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The Role of the Foreign Direct Investments in the Knowledge Society. The Case of CEE Economies

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Abstract

The foreign direct investments play an active role in transforming the Central and East European economies aiming at the construction of the knowledge-based society, by developing some research-development activities with innovating character and by taking active part in the improvement of the labour force training level. Generally, it has been noticed a more powerful impact either in the countries that have received massive foreign direct investments, namely the Czech Republic, Hungary and Estonia, or in countries in which the quality of the attracted foreign capital has reached their quantity (as for example Slovenia) at a certain moment.

Key words: *foreign direct investments, knowledge-based society, innovation activities, human capital, development, quality*

Introduction

Most of the studies tackle this subject in an indirect manner, discussing the positive effects of foreign direct investments upon host economies, in terms of productivity and competitiveness. In this paper we are going to approach the relation between foreign direct investment (FDI) inflows and the foundation of the knowledge society in an explicit manner, analysing the empirical data for the Central and Eastern European (CEE) countries, new members of European Union.

Our main goal is to demonstrate that, supporting the development of innovative research-development (R&D) activities and participating to the improvement of the quality of the local labour force, foreign direct investments attracted by CEE countries have been playing an active role in the transformation of these economies, in their way towards a society based on knowledge. In this respect, we are going to analyse some of the most representative indices, as follows:

- Innovation Index, in order to evaluate the innovation activities of nations;
- Human Capital Index, in order to evaluate the quality of the human capital; the number of companies which developed innovative activities (as a percentage in total); the degree of penetrability of foreign capital within the host economy, given by the level of the inward FDI stock per capita.

FDI and Innovative R&D Activities

Specialists agree that technological innovation is essential for the economic development and growth. Even more, practice has proved that any sustainable economic development requires more than an economy "receptive" to technological inflows inputs.

During the technological innovation process, transnational corporations (TNC) hold a significant role as the globalization and production internationalization processes of the economic inflows deepen. In this respect Dunning notices that, in the near future, transnational companies with different structures and global action shall not cease to control the supply and use the major part of the high-tech advanced technologies engendered within the private sector (Dunning, 1993, p.287). This statement of the British scientist is sustained by the empiric evidence, showing that over 50% of the research development - related expenses spent at a global scale are focused inside the TNC complex (over 450 billion dollars during 2005). Besides, last decade evolutions proved that, following the reinforcement of the global competitive pressure and the rapid technological development, more and more transnational companies permanently increase their research-development related expenses in order to preserve their competitive advantages generated by the technological innovation. It is to notice that TNCs that register the biggest R&D expenses at global level are focused in several areas, namely: car industry (Ford, DaimlerChrysler, Toyota and General Motors), IT equipment industry (Siemens) and pharmaceutical industry (Pfizer).

Nowadays, the dispersion of the research-development activity is more and more powerful due to the common influence of several factors, namely: reinforcement of the competitive pressure (the knowledge and skills, where possible, must be unleashed before the rival firms); the technological progress in the computing and communication areas (eases up the research-development activity division as well as the cross-border research); the alteration of the international regulations (the liberalization of the foreign capital access and the reinforcement of the intellectual property rights).

In essence, the transnational corporations that develop R&D activities abroad, place it in one of the following categories: *assets exploiting*, these generally originate from the developed countries and internationalize the production in order to get access to national resources or cheap labour force, thus *placing the R&D activities in the middle ground*; *augmenting exploiting*, these generally originate from the developing economies and by means of FDI they intend to gain access to local research-development capabilities (for increasing competitiveness by means of technological innovation), reason for which *R&D activities are placed in the foreground*. Practice has showed that transnational companies from the first category (assets exploiting) hold the main share within TNCs that internationalize the research-development activities. The developing states generally benefit from the process of the R&D activities abroad localization.

As per host country, the internationalization of the R&D activities represents an opportunity not only for the technology transfer created somewhere else, but also for the development of technological innovation own capabilities, as long as the particular economy has managed to connect to the innovating and technological global research network. Taking into account the specific of this activity, that assumes not only the existence of some capabilities and knowledge, but also their easy and sometimes unspoken transfer between the producers and the users, the cluster development becomes imperative.

The importance of the clusters in R&D promoting and intensifying has been often underlined by the Romanian specialists, pointing out that given the deep disparities regarding the other EU member countries, Romania must tackle "*the complex and difficult aspects associated to the knowledge-based economy construction in a totally changed manner, if it is felt the need to remove the disparities…and reach performance.*" Thus, among the strategic options, concerning

the main directions for the construction of the knowledge-based economy, one must find as compulsory those options regarding *"the use of the clusters, the company networks and business centres for the research-development promotion and intensification"* (Roşca, 2006, p. 71,74). Of course, easier said than done as the setting up and development of the own capabilities of technological innovation are not only low, but very expensive processes that require a constant technical effort, the existence of a developed infrastructure (mainly an informational and communicational one) and some powerful and lasting institutions (universities, research centres).

We need to emphasize that the effects of localizing the R&D activities of the transnational corporations within the host economies are multiple and sometimes conflicting. Thus, beside the positive effects, there are other unwanted effects that can develop, namely: attracting the qualified personnel from the domestic companies; disloyal competition in TNC case, that behave totally unethical; on a long term, one can even register a job diminution. Both the economical theory and practice showed that there is a set of determining factors that encourage the positive impact, namely: the R&D activity type (adaptive or innovative); the absorption capacity of the implanting economies; the innovating system of the host economy.

In essence, the more the foreign companies interact with the local companies and the research-development local institutions, the bigger the probability to express positive impact is. As specialists agree to point out that innovation index reflects the attractiveness on any economy to localize R&D activities, we shall further on analyze, its evolution in respect of the CEE countries (figure no. 1).

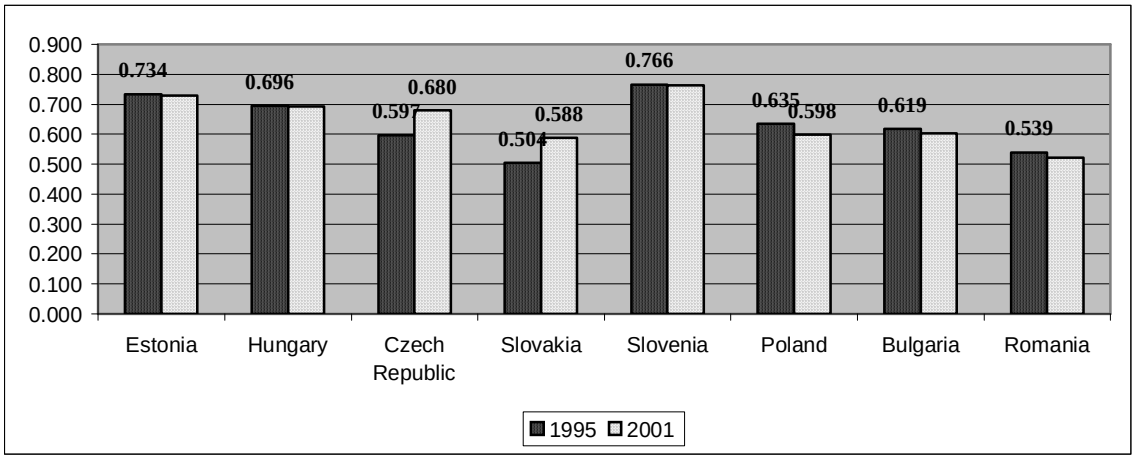

Fig. 1. Innovation Capability Index for CEE countries (1995 and 2001)

Source: UNCTAD, *World Investment Report 2005*, pag. 290

The Innovation Capability Index (ICI) is calculated by United Nation Conference for Trade and Development (UNCTAD) as simple average of the normalized value of the three variables: research-development (R&D) manpower, patents in the United States (United States Patent and Trademark Office) and scientific journal articles.

According to the data presented in chart 1, most of the analyzed countries, namely Estonia, Slovenia, Hungary, Poland, Bulgaria and Romania the innovation index has known a decreasing trend, more severe in the last mentioned states (Poland, Bulgaria and Romania).This tendency registers at a global level too, as it is the case of some powerfully industrialized and highly competitive countries, namely: Sweden is placed the first on top, but the index lowered from 0.981 to 0.976; USA and Japan lost the second and the third places as the innovation index level lowered from 0.963 to 0.948 for USA, respectively 0.949 to 0.935 for Japan.

Comparatively with the tendency registered at the regional (CEE) and global level, the Czech Republic and Slovakia benefits from a significant increase of this index level, with 0.083 points

when related to the Czech Republic (from 0.597 in 1995 to 0.680 in 2001) and with 0.084 for Slovakia (from 0.504 in 1995 to 0.588 in 2001). As for 2001, the Central European countries inside which the massive received foreign capital input gathered into significant stocks (Estonia, Hungary and the Czech Republic) place themselves among the first countries in the region (the second, the third and the fourth place after Slovenia) from the index level point of view, thing that represents the expression of a positive impact of TNC activities upon the innovating and technological potential of those countries.

According to UNCTAD appreciations (WIR 2005), the R&D activities of the transnational corporations that have invested into the Czech Republic, Hungary and Poland are mostly related to the processing industry and mainly to the electronic and automobile industry.

The same regulating authority underlines that sometimes, the research-development activities relocated by the TNC have not only an adaptive character (from the production process support to the alteration of the imported technologies), but also innovative (the development of some products and/or new fabric processes) aiming at the improvement of the competitiveness of the companies on the regional and global market.

We need to underline that from the innovative capacity point of view, Romania ranks the last within the analyzed countries, with an index that reached the level of 0.522 during 2001. In these circumstances, the foreign direct investments directed towards the research-development activity could have a main role. In this respect, a recent survey made by UNCTAD (WIR 2005) shows that Romania, next to the Czech Republic and Poland is placed among the CEE countries with the most attractive perspectives regarding the relocation of the research-development activities of the transnational companies during 2005-2009 (figure no. 2).

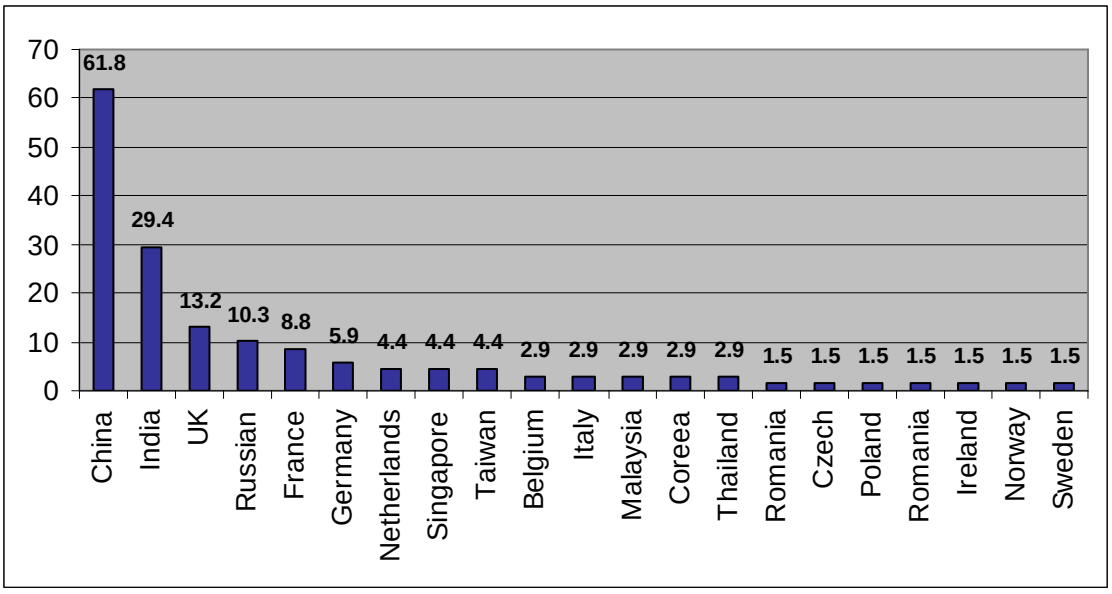

Fig. 2. The most attractive perspectives regarding the relocation of the R&D activities, 2005-2009 (Percentage of response)

Source: UNCTAD, *World Investment Report 2005*, pag. 26

To the extent to which these forecasts shall become true, positive effects of the technological progress upon the involved sectors competitiveness and productivity may take place in Romania too, by means of R&D investments made by the foreign companies that relocate these activities. As a consequence, we appreciate that the foreign direct investments attracted by the CEE countries can impel the R&D activities with innovating character, thus supporting the Central and Eastern European economies on the way of the construction of the new society, based on knowledge.

FDI and the Quality of the Labour Force

The quality-related aspects that concern the labour force, respectively the employees' level of training, are emphasized by Human Capital Index (HCI). Obviously, the index level increase from one period of time to another is due to the common influence of several factors, among which, the most significant are those related to the labour force demand that shall sooner or later influence the offer. In other words, within a highly competitive and strongly specialized economy, the unqualified or sub-qualified employees not only benefit from worth paid working places, but they are also easy to replace by the employers, thing that represents a powerful stimulus for the continuous improvement of the level of professional qualification.

The empirical data concerning the evolution of the human capital index (HCI), during 2001 as compared to 1995, for the analyzed Central and Eastern European countries proves that the improvement of the labour force training level has been accomplished differently from one country to another. In this respect a clear emphasis is noticed in only three states namely Poland, Slovenia and Hungary (figure no. 3).

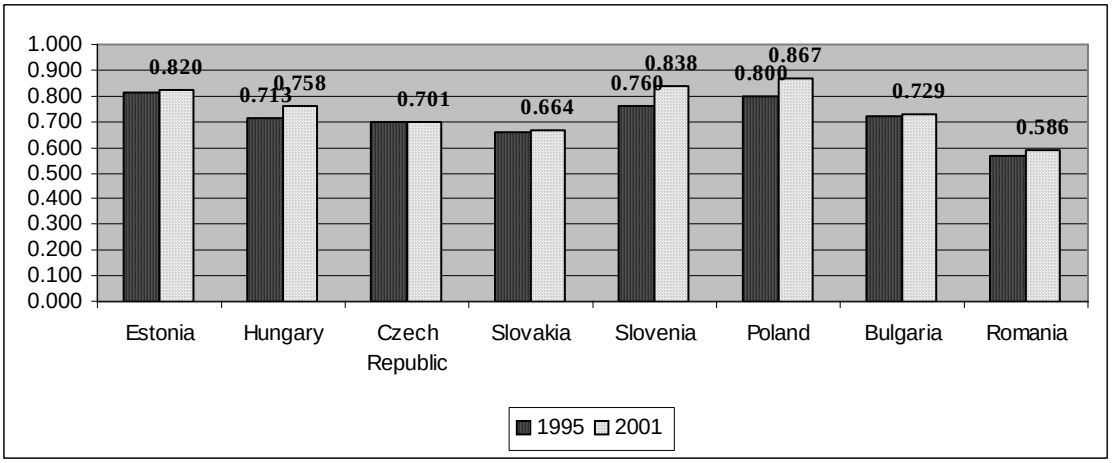

Fig. 3. Human Capital Index for CEE countries (1995 and 2001)

Source: UNCTAD, *World Investment Report 2005*, pag. 291

In 2001, the first positions in what concerns the level of HCI were occupied, in order, by Poland (0.867), Slovenia (0.838) and Estonia (0.820), followed up, at a certain distance, by Hungary (0.758). At the same time, the presented empirical data emphasise the accentuated increase registered in Slovenia (10.26%), Poland (8.37%) and Hungary (6.31%), proving that foreign direct investments attracted in these countries has been playing a significant role in improving the quality of the labour force.

FDI and the Knowledge Society

As regards the construction of the new society, the Knowledge Society, Alvin Toffler specified in his book, "The Third Wave" (1981), that "*the persons, groups, communities, societies or nations that shall have access to information and the potential to process them, shall then gain access to the new society.*"

Therefore, the construction of the knowledge economy implies the transition from "the industrial approach" of the economy to "the informational approach" whose main characteristic is represented by the speed of change. Consequently, the economic success is no longer guaranteed only by the existence of the technology that changes rapidly due to the high rhythm of the technological progress, because it also depends on adopting a new flexible production system, which may be quickly adjusted in order to comply with the market needs and the distribution system radical change (Roşca, 2006, p.341).

Thus, within the globalization context, the transnational corporations deal with a more and more severe pressure due to the massive and rapid changes that register within the global economy, at the production and distribution level. Taking into consideration the intensive informational character of the globalization, in order to keep their competitive advantages, TNC must achieve significant investments in research-development activities, along with the IT and communication high tech integration within the production process. As a consequence, the bitter global competition changed the knowledge into the vital force of the economy. Therefore, in order to survive, the transnational corporations have to allocate important resources in view of obtaining knowledge.

The importance of knowledge in the new world economy has been officially acknowledged across the EU once with the adopting of the Lisbon Agenda, that established as a priority for the member countries to build up the knowledge-based society in view of providing the competitiveness increase and a sustained economical development.

Following the adoption of the Lisbon Strategy (2000), The European Commission monitors the progress recorded by the member countries regarding the capabilities and the innovative performance. In this respect, a survey drafted based on the data supplied by EUROSTAT (The CE Office for Statistics) showed that, during 2002-2004, over 42% of the enterprises that work in the production and services sector within the 27 EU current member countries reported the development of some innovating activities (Eurostat news release, Feb. 2007). Within the 27 analyzed countries one can notice severe disparities regarding the percentage of the enterprises that achieved innovative activities from the total of the enterprises. Thus, the highest values register in Germany (65% of the overall enterprises), Austria (53%), followed by Denmark, Ireland, Luxembourg (52%), Belgium (51%) and Sweden (50%). At the opposite pole, are ranked the countries with the lowest rates, namely Bulgaria (16% of the overall enterprises), Latvia (18%), Romania (20%), Hungary and Malta (21%).

In what concerns the accomplishment of some partnerships between the public and the private sector, in view of developing the innovative activities it has been ascertained that they occur more frequent in countries like Finland, Slovenia, Slovakia, Latvia, and Lithuania and less frequent in Italy, Malta, Romania and Cyprus. Moreover, at the EU level, the partnership between the companies involved in the innovation process (suppliers or users) and the public research institutes, as well as the higher education institutions is relatively low (6%, respectively 9%). Though, there are some countries inside which the cooperation level is very high, namely Lithuania (56%) and Slovenia (47%).

Similar to the EU recorded situation, the Central and Eastern European countries present severe disparities in what concerns the enterprise involvement in innovating activities. Estonia and the Czech Republic, states that received massive foreign capital inflows, are ranked the first (with 49%, respectively 38% of the overall enterprises), while the disadvantaged countries, under the FDI inflows, namely Bulgaria and Romania, are among the last places with rates of 16%, respectively 20% (table no. 1).

Table 1. Innovation activity and co-operation during 2002-2004 for CEE countries

Countries	**Enterprises with innovation activity (% of all enterprises)**	**Co-operation partners (%of all enterprises with innovation activity)**			
		Suppliers	**Clients or customers**	**Universities or other higher education institutes**	**Government or public research institutes**
EU-27	**42**	**17**	**14**	**9**	**6**
Bulgaria	16	16	13	6	4
Czech Republic*	38	31	26	13	7

Table 1 (cont.)

Estonia	49	23	23	9	6
Hungary	21	26	20	14	5
Poland	25	28	16	6	9
Romania	***20***	***14***	***10***	***4***	***4***
Slovenia	27	38	33	19	13
Slovakia	23	32	30	15	11

*****Data for Czech Republic correspond to the reference period 2003-2005

Source: *Eurostat News Release*, 27 feb.2007, p.2, FCIS 4 (Fourth Community Innovation Survey)

Starting from the assertion regarding "the 3I of knowledge", according to which "the processes considered as defining for the phenomenology of a knowledge-based society are: innovation, partnership learning and interactivity" (Dragomirescu, 2001), we shall compare the data concerning the innovative activity and the human capital, previously presented and analyzed, to those related to the FDI inflows (inward FDI stock per capita) within the CEE countries in order to emphasize in a more explicit manner the relation between the attracted foreign direct investments and the knowledge based economy. In this respect, we shall allocate a number from one to eight, to each of the eight countries submitted to analysis, according to the ranking in top (1 for the first place, up to eight for the last place), according to the level of the following indicators: inward FDI stock per capita, the innovation index (ICI), the human capital index (HCI) and the percentage of the enterprise with innovative activities (table no. 2).

Table 2. Relation between FDI and knowledge-based society for CEE countries

Countries	**ICI 2001**	**HCI 2001**	**Enterprises with innovation activity 2002-2004**	**Inward FDI stock per capita 2001**	
-	**(rank)**	**(rank)**	**(rank)**	**(rank)**	**USD/capita**
Bulgaria	5	5	8	7	432
Czech Republic	4	6	2	1	2638
Estonia	2	3	1	3	2307
Hungary	3	4	6	2	2310
Poland	6	1	4	6	1073
Romania	***8***	***8***	***7***	***8***	***351***
Slovenia	1	2	3	4	1613
Slovakia	7	7	5	5	1155

Source: UNCTAD, *World Investment Report* 2003 and 2005, Eurostat and own calculations

From the above-mentioned data, it comes out that the CEE countries placed on the first positions in what concerns the foreign direct investment inflows, namely the Czech Republic, Hungary, Estonia and Slovenia, still occupy top places regarding the innovative activities and the human capital. Also, Romania and Bulgaria, ranking last within the CEE analyzed countries in what concerns the FDI inflows occupy the same low positions regarding the innovation capabilities and the quality of the labour force. Consequently, there is a correlation between foreign direct investments inflows and the positive evolutions recorded by some Central and East European countries (as for example Slovenia, Estonia, the Czech Republic and Hungary) on the way of the construction of the knowledge–based economy. In our opinion, the presented data suggest that in these countries foreign direct investments contributed to the development of the enterprise innovative activities and the improvement of the human capital.

We shall henceforth end by emphasizing the cases of Slovenia and Poland. As regards Slovenia, the positive difference between the rank according to FDI inflows and the ones regarding the

knowledge society (ICI, HCI and innovation activity) underlines the importance of the FDI inflows structure and of the domestic resources (human and capital) within the social and economic development of this country. In what concerns Poland, in our opinion, the positive impact is mostly due to the fact that transnational companies, following the internal market potential have diversified the production, achieving new products to meet the local consumers' requirements.

Conclusions

In our opinion, given the above-mentioned facts, the foreign direct investments play an active role in transforming the Central and East European economies aiming at the construction of the knowledge-based society, by the development of some research-development activities with innovating character and the participation of the improvement of the labour force training level.

Despite everything, given the foreign capital input reduced level in most of the analyzed countries, as well as the structure of the FDI inflows (aiming at the market and the reduced cost of the production factors) the foreign capital impact is relatively low in most of the CEE countries. Generally, it has been noticed a more powerful impact either in the countries that have received massive foreign direct investments, namely the Czech Republic, Hungary and Estonia, or in countries in which the quality of the attracted FDI has reached their quantity (as for example Slovenia) at a certain moment.

Therefore, learning from these countries' experience, Romania that registers big discrepancies as compared to the other Central and East-European economies that have joined the European Union, can maximize the FDI positive contributions by attracting more foreign direct investment inflows especially in those branches intensive in technology and knowledge. In this respect, it is imperative for Romania to improve the training level of the labour force and to develop the innovative capabilities.

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Rolul investiţiilor străine directe în societatea cunoaşterii. Cazul economiilor din ECE

Rezumat

Prin susţinerea activităţilor de cercetare-dezvoltare cu caracter inovativ şi prin participarea la îmbunătăţirea nivelului de pregătire şi calificare a forţei de muncă, investiţiile străine directe pot juca un rol activ în transformarea economiilor central şi est-europene, având ca obiectiv construirea societăţii cunoaşterii. În general, s-a remarcat un impact mai puternic fie în ţările care au receptat fluxuri masive de capital străin, ca de exemplu Cehia, Ungaria şi Estonia, fie în ţările în care calitatea ISD atrase a completat, la un moment dat, cantitatea acestora (ca de exemplu Slovenia).