FLOWS OF FOREIGN DIRECT INVESTMENT IN ROMANIA-ANALYSIS MODELS, DEFINITIONS

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Abstract

Foreign Direct Investment (FDI) is the major form of realization and manifestation of globalization of markets through which it drives at least some endogenous growth factors and financial flows between countries. The article is a review of various econometric regression simple models to analyze FDI after 2000.

Key words: foreign direct investment, economic growth, model of analysis, capital.

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FDI had been, in our opinion, an important role in stabilizing the macroeconomic processes in Romania, the resumption of economic growth, although training and propagation effects were not fully exploited, there are some key points on which imposes to proceed further.

Importance of foreign capital invested in the economy increased, leading many researchers to develop a conceptual framework widely accepted, efforts are diminished due to differential perception on the subject. **Currently there are several definitions on foreign direct investment.**

"*The investment made for the purpose of establishing lasting economic relations, to exercise a significant influence over management and that is done in the host country by non-residents or abroad by residents as creating, expanding a company, subsidiaries, branches (100% owned) or purchase the entire stake in an existing company; participation to a new or existing company, loans for a period of at least 5 years*."[1]

"Investment involving a long-term relationship reflecting a lasting interest and control by a resident entity in one economy (natural or legal) of an economic entity resident in another economy." We note that foreign direct investment is not captured by transnational corporations (TNCs), which can be filed by an individual and by a legal entity in the process of nationalization. Components: ownership of a foreign company, profits reinvested (proportional to ownership) derived from activities abroad, the company lending (mainly loans to foreign subsidiaries of the mother-company).[2]

NBR statistics are known two definitions: the National Trade Register Office and the IMF. "Compared with IMF requirements, record FDI in NBR does not include information on reinvested profit or physical transfers from

parent company to subsidiary. To eliminate deficiencies, and the abolition of the customs registration mandatory contribution in kind to the capital, was launched since 2003 a research project statistics on foreign direct investment in Romania ".[3]

Flows of foreign direct investment in Romania , after 2007

-millions euro

Years	Venture at capital	Credits intra-group
0	1	2
2008	4873	4623
2009	1729	1759
2010	1824	396
2011	1817	594
2012*)	916	288
		Reinvested earnings
2012*)		73

Provisional data/Source: NBR Reports[4]

The value of FDI flows in Romania was, in 2008, to 9.496 billion euro (highest value), reaching next year (down) to 3.488 billion euro. Significant decrease was recorded and intra-group loans (from Euro 4.623 billion in 2008 to 396 million euro in 2010). After provisional data of NBR in 2012,the flow of FDI value was 1.204 billion euro, 73 million reinvested earnings.

If FDI is a factor or nearby deepening regional disparities, it is difficult to give a clear answer due to the time lag (you-lag) between the investment and the effects of its effective lifespan, which can be few years. [5]

In statistical surveys using a broad definition of foreign direct investment "*term investment relationship between a resident entity and a non-resident entity, it usually implies that the investor exerts a significant management influence the investee company*". Are considered foreign direct investment: share capital and reserves to return to an investor who owns at least 10% of the share capital of a company, credits the investor to the enterprise that has invested and reinvested profit by it.[6]

Foreign Direct Investments: "flows include complex international financial, technological, managerial and organizational expertise, which is grafted lasting interest and control of the company or individual entrepreneurial investor in order of development for productive activities in an economy other than that where the firm or individual is a resident."[7]

To further analyze the relationship and interdependence of economic and social phenomena, elementary statistical methods are often inadequate. Analysis of the links between factors determining real GDP growth in the

economy, foreign direct investment can be exemplified by use of correlation and regression. Causing the strongest factors influencing the development of this review, you can design and implement practical measures for ensuring optimal development, increasing influence of positive, eliminate or mitigate the influence of unfavorable factors. If the complex relationship where the dependent variable occur with several independent variables, correlation calculation can not be limited to pairs variables, including other independent variables with significant influence on the dependent variable analyzed. In the multiple links, variables have different influences on the variable factorial result, some important action exerts effect on the phenomenon being taken in calculations of regression and correlation, while others have a less important activity and can be neglected. Correlation methods have the effect of simplifying calculations and conclusions, it is very difficult to quantify the set of all causal factors acting on a socio-economic phenomenon or process.

Specifying an econometric model involves choosing a mathematical function that can be described by the relationship between variables.

The form for **the first simple linear regression model** is:

$Index\_GDP_t = \alpha + \beta * Index\_FDI_t + e_t$; t=1,2,…,T, where T=20.

The equation of the regression model is:

INDEX_GDP=92.38774708-0.008455620133*INDEX_FDI

The results are summarized below:

Coefficients	Standard error	t test	Probability
92.38775	25.57381	3.612592	0.0026
-0.008456	0.026260	-0.322000	0.0419

The Student test

There are defined assumptions :

- The nule hypothesis, H_0 : $\alpha = 0$ or $\beta = 0$,
- The alternative hypothesis, H_1 : $\alpha \neq 0$ sau $\beta \neq 0$.

The coefficient of FDI from the regression Model is $\hat{\beta}$ = -0.008, standard error $SE(\hat{\beta}) = 0.02$, and the Student test $\hat{t}$ = -0.32, computed as: $t = \frac{\hat{\beta}}{SE(\hat{\beta})} = \frac{Coefficient}{Std.Error}$; *p value*= 0.0419, which shows that total FDI is an important factor.

The coefficient constant term in the regression model is $\hat{\alpha}$ = 92.38, standard error $SE(\alpha) = 25.57$, t-statistic = 3.61 expressed with probability p value of 0.0026. Although the probability exceeds 0.05, t test applying can

say that there is a risk of 97.4% in value to be 0 and therefore accept the null hypothesis, assuming that that term is especially significant for the regression model.

The **Report of determination** (R^2) indicates what percentage is explained by the influence significant. Formula is :

$$R^2 = \frac{SPAR}{SPAT} = 1 - \frac{\sum e_t^2}{SPAT}$$

The report is used in evaluating the quality of the model and can take only values in the range [0,1]. The values are closer to 1, the model is better. The value that is 0.68. Approximately 68% of the variation in GDP is explained by the linear regression model chosen.

Pearson's correlation coefficient value of 0.82, which means that **between the index and GDP index FDI** there is a strong intensity.

The Fisher test is used to test the validity of the model as a whole. It is calculated as the ratio between the variation explained by regression and regression unexplained, each of which is divided by the degrees of freedom. Formula looks like this:

$$F = \frac{\sum (\hat{y}_i - \bar{y})^2 / k}{\sum (y_i - \hat{y}_i)^2 (T - k - 1)},$$

with k = number of variables for the model (1), iar T = number of observations (20).

Analyzing the data in our model results that F = 10.70 and the probability 0.0005. We can accept that the overall linear regression model is better studied.

In the model considered, DW = 1.81. For a significance level of 5%, a total of 20 observations and an influential variable values are: $d_1 = 0.86$ and $d_2 = 1.85$. The value obtained in the model belongs to the range (d_1, d_2), so the test is not conclusive.

The second simple regression model is: **GDP=function of EXPORT**

The results obtained in Eviews are:

Coefficients	Standard error	t test	Probability
-99.95949	94.51061	-1.057654	0.0035
2.011013	0.893357	2.251074	0.0364

The relationship between GDP and exports is linear, weak and direct. Regression model is valid, correctly, identified statistically speaking. The parameters of model are statistically significant. The model does not present

autocorrelation. The model can be used for forecasting. Exports only explain 81.05% variation in the proportion of GDP.

The third simple regression model is: **EXPORT=function of GDP**

The results obtained in Eviews are:

Coefficients	Standard error	t test	Probability
93.85644	5.364519	17.49578	0.0000
0.104698	0.046510	2.251074	0.0364

The relationship between GDP and exports is linear and direct weak. Regression model is valid, correctly, identified statistically speaking. The parameters of the model are statistically significant. The model does not present autocorrelation .The model can be used for forecasting. Export explains only 81.05% rate of GDP growth.

The fourth multiple regression model is: **GDP=function of (EXPORT, FDI)**

The results obtained in Eviews are:

Coefficients	Standard error	t test	Probability
-87.44095	95.99544	-0.910887	0.0244
-0.043100	0.047855	-0.900642	0.0397
1.951379	0.900268	2.167553	0.0438

The relationship between GDP and FDI is direct and linear and export-GDP is linear and reverse. The regression model is valid, correctly identified statistically speaking. The parameters of the model are statistically significant. The model has no autocorrelation. The model can be used for forecasting. The multiple regression model explained a rate of 74.45%.

In order to capitalize on the potential of FDI to stimulate and intensify the processes of growth and sustainable economic growth is estimated as growth efficiency: the attracting FDI higher technological level, stimulating the formation of innovative entrepreneurship in regional clusters for risk reduction the crowding out of FDI and spillover amplification sites and positive externalities associated economic exploitation of opportunities created by EU membership - maximizing the absorption of structural and cohesion funds in order to reduce regional disparities as soon as possible, ensuring system sustainability education and training for long-term flexibility and boosting employment.

Conclusions

FDI had been, in our opinion, an important role in stabilizing the macroeconomic processes in Romania, the resumption of economic growth, although training and propagation effects were not fully exploited, there are some key points on which imposes to proceed further.

Notes

1. O.E.C.D.- Organization for Economic Cooperation and Development (Code of liberalization of capital movements);

2. UNCTAD - The Conference of United Nations for Commerce and Development;

3. Despa R.et al., 2010;

4. National Bank of Romania' Reports;

5. Zaman Gh., Vasile V. (coord.) *Transferul tehnologic şi investiţiile-priorităţi ale dezvoltării durabile,* National Institute of Economy, INCE, Romanian Academy, Bucarest, 2006;

6. Dunning John H. „*Location and the Mutinational Enterprise: A Neglected Factor?*", Journal of International Business Studies, Vol 29:1, 1998;

7. Mazilu A., Munteanu C.,1999.

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