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IS THERE A RELATION BETWEEN INFLOW
OF DIRECT FOREIGN INVESTMENTS
AND ECONOMIC GROWTH
OF EUROPEAN UNION STATES?

1. Introduction

The situation in the world shows that nearly all states of the world affect each other while functioning of one of them is conditioned by operations of other states. This mutual affection and relations between states were started at the moment when first economies suffering from lack of resources were forced to look for them in other states. Consequently, it resulted in share of domestic and international economic problems. The feature of the contemporary world is unquestionable occurrence of series of interactions and relations between states. In recent years these phenomena have noticeably increased. So the awareness of their existence must grow up and, therefore, a conviction that they must be taken into consideration within a process of making decisions. The above-mentioned relations connected with resources and ways of obtaining them in the situation, when one state suffered from lack of resources while in the other one there were too much resources, in the 19th century have been extended by a new element, namely, a will to obtain a higher profit rate than on domestic market. Moreover, during this period there appeared a serious increase in industrial production in Western Europe states, which made exporters, who wanted to ensure an access to foreign resources, invest their capital abroad in form of foreign investments.

In the subject-matter literature there dominates an opinion that states obtaining foreign capital in form of foreign direct investments have better opportunity to achieve higher level of economic development. This thesis is usually confirmed by positive effects occurring in an economy which is subject

of foreign investments after investors have been active for a long time. One of positive results is transfer of foreign financial means to a host-state, which makes possible investments impossible previously because of too low internal accuulation. The second effect is related to technology transfer to a host-state, which results in widely-recognized quality changes. Due to such modifications the domestic enterprises adjust to market requirements and become more competitive on the international market. Mostly, pressure is put on diffusion of knowledge and experience in order to increase the level of innovativeness of an economy receiving foreign capital.

The purpose of this article is an assessment of direct foreign investment's influence on the shape of economic growth in the European Union member states. There shall be conducted a detailed analysis of the Gross Domestic Product's value and its increase and decrease in the analyzed period. Also, the author will compare the GDP changes in relation to the value of the inflow of direct foreign investments into EU states. As an effect there shall be made conclusions which enable answering a question of relations between direct foreign investments and economic growth.

2. Assessment of disproportion in terms of economic growth between the European Union member states

In 2008 GDP per inhabitant calculated for the best member state of the European Union (Luxemburg) amounted to 77 500 € according to the current exchange rate and about 70 500 € according to the purchasing power parity. The lowest value of this rate has been calculated for Bulgaria (4400 € according to the current exchange rate and about 10 200 € according to the purchasing power parity). It means that in relation to the whole European Union, the best state achieved 215% and 178% of the average for the Union, while the poorest state – 18% and 40%. On these grounds it may be concluded that the gap in terms of development of the European Union member states is huge.

Figure 1 shows the existence of big differences in GDP according to the current exchange rates as well as GDP according to purchasing power parity. The second index, showing the level of prices in a state, is much more better measure of economic growth for international comparisons. Among European Union's states shown in Figure 1, the largest difference between the nominal GDP and GDP in terms of purchasing power parity occurs in case of Bulgaria. For this state GDP calculated on the grounds of the current exchange rate constitutes 43% GDP in terms of purchasing power parity only. It means, assuming that Bulgarian economy will grow faster than the other economies in European Union, that this process may be accompanied by quicker growth of prices.
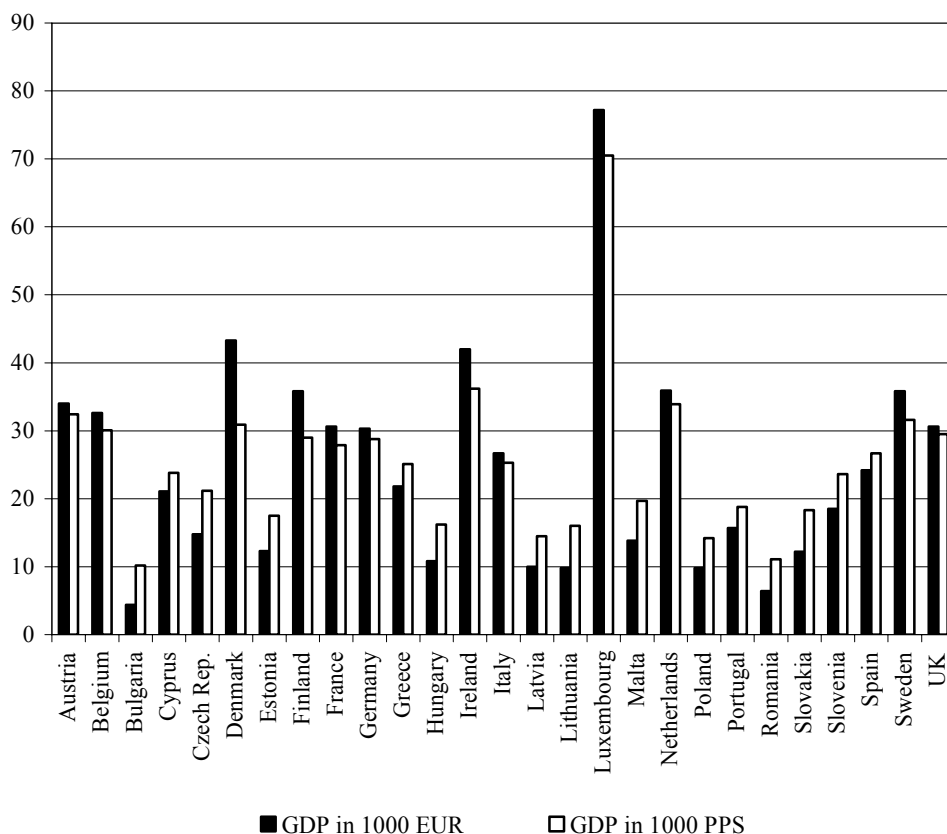
Figure 1. GDP per 1 inhabitant in 2008 in European Union converted according to the current exchange rates (thousand €) and according to the purchasing power parity (Purchasing Power Standards).

In D. Hübner's opinion such a situation means that so called real convergence (it occurs when economic growth rate of state of lower development level exceeds the rate of more developed states) is accompanied by nominal convergence, which usually means higher inflation rate in a pursuing state. Well known explanation of this phenomenon is hypothesis made by P. Samuelson in 1963 and B. Balass in 1964, called the Balass–Samuelson effect [Hübner 2004]. There also should be mentioned the fact that states joining the European Union show more and more disproportions in terms of their development in relation to the current Union's members. For example, extension of the European Union by three new states in 1995 (Austria, Finland and Sweden) shows that these states at the moment of

joining the Union's structure were characterized by the average income per one inhabitant exceeding 70% of the Union's average. Another extension in 2004, for 10 states (among them 8 states from Central-Eastern Europe) showed that the level of wealth of these states was significantly lower and amounted to 55% of the Union's average. And finally in 2007 Bulgaria and Romania joined the Union. Once again, disproportions grew since these states represent 35% of the average calculated for EU-15.

3. Direct foreign investments in the member states of the European Union

Theories of direct foreign investments try to explain reasons for creating international enterprises, to understand their motives for making investments out of their native states as well as to study factors affecting the selection of localization for business activity. One of macroeconomic theories which present relation between DFI and the economic growth has been formed by J.H. Dunning [Dunning 1981]. In his paper he proved that there was a relation between the level of the Gross Domestic Product per one inhabitant and a size of net investment per inhabitant.[1] On the grounds of the survey made on a sample consisting of 67 states and their statistic data (concerning years 1967-1978) J.H. Dunning formed up the following conclusions:

- states with low GDP *per capita* (less than USD 400)[2], which means poorly developed states, achieve the value of investments equal to zero or minimally negative. It means that states, suffering from lack of capital, do not invest abroad and they are not attractive enough for foreign investors;
- states in which GDP *per capita* is in the range USD 400-1500 are characterized by negative net investments since these economies are more attractive for investors who more willingly made decisions about locating their capital in these states. The negative result is related to the fact that these states do not have enough capital to become players on the international market;
- another group of states is constituted by those in which GDP *per capita* is in the range USD 2000-4750 and it is observed that the net value of investments, despite the fact it is still negative, shows a tendency heading for a zero. That means that within their territories operate companies which undertake initiatives on foreign markets;
- the last group of the states consists of these states which can be recognized to be well developed since their GDP *per capita* is in the range USD 2600-6500[3] and value of net investments for this group is usually positive.

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[1] Net investments according to Dunning constitute a difference between foreign investments made by entities of a state and foreign investments made by foreign entities on the territory of this state.

[2] Data accepted for the survey refer to the year 1971.

[3] According to Dunning the overlapping of ranges of GDP *per capita* in developed states results from the fact that in their case value of direct foreign investments is affected not only by GDP *per capita*, but by other factors as well.

Presently, the ranges of GDP *per capita* quoted by Dunning for needs of the analysis are invalid since they concern 1970s. However, the concept is still used – just let us mention UNCTAD – and it is worth using for determination of relations between these variables.

In 2007 the value of direct foreign investments, which were completed by foreign entities in Union's states, amounted to USD 804.290 billion and constituted 43% of total DFI in the world. For years European Union states have been the most serious beneficiaries of direct foreign investments as well as their exporters [*World Investment...* 2008]. A leader in terms of attracting foreign investments is British economy. Just in 2007 foreign investors allocated capital of USD 223 billion, which constituted 27% of total amount of investments' inflow into the European Union. The second place – in terms of attracted DFI – was held by France (19.5% of total DFI) and the Netherlands (12.)3%. Among new member states[4] the position of leader has been held by Poland for several years. Just in 2007 it attracted a foreign capital exceeding USD 17 billion.

Another measure which enables accurate analysis of DFI scale in selected states is DFI *per capita*. It eliminates differences of size of states and, consequently, potential for larger or smaller DFI value because of differences in number of inhabitants and areas.

By the largest number of foreign investments per one inhabitant are characterized: Luxemburg and, next, Ireland, the Netherlands, Belgium and Austria. These five states constitute a part of "old fifteen," which proves again they are real beneficiaries of foreign capital. In this list, the first state among Middle-East Europe is Estonia – USD 1895. Still, it makes at least five times less than in case of leaders of this classification. Polish economy holds 25th position, just before Romania and Greece with DFI *per capita* amounting to USD 641.

4. Direct foreign investments vs. Gross Domestic Product

In the subject-matter literature quite popular is the opinion that the basis for concept of opening of an economy of any state is an assumption of development due to use of foreign capital. However, the basic measure of opening of an economy for "foreigners" is taking into consideration (in terms of investment policy of a state) a foreign and domestic supply and demand. In other words – world economy development trends. It means that this process is not automatic as a result of political changes. Such changes may be recognized as one of many elements of a whole policy of a state, which must be carried out in order to encourage foreign investors to make investments. Direct foreign investments, like domestic investments, affect the Gross Domestic Product. Thus, together with inflow of foreign capital

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[4] By "new member states" the author understands those states which joined the European Union in 2004 and in 2007 (in total 12 states).

grows GDP of a host-state. There is a one condition: turning up of a foreign investor and his/her business cannot result in elimination of local manufacturers from the market. Therefore, an opinion stating that direct foreign investments should determine investment activity in any state is unquestionable [Starzyk 1997]. Every state struggles against budget limitations for new investments and modernizing investments as well as poor level of investments made from enterprises' profits (in form of re-investments) or insufficient level of savings in house economies. This problem is solved by direct foreign investments which constitute an external source for financing and they make a state's budget situation better. Therefore, the largest is inflow of foreign investments, the larger will be the level of domestic investments, which shall be reflected in the increase in Gross Domestic Product. This thesis is confirmed by Keynes' multiplier which informs how much the domestic product will grow after an investment is completed. Investments will result in multiplied increase in domestic product and vice versa.

For needs of analysis the author selected 10-year period – from 1998 to 2007 – and used data concerning the inflow of direct foreign investments as well as Gross Domestic Product achieved by the European Union member states. Comparing changes in terms of values of DFI and GDP in the Union's states it can be observed that – in terms of GDP in the contemplated period – there was continuous economic growth while, in terms of DFI, there was notified 3-fold decrease in the years: 2001, 2003 and 2004. In 2001 there occurred the decrease in inflow of DFI into member states by 42% in comparison to previous year. However, in the same year the economic growth amounted to 4%, which made up nearly two times less value in relation to the previous year. Next year, inflow of DFI increased just by 3% while economic growth value was as in 2001. In 2003 investments made in the member states decreased again by nearly 40% and economic growth decreased by nearly half of the previous year value. Observed tendency allows a conclusion that there is a significant relation between inflow of DFI and change of GDP value, which would confirm the above-mentioned Keynes' multiplier.

The above demonstrated analysis may seem to be a coincidence where – just during the investigated period – there occurred a temporary relation between direct foreign investments and the Gross Domestic Product. Thus, to confirm the above considerations the author conducted statistic calculations in order to verify or confirm the observed relations. At first there was made an investigation in terms of two number-features: GDP and DFI. To do this Pearson correlation coefficient was used.

$$r_{xy} = \frac{C(X,Y)}{s_X s_Y},$$

where: $C(X,Y)$ – co-variance between X and Y features,
$s_X (s_Y)$ – standard deviation for X (for Y feature).

The r_{xy} value 0.86 was obtained, which means that the relations between these features are quite significant and consequently, increase in GDP results in increase in DFI and vice versa. Analysis of correlation enables only assessment of the powers of relation between the features describing a specified statistic set. Achieved result does not enable clear description on how a value of a one feature affects the change in value of the second feature. Within this scope the analysis of regression is helpful since it will reflect relation of X feature on Y and vice versa. After completion of the calculations the following regression functions have been obtained:

$$y = 0.01x + 3.8, \tag{1}$$

$$x = 0.5y + 4.5, \tag{2}$$

where: x – Gross Domestic Product,
y – direct foreign investments.

The formula (1) describing a regression of Y in relation to Y, may be interpreted as follows: increase in GDP by USD 1 million during a year results in average increase in DFI by USD 10 thousand. However, in the second formula describing the reversed relation, that is X in relation to Y, increase in DFI by USD 1 million results in increase in GDP by USD 500 thousand in EU states.

5. Conclusions

The above analysis was aimed at investigating relations between direct foreign investments and the Gross Domestic Product in member states of the European Union with assumption of *ceteris paribus*, which means that there were taken relations between these variables into consideration while impact of other determinants was omitted. In the paper it was proved that between these two features there occurs statistically significant correlation. This relation has been also confirmed due to mathematical analysis of statistic data, without the use of actual econometric tools, just on the basis of observance of percentage changes of the contemplated variables during a 10-year period. Therefore, the thesis propagated by economists, stating that any investment – in accordance with the Keynes' multiplier, results in increase in the Gross Domestic Product, has been confirmed. Moreover, it does not matter whether this is domestic or foreign investment. On the other hand, in a state, where the domestic product increases, there appear foreign investors. Thus, states should run such pro-investment policy which would encourage foreign investments, and such economic policy which would maintain the economic growth since all of these factors are correlated.

Referring once again to the European Union's member states, it may be concluded that between these states serious disproportions in terms of growth occur. However, the analysis proved that due to direct foreign investments, in a long-time period this gap can be diminished although it requires the new member states to attract foreign capital, which means efficient competition against "old" Union's states.

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