. and Sayek, S., 2004. FDI and economic growth: the role of local financial markets. *Journal of international economics*, 64(1), pp. 89-112.
- Alin, H.G., 2010. Effects of the Current Crisis on the Global Economy. *Ovidius University Annals, Economic Sciences Series*, 10(2), pp. 330-334.
- Anghel, M.G., Manole, A. and Stoian, R., 2016. Corelația dintre investițiile străine directe și import – model de analiză cantitativă, *Romanian Statistical Review*. Supplement, 10, pp. 103-105/106-109.
- Anghelache, C., Anghelache, G.V., Anghel, M.G. and Dinu, A.M., 2013. Evolution of GDP and Foreign Investments, *Romanian Statistical Review*, Supplement, 4, pp. 34-38.
- Anghelache, C., Manole, A. and Anghel, M., 2014. The business environment and the foreign investment. *Romanian Statistical Review Supplement*, 62(10), pp. 8-15.
- Anghelache, C., Anghelache, G.V. and Stanciu, E., 2015. The dynamics of the DFI sold correlated with the evolution of GDP in territorial structure—model of analysis. *Romanian Statistical Review*. Supplement, 63(10), pp. 120-127.
- Anghelache, C., Anghelache, G.V., Nita, O.G. and Sacala, C., 2015. Study on evolution of foreign direct investment flows—model analysis. *Romanian Statistical Review Supplement*, 63(10), pp. 137-145.
- Anghelache, C., Manole, A. and Anghel, M.G., 2015. Analysis of final consumption and gross investment influence on GDP – multiple linear regression model. *Theoretical and Applied Economics*, 22(3), pp. 137-142.
- Borensztein, E., De Gregorio, J. and Lee, J.W., 1998. How does foreign direct investment affect economic growth?. *Journal of international Economics*, 45(1), pp. 115-135.
- Dickey, D. and Fuller, W., (1979). Distribution of the Estimators for Autoregressive Time Series with a Unit Root. *Journal of the American Statistical Association*, 74(366), pp. 427-431. doi:10.2307/2286348
- Dunning, J.H. and Lundan, S.M., 2008. *Multinational enterprises and the global economy*. Edward Elgar Publishing.

- Fassil, R., 2009. *Making ICT work for pro-poor development: a critical evaluation of initiatives in three Sub-Saharan African countries*, Herstellung und Verlag: Books on Demand GmbH, Norderstedt, Germany
- Granger, C., 1969. Investigating Causal Relations by Econometric Models and Cross-spectral Methods. *Econometrica*, 37(3), pp. 424-438. doi:10.2307/1912791
- Iacovoiu, V., 2009. *FDI between economic theory and practice. Benchmarking*, ASE Publishing House, Bucharest
- Iacovoiu, V., 2007. The Importance of the Foreign Direct Investments in Increasing the Economic Competitiveness of CEE Countries. *Petroleum-Gas University of Ploiești Bulletin, Economic Sciences Series*, 59(4), pp. 67-74.
- Lipsey, R.E., 2004. Home and host-country effects of foreign direct investment. In *Challenges to globalization: Analyzing the economics* (pp. 333-382). University of Chicago Press.
- Lipsey, R.E. and Sjöholm, F., 2005. The impact of inward FDI on host countries: why such different answers?. *Does foreign direct investment promote development*, pp. 23-43.
- Lazăr, C. and Lazăr, M., 2009. Quantifying Progress within Sustainable Development. *Petroleum-Gas University of Ploiesti Bulletin, Economic Sciences Series*, 3
- Lazăr, M. and Lazăr, C., 2012. *Statistical-Economic Analysis*. Economica Publishing House, Bucharest
- MacKinnon, J.G., 1996. Numerical distribution functions for unit root and cointegration tests. *J. Appl. Econ.*, 11: 601-618. doi:10.1002/(SICI)1099-1255(199611)11:6<601::AID-JAE417>3.0.CO;2-T
- Matei, M., 2004. *Foreign direct investments. Functions and Evolutions*. Expert Publishing House, Bucharest.
- Markusen, J.R. and Venables, A.J., 1999. Foreign direct investment as a catalyst for industrial development. *European economic review*, 43(2), pp. 335-356.
- Narula, R., Driffield, N., 2012. Does FDI cause development? The ambiguity of the evidence and why it matters. *The European Journal of Development Research*, 24(1), pp. 1-7.
- Narula, R. and Pineli, A., 2016. *Multinational enterprises and economic development in host countries: What we know and what we don't know* (No. 020). United Nations University-Maastricht Economic and Social Research Institute on Innovation and Technology (MERIT).
- Radulescu, I.G., 2003. International Efforts to Combat Corruption. In *Innsbruck Conference on International Institutions*.
- Raluca, P., 2012. Methods of Measuring Competitiveness. *Ovidius University Annals, Economic Sciences Series*, 12(1), pp. 1086-1089.
- Said, E.S. and Dickey, D.A., 1984. Testing for unit roots in autoregressive-moving average models of unknown order, *Biometrika*, 71, 3, pp. 599-607.
- Sima, V. and Gheorghe, I.G., 2008. The Romanian entrepreneurial venture profile types. *Annals of the Oradea University. Fascicle of Management and Technological Engineering*, Volume VII (XVII), pp. 2748-2757.
- Stancu, A. and Iacovoiu, V., 2015. An Econometrical Approach of the Relationship between Innovation and Net Outward Investment Position. *The USV Annals of Economics and Public Administration*, 15(2(22)), pp. 7-18.

- Sood, M., 2016. Impact of FDI on Macroeconomic Parameters of Growth and Development: A Post Liberalisation Analysis. *PARIPEX-Indian Journal of Research*, 4(6).
- Zaman, G., 2012. Ways of Improving Foreign Direct Investment (FDI) Contribution To Romania's Sustainable Development. *Annales Universitatis Apulensis Series Oeconomica*, 2(14).
- Zaman, G. and Geamănu, M., 2010. Foreign Direct Investments and Domestic Investments in Romania in the Economic Crisis Period. *Annals of Spiru Haret University, Economic Series*, 1(1), 107-112.
- Zaman, G., Vasile, V., Matei, M., Croitoru, C. and Enescu, G., 2011. Aspecte ale impactului ISD din România asupra exporturilor și dezvoltării durabile. *Romanian Journal of Economic Forecasting*, 33(2), 42.
- Zanfei, A., 2012. Effects, not externalities. *The European Journal of Development Research*, 24(1), pp. 8-14.
- <<http://www.eviews.com> accessed on 11.11.2016>
- <<http://statistici.insse.ro/shop/?lang=ro> accessed on 11.11.2016>
- <<http://unctadstat.unctad.org/EN/> accessed on 11.11.2016>