

Nucu, Anca Elena

Article

The Dynamics of Foreign Direct Investments in Central and Eastern Europe Under the Impact of International Crisis of 2007

CES Working Papers

Provided in Cooperation with:

Centre for European Studies, Alexandru Ioan Cuza University

Suggested Citation: Nucu, Anca Elena (2011) : The Dynamics of Foreign Direct Investments in Central and Eastern Europe Under the Impact of International Crisis of 2007, CES Working Papers, ISSN 2067-7693, Alexandru Ioan Cuza University of Iasi, Centre for European Studies, Iasi, Vol. 3, Iss. 1, pp. 81-91

This Version is available at:

<https://hdl.handle.net/10419/198109>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



<https://creativecommons.org/licenses/by/4.0/>

THE DYNAMICS OF FOREIGN DIRECT INVESTMENTS IN CENTRAL AND EASTERN EUROPE UNDER THE IMPACT OF INTERNATIONAL CRISIS OF 2007

Anca Elena Nucu¹

“Alexandru Ioan Cuza” University of Iași

nucu.anca@yahoo.com

Abstract: *As an engine for economic development of CEE countries, FDI inflows have contributed to creating new jobs and access to modern technologies; have had positive effects on balance of payments and state budget revenues. The purpose of this article is to highlight the implications of international financial and economic crisis of 2007 on FDI in CEE countries. Also, we realized a comparative approach of the factors that influence investors' decisions in Czech Republic, Hungary, Poland, Romania, Slovakia and a SWOT analysis of FDI in Romania at the end of 2009. The second part of the article represents an econometric analysis using SPSS of FDI impact on GDP and unemployment rate on the example of Romanian economy during 1991-2009. The fundamental hypothesis of econometric analysis is the following: it is a direct link between FDI and GDP, respectively, an inverse link between FDI and unemployment rate.*

Keywords: FDI, unemployment rate, GDP, financial crisis, CEE countries

JEL Classification: G01, E22, E24

1. INTRODUCTION

Foreign direct investments (FDI) have become a primary factor in the economic development and modernization of Central and Eastern Europe countries (Kornecki, 2006). According to the IMF and OECD definitions, direct investment reflects the aim of obtaining a lasting interest by a resident entity of one economy -direct investor in an enterprise that is resident in another economy- the direct investment enterprise (Duce, 2003, p.2).

We can affirm that the direct foreign investments represent a phenomenon with a worldwide importance because (Voinea, 2010):

- they fill a significant weighting in the economic activities made worldwide.

¹ Acknowledgements: This work was supported by the the European Social Fund in Romania, under the responsibility of the Managing Authority for the Sectoral Operational Programme for Human Resources Development 2007-2013 [grant POSDRU/CPP 107/DMI 1.5/S/78342]

- they have been marked by a big dynamics which coincides with the extending and recession process of the globalization.
- they allow the worldwide development finance's, in the developed countries and also in developing ones.

Among trends in FDI evolution in CEE countries are noted:

- the orientation, especially, in the late 1990s and early 2000s, to service industries (banking, IT, telecoms etc.) and the recent move back to traditional manufacturing;
- reinvesting profits in these countries, detrimental greenfield and brownfield investment.

2. THE IMPLICATIONS OF INTERNATIONAL ECONOMIC AND FINANCIAL CRISIS ON FOREIGN DIRECT INVESTMENTS IN CEE COUNTRIES

During 2003-2008, FDI inflows in CEE countries (Czech Republic, Hungary, Poland, Slovakia and Romania) recorded an upward trend, rising from US\$30 billion to US\$ 155 billion (PriceWaterHouseCoopers, 2010). Due to this issue, the CEE region is considered, after Western Europe and China, the most attractive foreign investment locale. A key feature of FDI projects in CEE is unemployment rate reducing.

Many different factors influence the investor's decision of which country to choose, according to the nature of the project. There are conflicting views: while many investors do not consider incentives as a primary factor, in other business their availability may influence investors' decisions in one country's advantage. Also, low labour costs and low tax rates are important factors, although experts believe that labour costs will align with European Union standards and variations in tax rates are difficult to predict.

Table 1- A comparative analysis of factors which influence investors' decisions on the example of CEE countries

	Czech Republic	Hungary	Poland	Romania	Slovakia
<i>Real estate costs</i>					
Cost of land	This will very much depend on the region of the investment and the size of the site.				
Construction costs	These will very much depend on the nature of the project.				
Taxes	Is paid an annual fee and it depends especially on the type of real estate and territory.	Upon the purchase of land, is paid a transfer tax of 10%, unless the buyer of the land undertakes the construction of residential property within	Is paid an annual fee and it depends on various factors: on type, location, purpose and use of real estate.	Notaries' fees: between 0.5%- 2.5% of the price. Is paid an annual fee and it depends especially on the type of real estate and	Purchasing the land is free.

		four years.		territory.	
Taxation					
Corporation tax	19%	19%	19%	16% Certain small companies pay tax of 3% of their turnover. A minimum is imposed on companies if the annual tax payable is less than the minimum tax fixed by the tax authority.	19%
VAT (general rate)	20%	25%	23%	24%	20%
Export tax	VAT payable on import from a non-EU country; import from an EU country comply EU VAT rules.				
Personal income tax rate	12.5%	17% -32%	18% – 32%	16%	19%
Availability of EU Structural and Cohesion Funds					
Amount allocated for period 2007-2013(EUR million)	26,692	25,307	67,284	19,667	11,588
Labour issues					
Monthly minimum wages (euro) 2009	305	270	281	153	296
Availability of workforce					
Recorded Unemployment (12.2010)	7.7%	11.8%	9,7%	7,3% (09.2010)	14,5
Access to target market(s)					
CEE countries enjoy geographical benefits, being located in the centre of the pan-European market.					
	The Czech Republic borders the Western European markets of Germany and Austria.	Hungary, also, has a good opening to Western Europe.	Poland has good access to Western European markets of Germany and the Baltic Sea.	Romania is adjacent to other EU states, and has direct access to the Black Sea and to the Danube .	Slovakia is adjacent with other three CEE countries and its capital city is very close to Vienna.
Economic stability					
Real GDP growth rate 2009	-4,1%	-6,7%	1,7%	-7,1%	-4,8%
GDP per	82	65	61	46	73

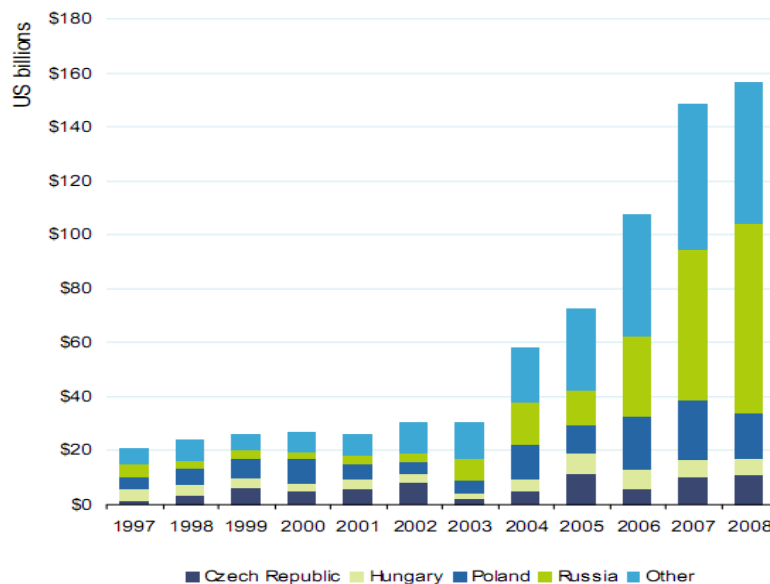
capita in Purchasing Power Standards (PPS) 2009					
Inflation rate 12.2010	1,2%	4,7%	2,7%	6,1%	0,7%
Central bank interest rates - Annual data 2009	2%	7,25%	5%	8%	-

Source: http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-30-09-149/EN/KS-30-09-149-EN.PDF, www.worldwide-tax.com, http://epp.eurostat.ec.europa.eu/cache/ITY_PUBLIC/3-01102010-AP/EN/3-01102010-AP-EN.PDF, <http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=tsieb020>, <http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&language=en&pcode=tsieb060&tableSelection=1&footnotes=yes&labeling=labels&plugin=1> [accessed on 12.01.2011]

After a spectacular increase in FDI inflows, during 2009, the implications of international economic crisis had a different impact on CEE countries: while Estonia, Latvia and Lithuania have registered a significant contraction in economic activity in 2009; Bulgaria and the Czech Republic faced a slight decrease of less than 5% of output; Poland's economy registered an uptrend in 2009.

In 2008, Russia recorded the largest increase in value of FDI.

Figure 1- The evolution of FDI inflows in CEE countries (US billions, 1997-2008)



Source: Allen & Overy (2008) *Foreign Direct Investment in Central and Eastern Europe: A case of boom and bust?*, PriceWaterHouseCoopers, accessed on December 2010 at http://www.pwc.com/en_CZ/cz/tiskove-zpravy-2010/fdi-in-cee-final-report-march10.pdf

The figure above shows that, between 1990 and 2008, the favorite destination for FDI was Russia. After, in 2008, Russia recorded the largest increase in value of FDI, in 2009, their value was

reduced by 48% compared with the same period of last year, because of the credit crunch in real estate and the collapse in the extractive industries.

Poland was the second favorite destination of investors in the region, fields like coal, oil, natural gas and real estate, which presented a particular interest, but the international crisis affected the financial sector and FDI value experienced a significant decline in 2009.

The Czech Republic was less affected by the economic recession, FDI value declined by 19% in 2009 compared with previous year. One explanation would be the fact that, in 2008, the key sector for investments was the automotive sector which totaled almost US\$ 1 billion.

In Slovakia, FDI rose by 55% in 2009, due to an announced US\$ 2.3 billion real estate investment by Tri Granit, which accounted for more than 40% of total Slovakian FDI inflows in 2009.

Latvia and Slovenia have been the most affected, the FDI value recorded a decline at 71% respectively 70% (PriceWaterHouseCoopers, 2010), because of the fact that real estate sector enjoyed the bulk of FDI inflows.

Country analysis shows that real estate and extractive industries are the areas preferred by investors in the region, these two sectors accounted for more than a third of total FDI inflows between 2003 and 2009. The following table shows the FDI evolution, during 2009, in twenty largest sectors, and we note that FDI inflows experienced a significant decline (71% in real estate, 81% in automotive component, 82% in consumer electronics).

Table 2- The FDI evolution in twenty most important sectors in CEE region (%)

Sector	Annual change in FDI inflows (2009)	Share of regional FDI value (2003-2009)
Real estate	-71%	25%
Coal, oil and natural gas	-52%	13%
Transportation	-34%	6%
Alternative energy	31%	6%
Automotive equipment	-67%	5%
Metals	-70%	5%
Food and tobacco	-16%	5%
Building materials	-60%	5%
Wood products	-68%	4%
Automotive components	-81%	3%
Paper, printing and packaging	-49%	3%
Electronic components	43%	2%
Consumer products	-52%	2%
Consumer electronics	-82%	2%
Hotels and tourism	-17%	2%
Communications	14%	1%

Industrial machinery	-34%	1%
Warehousing and Storage	-42%	1%
Chemicals	171%	1%
Rubber	-79%	1%

Source: Allen & Overy LLP (2008) *Foreign Direct Investment in Central and Eastern Europe: A case of boom and bust?* processed after FDI Intelligence from the Financial Times Ltd,

Despite a significant decline, sectors like electronic components, alternative energy or chemicals have enjoyed a positive trend of FDI value.

3. ANALYSIS OF THE IMPACT OF FOREIGN DIRECT INVESTMENT ON GDP AND UNEMPLOYMENT RATE IN ROMANIA DURING THE PERIOD 1991-2009

Since 1991 it has been an upward trend of FDI, primarily due to investment flows from Europe to Romania as a consequence of proximity of accession and the improvement of country's rating and economic performance.

A SWOT analysis of FDI in Romania, at the end of 2009, presents the situation as follows:

Strengths	Weaknesses
<ul style="list-style-type: none"> • functional market economy • favorable geographic position- gateway to Europe • natural resources • a great consumer market , numerous, cheap and with a good education labor force. 	<ul style="list-style-type: none"> • risen inflation rate comparing to Europe's average • inadequate and degraded transport infrastructure, • diminishing yield, • risen long-term unemployment rate between youth and adults.
Threats	Opportunities
<ul style="list-style-type: none"> • a risen level of the taxation for the enterprises, • degraded infrastructure, • the migration of the developing sectors to cheaper locations, youth and specialist's emigration. 	<ul style="list-style-type: none"> • the seventh EU's member state from the point of view of the size, • renewable energetic resources, • catching location for FDI, • a bigger mobility for the labor force inside the European Union's market.

We analyze the impact of FDI on GDP and unemployment rate in Romania during 1991-2009 using data from the following table:

Table 3- The evolution of FDI, GDP and unemployment rate in Romania (1991-2009)

Year	FDI (volume- Euro millions)	GDP (volume- Euro billions)	Unemployment rate (%)
1991	0.035	25.10	1.80
1992	0.059	15.10	5.40
1993	0.081	22.60	9.20
1994	0.280	25.30	11.00

1995	0.320	27.40	10.00
1996	0.210	28.20	7.80
1997	1.070	31.30	7.50
1998	1.800	37.40	9.30
1999	0.980	33.50	11.40
2000	1.140	40.30	11.20
2001	1.290	44.90	9.00
2002	1.210	48.50	10.20
2003	1.940	52.60	7.60
2004	5.180	60.80	6.80
2005	5.210	79.30	5.80
2006	9.060	97.20	5.40
2007	7.250	112.10	4.30
2008	9.100	137.00	4.40
2009	3.490	30.50	7.80

Source: INSSE

Foreign investments represented an engine of economic recovery, a generator of sustainable economic growth with beneficial effects in Romania during 1991-2009. In support of this statement, I identified the degree of correlation between the level of foreign direct investments and GDP, and between foreign direct investments and unemployment rate by calculating the correlation coefficient ρ using SPSS. The correlation coefficient may take a value between -1 and +1, if the correlation coefficient has a value closer to -1 or +1, the relationship between those two variables is closer, while its value is more close to 0 this indicates the absence of a link between the two variables. (Jaba and Grama, 2004, p. 233).

Based on the stated sample, the relationship between variables can be estimated by simple linear regression model equation of the form $Y = a + b \cdot X$, where Y will be independent variable FDI, X will be dependent variable GDP or unemployment rate, a and b are the values of model parameters of the regression estimators.

Case 1: The variables considered are:

- the value of foreign direct investments (FDI)- independent numerical variable (X)
- GDP- dependent numerical variable (Y)

Pearson correlation coefficient $\rho=0.935$ which shows that the correlation between FDI and GDP, in Romania, is direct and strong, the coefficient is very close to 1 (which corresponds to a perfect correlation).

Correlations

		FDI	GDP
FDI	Pearson Correlation	1	.935(**)
	Sig. (2-tailed)		.000
	N	19	19
GDP	Pearson Correlation	.935(**)	1
	Sig. (2-tailed)	.000	
	N	19	19

** Correlation is significant at the 0.01 level (2-tailed).

For testing the significance of the correlation coefficient, we use the T test. The properly Sig. value is (Sig = 0.000) < ($\alpha = 0.01$) highlights that we obtained a significant correlation coefficient to a threshold of 0.000, so are less than 1% chance of error if we say that between the two variables it is a significant correlation.

The estimated regression equation is **FDI=23.139+10.250*GDP.**

Coefficients (a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	23.139	3.725		6.212	.000	15.280	30.998
	FDI	10.250	.942	.935	10.886	.000	8.263	12.236

a. Dependent Variable: GDP

Coefficient b=10.250 correspond to a direct (positive) link between the variables considered. A growth of FDI with a unit determines an increase of GDP on average with 10.250 billion euro, in Romania. For testing the parameters of the regression model, we use the T test. Value (Sig = 0.000) < ($\alpha = 0.05$) shows that β (slope) corresponds to a significant link between the two variables. F test has a high value (F = 118.504) and the Sig. value properly F statistics is low: (sig = 0.000) < ($\alpha = 0.05$) which means that the independent variable – FDI explains the variation of dependent variable- GDP.

ANOVA (b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	17581.164	1	17581.164	118.504	.000(a)
	Residual	2522.103	17	148.359		
	Total	20103.267	18			

a. Predictors: (Constant), FDI

b. Dependent Variable: GDP

The coefficient of determination $R^2=0.875$ (R Square Model Summary table) shows that 87.5% of GDP variation can be explained by FDI value made in Romania during 1991-2009.

Model Summary (b)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.935(a)	.875	.867	12.18027

a. Predictors: (Constant), FDI

b. Dependent Variable: GDP

Case 2: The variables considered are:

- the value of foreign direct investments (noted by FDI)- independent numerical variable (X)
- the unemployment rate (noted by Ur) - dependent numerical variable (Y).

Pearson correlation coefficient $\rho = -0.496$ shows an inverse correlation between variables.

Correlations

		FDI	Unemployment rate
FDI	Pearson Correlation	1	-.496(*)
	Sig. (2-tailed)		.031
	N	19	19
unemployment rate	Pearson Correlation	-.496(*)	1
	Sig. (2-tailed)	.031	
	N	19	19

* Correlation is significant at the 0.05 level (2-tailed).

The properly Sig. value is (Sig = 0.031) < ($\alpha = 0.05$) highlights that we obtained a significant correlation coefficient to a threshold of 0.031, so are less than 5% chance of error if we say that between the two variables it is a significant correlation.

The estimated regression equation is **FDI= 8.811-0.433*Ur.**

Coefficients (a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error				Lower Bound	Upper Bound
1	(Constant)	8.811	.726		12.134	.000	7.279	10.343
	FDI	-.433	.184	-.496	-2.358	.031	-.820	-.046

a. Dependent Variable: unemployment rate

Coefficient $b=-0.433$ correspond to an inverse (negative) link between the variables considered. A growth of FDI with a unit determines a decrease of unemployment rate on average

with 0.433% in Romania. Value (Sig = 0.031) < ($\alpha = 0.05$) shows that β (slope) corresponds to a significant link between the two variables. The Sig. value properly F statistics is (sig = 0.031) < ($\alpha = 0.05$), which means that the independent variable – FDI explains the variation of dependent variable- unemployment rate.

ANOVA (b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	31.350	1	31.350	5.561	.031(a)
	Residual	95.842	17	5.638		
	Total	127.192	18			

a. Predictors: (Constant) FDI

b. Dependent Variable: unemployment rate

The coefficient of determination $R^2 = 0.246$ (R Square Model Summary table) shows that 24.6% of the variance in the dependent variable (unemployment rate) can be explained by changes in the independent variable (FDI).

Model Summary (b)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.496(a)	.246	.202	2.37439

a. Predictors: (Constant), FDI

b. Dependent Variable: unemployment rate

4. CONCLUSION

The CEE region has experienced an uptrend FDI inflow since 2003, but it was halted by the global recession. While Latvia and Slovenia have been the most affected (the FDI value recorded a decline at 71% respectively 70%), in Slovakia, FDI rose by 55% in 2009. Country analysis shows that real estate and extractive industries are the areas preferred by investors in the region.

In terms of development, there is a general agreement of the potential benefits of Foreign Direct Investment. We illustrated this point making an econometric analysis on the example of Romanian economy, using a linear regression model. The relationship between GDP Growth and the increase of the relationship between FDI and GDP (FDI/GDP (%)) can be clearly established. The estimated regression equation is $FDI = 23.139 + 10.250 * GDP$ and Pearson correlation coefficient $\rho = 0.935$.

Also, the coefficient of determination shows that 87.5% of GDP variation can be explained by FDI value made in Romania during 1991-2009. The relationship between FDI and unemployment rate can be estimated by the following regression equation $FDI = 8.811 - 0.433 * Ur$. Pearson

correlation coefficient $\rho = -0.496$ shows an inverse correlation between these variables. Unlike the previous case, the coefficient of determination $R^2 = 0.246$ shows that 24.6% of the variance in the dependent variable (unemployment rate) can be explained by changes in the independent variable (FDI) in Romania.

Foreign direct investments have a significant impact on pattern of trade in many income-enhancing directions, by improving a country's comparative advantages and enhancing its competitiveness.

REFERENCES

- Allen & Overy LLP (2008) *Foreign Direct Investment in Central and Eastern Europe*, accessed on January 2011 at <http://www.allenoverly.com/AOWeb/binaries/33967.PDF>.
- Duce, M. (2003) *Definitions of Foreign Direct Investment (FDI): a methodological note*, accessed on January 2011 at <http://www.bis.org/publ/cgfs22bde3.pdf>.
- Jaba, E., Grama, A. (2004) *Analiza statistică cu SPSS sub Windows*, Editura Polirom, București.
- Kornecki, L. (2006) *FDI in Central and Eastern Europe: business environment and current FDI trends in Poland*, Research in Business and Economics Journal, accessed on December 2010 at <http://www.aabri.com/manuscripts/09348.pdf>.
- National Bank of Romania (2009) *Investițiile străine directe în România*, accessed on December 2010 at <http://www.bnro.ro/Publicatii-periodice-204.aspx>.
- Voinea, M. C. (2010) *The management of direct foreign investments in Romania*, Bucharest, Doctorate thesis.
- <http://epp.eurostat.ec.europa.eu>
- www.insse.ro
- www.worldwide-tax.com