Monografico

DOI: http://dx.doi.org/10.25115/eea.v38i3%20(1).4005

Estudios de Economía Aplicada
Volumen:38-3(1) // ISSN: 1133-3197

Impact Of The Foreign Direct Investment Inflow On The Export Growth Of The Visegrad Group Countries

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ABSTRACT

The inflow of foreign direct investment (FDI) is one of the key factors leading to the economic growth and the introduction of high technologies, job creation, advanced training of the workforce. The role of FDI in international competitiveness growth of countries of the Visegrad Group (Poland, Czech Republic, Slovakia, Hungary) is evaluated in the article. Results of the empirical estimations fully confirm the positive impact of FDI inflow on exports growth of all the Visegrad Group countries. Moreover, the structure of exports of goods has changed; the share of capital-intensive engineering products has grown. At the same time, the level of innovation development of national economies is still comparatively low in the region. The share of medium- and high-tech goods in the structure of national production is below the EU average. That`s why the further growth of the international competitiveness of the Visegrad Group countries as well as the positive impact of FDI on the structure and dynamics of their international trade can only be achieved if the transition to a knowledge-based economy of the countries will be continued, which will lead to the increase in the share of high-tech industries in the national production.

Keywords: FDI Inflow; export; Visegrad Group; International competitiveness; High-tech.

JEL classification: F21; F23; F49; O14; R10.

Recibido: 14 de Octubre de 2020

Aceptado: 27 de Noviembre de 2020

1. Introduction

Attracting foreign capital is one of the most important factors for the successful economic development of the countries of Central and Eastern Europe. The development of mutual trade and investment cooperation between the Visegrad Four countries has become one of the main causes of economic growth and socio-economic transformation in these countries since joining the EU. It is also, foreign direct investment played an important positive role in the development of the national economies of the Visegrad Group and their rapid integration into the world economy. Together with investments, foreign companies have brought technologies, knowledge, modern organizational and management experience, increased the competitiveness and export potential of national economies. This has been made possible by the effective investment policies of governments. The openness of countries to foreign trade has a positive effect on FDI.

However, today it is possible to state the excellent results of active policy on attracting FDI for some countries of the Visegrad Group. It is also possible to observe the ambiguous and sometimes negative effects of FDI on economic development in the short, medium and long term, as well as the ambiguous and uneven effects for different entities in terms of size, access to capital. Static and factual data as well as existing scientific research is evidenced this. After reviewing the work of scientists from different countries, it can be concluded that the interpretation of the impact of foreign capital on the state's economy is ambiguous, because thoughts sometimes diverge.

2. Literature review

One of the first researches, analyzing the inflow of FDI and the economic growth of the countries of Central and Eastern Europe was proposed by Popescu (2014). He considers the inflow of foreign capital as an aggregate set of capital stocks, know-how and technologies as components that contribute to the growth of economies in the countries of Central and Eastern Europe. Foreign capital reinforces the lack of domestic funds to finance changes in the form of ownership and composition of capital. Foreign direct investment as a reliable long-term capital inflow can introduce the technology, managerial know-how and skills necessary to restructure companies. According to the author, the expectations of attracting FDI led to improved management. Also, to increase the inflow of foreign capital, a large role is played by macroeconomic conditions characterized by low inflation. The appropriate quality of infrastructure does not affect the attractiveness of FDI in CEE countries. Competitiveness due to changes in unit labor costs has a significant impact on FDI. Relatively low unit labor costs are the main factor contributing to the influx of foreign direct investment by multinational companies.

The Jankovic (2011) study shows the following results for the Czech Republic and Slovakia. These countries in transition have many resources needed for the development of skilled labor, as well as entrepreneurial orientation among the population. The author believes that these countries, including the Visegrad Group, should attract foreign capital. The author also notes that an important concept of obtaining capital is the demonstration of economic and political stability. By increasing transparency in the legal, banking and capital markets sector, the Czech and Slovak Republics can accelerate the transition to a free and democratic society.

Bayar and Gavriletea (2018) argue that, although the positive effects of FDI are numerous, it is emphasized that are also a source of negative impacts. There is evidence that the productivity of domestic firms decreases with increasing FDI, unemployment may increase on the basis that foreign companies use new and modern technologies that require fewer employees compared to similar domestic companies and they want to use local cheap resources. An important role is played by the fact that the transfer of knowledge from multinational enterprises is usually directed to local suppliers or customers, and preventing the outflow of technology to local competitors is usually achieved through the protection of intellectual property. The positive and negative effects of FDI on macro and meso levels in Visegrad countries are highlighted in the works of the following scientists:

Alekseievska et al. (2020), Dominese (2019), Darvidou et al. (2020), Gorbunova, Infante and Smirnova (2012), Lomachynska and Manchenko (2018), Rodionova et al. (2019), Rogach (2019), Simionescu (2016), Yakubovskiy et al. (2019), etc.

In addition, there are a fair number of publications covering economic, legal, technological, social, cultural, institutional, and other determinants of foreign direct investment (Bayar and Ozel (2014), Neha and Singhania (2018), etc.). The results of these studies confirm the high importance of the determinants of FDI and their important role in ensuring effective government investment policy in Visegrad countries.

An extremely important aspect of exploring the role of FDI in a country's economic development is its relationship with financial development (Popescu (2014), Gural and Lomachynska (2018), Desbordes and Shang-Jin (2014)). Most studies confirm that the development of the financial sector has a positive effect on FDI inflows. As well as the development of the banking sector, capital markets, FDI inflows in general, contribute to economic growth through various channels.

However, the impact of FDI inflows on the international competitiveness of the CEE countries, especially in the long term, has not been well researched. Given that the countries of CEE have long been integrated into the EU economy and the world economy, have been actively involved in the distribution of global capital, this is an urgent issue and needs in-depth research. Especially, considering the increasing international competition and the uncertainty of the global economy.

The main purpose of the article is to investigate the impact of FDI inflows on the dynamics and structure of international trade in CEE countries, using the example of the Visegrad countries.

3. Results and discussion

The Visegrad Group countries are leaders among Central and Eastern European countries in attracting of foreign direct investment. Hungary and the Czech Republic exceeded the majority of European Union countries in terms of accumulated FDI stock relative to GDP. For comparison, in 2018 the average level in the EU for the inward FDI stock relative to GDP was 53.9%, in the world – 38.1% (The World bank, 2020). Looking at the accumulated foreign direct investment stock relative to the nominal GDP of the Visegrad Group, the Czech Republic and Hungary have the highest inflow of foreign direct investment (64% and 57% respectively). Poland, which is the leading country in absolute terms of the volume of accumulated investments, in relation to GDP, occupies the last place among the Visegrad countries (39.6% of GDP). Analyzing Slovakia, the ratio is 53.6% of GDP.

The Visegrad Group countries are a bright example of the decisive role of TNCs' foreign direct investment in the development of foreign trade in host countries. The attraction of a significant amount of investment, and further, their decisive contribution to the development of their exports became possible due to the favorable conditions for attracting FDI: the geographical location, the cheapness of resources, intellectual capital and research potential, and also largely due to the entry of countries into the EU. As shown by the analysis of the level of investment attractiveness of different countries, conducted by international experts in the list of "Doing Business 2019" (The World bank, 2020). It was reached, mainly, thanks to the measures of the governments related to the creation of the necessary conditions for entrepreneurs, the protection of investors' rights, and the efficiency and transparency of tax policy (Lomachynska and Manchenko, 2017).

The influence of TNCs on the development of their exports is one of the most important effect of FDI for the considered countries. It is an important fact that accumulated investments were the main factor of increasing not only the quantitative indicators of these countries' exports but also the complete transformation of its structure, which significantly reduced the share of traditional labor-intensive products and increased the share of capital-intensive engineering products. Also, it is also important, that the share of high-tech industries has grown. Due to this, today there is a competitive export-oriented production in these countries.

It is necessary to consider the trade balance as well as the balance of services, as they reflect the development of the countries by means of attracting foreign capital.

Analyzing the trade balance of the Czech Republic during the period of 2014-2018 there was a surplus. Export of goods grew by about 10% on average per year. In 2015, exports of goods decreased by 13%. The reason for this was the devaluation of the Czech krona, which, in exchange for the US dollar, reduced exports. If the export was quantified, or in Czech crowns, then exports had increased by 2014. By 2018, exports of goods amounted to $ 161.8 billion which is $ 10.1 billion more than its imports. This indicator is a record for Czech exporters, due to the overall favorable economic situation in the country, the growth of industrial production (2.9%), as well as the continued policy of the Czech National Bank in artificially weakening of the national currency (Czech National Bank, 2020).

Analyzing import of goods, it can be noted that in 2015, there was also a decrease in imports, despite the fact that with the short-term effect of devaluation of the national currency, imports are becoming more expensive and the amount of imports does not reduce. Regarding imports, in connection with the rise in price, the country reduces volumes and in the long run it leads to an improvement of the current account. But in the Czech Republic there was also an increase in imports from 2017-2018. The reason for this was the increase by domestic firms of the use of imported materials, equipment, and their components, which is a necessary measure to increase the Czech export (IMF, 2020).

Analyzing the balance of services, it is important to note that it is also in a surplus. Ultimately, the balance of goods and services in the Czech Republic is positive, which in turn has a significant impact on the current account. In 2018, the net inflow of currency to the country from trading activities amounted to $ 15.7 billion.

The structure of exports of goods in the Czech Republic has changed recently, the share of capital-intensive engineering products has grown. The largest amount of exported goods is automobiles (about 12% of total exports), automobile parts (8%), and computers (7% of total exports). In terms of countries producing cars, the Czech Republic is 3% of the total, while Slovakia is 2%, Hungary is 1.5%, and Poland is only 1% of the total exported cars in 2018 (OEC, 2019).

Analyzing the trade balance of Poland, it should be noted that despite the growth of both export and import of goods in 2014, as well as in 2018, the trade deficit is at the level of $ 6.1 billion. The reason for this was a sharp increase in imports by 15% compared to 2017. This shows that, despite the development of the country, FDI simultaneously stimulated the growth of import volumes of consumer goods. Foreign investors invest in countries' economies not only for the purpose of creating competitive export-oriented industries, but also to increase their presence in the domestic market, which is reflected most of all in Poland. The next reason is the increase in imports of chemical industry and pharmaceuticals, metallurgical products, mineral raw materials.

Considering the structure of Polish exports, it can be noted that the inflow of capital has not become a factor that substantially changed the structure of Polish industry, as well as exports in general. Comparing the export structure in the Czech Republic and Poland, it is more successful in the Czech Republic, as the share of capital-intensive mechanical engineering products in the Czech Republic grew at a higher pace than in Poland.

Analyzing the trade balance of Slovakia, it is necessary to note the surplus for all considered years. A similar picture is observed with the balance of services. The volumes of export considerably concede to the volumes of its neighbors, namely the Czech Republic and Poland. But it should be noted that the export structure has changed considerably for the better. Unlike Poland, 31% of the total Slovak exports are technical equipment. And the share of transport (export) is about 30% of the total export, with the share of exported cars had reached 20%. Exports of metals in the Slovak Republic account for about 15% of total exports (OEC, 2019).

Thus, it can be summarized that FDI became an important factor in the economic development of the Visegrad countries during the transformation period. The inflow of foreign capital into the real sectors of the economies of these countries, combined with cheap and skilled labor, contributed to the increase in the efficiency and productivity of industrial production. At the same time, a steady

dependence of the economic development of these countries on the inflow of FDI and the external environment has formed. FDI contributed to the growth of production, export, and above all, to enterprises with foreign capital. A considerable number of domestic enterprises did not maintain competitiveness and ceased operations. This exacerbated the problem of employment of low-skilled labor, which is usually employed in small traditional domestic enterprises. FDI was focused mainly on the development of machinery and equipment, automotive, telecommunications, transportation, etc., which significantly improved the technological structure of production. However, it has also strengthened the productive specialization of national economies (mainly the automotive industry), especially in Hungary, the Czech Republic and Slovakia. The problem remains the lack of technological modernization of the economy. Mainly foreign enterprises have been technologically updated. FDI as a whole improved the balance of payments of these countries, helped to increase revenues to the state budgets from privatization revenues, rents, and taxes. However, the long-term effect of FDI is ambiguous: over time, the dependence of the balance of payments on the use of their income by foreign investors, which, as a rule, quickly withdraw from the country of origin in conditions of instability, foreign investors more often use imported components. Multinational companies have more opportunities to use legal planning, over time, it leads to a relative decrease in state budget revenues.

Assuming the dependence, based on historical data, it is necessary to check it, using regression analysis. The model was developed on the basis of annual statistics for the period from 1996 to 2018 (IMF, 2020). Export of goods (*Export*) of the Czech Republic was selected as a dependent variable. Foreign direct investment funds (*FDI l*) were selected as independent variables, as well as other variables that are, to some extent, dependent on exports of goods from the Czech Republic.

By removing all the variables that had insignificant coefficients, that is, the degree of their influence tended to zero, the following model was obtained (Table 1).

Tab. 1. Results of evaluation of the regression model of the Czech Republic's exports

	Dependent variable	Independent variables			
	Export	*FDI l*	*d inc deb*	*ER*	*Interest*
Beta-coefficient		0.436[a]	0.347 [a]	0.643 [a]	-0.437 [a]
R^2	0.975 (97.5%)				
F-statistics	84.584				
Durbin-Watson coefficient	1.564 [a]				

Note: a, b, c represent the 1%, 5%, and 10% significance levels, respectively.
Source: authors` calculations, data from IMF (2020).

Student coefficients for each of the independent variables meet the requirements. Proceeding from the obtained table of coefficient, it can be concluded that foreign direct investment funds have a fairly close connection with the country's exports among all independent variables. Based on the analysis, it should be noted that the dependence is direct, that is, with the increase of direct foreign investment funds, the country's export also tends to increase. Expectations have been confirmed. Also direct reliance on exports is on non-resident incomes from investments (*d ins deb*) and exchange rate (*ER*). Having analyzed the return on investment in the Czech Republic, it should be noted that in 2018, the yield on all three types of investments was as follows: on average, foreign direct investment was 9%, portfolio investment – 3.1%, other types of investments – 1.7 % (IMF, 2020). The data were obtained by calculating the yield as the ratio of all accumulated direct investments to the income of non-residents for them in 2018. Obviously, the more income non-residents get, the more they invest in the Czech economy.

In addition, a regression model of Slovakia's exports was built (Table 2). For analysis, the same variables were chosen with the same conditions.

Based on the results obtained during the analysis, it was revealed that foreign direct investment

increases the volume of exports of the Slovak Republic and expands foreign markets. It is also important to note that foreign investors are creating strategic alliances with local companies, opening them to global markets.

Tab. 2. Results of estimation of the regression model of export of the Slovak Republic

	Dependent variable	Independent variables			
	Export	*FDI l*	*d inc deb*	*U*	*Interest*
Beta-coefficient		0.236 [a]	0.547 [a]	-0.284 [a]	-0.353 [a]
R^2	0.955 (95.5%)				
F-statistics	71.384				
Durbin-Watson coefficient	1.356 [a]				

Note: a, b, c represent the 1%, 5%, and 10% significance levels, respectively.
Source: authors` calculations, data from IMF (2020).

The study has shown that the reverse dependence on the exports of the Slovak Republic has unemployment rates (*U*), as well as interest rates on loans. This suggests that with a decrease in the interest rate of the Slovak Republic, the volume of exports will increase. This increase is a consequence of the fact that through expensive loans, companies are not able to produce a competitive product or service, because in the end the price is more expensive.

Analyzing the impact of the inflow of capital on Hungary, it is also necessary to attribute this factor to the number of ones developing economic well-being of the country. Entrepreneurship and market-based approaches have spread rapidly in Hungary, which has created attractive and familiar conditions for foreign companies.

At an early stage in domestic FDI, a high level of human capital and a comprehensive legal reform meant benefits for Hungary. In Hungary, as in other countries in the region, privatization has played an important role in attracting FDI. Political stability, developed legal regulation and transparency were priorities for all investors.

Based on the results of the analysis (Table 3), it has been found that foreign direct investment also increases Hungarian exports and also reduces unemployment in the country. As can be seen from the table, direct foreign investment and exports are not as tight as in the Czech Republic or Slovakia. Student coefficients for each of the independent variables meet the requirements.

Tab. 3. Results of estimation of regression model of export of Hungary

	Dependent variable	Independent variables		
	Export	FDI l	ER	U
Beta-coefficient		0.315 [b]	0.347 [a]	-0.284 [b]
R^2	0.960 (96 %)			
F-statistics	78.589			
Durbin-Watson coefficient	1.371 [a]			

Note: a, b, c represent the 1%, 5%, and 10% significance levels, respectively.
Source: authors` calculations, data from IMF (2020).

Also, a regression model of Polish exports was built. For analysis, the same variables were chosen with the same conditions. As can be seen from the table 4, direct foreign investment and exports are not as tight as in the Czech Republic or Slovakia. Student coefficients for each of the independent variables meet the requirements.

Based on the results obtained during the analysis, it was revealed that unlike all countries of the

Visegrad Group, foreign direct investment increases exports to a lesser extent. There is a significant dependence of government expenditure (*Gov*) and exports.

Both variables are directly related to exports. The study has shown that the direct reliance on the exports of the Poland has exchange rate. The model suggests that when the Polish national currency is depreciated, exports become more competitive.

It should be noted that for all Visegrad countries FDI had a positive effect on economic growth and international trade. For a long period of time this was due to intensive factors (cheap labor, a positive investment climate), but today they have exhausted themselves.

Tab. 4. Results of estimation of regression model of export of Poland

	Dependent variable	Independent variables		
	Export	FDI l	Gov	ER
Beta-coefficient		0.107 [c]	0.384 [b]	0.231 [b]
R^2	0.971(97.1 %)			
F-statistics	108.638			
Durbin-Watson coefficient	1.437 [b]			

Note: a, b, c represent the 1%, 5%, and 10% significance levels, respectively.
Source: authors` calculations, data from IMF (2020).

An increasingly important role in economic development, attracting FDI, and ensuring international competitiveness plays the country's innovative potential and its development (Lomachynska and Manchenko, 2018; Lomachynska and Manchenko, 2017; IMF, 2020; Babenko et al., 2020; Lomachynska and Podgorna, 2018; Ramazanov et al., 2019). Despite the fact that for some period Visegrad countries have improved their positions in the Global Innovation Index (WIPO, 2020), over the past three years, Slovakia, the Czech Republic, and Poland have slightly lost their positions. Only Hungary significantly improved its place in the ranking. Therefore, the Czech Republic took 26th place in the ranking (2017 – 24). The Czech Republic produces more innovation outputs relative to its level of innovation investments. As a result, the country ranked first in terms by indicator High-tech net exports – 17.1% total trade. By indicators High-tech imports Czech Republic takes 8th position in the world (17.4% total trade). In 2017, Slovakia ranked 34th in the Global Innovation Index, 36th in 2018 and 37th in 2019. In terms of net exports of high-tech goods, Slovakia ranked 17th in 2019 – 9.2% of the total trade, in terms of imports of high-tech goods – 15 (13.4% of total trade). Hungary improved its place in the Global Innovation Index ranking, rising to 33 positions in 2018 (2017 – 39, 2018 and 2019 – 33). According to the indicator Net export of high-tech goods, Hungary ranked 11th in 2019 (12.5% of the total trade), in terms of the Import of high-tech goods – 17 (13.2% of the total trade). Poland ranked 39th in the Global Innovation Index 2019 (2017 – 38, 2018 – 39). In terms of the High-tech net export indicator, Poland occupies the 25th position (6.5% of the total trade), in terms of the High-tech net exports – 40 (9.3% of the total trade). Problematic for all countries is the low assessment of such a component of the Global Innovation Index as Market sophistication (Poland – 65, Czech Republic – 46, Slovakia – 67, Hungary – 76). The sub-pillar of this indicator: Investment (Poland – 98, Czech Republic – 80, Slovakia – 125, Hungary – 124) and its indicators: Venture capital (Poland – 41, Czech Republic – n/a, Slovakia – 67, Hungary – 56), Ease of protecting minority investors (Poland – 54, Czech Republic – 68, Slovakia – 73, Hungary – 98), Market capitalization (Poland – 45, Czech Republic – 70, Slovakia – 87, Hungary – 76). It should be noted that countries need to increase Gross expenditure on R&D. In 2019, it amounted to Poland – 1.0% of GDP, Czech Republic – 1.8% of GDP, Slovakia – 0.9% of GDP, Hungary – 1.4% of GDP. This is significantly less than the EU average (2.12% in 2018). At the same time, government policy should be aimed at further improving the market infrastructure, the conditions for regulating labor relations, University-industry research collaboration, the rules for the operation of Joint Ventures and Strategic Alliances,

expanding High- and medium-high-tech manufactures, developing a creative economy, etc.

Having considered the positive aspects of attracting foreign direct investment, it is necessary to determine whether there are negative ones. After all, investments in any case are obligations for the country, and foreign direct investment funds were analyzed, for example, the Czech Republic. Apart from the influence and loss of full control over residents, it is also necessary to pay dividends to non-residents. In any case there is a risk of a deterioration of the current account of the balance of payments of the Czech Republic. To test the dependency, you need to build a model.

The following model examines the impact of cumulative foreign direct investment on the current account of the Czech Republic. In this case, direct investment is considered an independent variable, also an exchange rate as an independent variable. The current account of the Czech Republic (CA) will be considered as a dependent variable. It is necessary to construct a model and compare expectations with the actual effect of the influence of independent variables on the current account of the Czech Republic.

The results show that foreign direct investment funds, as well as the exchange rate, affect the current account. Analyzing table 5, paying attention to the beta coefficient, it is clear that the exchange rate is directly related to the current account. Foreign direct investment funds have a reverse relationship with the current account of the Czech Republic. Foreign direct investment funds have a negative impact on the current account in the long run.

Tab. 5. Results of estimation of the regression model of the current account of the Czech Republic

	Dependent variable	Independent variables	
	CA	ER	FDI l,
Beta-coefficient		0.883 [b]	– 0.829 [b]
R^2	0.973 (97.3%)		
F-statistics	23.288		
Durbin-Watson coefficient	1.516 [b]		

Note: a, b, c represent the 1%, 5%, and 10% significance levels, respectively.
Source: authors` calculations, data from IMF (2020).

The model clearly demonstrates the inverse dependence of accumulated foreign direct and the current account of the Czech Republic. The model suggests that with the increase of foreign direct investment funds, the current account of the Czech Republic will deteriorate.

Equally important is the exchange rate, which directly affects the country's current account. So, if this indicator increases, in this case, the increase provides more national currency per unit of foreign currency (devaluation of the Czech koruna) will lead to an increase in the current account. It is important to note that exports are not expected to increase in all countries after the devaluation of the national currency. The main criterion is the Marshall-Lerner condition. However, for the Czech Republic Marshall-Lerner condition is fulfilled, according to which the sum of the price elasticity of the demand for export and import is more than one. Thus, with the weakening of the Czech crown, the following processes take place, which should be considered in both the short-term and long-term prospects. In the short term, exports and imports remain unchanged, but prices for imported goods will grow for both firms and households, which is a negative consequence. In the long run, the country will reduce imports, and its exports will increase, become more competitive on the world stage.

Having analyzed the influence of direct investment funds on the current account of the Czech Republic and on the economy as a whole it could be concluded that an increase in foreign direct investment funds leads to a deterioration of the current account, as well as an increase in external debt in the long run. This fact is most often blocked by an increase in the country's exports, which was also discussed above. In the Czech Republic, due to the inflow of foreign direct investment, exports increased largely than primary income, namely, non-resident incomes from investments. Based on this, the current account responds positively to attracting foreign direct investment, which

is a factor of the development of this country. In addition, attracting foreign capital at the macroeconomic level is a recommended measure for the stability of the domestic financial system.

4. Conclusions

The results of the empirical estimations fully confirm the positive impact of foreign direct investment inflow on exports growth of all the Visegrad Group countries. Moreover, the structure of exports of goods has changed; the share of capital-intensive engineering products has grown.

At the same time, the level of innovation development of national economies is still comparatively low in the region. The share of medium- and high-tech goods in the structure of national production is below the EU average. That`s why the further growth of the international competitiveness of the Visegrad Group countries as well as the positive impact of FDI on the structure and dynamics of their international trade can only be achieved if the transition to a knowledge-based economy of the countries will be continued, which will lead to the increase in the share of high-tech industries in the national production.

To achieve this goal, countries need to stimulate technology diffusion from foreign owned enterprises to national producers through joint ventures, development of the network of outsourcing companies, creation of special funds for the support of national startups in the high-tech industries.

At the same time, on the example of the Czech Republic was proven that an increase in foreign direct investment funds leads to a deterioration of the current account, as well as an increase in external debt in the long run. However, in the Czech Republic, due to the inflow of foreign direct investment, exports increased largely than primary income, namely, non-resident incomes from investments. Based on this, the current account responds positively to attracting foreign direct investment.

However, the impact of repatriated investment revenues on current accounts, external debts and exchange rates must be constantly monitored by the Central banks of the countries, which should develop in advance measures to limit the outflow of capital from the country in the case of a sharp deterioration of the balance of payments and a significant devaluation of national currencies.

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