

Article

Determinants of FDI Stock in Some Central European Countries

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Abstract: Given the importance of foreign direct investment (FDI) in the economy, the purpose of this study is to identify and investigate the economic indicators that can explain the development of FDI in the economies of Central and Eastern European countries such as the Czech Republic, Poland, Hungary, and Slovenia throughout the period 1995–2020. When developing multiple linear regression models, the following explanatory variables were considered: exports, imports, import concentration and diversification indices, the balance of trade, the balance of payments, and different components of the economic freedom index. Therefore, it was shown that a rise in exports and imports has a beneficial impact on enhancing the flow of foreign direct investment (FDI) in each of the nations examined for this study. Furthermore, an increase in the value of the import diversification index is shown to have a beneficial effect on the levels of foreign direct investment (FDI) in the Czech Republic, Hungary, and Slovenia, as determined by this study. On the other hand, the import concentration index has been shown to benefit foreign direct investment in Poland. Furthermore, it was discovered that the balance of payments was a positive factor in the Hungarian economy. In contrast, the trade balance was shown to be a positive element in Poland and Slovenia. Both indicators have positively impacted foreign direct investment (FDI) flow.



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MSC: 62F03; 62J05; 62P20

1. Introduction

The growth of any nation's economy, particularly one based on the principles of a competitive economy, is greatly aided by foreign direct investment (FDI), an essential component. Therefore, it is significant for transition economies to attract foreign direct investment to become more robust and more integrated into the global economy.

A significant contributor to the establishment of direct and long-lasting linkages between the economies of the host country and the investor's nation, foreign direct investment is also an essential element in both nations' economic growth and development. Additionally, it contributes to the growth of host economies and investors. Moreover, it fosters the transfer of know-how and technology across countries, increasing productivity and competitiveness. Therefore, the nation hosting the FDI gains access to new technology, which helps its customers because they can use new goods and services.

Additionally, direct investment creates new employment within the firms that receive the investment and across the supply chain, which helps increase demand within the host economy. At the same time, it helps boost exports and occasionally imports from host nations to worldwide markets, which drives economic development. This growth is

measured not only by the expansion of GDP in general but also by the rise in taxes paid by the firms concerned.

On the other hand, it has the potential to make less-developed nations more reliant on FDI than developed countries since the considerable presence of multinational corporations in the host country can make the economy excessively reliant on money from elsewhere. This may only sometimes be beneficial, particularly for smaller regional businesses that often need to be equipped to compete successfully with larger national or international firms. It is also likely that certain multinational companies use transfer pricing practices, which raise the amount of debt owed within the group to pay fewer taxes.

The European Union (EU) has, as of October 2020, implemented a fully operational framework for the foreign direct investment (FDI) screening of investments made by Member States. The framework's primary objective is to protect Member States' strategic and economic interests while keeping the same open regime for attracting external funds.

Given the information shown above, it is clear that foreign direct investment has a primarily favorable impact on host nations. This highlights how important it is to identify the economic and social elements that substantially affect the growth or decline of FDI.

Considering all of these aspects, the primary objective of this study is to identify reliable econometric models that include the amount of direct foreign investment inflows into nations such as the Czech Republic, Poland, Hungary, and Slovenia as the dependent variable. Explanatory factors considered include international trade statistics, economic trends, and components of the economic freedom index. Using the multiple linear regression method and the least squares method in parameter estimation, original models were found that explain the variation in FDI stock as a function of exports, imports, import concentration and diversification indices, the balance of trade, the balance of payments, and various components of the economic freedom indicator. Several scenarios were tested, with other economic and social indicators as exogenous variables, such as salary level, political stability, and labor force qualification. However, no valid econometric models were found to contain them. Additionally, based on these findings, it is feasible to identify specific actions and policies that each nation's government may implement to enhance the amount of foreign direct investment (FDI). Although Slovakia was a part of the original research, there were only so many viable econometric models that could be discovered for this nation.

Within the framework of this discussion, the following research topics were developed:

- IC1: How do the independent research variables affect the dependent variable in each analyzed country?
- IC2: What is the econometric model that best describes the relationship between the independent factors and the dependent variable from the perspective of the effect of the independent variables? Is there a standard model that can be used for all four countries?
- IC3: Which econometric model and collection of variables is most beneficial for analyzing each country's economic data?
- IC4: The econometric models for each nation under investigation include several independent variables. What kind of impact do they have?
- IC5: According to the most recent study, which policies and strategies will be the most effective when implemented on the national level in each country?

This paper is divided into six sections. The first is an introduction, and the second section summarizes the current state of knowledge in the FDI by conducting a literature review and concentrating on research involving the four examined economies. The statistical techniques, economic indicators, and statistical tests required to verify the multiple linear regression models are all presented in the third section of this study. The initial results obtained in this paper, the regression equations corresponding to the econometric models of the FDI stock, the interpretation of the results and possible measures that can be taken to increase the stock of FDI in the countries that were analyzed are all included in the fourth section of this paper. We can also say that the novel elements of this work,

compared to the research that has been conducted in the past (see, for example, [Hayat 2019](#); [Dauti 2015](#); [Sakali 2015](#); [Stack et al. 2017](#); [Jankovic and Yatrakis 2011](#); [Burlea-Schiopoiu et al. 2021](#)), consist in the original combination of economic indicators from the validated regression models, which explain more than 78% of the evolution of FDI stocks in the analyzed countries. Finally, the findings and interpretations of the research are presented in the fifth section of this paper. This section also compares the four countries studied in light of the findings presented in the preceding section. The work ends with the conclusions section and additional research and development suggestions.

2. Literature Review

Foreign direct investment is an essential component in the process of international economic integration because of the flows it creates. It also offers a method of developing direct links between stable economies over the long term and can be maintained.

According to theory, foreign direct investment is considered a driving factor for growth and development, particularly in the nations that receive the investment ([Hayat 2019](#); [Horobet et al. 2021](#)). Therefore, several studies in the literature provide an analysis of the flows of FDI. For example, Kornecki and Raghavan researched the foreign direct investment (FDI) flows in Central and Eastern Europe and investigated the premise that FDI helped economic development in CEE nations during the post-communist era ([Kornecki and Raghavan 2011](#)).

Barassi and Zhou contributed significantly to the existing knowledge in the field of science by researching the connection between corruption and foreign direct investment (FDI) ([Barassi and Zhou 2012](#)). They demonstrated that the impact of corruption on FDI flows depends on the quantity of FDI flow distribution. The findings, in terms of both parametric and non-parametric analysis, supported the idea that corruption acts as a “helping hand.” Cardamone and Scoppola used a sample of five EU nations and twenty-four partner countries to analyze the influence of tariffs on the external FDI flows of the EU from 1995 to 2008 ([Cardamone and Scoppola 2015](#)). Pegkas states that there is a positive long-run association between FDI flows and economic development and that foreign direct investment has a beneficial impact on economic growth in countries that are part of the Euro area ([Pegkas 2015](#)). Dauti used an enhanced gravity model to determine Macedonia’s prospective foreign direct investment (FDI) flows ([Dauti 2015](#)). He provided the primary drivers of FDI stocks in five Southeast European and ten new European Union nations.

Sakali analyzed the determinants of foreign direct investment and the impact of the economic crisis on FDI inflows to countries in Central and Eastern European countries, as well as the pattern of their determinants, highlighting variations in some factors over time as an effect of changes in the economic environment, but also the importance of policies to encourage FDI and partnerships between foreign investors and host economies ([Sakali 2015](#)).

Popovici and Calin sought to determine how an increase in competitiveness could improve foreign direct investment (FDI) in ten countries located in Central and Eastern Europe (CEE) ([Popovici and Calin 2015](#)). They concluded that the drivers of increased FDI flows are competitive institutions, improved innovation and infrastructure, and efficient labor markets.

Foreign direct investment (FDI) flows from 10 Western European nations to 10 Eastern European countries for the period 1996–2007 were evaluated by Stack, Ravishankar, and Pentecost using the knowledge capital model. The results indicated a mixed degree of FDI flow performance overall ([Stack et al. 2017](#)).

Analyzing foreign direct investment (FDI) flows from the perspectives of the home country and the host country, Marinova and Marinov cover a wide range of countries in their research, including the Czech Republic, Hungary, Poland, Slovakia, Bulgaria, and Slovenia ([Marinova and Marinov 2019](#)). They also refer to the region’s overall characteristics and discuss the macroeconomic and microeconomic aspects of the investment process.

Xin examines the measures countries adopt to attract foreign direct investment (FDI) but also looks at the origin of FDI flows and the sectors in which they invest, the national contributions to economic and social development, or the technologies developed with FDI (Xin 2020). This study begins with the role that foreign direct investment plays in the economic growth of Central and Eastern European countries and analyzes the measures adopted by these countries to attract FDI.

Schuh examines the effects of the pandemic on the economies of Central and Eastern Europe and their attractiveness to Western investors (Schuh 2020). He highlights possible developments that foreign direct investors will face in the coming years in this region, given the changes that the business environment has undergone lately. In addition, he compares and contrasts the economies of Central and Eastern Europe with those of Western Europe.

The following findings may be presented regarding the research on foreign direct investment (FDI) in the nations under consideration. Ayyagari and Kosová conducted research in the Czech Republic between 1994 and 2000 to investigate how foreign direct investment affected local companies and the size distribution of those companies (Ayyagari and Kosová 2010). Stank researched how FDI influences the rate of sales growth experienced by domestic businesses in the same nation (Stančík 2009). Both horizontal and vertical spillovers are researched for two different forms of foreign investment, namely takeovers and greenfield investments, using firm-level panel data from 1995 to 2005. These spillovers may be either positive or negative.

Schäffler, Hecht, and Moritz used a one-of-a-kind dataset to research the regional distribution of German multinational firms and their subsidiaries in the Czech Republic (Schäffler et al. 2017). The research focused on location factors for joint foreign direct investment projects from the host country's perspective.

Dinga and München conducted research in the Czech Republic to study the effects of a territorially concentrated foreign direct investment flow on the results of local labor markets there (Dinga and München 2010). Finally, Jankovic and Yatrakis analyzed the link between foreign direct investment (FDI) in the Czech Republic and Slovakia and other variables that influence the relationship, such as trade flows, economic and financial stability measures, and country risk (Jankovic and Yatrakis 2011).

Chidlow, Salciuvienė, and Young analyzed the location factors of Poland's foreign direct investment (FDI) flows at the regional level (Chidlow et al. 2009). They discovered that market and agglomeration factors could act as the main drivers of FDI flows in a region, including Warsaw, while other factors (efficiency and geography) could attract FDI to other regions of Poland. Chidlow, Salciuvienė, and Young published their findings in the journal *Foreign Direct Investment* (Chidlow et al. 2009). There are also some ramifications for the FDI policy in Poland mentioned here. Kosztowniak examined the influence of production variables on economic development and foreign direct investment (FDI) in Poland between 1992 and 2012, as well as the connection between GDP and FDI and the chain of causality that links the two (Kosztowniak 2016). According to the research findings, the effect of Poland's GDP on foreign direct investment inflows is greater than the influence of FDI on GDP growth. As a result, Poland's development strategy needs to be centered on three pillars of growth: boosting employment, luring foreign direct investment, and boosting the value and productivity of domestic investment. The authors Kaminski and Smarzyska concluded that owing to many FDI inflows, Poland's exports, which have been expanding at even higher rates than those seen in previous years, would continue to rise due to the fragmentation of production (Kaminski and Smarzyska 2001). Kornecki researched the factors influencing foreign direct investment (FDI) flows into Poland. These factors included economic stability, labor cost, EU accession, and the regulatory framework. FDI trends were also examined, including the number of foreign firms, the geographical origin of inward FDI, and inward versus outward FDI (Kornecki 2011).

Ślusarczyk presented two significant examples of FDI support with tax incentives in Poland. The first example was state aid targeted at investors in special economic zones,

and the second example was property tax relief offered to investors by municipalities. Both of these examples were presented in Poland ([Ślusarczyk 2018](#)).

Umiński and Borowicz analyzed the post-pandemic recovery process in Poland and projected the involvement of foreign-owned businesses in this process. Their analysis was based on the performance of foreign-owned organizations (FBOs) during the crisis that occurred in 2008. Therefore, foreign direct investment (FDI) should be seen not only as a factor that stabilizes Poland's economy during a pandemic but also as one that stimulates Poland's economic recovery after a pandemic ([Umiński and Borowicz 2021](#)).

In his research on foreign direct investment (FDI) flows from Hungary, [Sass \(2004\)](#) looked into the factors that determine FDI and found that early privatization and a policy environment that was friendly to business were two factors that helped Hungary become an early leader in attracting FDI flows to countries in Central and Eastern Europe ([Sass 2004](#)). However, other nations have built settings hospitable to FDI, often associated with lower labor costs; these factors have eroded Hungary's primary advantages.

Throughout the global financial crisis from 2006 to 2014, [Vujanović, Stojčić and Hashi](#) looked at how the consequences of the credit crunch and foreign direct investment flows affected productivity. The research demonstrates the effect of the crisis, given the problems of external funding for enterprises, by considering two transition economies (Croatia and Slovenia) and grounding its findings on a panel analysis of firm-level data ([Vujanović et al. 2021](#)). In addition, [Vaupot and Fornazarič](#) looked at how the media and a few other informal organizations affected foreign direct investment in Slovenia between 1992 and 2018. The most important conclusion from this observation is that there has been a material shift throughout this period ([Vaupot and Fornazarič 2021](#)).

In addition, [Barrell and Holland \(2000\)](#) investigated the effects of foreign direct investment (FDI) in 11 distinct production sectors in 3 different economies located in Central Europe: Hungary, Poland, and the Czech Republic ([Barrell and Holland 2000](#)). They discovered that FDI increased labor productivity levels in most production sectors. According to the research findings, the influence on labor productivity is more likely attributable to the introduction of intangible assets by international businesses than to fixed capital investment, which is connected with FDI.

[Burlea-Schiopoiu, Broștescu, and Popescu](#) assessed the impact of economic and social indicators on foreign direct investment (FDI) and net income in emerging countries that were formerly part of the socialist European Union. This was done because the effect of FDI on the economies of host countries varies from economy to economy ([Burlea-Schiopoiu et al. 2021](#)). They discovered that net foreign direct investment (as a percentage of GDP) is favorably affected by GDP in Slovenia, while Poland reacts to greater GDP per capita. Only Hungary's standard of living is positively impacted by the country's overall GDP rate and GDP per capita. Additionally, additional variables such as a drop in the corruption perception index, nation risk rating, income tax, and other taxes paid by corporations may have a beneficial influence on foreign direct investment inflows in some of the analyzed countries.

[Lansbury, Pain, and Smidkova](#) acknowledged that foreign direct investment (FDI) could significantly contribute to reconfiguring and growing planned economies in Central and Eastern Europe. Foreign direct investment is an essential component in these nations' efforts to upgrade the standard of their infrastructure and bring their manufacturing sectors up to date ([Lansbury et al. 1996](#)).

[Makieła et al. \(2021\)](#) discovered that the technical gap between the host economy and the home economy plays a significant role in the efficiency of foreign direct investment (FDI), and this has a beneficial influence on the Visegrad Group industries ([Makieła et al. 2021](#)). These three elements—increased sectoral output and labor productivity, more efficient utilization of input components, and a more efficient component of total factor productivity—are the primary contributors to this favorable influence. Suppose foreign direct investment is successful in bridging the technological gap. In that case, its influence on economic development may be transmitted via these several sources, forming a transmission mechanism.

Reurink and Garcia-Bernardo discussed the international competition for foreign direct investments (FDI) in light of the varied nature of FDI by considering the following five categories of FDI: manufacturing affiliates, research and development facilities, intermediate companies, and top holding companies (Reurink and Garcia-Bernardo 2020).

Rugraff performed an analysis of the efficiency of FDI policies in the countries that make up Central Europe to evaluate the impacts of foreign investment. As a result, it has been stated that the decision made by Hungary, the Czech Republic, Poland, and Slovakia to adopt a favorable policy to draw foreign direct investment (FDI) inflows led to a poor contribution by FDI to the formation of indigenous enterprises that are competitive (Rugraff 2008).

Cicak and Soric conclude from their study that foreign direct investment (FDI) is a primary driver of GDP growth in most countries, particularly in Poland, the Czech Republic, and Hungary, which drew significant FDI after 1990 (Cicak and Soric 2015).

One of the concerns raised about foreign direct investment (FDI), which can be found in the research mentioned above and in public and media discourse, is how it might impact a nation's economic and social well-being. According to the available research, foreign direct investment (FDI) has a positive impact; however, this is not the only factor that determines this impact; other factors include the size and level of development of the host country, the quality of the infrastructure, the economic and political stability, free trade, the business climate, the cost of labor, tax incentives, and education levels, amongst others.

The efforts adopted at the European level target the role of investment in the economic growth of the Union, bolstering its competitiveness, creating jobs and economies of scale, attracting money, technology, innovation, and knowledge, and developing new export markets for the EU. In addition, they support the Investment Plan for Europe objectives and contribute to other Union projects and programs.

With the introduction of EU Regulation 452/2019, "Establishing a framework for the control of foreign direct investment in the Union", the EU aimed to develop a structure to codify the rising inclination of Member States to control and restrict foreign direct investment in their respective countries. Although there are concerns that foreign direct investment limitations could be abused by Member States as a vehicle to favor domestic investors and obstruct foreign investment unfairly, there is little evidence to support these claims. The FDI Regulation is merely a framework; EU Member States are responsible for enforcing the FDI screening procedure (Theiss 2021).

The novelty of the current research, in comparison to research that has been conducted in the past, lies in the original combination of economic indicators that were used in the regression models that were found, as well as in the results themselves, which explain more than 78% of the evolution of FDI flows in the countries that were analyzed.

3. Research Methodology

3.1. The Research Objective

The purpose of this study is to determine and evaluate a group of economic indicators so that the development of foreign direct investment in the economies of some EU Member States in Central and Eastern Europe, such as the Czech Republic, Poland, Hungary, and Slovenia, over the period 1995–2020, can be described in a manner that is both comprehensive and illuminating.

In order to address the notions of foreign direct investment within the framework of the current international situation, it is necessary to evaluate and redefine the correlations between the critical variables that are a part of this research. As a consequence of this, it is essential to take into consideration the point of view of foreign direct investment. These economic indicators have shown themselves to be the most appropriate for the economic modelling of foreign direct investment stocks. Therefore, internationalization-specific factors, economic variables, and specific components of the economic freedom index all impact foreign direct investment.

3.2. Data and Variables

The data utilized were derived from sources made available by UNCTAD from 1995 to 2020.

The research utilized multiple linear regression and least squares methods to estimate the parameters of the regression model and to analyze the relationships between the foreign direct investment stocks— $S_{FDI_in}(\%GDP)$, which served as the dependent variable and the sets of independent variables.

Regarding the final sets of independent variables, several alternative scenarios were analyzed to retain only those unique to viable models before making a final decision about them, which were involved and tested some more indicators.

Hence, the following categories of variables made up the sets of independent variables used in the analyses that were conducted (see Table 1 for details):

- Set of internationalization variables: exports ($X_{\%G}$) in total, imports ($M_{\%G}$) in total, import concentration (Ic_M) and diversification (Id_M) indices;
- Set of economic variables: trade balance ($BC_{\%M}$) and the balance of payments ($BP_{\%GDP}$);
- Set of economic freedom indicator components: fiscal pressure (ILE_{PF}), freedom of economic activities/business (ILE_{LA}), and monetary stability (ILE_{LM}).

It is important to emphasize that all the original econometric models in this research have rigorously undergone the stages of specification, parameterization, testing and validation. In estimating the model parameters, the least squares method was used, with high values of the adjusted coefficient of determination, which explained the proportion in which the economic indicators used to influence the evolution of the FDI stock (over 88% in the Czech Republic, more than 78% in Hungary, over 87% in Poland and more than 93% in the case of Slovenia).

The main statistical tests used in the validation of the regression models were:

- t-Student test (with the null hypothesis H_0 : the coefficients are not significantly different from zero and the alternative hypothesis H_1 : the coefficients are significantly different from zero);
- F test (Fisher) (with the null hypothesis H_0 : all coefficients are not significantly different from zero, and H_1 : there is at least one non-zero coefficient);
- Durbin–Watson test to check the autocorrelation of model errors;
- the Jarque–Bera test that determines whether or not model errors follow a normal distribution;
- White test to verify the homoskedasticity or heteroskedasticity of the models;
- Multicollinearity testing was performed with Klein's test and variance inflation factor (VIF) calculation, proving the lack of multicollinearity for all models validated in the paper.

Thus, if $R_y^2 < R_k^2$, there is multicollinearity, where R_y^2 represents the R-Square resulting from the model between variable Y and the independent variables, and R_k^2 represents the R-Square resulting from the regression model between variable X_k and the other independent variables. The variance inflation factor for the X_k variable is $VIF = \frac{1}{1-R_k^2}$, and if $VIF > 10$, then the X_k variable must be eliminated.

Table 1. Economic indicators used in the economic modeling of stock FDI inflows.

Indicators	Unit	Abbreviations	Short Description
Stock FDI inflows (% GDP)	%	$S_{FDI_in}(\%GDB)$	The stock of FDI inflows represents the value of the share of capital and reserves (including retained profits) attributable to the parent company, plus the net debt of the affiliates to the parent companies. It is approximately the accumulated value of past FDI flows. This indicator is calculated as a percentage of GDP.
Exports (% global total)	%	$X_{\%G}$	Exports include all goods that leave the free movement of a country. This indicator is calculated as a percentage of the total globally.
Imports (% global total)	%	$M_{\%G}$	Imports include all goods entering the free zone of a country. This indicator is calculated as a percentage of the total globally.
Import concentration index	%	I_{cM}	This indicator is calculated on the basis of the Herfindahl–Hirschmann index and measures the degree of concentration of imported products. An index value closer to 1 indicates that a country’s imports are highly concentrated on a few products, while values closer to 0 reflect the more homogeneous distribution of imports across a range of products.
Import diversification index	%	I_{dM}	This indicator is a modified Finger–Kreinin measure of similarity in trade, which takes values between 0 and 1. A value closer to 1 indicates a greater divergence from the global pattern of imports.
Trade balance (% imports)	%	$BC_{\%M}$	The trade balance is calculated as the difference between exports and imports, with this indicator being expressed as a percentage of imports.
Balance of payments, current account balance, (% GDP)	%	$BP_{\%GDP}$	The balance of external payments is a system of accounts that includes the synthesis of economic and financial transactions of an economy with the rest of the world, over a period of time. The current account is part of the balance of payments and displays the flows of goods, services, primary and secondary income between residents and non-residents of an economy. The current account balance generally measures the difference between current receipts and expenses for internationally traded goods and services. At the same time, from a national perspective, the current account balance is the gap between domestic savings and investment
ILE—tax burden	%	ILE_{PF}	The ILE component that reflects marginal tax rates on both personal and corporate income and the general level of taxation (% of GDP), including direct and indirect taxes imposed by all levels of government. The score for each country is a number between 0 and 100, with the value 100 indicating the lowest level of taxation.
ILE—freedom of business	%	ILE_{LA}	The ILE component that measures the degree to which regulatory environments and infrastructure constrain the efficient operation of business.
ILE—monetary freedom	%	ILE_{LM}	The ILE component that combines a measure of price stability with one of their control, with both inflation and price control distorting market activity. Price stability without microeconomic intervention is the ideal state for the free market.

Source: Authors’ contribution based on the information available online at: <https://unctadstat.unctad.org/wds/ReportFolders/reportFolders.aspx> (accessed on 15 April 2022).

4. Methods and Models—Modelling the Stock of FDI in Some Emerging Economies in Central Europe

Figure 1 shows the evolution of stocks of FDI inflows (% of GDP) in the Czech Republic, Hungary, Poland and Slovenia from 1995 to 2020.

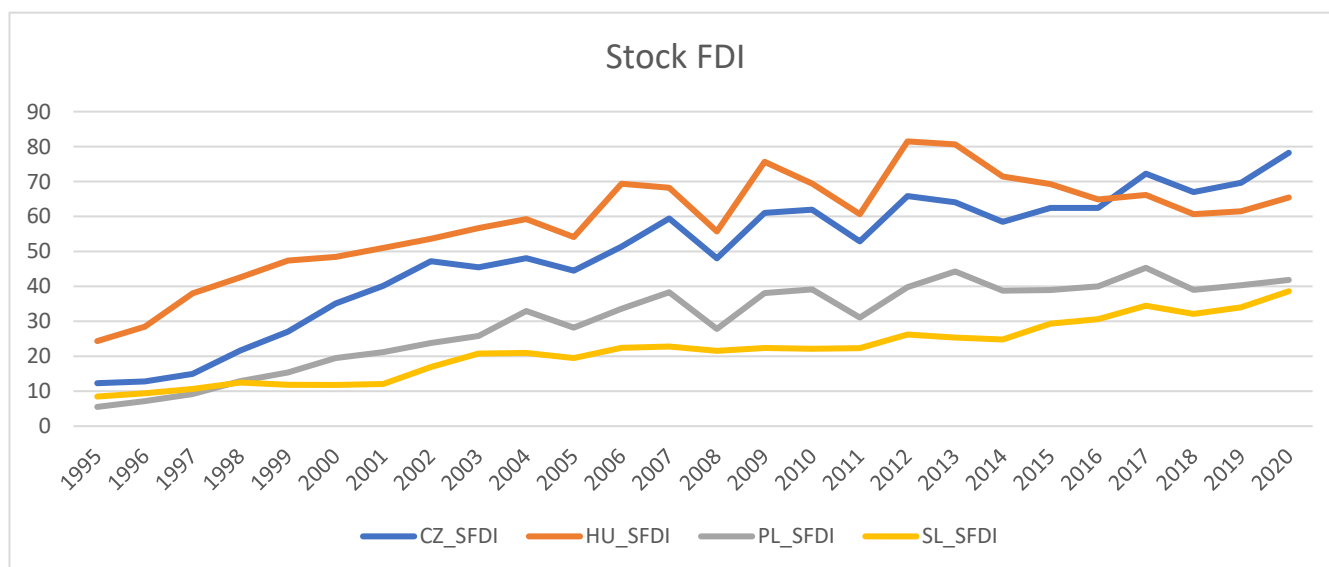


Figure 1. Evolution of stocks of FDI inflows (% of GDP) in the Czech Republic, Hungary, Poland and Slovenia in the period 1995–2020.

It should be noted that the Czech Republic, Poland, and Hungary have significantly higher FDI stocks than Slovenia, with one of the arguments being that privatizations have taken place faster in these countries, thus attracting more FDI. According to the study “Privatization and Restructuring in Central and Eastern Europe” conducted by the World Bank in 1997 in Poland, Hungary and the Czech Republic, the percentage of companies in the manufacturing sector that were privatized in 1995 was over 60%, which facilitated the entry of FDI. It is well known that privatization brought both costs and benefits. The costs consist of numerous restructurings, rising unemployment, and the benefits are increasing employee productivity and attracting FDI. As a result, countries with large privatizations have benefited from increased labor productivity and an increased volume of FDI.

The Czech Republic, Poland, Hungary and Slovenia had a similar history in terms of the economic and political regime before 1989, and the changes that took place after 1990 in the transition to a market economy and EU accession in 2004 are comparative and support analysis between these countries.

It can be seen that Hungary is the member of the group of the four countries analyzed that started with the highest stock of FDI in 1995, but it shows quite large fluctuations during the analyzed period. The top stock of FDI inflows reached Hungary in 2012 (81.47% of GDP), following a period of their decrease to 60.67% of GDP in 2018.

The Czech Republic also has a positive trend of FDI stocks from 1995 to 2020, with the highest value recorded in 2020 (78.2% of GDP). The variation in FDI stock in this case shows no substantial fluctuations, and in the end it is in the first position of the four analyzed countries.

Poland is in third place regarding the level of FDI stock reported as a percentage of GDP, with the highest values reached in 2017, amounting to 45.31%.

Slovenia has the lowest but steady evolution of the stock of FDI inflows relative to GDP, with its upward trend having no significant fluctuations. As a result, the maximum value of the FDI stock was registered in 2020, being 38.6% of GDP.

There was a decrease in the stock of FDI for the Czech Republic, Hungary and Poland in 2008 due to the economic crisis, which is less visible in the case of Slovenia’s economy due to its smaller size.

It can be seen that FDI stocks, reported as a percentage of GDP, have an increasing linear trend for the Czech Republic, Poland and Slovenia, with some fluctuations from Hungary, which justifies the choice of multiple linear regression in the econometric modelling of FDI stock in these countries.

Next, multifactorial econometric models were found for the four countries of Central Europe, with the dependent variable being the stocks of FDI inputs and the independent variables being indicators of international trade, economic trends and components of the economic freedom signaling indicator. The database used in the econometric models proposed below is found in Appendix A and covers 1995–2020.

4.1. Econometric Models of the Stock of FDI Inputs (% of GDP) for the Czech Republic—CZ

According to data provided by the Czech National Bank (<https://www.cnb.cz/en/>) (accessed on 15 April 2022), the volume of foreign direct investment in 1993–2017 was over EUR 130.1 billion, a value that places the Czech Republic, from this perspective, in first place among the emerging countries of Central Europe. In August 2018, the ratings given to the Czech Republic by the leading rating agencies were A1 (Moody's), AA- (S&P) and AA- (Fitch). The high volume of foreign investment and the attractiveness of the Czech Republic for foreign investors were mainly due to the following factors: geo-strategic location and OECD membership, favorable legislation to stimulate foreign investment characterized by the stability and continued growth of facilities, safety and environmental stability investment, favorable labor cost and price stability, developed infrastructure (especially transport and telecommunications), a stable social and political system, EU and Schengen membership, and certain exemptions from local taxes and fees. According to the data provided by the Czech National Bank, the countries from which the most funds invested in the period 1993–2017 came are the Netherlands (19.9%), Germany (16.3%), Luxembourg (15.4%), Austria (10.3%), and France (7.5%). The areas to which they were directed were: manufacturing (29.2%), financial services (28.8%), the real estate market (7.2%), and IT and communications (5.6%). Econometric models of the stock of FDI inputs (% of GDP) for the Czech Republic are shown in Tables 2 and 3.

Table 2. $S_{FDI_in(\%GDP)}$ model by $X_{\%G}$, Id_M and ILE_{LA} for CZ.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.677112	24.39104	0.027761	0.9781
$X_{\%G}$	24.92385	11.04125	2.257341	0.0343
Id_M	316.4424	74.19910	4.264774	0.0003
ILE_{LA}	−0.750699	0.180548	−4.157882	0.0004
R-squared	0.896388	Mean dependent var.		49.38766
Adjusted R-squared	0.882259	S.D. dependent var.		18.86589
S.E. of regression	6.473531	Akaike info criterion		6.713959
Sum squared resid.	921.9452	Schwarz criterion		6.907512
Log likelihood	−83.28146	F-statistic		63.44349
Durbin–Watson stat.	1.662830	Prob(F-statistic)		0.000000
Jarque–Bera Test	3.244904	Prob(J-B)		0.197414
Skewness	0.667840	Kurtosis		4.100571
White Heteroskedasticity Test				
F-statistic	0.917221	Probability		0.504117
Obs*R-squared	5.839471	Probability		0.441411

Source: Developed by authors with Software Eviews.

Table 3. $S_{FDI_in}(\%GDP)$ model by $M_{\%G}$, Id_M and ILE_{LA} for CZ.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	−19.16034	19.80677	−0.967363	0.3439
M%G	54.60510	11.71650	4.660530	0.0001
Id _M	260.4353	59.18061	4.400686	0.0002
ILE _{LA}	−0.562347	0.141295	−3.979950	0.0006
R-squared	0.935787	Mean dependent var		49.38766
Adjusted R-squared	0.927031	S.D. dependent var		18.86589
S.E. of regression	5.096215	Akaike info criterion		6.235511
Sum squared resid	571.3709	Schwarz criterion		6.429065
Log likelihood	−77.06165	F-statistic		106.8698
Durbin–Watson stat	2.198721	Prob(F-statistic)		0.000000
Jarque–Bera Test	1.431652	Prob(J-B)		0.488788
Skewness	−0.574726	Kurtosis		2.983096
White Heteroskedasticity Test				
F-statistic	0.542317	Probability		0.810462
Obs*R-squared	3.801646	Probability		0.707265

Source: Developed by authors with Software Eviews.

The first model has the equation:

$$S_{FDI_in}(\%GDP) = 0.677112 + 24.92385 \times X_{\%G} + 316.4424 \times Id_M - 0.750699 \times ILE_{LA} + \varepsilon_t \quad (1)$$

In the t-statistic column, the values for the Student's t-statistic that pertain to the parameters are computed. If the probability is less than 0.05, the null hypothesis is rejected, indicating that the values of the variables' parameters are substantially different from 0. As a result of the fact that the F-statistic for the model that was provided has a value of $F = 63.44$ and a probability of 0.00, it is generally agreed upon that the multiple linear regression model is valid. Furthermore, the model passes the tests of autocorrelation of errors based on the findings of Durbin–Watson ($DW = 1.66$), normality of error distribution based on the findings of Jarque–Bera (Skewness = 0.66; Kurtosis = 4.10), and homoscedasticity based on the findings of White (F-statistic = 0.91, the attached probability is 50%).

Multicollinearity is also found to be absent, because $R^2_{FDI} = 0.88 > R^2_{X_{\%G}} = 0.53$, $R^2_{FDI} > R^2_{Id_M} = 0.27$, $R^2_{FDI} > R^2_{ILE_{LA}} = 0.37$ and variance inflation factors are given by $VIF = 2.12 < 10$ for $X_{\%G}$, $VIF = 1.36 < 10$ for Id_M and $VIF = 1.58 < 10$ for ILE_{LA} .

Based on the analysis of the data in Table 2, it is found that the influence of $X_{\%G}$, Id_M and ILE_{LA} is 88.22% on S_{FDI_in} according to adjusted R-squared, at the level of the Czech economy. If the import diversification index increases by 0.01%, this results in a 3.16% increase in the stock of FDI inflows. An increase of 0.1% in exports also leads to an increase in the stock of FDI with a coefficient of 2.49%. The modelling includes the third indicator (ILE component—business freedom). However, it has a negative sign, increasing variation by 1% and decreasing 0.75% of FDI stock if the other indicators remain constant.

The second equation of regression is given by:

$$S_{FDI_in}(\%GDP) = -19.16034 + 54.60510 \times M_{\%G} + 260.4353 \times Id_M - 0.562347 \times ILE_{LA} + \varepsilon_t \quad (2)$$

The results of the t-statistic analysis show that all three variables have probabilities less than 0.05, which indicates that the parameters of the variables deviate substantially from 0. The F-statistic test has an F-value of 106.86 with a probability of 0.00, and as a consequence, the multiple linear regression model that was investigated is credible. The model passes

the tests of autocorrelation of errors based on the findings of Durbin–Watson ($DW = 2.19$), normality of error distribution based on the findings of Jarque–Bera (Skewness = -0.57 ; Kurtosis = 2.98), and homoscedasticity based on the findings of White (F-statistic = 0.54 , the attached probability is 81%). Multicollinearity is absent, $R^2_{FDI} = 0.92 > R^2_{M\%G} = 0.53$, $R^2_{FDI} > R^2_{IdM} = 0.28$, $R^2_{FDI} > R^2_{ILE_{LA}} = 0.35$ and variance inflation factors are given by $VIF = 2.12 < 10$ for $M\%G$, $VIF = 1.38 < 10$ for IdM and $VIF = 1.53 < 10$ for ILE_{LA} .

As in the case of the first validated FDI stock model for the Czech Republic, based on the information in Table 3, it is found that the index of diversification of imports, whose the variation increases by 0.01% , leads to the stock of FDI inflows increasing by 2.6% if $M\%G$ and ILE_{LA} remain constant. Although the ILE component has a negative sign, an increase of 1% leads to a decrease of 0.56% for the stock of direct investments. In the case of the imported variable, increasing its volume by 0.1% increases the target variable by 5.46% . The model, specified, parameterized, tested and validated for the Czech economy, is shown in Table 3 and explains the phenomenon of S_{FDI} in the proportion of 92.7% .

In conclusion, following the validation of the two econometric models of the stock of FDI inputs for the Czech Republic, it is found that the intensification of both imports and exports leads to an increase in the target variable studied. At the same time, a high value of the import diversification index, characterized by a more significant divergence from the global pattern of imports, also leads to an increase in the stock of FDI inflows. Regarding the ILE_{LA} component—business freedom, a higher value of it, which reflects a lower constraint in the operation of the business, can negatively influence the stock of FDI.

4.2. Econometric Models of the Stock of FDI Inputs (% GDP) for Hungary—HU

Hungary completed the privatization process in 1997, including the privatization of the financial-banking sector. Under these conditions, in the following years, Hungary focused on attracting foreign investors and setting investment priorities, including introducing advanced technologies and innovations in producing high-value-added goods. Investments in the transport sector, research and development, professional services and logistics have become the target of organizations promoting foreign investments. In order to achieve this performance, Hungary has established a particularly attractive institutional and legal framework for foreign investors. Thus, in 1993, the Ministry of Economic Affairs established the Agency for the Promotion of Investment and Foreign Trade (ITD Hungary), with 8 regional centers in Hungary and 34 representative offices abroad. In the FDI structure, the best-represented manufacturing branch is the automotive industry. The same field is found in first place regarding foreign trade, which directly relates to the increase in exports and the volume of foreign direct investment. In parallel with fiscal easing measures, Hungary has provided generous tax incentives to foreign investors, such as income tax exemption for 10 years for investments in the industry if the value of total investments exceeds USD 40 million and the sales volume registers an annual increase of at least 5% . The company has at least 500 employees, the investment is made in an economically underdeveloped region with a value exceeding USD 12 million, the sales volume registers an annual growth of 5% , and the company has over 100 employees. There is a 50% reduction in profit tax if the total value of the investment is USD 4 million and creates production capacity in a particular area, is stipulated by government decision, and is located in a priority region where the unemployment rate exceeds 15% . The first positions in the ranking by countries of origin of foreign capital include Germany with 29% , followed by the Netherlands with 20% and Austria with 11% .

Tables 4–7 show the models of the stock of FDI inputs validated by the Hungarian economy and the related calculation relationships.

Table 4. $S_{FDL_in(\%GDP)}$ model by $M_{\%G}$, $BP_{\%GDP}$ and ILE_{LA} for HU.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	−55.54207	22.40804	−2.478667	0.0213
M%G	117.4979	14.82515	7.925577	0.0000
BP%GDP	1.392754	0.303816	4.584200	0.0001
ILE _{LA}	0.746958	0.247856	3.013671	0.0064
R-squared	0.806879	Mean dependent var		58.61935
Adjusted R-squared	0.780545	S.D. dependent var		14.37924
S.E. of regression	6.736108	Akaike info criterion		6.793480
Sum squared resid	998.2533	Schwarz criterion		6.987033
Log likelihood	−84.31524	F-statistic		30.63944
Durbin–Watson stat	1.715702	Prob(F-statistic		0.000000
Jarque–Bera Test	0.326845	Prob(J-B)		0.849232
Skewness	−0.073247	Kurtosis		3.529380
White Heteroskedasticity Test:				
F-statistic	2.742147	Probability		0.057389
Obs*R-squared	11.80374	Probability		0.066493

Source: Developed by authors with Software Eviews.

Table 5. $S_{FDL_in(\%GDP)}$ model by $M_{\%G}$, ILE_{PF} and ILE_{LA} for HU.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	−107.0494	18.58022	−5.761472	0.0000
M%G	56.31408	15.93968	3.532949	0.0019
ILE _{PF}	1.050804	0.161737	6.496997	0.0000
ILE _{LA}	0.866417	0.200394	4.323559	0.0003
R-squared	0.870628	Mean dependent var		58.61935
Adjusted R-squared	0.852987	S.D. dependent var		14.37924
S.E. of regression	5.513328	Akaike info criterion		6.392852
Sum squared resid	668.7292	Schwarz criterion		6.586405
Log likelihood	−79.10708	F-statistic		49.35096
Durbin–Watson stat	2.163949	Prob(F-statistic)		0.000000
Jarque–Bera Test	0.478595	Prob(J-B)		0.787181
Skewness	−0.299888	Kurtosis		2.713557
White Heteroskedasticity Test:				
F-statistic	2.472421	Probability		0.061392
Obs*R-squared	11.39953	Probability		0.076786

Source: Developed by authors with Software Eviews.

Table 6. $S_{FDL_in(\%GDP)}$ model by $X_{\%G}$, Id_M and ILE_{PF} for HU.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	−91.84523	18.40149	−4.991185	0.0001
X%G	39.21488	14.96953	2.619646	0.0156
Id _M	230.0954	56.98212	4.038027	0.0005
ILE _{PF}	0.906923	0.192491	4.711498	0.0001
R-squared	0.878359	Mean dependent var		58.61935
Adjusted R-squared	0.861771	S.D. dependent var		14.37924
S.E. of regression	5.346075	Akaike info criterion		6.331240
Sum squared resid	628.7713	Schwarz criterion		6.524794
Log likelihood	−78.30613	F-statistic		52.95320
Durbin–Watson stat	2.242252	Prob(F-statistic)		0.000000
Jarque–Bera Test	0.029578	Prob(J-B)		0.985320
Skewness	−0.019412	Kurtosis		2.839391
White Heteroskedasticity Test:				
F-statistic	0.722593	Probability		0.636660
Obs*R-squared	4.830590	Probability		0.565718

Source: Developed by authors with Software Eviews.

Table 7. $S_{FDL_in(\%GDP)}$ model by $X_{\%G}$, ILE_{PF} and ILE_{LA} for HU.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	−83.11420	17.55787	−4.733729	0.0001
X%G	54.45446	15.35980	3.545258	0.0018
ILE _{PF}	0.873167	0.197715	4.416284	0.0002
ILE _{LA}	0.716797	0.190839	3.756039	0.0011
R-squared	0.870955	Mean dependent var		58.61935
Adjusted R-squared	0.853357	S.D. dependent var		14.37924
S.E. of regression	5.506375	Akaike info criterion		6.390328
Sum squared resid	667.0437	Schwarz criterion		6.583882
Log likelihood	−79.07427	F-statistic		49.49419
Durbin–Watson stat	2.116038	Prob(F-statistic)		0.000000
Jarque–Bera Test	0.694351	Prob(J-B)		0.706681
Skewness	−0.332084	Kurtosis		2.552987
White Heteroskedasticity Test				
F-statistic	1.751475	Probability		0.163435
Obs*R-squared	9.259258	Probability		0.159514

Source: Developed by authors with Software Eviews.

The first model has the equation of regression given by:

$$S_{FDL_in(\%GDP)} = -55.54207 + 117.4979 \times M_{\%G} + 1.392754 \times BP_{\%GDP} + 0.746958 \times ILE_{LA} + \varepsilon_t \quad (3)$$

It was determined using the t-statistic that each of the three variables had a probability lower than 0.05, indicating that the variables' parameters were substantially different from 0. The F-statistic test yielded a value of 30.63 for the F-value. The test findings indicate that the hypothesis that the investigated multiple linear regression model is generally valid may

be accepted. The results of the Durbin–Watson test ($DW = 1.71$) show that the errors are not auto-correlated, and the results of the Jarque–Bera test (Skewness = -0.07 ; Kurtosis = 3.52) show that the hypothesis of the errors having a normal distribution is validated. In addition, the White test reveals that the error distribution is homoscedastic (the F statistic equals 2.74 , and the likelihood that comes linked to it is 5.7%). Multicollinearity is also absent, because $R^2_{FDI} = 0.78 > R^2_{M\%G} = 0.07$, $R^2_{FDI} > R^2_{BP} = 0.05$, $R^2_{FDI} > R^2_{ILE_{LA}} = 0.09$ and variance inflation factors are given by $VIF = 1.07 < 10$ for $M\%G$, $VIF = 1.05 < 10$ for BP and $VIF = 1.09 < 10$ for ILE_{LA} .

In the case of the first model validated for Hungary, by analyzing the data specified in Table 4, it is noted that the values of the coefficients of exogenous variables have a positive sign. A 0.1% increase in $M\%G$, while the other two remain constant, leads to an increase in the effect variable by 11.7% . Following the same principle, a percentage increase in the value of the variable $BP\%GDP$ has as an effect an increase in S_{FDI_in} by 1.39% . The ILE component—business freedom is the variable with the most negligible impact on the stock of FDI inflows under the model proposed in the previous table, a result of which improved by 1% , characterized by more accessible regulatory environments and non-constraining infrastructure and the efficient operations of a business, leading to a 0.74% increase in the studied dependent variable. According to adjusted R-squared, the first proposed model for the Hungarian economy explains the change in the stock of FDI inputs by 78.05% .

The second model has the equation of regression in the form:

$$S_{FDI_in}(\%GDP) = -107.0494 + 56.31408 \times M\%G + 1.050804 \times ILE_{PF} + 0.866417 \times ILE_{LA} + \varepsilon_t \quad (4)$$

The t-statistic analysis shows that all three variables have a probability of less than 0.05 , and the parameters of the variables differ significantly from 0 . The F-statistic test has an F-value = 49.35 with a probability of 0.00 , implying that the multiple linear regression model studied is valid. Furthermore, the model passes the tests of autocorrelation of errors according to Durbin–Watson ($DW = 2.16$), normality of error distribution according to Jarque–Bera with value 0.47 and probability 78% (Skewness = -0.29 ; Kurtosis = 2.71) and homoscedasticity according to White (F-statistic = 2.47 , the attached probability is 6%). The absence of multicollinearity of the independent variables is also noted because $R^2_{FDI} = 0.85 > R^2_{M\%G} = 0.46$, $R^2_{FDI} > R^2_{ILE_{PF}} = 0.40$, $R^2_{FDI} > R^2_{ILE_{LA}} = 0.07$ and variance inflation factors have the values $VIF = 1.85 < 10$ for $M\%G$, $VIF = 1.66 < 10$ for ILE_{PF} and $VIF = 1.07 < 10$ for ILE_{LA} .

In the case of the second validated model for the Hungarian economy, the adjusted coefficient of determination is higher than in the case of the first model, which is 85.29% . As in the previous situation, all independent variables positively influence S_{FDI} , with an increase of 0.1% for $M\%G$ leading to an increase of 5.6% for the endogenous variable. Furthermore, the change in the score of each of the other two indicators by one percentage point, while the rest remain constant, leads to an increase in the stock of FDI inflows by 1.05% in the case of ILE_{PF} (characterized by a reduced tax burden) and 0.86% for ILE_{LA} (characterized by a regulatory and infrastructure environment that does not constrain the efficient operation of the business).

The third econometric model has the regression equation given by:

$$S_{FDI_in}(\%GDP) = -91.84523 + 39.21488 \times X\%G + 230.0954 \times Id_M + 0.906923 \times ILE_{PF} + \varepsilon_t \quad (5)$$

All parameters of the independent variables have a t-statistic probability lower than 0.05 , indicating that they differ substantially from 0 . The F-statistic test yielded a value of 52.95 for the F-value, and the multiple linear regression model is valid. According to the Durbin–Watson test ($DW = 2.24$), the errors are not auto-correlated, and the hypothesis of normality of the distribution of errors is fulfilled, as stated by Jarque–Bera (Skewness = -0.01 ; Kurtosis = 2.83). In addition, the distribution of errors is found to be homoscedastic, as determined by the White test (F statistic equal to 0.72 with a probability associated equally to 63.6%). Multicollinearity is also absent, because $R^2_{FDI} = 0.86 >$

$R^2_{M\%G} = 0.61$, $R^2_{FDI} > R^2_{IdM} = 0.06$, $R^2_{FDI} > R^2_{ILEPF} = 0.60$ and variance inflation factors are given by $VIF = 2.56 < 10$ for $X\%G$, $VIF = 1.07 < 10$ for IdM and $VIF = 2.5 < 10$ for $ILEPF$.

In Hungary, the variation in the combination of factors $X\%G$, IdM and $ILEPF$ explains in a proportion of 86.17% the variation in S_{FDI} , according to the adjusted coefficient of determination in Table 6. Thus, if the index of the diversification of imports increasing by 0.01% leads to an increased volume of S_{FDI} by 2.3%, this means that a more pronounced divergence of imports from the global pattern leads to an increase in the dependent variable studied. Exports also positively affect the stock of FDI inflows in the Hungarian economy, increasing them by 0.1% if the other variables remain constant, causing a 3.9% increase in S_{FDI_in} . The change in the $ILEPF$ component, characterized by a more relaxed tax level and a better score of 1%, leads to a 0.90% increase in S_{FDI_in} .

The last model for Hungary has the regression equation of:

$$S_{FDI_in}(\%GDP) = -83.11420 + 54.45446 \times X\%G + 0.873167 \times ILEPF + 0.716797 \times ILELA + \varepsilon_t \quad (6)$$

The results of the t-statistic analysis show that all three variables have probabilities that are less than 0.05, and the parameters of the variables deviate considerably from 0. Because the F-statistic test yielded the value 49.49, it can be deduced that the multiple linear regression model is valid. The model passes the tests of autocorrelation of errors based on the findings of Durbin–Watson ($DW = 2.11$), normality of error distribution based on the findings of Jarque–Bera with value 0.69 and probability 70% (Skewness = -0.33 ; Kurtosis = 2.55), and homoscedasticity based on the findings of White (F-statistic = 1.75 and attached probability is 16%). Multicollinearity is not present, because $R^2_{FDI} = 0.85 > R^2_{X\%G} = 0.60$, $R^2_{FDI} > R^2_{ILELA} = 0.02$, $R^2_{FDI} > R^2_{ILEPF} = 0.60$ and variance inflation factors are given by $VIF = 2.5 < 10$ for $X\%G$, $VIF = 1.02 < 10$ for $ILELA$ and $VIF = 2.5 < 10$ for $ILEPF$.

All three independent variables in the model validated by the Hungarian economy in Table 7 positively influence the phenomenon studied, represented by the stock of FDI inflows. The ILE components, with a lower overall level of taxation and a regulatory and infrastructure environment that constrains as little as possible the efficient operation of a business, are factors that lead to the better scores of these two components, generating increases in the stock of FDI inflows of 0.87% and 0.71%, respectively, in Hungary, as a result of the improvement of the rating of these components. Exports, by increasing the volume of goods leaving the territory of Hungary by 0.1%, lead to the stock of FDI inflows increasing by 5.4%, provided that the other two independent variables remain constant. In the case of the latest model validated by Hungary, in Table 7, the change in the stock of FDI inputs is explained in the proportion of 85.33%.

In conclusion, all the independent variables used in the econometric modelling of the stock of FDI inputs in the Hungarian economy positively influence it. An increasing volume of imports and exports increases the studied dependent variable relative to the global total. Additionally, a higher value of the import diversification index, which indicates a pronounced divergence from their global pattern, increases the stock of FDI inflows in Hungary. Furthermore, a balanced balance of payments, whose current account measures the difference between current receipts and expenditures for internationally traded goods and services, leads to an increased volume of the explained variable studied, represented by the stock of FDI inflows. Regarding the two ILE components (business freedom and tax burden) present in the econometric models specified and validated by the Hungarian economy, it is found that higher scores, which translate into a regulatory environment and infrastructure that does not constrain the efficient operation of a business and a low level of taxation, lead to an increase in the effect of the variable studied.

4.3. Econometric Models of the Stock of FDI Inputs for Poland—PL

Foreign direct investment (FDI) was 40% of GDP in 2010, double the level of 2000. Most FDI in Poland comes from France, Germany and the Netherlands. Most of the domestic FDI is in the manufacturing industry. The interests and rights of foreign investors and

their properties are protected by law in Poland, and many states have signed bilateral agreements on protecting and promoting foreign investment.

The government offers investors various forms of state aid, such as CIT tax at 19% and incentives for investment in 14 particular economic areas: income tax exemption, real estate tax exemption, and competitive land prices. According to an Ernst & Young report, Poland ranks seventh in the world regarding investment attractiveness. However, the European attractiveness survey conducted by Ernst & Young in 2010 reported that Poland saw a 52% decrease in FDI job creation and a 42% decrease in the number of FDI projects in 2008.

In 2010, the World Economic Forum ranked Poland at the bottom of the OECD countries regarding the clarity, efficiency and neutrality of the legal framework companies use to resolve disputes. Today, neighbouring Germany is Poland's leading trading partner. Poland joined the European Union in May 2004. However, before that, it promoted regional integration and trade through the Central European Free Trade Agreement (CEFTA), which included Hungary, the Czech Republic, Slovakia and Slovenia. As part of FDI, greenfield investments reflect a high degree of confidence in the host economy through the effort involved (investing from scratch) and the timeframe envisaged (medium and long term); the Polish economy is one of the most attractive in terms of greenfield projects.

For Poland, two models of the stock of FDI inputs are specified, parameterized, tested and validated, which can be found in Tables 8 and 9 together with the related calculation relations. The first equation of regression has the form:

$$S_{FDI_in(\%GDP)} = -21.93373 + 32.08853 \times X_{\%G} + 368.3963 \times I_{cM} + \varepsilon_t \quad (7)$$

Table 8. $S_{FDI_in(\%GDP)}$ model by $X_{\%G}$ and I_{cM} for PL.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	−21.93373	6.322033	−3.469411	0.0021
X%G	32.08853	2.527102	12.69776	0.0000
I _M	368.3963	98.54843	3.738226	0.0011
R-squared	0.888100	Mean dependent var		29.91421
Adjusted R-squared	0.878370	S.D. dependent var		12.12023
S.E. of regression	4.226999	Akaike info criterion		5.829029
Sum squared resid	410.9530	Schwarz criterion		5.974194
Log likelihood	−72.77737	F-statistic		91.27032
Durbin–Watson stat	1.828530	Prob(F-statistic)		0.000000
Jarque–Bera Test	1.104621	Prob(J-B)		0.575618
Skewness	−0.503077	Kurtosis		3.085463
White Heteroskedasticity Test:				
F-statistic	0.237802	Probability		0.913799
Obs*R-squared	1.126652	Probability		0.890021

Source: Developed by authors with Software Eviews.

Table 9. $S_{FDI_in}(\%GDP)$ model by $M_{\%G}$, $BC_{\%M}$ and I_{CM} for PL.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	−4.415820	9.680860	−0.456139	0.6528
M%G	21.97039	6.242908	3.519257	0.0019
BC%M	0.423686	0.104771	4.043926	0.0005
IcM	296.7511	96.33172	3.080513	0.0055
R-squared	0.898830	Mean dependent var		29.91421
Adjusted R-squared	0.885034	S.D. dependent var		12.12023
S.E. of regression	4.109561	Akaike info criterion		5.805148
Sum squared resid	371.5468	Schwarz criterion		5.998701
Log likelihood	−71.46692	F-statistic		65.15195
Durbin–Watson stat	1.803201	Prob(F-statistic)		0.000000
Jarque–Bera Test	1.734112	Prob(J-B)		0.420187
Skewness	−0.632439	Kurtosis		2.971698
White Heteroskedasticity Test:				
F-statistic	2.208860	Probability		0.087375
Obs*R-squared	10.68367	Probability		0.098659

Source: Developed by authors with Software Eviews.

Using t-statistics, both variables had probabilities lower than 0.05, which indicates that the values of the variables' parameters are substantially different from 0. The F-statistic test is 91.27 for the F-value, and the multiple linear regression model is valid. According to the Durbin–Watson test ($DW = 1.82$), the errors are not auto-correlated, and the Jarque–Bera test (Skewness = -0.5 ; Kurtosis = 3.08) indicates that the hypothesis of normality of the distribution of errors is satisfied. The White test indicates that the distribution of error values is homoscedastic (the F statistic equals 0.23, and the likelihood connected to this value is 91%). Multicollinearity is absent, because $R^2_{FDI} = 0.87 > R^2_{X_{\%G}} = 0.03$, $R^2_{FDI} > R^2_{I_{CM}} = 0.03$, and variance inflation factors are given by $VIF = 1.03 < 10$ for $X_{\%G}$, $VIF = 1.03 < 10$ for I_{CM} .

The first model validated by the Polish economy is that of the stock of FDI inflows by exports (% of the global total) and the import concentration index. The variation of the dependent factor is explained in the proportion of 87.83% by the variations of the causal variables based on adjusted R-squared.

Based on the data in Table 8, the increase of $X_{\%G}$ by 0.1%, provided that the import concentration index does not change, leads to an increase in the stock of FDI inflows by 3.2%. Similarly, an increase in the index measuring the concentration of imported products by 0.01%, characterized by a massive concentration of fewer products, has the effect of increasing S_{FDI_in} in the Polish economy by 3.68%, in the situation in which the export variable remains constant.

The second model has the equation of regression given by:

$$S_{FDI_in}(\%GDB) = -4.415820 + 21.97039 \times M_{\%G} + 0.423686 \times BC_{\%M} + 296.7511 \times I_{CM} + \varepsilon_t \quad (8)$$

All of the parameters of the independent variables have t-statistic probabilities that are lower than 0.05, which indicates that they are substantially different from 0 (see Table 9). As a result of the F-statistic test having a value of 65.15, which indicates that the multiple linear regression model is valid. According to the Durbin–Watson test ($DW = 1.80$), the errors are not auto-correlated, and the hypothesis of normality of the distribution of errors is satisfied, as determined by Jarque–Bera with a value of 1.73 and a probability of 42% (Skewness = -0.63 ; Kurtosis = 2.97). In addition, the error distribution is characterized

as homoscedastic, as determined by the White test (F statistic of 2.2, with an associated probability of 8%). The absence of multicollinearity of the independent variables is also noted, $R^2_{FDI} = 0.88 > R^2_{M\%G} = 0.67$, $R^2_{FDI} > R^2_{BC} = 0.67$, $R^2_{FDI} > R^2_{ICM} = 0.07$ and variance inflation factors have the values $VIF = 3.03 < 10$ for $M\%G$, $VIF = 3.03 < 10$ for $BC\%M$ and $VIF = 1.07 < 10$ for ICM .

The analysis of the previous model shows that all three exogenous variables positively influence the FDI stock in Poland. Thus, a 0.1% increase in imports generates a 2.1% increase in FDI stocks, given that the other two variables remain constant. As in the previous model, a higher value of the import concentration index generates an increase in FDI. The trade balance has an influence of 0.4% on the FDI stock at a variation of 1%. The model explains in a proportion of 88.5% the variation of the dependent variable according to the independent ones.

In conclusion, from the models previously specified, parameterized, tested, and validated by Poland, we can see that the stock of FDI inputs is positively stimulated by an increase in exports and imports relative to the global total. Furthermore, regarding the index of concentration of imports, it is found that a concentration of imports from Poland, mainly on fewer products and a similar trend, as close as possible to the world pattern, leads to an increase in the estimated variable, represented by the stock of FDI inflows.

4.4. Econometric Models of the Stock of FDI Inputs (% of GDP) for Slovenia—SL

Foreign direct investment is one of the lowest but has risen steadily in recent years. Slovenia's economy is relatively small, open and export-oriented—the primary economic field is services, followed by industry and construction. However, Slovenia has a highly skilled workforce and a well-developed infrastructure and is at a vital transport intersection. Foreign direct investment in Slovenia was EUR 13.7 billion at the end of 2017, an increase of 5.4% from the previous year. The share of foreign direct investment stock in GDP was 34.46% in 2017, compared to 30.61% in 2016. Slovenia attracted more foreign investment in 2018, totaling EUR 1.2 billion, compared to EUR 694 million in 2017 (the increase was due to capitalization through higher profits, which was reinvested to finance investments but also to reduce the financial and fiscal burden in 2018). The EBRD approved the first project for Slovenia in 1993 and, in 25 years, has invested over EUR 1 billion in 85 projects. Regarding foreign direct investment, Slovenia focuses on European producers such as Germany, Austria, Switzerland and Italy.

The first model has the equation:

$$S_{FDI_in(\%GDP)} = -16.14019 + 104.1403 \times M\%G + 69.56490 \times Id_M + 0.762244 \times BC\%M + \varepsilon_t \quad (9)$$

According to Table 10, the results of the t-statistic analysis, all three variables have probabilities lower than 0.05, which indicates that the alternative hypothesis, which states that the parameters of the variables deviate substantially from 0, is accepted. As a consequence of the F-statistic test having a value of 122.95, the multiple linear regression model that was investigated is, in general, a viable one. The model passes the tests of autocorrelation of errors based on the findings of Durbin–Watson ($DW = 1.85$), normality of error distribution based on the findings of Jarque–Bera with value 1.57 and probability 45% (Skewness = 0.47; Kurtosis = 2.69), and homoscedasticity based on the findings of White (F-statistic = 0.73 with an attached probability of 62%). Multicollinearity of the independent variables is not presented, $R^2_{FDI} = 0.93 > R^2_{M\%G} = 0.19$, $R^2_{FDI} > R^2_{BC} = 0.36$, $R^2_{FDI} > R^2_{Id_M} = 0.37$ and variance inflation factors have the values $VIF = 1.12 < 10$ for $M\%G$, $VIF = 1.56 < 10$ for $BC\%M$ and $VIF = 1.58 < 10$ for Id_M .

Table 10. $S_{FDI_in}(\%GDP)$ model by $M_{\%G}$, Id_M and $BC_{\%M}$ for SL.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	−16.14019	6.640533	−2.430557	0.0237
M%G	104.1403	21.99319	4.735115	0.0001
Id _M	69.56490	20.53397	3.387795	0.0026
BC% _M	0.762244	0.078055	9.765431	0.0000
R-squared	0.943713	Mean dependent var		21.68736
Adjusted R-squared	0.936037	S.D. dependent var		8.352097
S.E. of regression	2.112313	Akaike info criterion		4.474083
Sum squared resid	98.16108	Schwarz criterion		4.667636
Log likelihood	−54.16307	F-statistic		122.9513
Durbin–Watson stat	1.855047	Prob(F-statistic)		0.000000
Jarque–Bera Test	1.571056	Prob(J-B)		0.455879
Skewness	0.478605	Kurtosis		2.269278
White Heteroskedasticity Test:				
F-statistic	0.732400	Probability		0.629592
Obs*R-squared	4.883834	Probability		0.558796

Source: Developed by authors with Software Eviews.

In the first model validated by Slovenia, all three independent variables proposed to explain the S_{FDI_in} variation in Table 10 positively influence it. Therefore, a 0.1% increase in imports, while the other two remain constant, leads to an increase in the stock of FDI inflows by 10.4%, while an increase in the diversification index by 0.01% leads to an FDI stock increase of 0.69%. In the case of the trade balance, a 1% increase leads to an increase of 0.76% for the stock of FDI. The proposed model explains, in the proportion of 93.6%, the change in the stock of FDI inflows in the Slovenian economy.

The second equation of regression has the form:

$$S_{FDI_in}(\%GDP) = -22.12871 + 102.5754 \times X_{\%G} + 0.468751 \times BC_{\%M} + 0.343248 \times ILE_{LM} + \varepsilon_t \quad (10)$$

According to Table 11, all of the parameters of the independent variables have a t-statistic probability lower than 0.05, which indicates that they are substantially different from 0. The F-statistic test yielded a value of 138.9 for the F-value, and the multiple linear regression model is valid. According to the Durbin–Watson test ($DW = 1.66$), the errors are not auto-correlated. The Jarque–Bera test (Skewness = 0.14; Kurtosis = 2) indicates that the hypothesis of normality of the distribution of errors is satisfied. In addition, the results of the White test indicate that the error distribution is homoscedastic, the variance remains unchanged, having an F-statistic equal to 2.06, and the attached probability is 10%. Multicollinearity of the independent variables is also absent, $R_{FDI}^2 = 0.94 > R_{X_{\%G}}^2 = 0.59$, $R_{FDI}^2 > R_{BC}^2 = 0.59$, $R_{FDI}^2 > R_{ILE_{LM}}^2 = 0.11$ and variance inflation factors are given by $VIF = 2.43 < 10$ for $X_{\%G}$, $VIF = 2.43 < 10$ for $BC_{\%M}$ and $VIF = 1.12 < 10$ for ILE_{LM} .

Table 11. $S_{FDI_in}(\%GDP)$ model by $X_{\%G}$, $BC_{\%M}$ and ILE_{LM} for SL.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	−22.12871	7.542655	−2.933809	0.0077
X%G	102.5754	21.39675	4.793974	0.0001
BC%M	0.468751	0.102246	4.584539	0.0001
ILE _{LM}	0.343248	0.099609	3.445943	0.0023
R-squared	0.949852	Mean dependent var		21.68736
Adjusted R-squared	0.943014	S.D. dependent var		8.352097
S.E. of regression	1.993788	Akaike info criterion		4.358588
Sum squared resid	87.45419	Schwarz criterion		4.552141
Log likelihood	−52.66164	F-statistic		138.9018
Durbin–Watson stat	1.660321	Prob(F-statistic)		0.000000
Jarque–Bera Test	1.163430	Prob(J-B)		0.558939
Skewness	0.148906	Kurtosis		2.007406
White Heteroskedasticity Test:				
F-statistic	2.065857	Probability		0.106107
Obs*R-squared	10.26508	Probability		0.113924

Source: Developed by authors with Software Eviews.

It can be seen from the table above that all three of the above independent variables have a positive influence on S_{FDI_in} in the Slovenian economy. The increase of 0.1% of the total goods leaving Slovenia's free circulation area has, as a result, produced a 10.2% higher S_{FDI_in} , provided that the other two estimators remain unchanged. A percentage increase in each of the explanatory variables, $BC_{\%M}$ and ILE_{LM} , improves the level of S_{FDI_in} in Slovenia by 0.47% and 0.34%, respectively, while the other two remain constant. The variation of the three estimators mentioned above explains in a proportion of 94.3% the fluctuation of the FDI stock at the level of the Slovenian economy, according to the adjusted coefficient of determination.

In conclusion, the influences are positive for all independent variables used in the econometric modelling of the stock of FDI inputs in Slovenia. The increase in exports and imports concerning the global total increases the studied dependent variable. At the same time, a value of the import diversification index closer to 1, which indicates a more pronounced divergence of imports from the global pattern, increases the stock of FDI inflows. Regarding the trade balance, a higher value of exports than imports, which translates into a favorable trade balance, also positively affects the effect variable studied in the Slovenian economy. The ILE—monetary freedom component combines a measure of price stability with one of their control, with both inflation and price control distorting market activity. The increasing score of this component, characterized by price stability without microeconomic intervention, represents the ideal state for the free market and directly affects an increase in the stock of FDI inputs.

5. Results and Discussion

In light of the current international crisis, examining the mechanisms of FDI attractiveness, their causes, and their effects on the economies of European Union Member States is vital. In addition, an analysis of foreign direct investment during the crisis period is required to comprehend the economic mechanisms operating during this phase of the business cycle and to determine the conditions for economic recovery (Simionescu 2016).

Since economic theory confirms the strong relationship between economic growth and FDI, crisis phases impose unique modifications on FDI inflows.

The process of increasing economic and technological interconnectedness between nations is giving foreign direct investment new characteristics and intensifying rivalry among nations to attract investment flows. Moreover, various objective and subjective considerations drive countries' desires to attract foreign direct investment. Over the past decade, the global regulation of investment and trade policies, particularly tariff liberalization and the lowering of tariff barriers, has enhanced the role of foreign investment in corporate internationalization (Radu 2014).

Imports, exports, their level of diversification, the balance of payments, the balance of trade, and measures of the degree of economic and monetary liberalization all have the potential to influence FDI flows.

Based on a series of five questions, the current research sought to determine the existing correlations and influences between the study variables and provide coherent responses to these questions.

In every country that was studied, the independent variables had a positive impact on the dependent variable. The Czech Republic is the only country with an exception to this rule (ILE_{LA}). As a result, the values of ILE_{LA} are negative in the Czech Republic, although the values of $X_{\%G}$, $M_{\%G}$ and Id_M are all positive. As for the other countries, every combination of independent variables found feasible for the particularities of the used models had a favorable positive impact on the dependent variable being studied.

Thus, the answer to the first question was identified, represented by how the independent variables of the research influence the dependent variable (IC1) within each EU Member State integrated into the study.

In the research framework, the possibility of identifying a generic model was analyzed, which would describe, at the level of the four states, the relationship between the sets of independent variables and the dependent variable as well as possible.

As could be observed and noted from the research developed and based on the scenarios implemented, no econometric model that uses the same independent variables can be applied to all four countries under consideration.

Hence, the response to question IC2 (What is the econometric model that best describes the relationship between the independent factors and the dependent variable from the perspective of the effect of the independent variables? Is there a standard model that can be used for all four countries?) reveals a high degree of specificity and a need for convergence among the nations analyzed regarding the availability of a universal econometric model.

Due to the diverse characteristics of the analyzed countries and the current environment, a separate analysis was required for each nation.

To conclude, because the adjusted coefficient of determination (R^2) has similar values for the four countries that were surveyed (more than 88% in the Czech Republic, more than 78% in Hungary, more than 87% in Poland, and more than 93% in the case of Slovenia), it is possible to state that all of the models that were identified and applied are appropriate for the evaluation of economic data.

This argument is the solution to the third research question, IC3 (Which econometric model—collection of variables is most helpful in analyzing each country's economic data?), based on data processing results.

The thorough analysis aimed to determine (IC4) the impact of the independent variables on FDI flows, considering each country separately.

It was found that imports and exports positively affected FDI stocks in all analyzed countries. This conclusion is based on examining and assessing the sets of independent variables in the models.

In light of the global pandemic crisis, which has highlighted the vulnerability of over-reliance on foreign supply chains, CEE countries have accelerated adopting local legislation restricting foreign direct investment in specific critical technological infrastructures in their respective nations.

The response to research question 5 (IC5: Which policies and strategies will be the most effective when implemented nationally in each country?) requires a comprehensive

methodology for each analyzed nation, considering the current economic, political, and social specifications.

With the implementation of the first FDI Act in May 2021, the liberal FDI system in the Czech Republic has changed substantially. Thus, non-EU investors were required to comply with the new Czech Act on Foreign Direct Investment Screening (the “FDI Act”), which introduced two categories of screening regimes for FDI: the first regime is for investments in certain “sensitive” areas, which require prior approval, and the second is for all other investments, which do not require such prior approval, but which can be screened ex-post within five years if they are likely to affect public or internal security (Theiss 2021). These rules must be linked to macroeconomic policies in the investment process to attract international investors. The intensification of imports, a high import diversification index value, and exports contribute to a rise in the examined target variable (FDI). Regarding the freedom of business (ILE_{LA}) component, a more excellent value of this component, indicating fewer restrictions on company operations, may have a negative effect on the stock of FDI.

In light of these findings, attempts to attract FDI should seek to increase and diversify imports and increase exports. In addition to ensuring a very attractive institutional and legal framework for foreign investors, the Czech Republic must diversify its traditional investments into new R&D and innovative technology fields.

Hungary has attracted substantial international investment in recent decades due to its favorable legal and regulatory climate. Before 2019, when the Hungarian FDI Act was enacted, there was no investor screening mechanism except for sectorial screening in specific regulated industries. In response to COVID-19, implementing the final screening standards for FDI in 2018 and specific temporary screening rules for FDI in 2020 were viewed as extraordinary instruments to supplement the framework for examining industry-specific legislation (Theiss 2021). The need for FDI screening must be linked to long-term macroeconomic objectives and variables when developing national plans. The analysis revealed that imports (percent of the total) are variable, with the most significant impact on the stock of FDI inflows. However, exports and the percentage growth in the value of the balance of payments variable (percent of GDP) also positively affect FDI inflows. Regarding the two components of FDI (business freedom and tax burden) present in validated econometric models of the Hungarian economy, the existence of a regulatory framework that does not impede the efficient operation of businesses and a low level of taxation can have a positive impact on FDI flows.

In Poland, a new foreign direct investment regulation framework (Act on the Control of Certain Investments) was adopted in 2020. However, the execution thus far reflects a pro-investor stance. New restrictions did not prohibit foreign investors from acquiring Polish targets. Core investors (private equity and venture capital funds from the United States, the European Union, the United Kingdom, and Japan) remain unaffected by the new FDI screening regime (Theiss 2021). The econometric research demonstrates a favorable influence of exogenous variables (import growth, import concentration index, and balance of payments) on FDI flows in the country that are deemed investor-friendly. The different forms of state help provided to investors by Poland’s government have also been a successful tactic (income tax exemptions, real estate tax, competitive land prices). In reality, foreign investment inflows soared by 82% in 2021 compared to the preceding epidemic. In the context of the pandemic crisis, Poland’s record performance in 2021 indicates that it has profited from the worldwide trend of reducing supply chains (TVPWorld 2022).

Low levels of foreign direct investment have been observed in Slovenia over the past few years, even though this country is an appealing site for investors due to its export-oriented economy, robust infrastructure, and skilled labor force. The current FDI screening process is a novelty for Slovenia; it tries to alleviate the effects of the COVID-19 outbreak and encompasses a variety of FDI sectors (public finance, public procurement, agriculture, and infrastructure, among others) (Schoenherr 2021). According to econometric research, export and import growth relative to the total aggregate results in an increase in FDI

flows. In addition, a favorable trade balance (percentage of imports) positively impacts FDI inflow. Regarding monetary independence, price stability is the optimum condition for a free market and directly impacts FDI inflows. Therefore, combining macroeconomic policies with monetary stability measures and establishing an investor-friendly regulatory framework can increase foreign direct investment in Slovenia.

For a better examination and analysis of the influences of the independent variables used in this paper on FDI stocks, calculated as a percentage of GDP in the analyzed countries, the following table (Table 12) was made:

Table 12. Influences of indicators (positive or negative) from regression equations on FDI stock.

Country	X _{%G}	M _{%G}	I _{cM}	I _{dM}	BC _{%M}	BP _{%GDP}	ILE _{PF}	ILE _{LA}	ILE _{LM}
CZ	+	+		+				—	
HU	+	+		+		+	+	+	
PL	+	+	+		+				
SL	+	+		+	+				+

Source: Developed by authors. Note: + stands for positive and — stands for negative.

From a comparative point of view, based on the data in Table 12, it is found that there are several similarities and differences in the economies of the four countries analyzed regarding how the exogenous variables used in this paper influence stocks of FDI inflows. The explanatory variables that most often influence the variation in FDI input stocks are represented by X_{%G} exports and M_{%G} imports, with these having a positive role in increasing the FDI stock in all analyzed countries. These are followed by the index of diversification I_{dM} of imports, whose growth positively influences FDI stocks in the Czech Republic and Hungary. Finally, the concentration index I_{cM} of imports positively impacts FDI in Poland, which means that a higher concentration of imports of certain products may increase the stock of FDI.

The trade balance (% of imports) is another indicator positively influencing FDI stocks in Poland and Slovenia. The increase in BC_{%M} in the sense of growth, which can result from increasing exports, has a positive effect on stimulating foreign direct investment. In the case of the balance of payments, at the level of the Hungarian economy, it is found that a higher volume of current receipts (revenues), higher than expenditures for internationally traded goods and services, increases FDI input stocks.

The fiscal burden, which is part of the ILE_{PF} signalling indicator, which reflects both marginal tax rates and the general level of taxation, is another independent factor whose performance leads to an increase in S_{FDI,in} in the case of Hungary. Therefore, a degree of lower taxation, which reflected in a higher score of this variable, has increasing effects on the investigated economic phenomenon.

Regarding the ILE_{LA} component—business freedom, it is found from the models validated in this paper that in the economy of Hungary, a more accessible business environment also leads to an increase in stocks of FDI inflows. The only country that leaves the above pattern is the Czech Republic, where the regulatory and infrastructure environments that constrain efficient business operations still increase the dependent variable studied.

Price stability without microeconomic intervention is the ideal state for the free market. Therefore, the higher the rating value of the ILE_{LM} component—monetary freedom, the more the analyzed dependent variable represented by FDI inflow inventories is stimulated positively in the Slovenian economy.

Due to the economic shockwaves caused by COVID-19, the EU introduced in 2019 the screening rule for DMEs, which has long been absent from the legislation and regulations of most CEE nations (Schoenherr 2022). Thus, CEE Member States have enacted new measures or launched legislative proceedings following the FDI Screening Regulation, which mandates a screening process for investments in essential sectors.

6. Conclusions and Further Developments

Starting from the importance of foreign direct investment (FDI) in the economy, the primary purpose of this study was to identify and investigate the economic indicators that can explain the development of the stock of FDI in the economies of the Czech Republic, Poland, Hungary and Slovenia in the period 1995–2020. The multiple linear regression models are used with the FDI stock as the dependent variable and the independent variables of exports, imports, import concentration and diversification indices, trade balance, the balance of payments, and a set of economic freedom indicators components such as fiscal pressure, freedom of business and monetary stability. It should be noted that several initial working hypotheses were tested, also considering other economic and social indicators as independent variables, such as the salary level, political stability, workforce qualification, indices of concentration, and diversification of exports and other indicators of economic freedom, but the regression models that contained them did not pass all the validation tests. Previously, many combinations of independent variables were tested, also guided by the correlation matrix, but only those models that passed all regression validation tests were kept. It has been shown that an increase in the value of the studied economic indicators has a positive influence on the increase in the FDI stock, except for the Czech Republic, where the increase in the business freedom indicator has a negative influence but is still insignificant at only 0.7%. This could be explained by a saturation effect in the recent years of FDI, or the move from the Czech Republic to neighbouring emerging economies with lower levels of production costs, or a lower degree of compliance with EU standards for clean industries or green energy. Furthermore, a general regression model was not found for the countries studied, resulting in a high degree of specificity and a lack of convergence between the countries analyzed regarding the availability of a universal econometric model. Due to the diverse characteristics of the analyzed countries and the current environment, a separate analysis was required for each nation.

Considering the results obtained in our study, correlated with those from other works, policies and economic strategies can be developed and implemented for each country to increase the stock of foreign direct investments.

As possible further developments, it is important to study other emerging economies in Central and Eastern Europe regarding the stock of FDI inputs. Additionally, other exogenous variables can be considered in finding econometric models that explain the FDI stock's evolution. A study of the influence of the COVID-19 crisis on FDI may also be a direction for future research.

- Advantages for Working Professionals/Practitioners

The economic policies and strategies have been determined to be suitable based on a statistical–mathematical analysis and assessment (question 5), which quantitatively indicates the necessity for their implementation. Considering the analyzed countries' evolution and particular economic background, the policies and strategies should be elaborated based on the specific bases following the development and growth tracks.

- Advantages for the literature

The identification of valid models by merging sets of independent variables and examining multiple case studies serve as the basis for this process. In addition, the uniqueness and novelty of the combinations of variables and their sets constitute a potential beginning point for future research, simultaneously expanding the theoretical approaches devoted to the correlations between and influence of the variables studied.

- The boundaries of the research

Access to and the availability of UNCTAD data were the most significant constraints placed on the study (currently, there is a gap of 2 years behind). As a result, economic and social indicators were used to the degree that continuous and sequential data were available for those measures.

Even if a significant number of publications are dedicated to the subject of the study, the literature has specific areas that still need to be thoroughly addressed.

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Appendix A

Table A1. Values of economic indicators for the Czech Republic.

CZ	S _F DI _{in} (%GDP)	X _{%G}	M _{%G}	I _{cM}	I _{dM}	BC _{%M}	BP _{%GDP}	ILE _{IG}	ILE _{PF}	ILE _{LA}
1995	12.2964	0.4189	0.4792	0.0420	0.2483	−13.5495	−2.2979	46.70	100.00	69.20
1996	12.7972	0.4050	0.5057	0.0472	0.2352	−21.1669	−6.1618	47.50	100.00	72.50
1997	14.9432	0.4062	0.4767	0.0474	0.2411	−16.0801	−5.8611	53.70	100.00	74.40
1998	21.6198	0.4795	0.5031	0.0471	0.2603	−6.7805	−1.9676	54.70	85.00	75.90
1999	27.0584	0.4640	0.4859	0.0474	0.2602	−6.7007	−2.2596	59.20	85.00	76.40
2000	35.1103	0.4509	0.4805	0.0558	0.2824	−9.0085	−4.3633	58.10	85.00	75.00
2001	40.1221	0.5379	0.5661	0.0592	0.2737	−8.1922	−4.8465	67.50	85.00	81.20
2002	47.2088	0.5922	0.6101	0.0712	0.2550	−5.3237	−5.2067	66.80	70.00	82.20
2003	45.4561	0.6416	0.6649	0.0589	0.2586	−5.8501	−5.8071	67.20	70.00	81.90
2004	48.0511	0.7479	0.7381	0.0560	0.2493	−1.4021	−3.7405	67.00	70.00	84.60
2005	44.5128	0.7437	0.7099	0.0617	0.2423	2.0891	−2.0617	68.20	70.00	88.90
2006	51.3566	0.7827	0.7542	0.0616	0.2542	1.8652	−2.5704	68.80	57.80	85.90
2007	59.4037	0.8737	0.8304	0.0616	0.2693	3.6633	−4.7275	69.90	61.10	86.30
2008	48.0120	0.9090	0.8625	0.0639	0.2592	3.3521	−1.8700	71.30	64.20	80.30
2009	61.0279	0.8996	0.8277	0.0673	0.2457	7.5275	−2.3619	80.20	65.10	79.70
2010	61.9363	0.8690	0.8213	0.0771	0.2600	4.9976	−3.5431	80.10	65.50	75.60
2011	52.8932	0.8884	0.8250	0.0710	0.2926	7.1087	−2.2023	81.00	69.80	80.00
2012	65.8190	0.8483	0.7580	0.0709	0.2971	11.0520	−1.5231	82.00	67.70	81.50
2013	64.0320	0.8565	0.7610	0.0687	0.3001	12.4604	−0.5281	82.00	65.80	81.70
2014	58.4702	0.9208	0.8094	0.0699	0.2914	13.4756	0.2203	81.70	70.10	79.40
2015	62.4246	0.9536	0.8454	0.0737	0.2880	11.6814	0.2467	81.50	68.20	81.20
2016	62.4606	1.0141	0.8831	0.0732	0.2848	13.7388	1.5459	82.50	66.60	84.10
2017	72.2484	1.0269	0.9088	0.0748	0.2848	11.5034	1.4586	82.90	67.20	85.80
2018	66.9687	1.0388	0.9321	0.0777	0.2949	9.5199	0.3556	82.90	72.50	85.20
2019	69.6297	1.0509	0.9265	0.083	0.3	11.3674	0.36	82.6	72.4	81.5
2020	78.22	0.684	0.957	0.088	0.301	12.16	3.66	82.00	69.7	80.8

Table A2. Values of the economic indicators for Hungary.

HU	S _{FDI_in} (%PIB)	X%G	M%G	I _{cM}	I _{dM}	BC%M	BP%GDP	ILE _{PF}	ILE _{LA}	ILE _{LM}
1995	24.3407	0.2485	0.2954	0.0512	0.2676	−16.8122	−3.3962	46.80	85.00	64.20
1996	28.4660	0.2902	0.3301	0.0583	0.2898	−13.4472	−3.7143	55.80	70.00	66.60
1997	37.9902	0.3411	0.3734	0.0663	0.2827	−10.0542	−4.1086	54.40	70.00	63.00
1998	42.5666	0.4175	0.4563	0.0697	0.2896	−10.5038	−7.1046	55.70	70.00	63.80
1999	47.3988	0.4374	0.4783	0.0758	0.3032	−10.6478	−7.8933	62.60	70.00	66.30
2000	48.4343	0.4369	0.4834	0.0890	0.2762	−12.3683	−8.4466	63.90	70.00	69.60
2001	50.9901	0.4913	0.5242	0.0916	0.2794	−9.4629	−5.8241	65.70	70.00	73.30
2002	53.5834	0.5310	0.5666	0.0861	0.2834	−8.5753	−6.3839	65.50	70.00	74.70
2003	56.6696	0.5678	0.6145	0.0889	0.2601	−9.8603	−8.0058	65.60	70.00	70.60
2004	59.2217	0.6024	0.6386	0.0992	0.2893	−8.2123	−8.5024	65.60	70.00	73.70
2005	54.0890	0.5992	0.6175	0.1005	0.2750	−5.4331	−6.9743	67.90	70.00	75.60
2006	69.3505	0.6205	0.6334	0.1197	0.2827	−3.8422	−7.0419	68.20	70.80	74.30
2007	68.2089	0.6804	0.6716	0.1088	0.2994	−0.1731	−7.1148	68.80	70.20	76.60
2008	55.6986	0.6719	0.6615	0.1270	0.2990	−0.4004	−6.9185	70.00	74.40	77.20
2009	75.6358	0.6611	0.6127	0.1376	0.3187	6.7483	−0.7597	70.60	77.40	73.80
2010	69.4051	0.6240	0.5718	0.1217	0.3224	8.2840	0.2646	68.60	76.80	74.10
2011	60.6727	0.6124	0.5555	0.1043	0.3079	9.6369	0.8043	69.70	76.50	75.90
2012	81.4709	0.5594	0.5102	0.1012	0.3100	8.8195	1.7118	78.60	79.80	76.10
2013	80.6078	0.5673	0.5279	0.0945	0.3090	7.3747	3.7675	79.70	79.10	77.10
2014	71.4368	0.5820	0.5505	0.0855	0.2992	5.4582	1.4552	81.10	79.30	75.60
2015	69.2635	0.5951	0.5500	0.0835	0.2984	7.1226	2.7272	78.70	74.50	79.20
2016	64.8597	0.6353	0.5796	0.0851	0.2855	8.5636	6.1582	78.70	70.60	88.30
2017	66.1567	0.6416	0.5982	0.0739	0.2705	5.8477	2.7533	79.30	64.00	91.70
2018	60.6694	0.6462	0.6142	0.0723	0.2628	3.3804	0.4027	78.60	61.80	91.60
2019	61.4759	0.6544	0.6228	0.074	0.256	3.1729	−0.38	78.6	61.1	81.8
2020	65.44	0.614	0.649	0.073	0.253	3.99	0.01	79.9	60.2	79.9

Table A3. Values of economic indicators for Poland.

PL	S _{FDI_in} (%GDP)	X%G	M%G	I _{cM}	I _{dM}	BC%M	BP%GDP	ILE _{IG}	ILE _{PF}	ILE _{LA}
1995	5.5180	0.4423	0.5549	0.0490	0.2931	−21.1876	0.6008	51.00	70.00	48.70
1996	7.1667	0.4517	0.6756	0.0511	0.2747	−34.1861	−2.0407	48.00	70.00	52.40
1997	9.1674	0.4598	0.7441	0.0549	0.2733	−39.1397	−3.6099	49.50	70.00	55.20
1998	12.8800	0.5123	0.8354	0.0510	0.2759	−40.0064	−3.9573	51.60	70.00	59.60
1999	15.3638	0.4780	0.7833	0.0562	0.2584	−40.3723	−7.3575	53.20	70.00	63.60
2000	19.4760	0.4920	0.7368	0.0671	0.2646	−35.2480	−6.0173	58.10	70.00	66.90
2001	21.2021	0.5811	0.7826	0.0612	0.2606	−28.2678	−3.1209	61.30	70.00	70.90
2002	23.8049	0.6328	0.8299	0.0607	0.2591	−25.6171	−2.7904	65.30	70.00	70.40
2003	25.7959	0.7083	0.8775	0.0611	0.2613	−21.2536	−2.5162	65.60	70.00	73.50
2004	32.9684	0.8136	0.9462	0.0575	0.2665	−16.3324	−5.4297	64.90	70.00	78.10
2005	28.2058	0.8516	0.9430	0.0607	0.2373	−12.0047	−2.6071	68.30	70.00	82.30
2006	33.5869	0.9134	1.0278	0.0696	0.2296	−12.7641	−4.0298	68.70	56.50	79.60
2007	38.3097	0.9995	1.1645	0.0644	0.2206	−15.4265	−6.3929	68.60	55.30	80.30
2008	27.8036	1.0555	1.2679	0.0713	0.2081	−18.3647	−6.7120	68.60	54.20	82.30
2009	38.0634	1.0871	1.1777	0.0635	0.1972	−8.6689	−4.0626	69.00	53.70	80.80
2010	39.1391	1.0438	1.1546	0.0668	0.2023	−10.2923	−5.3983	74.90	62.20	78.10
2011	31.0925	1.0289	1.1421	0.0711	0.2065	−10.3993	−5.1728	74.00	61.40	78.10
2012	39.7625	1.0013	1.0670	0.0827	0.2051	−6.8751	−3.7184	74.40	61.40	79.10
2013	44.2580	1.0819	1.0949	0.0730	0.2122	−1.2679	−1.2874	76.00	64.00	77.70
2014	38.7772	1.1577	1.1732	0.0668	0.2047	−1.5674	−2.0984	76.10	70.10	77.80
2015	38.9434	1.2028	1.1749	0.0544	0.2080	1.3493	−0.5568	82.10	67.30	81.30
2016	39.9826	1.2704	1.2317	0.0519	0.2078	2.1603	−0.5207	75.50	68.70	85.20
2017	45.3065	1.3213	1.3008	0.0526	0.2039	0.2361	0.1144	76.00	67.80	84.70
2018	39.0159	1.3539	1.3576	0.0560	0.2087	−2.0037	−0.5597	75.90	67.20	85.00
2019	40.3392	1.3977	1.3619	0.056	0.217	0.7691	0.49	74.9	65.4	82.1
2020	41.84	1.552	1.464	0.048	0.226	4.67	3.46	74.7	62.6	82.00

Table A4. Values of economic indicators for Slovenia.

SL	S _{FDI_in} (%GDP)	X%G	M%G	I _{cM}	I _{dM}	BC% _M	BP%GDP	ILE _{IG}	ILE _{PF}	ILE _{LA}	ILE _{LM}
1995	8.4688	0.1607	0.1813	0.0566	0.2420	−12.3815	−0.3521	30.00	69.30	70.00	60.50
1996	9.3901	0.1536	0.1714	0.0620	0.2621	−11.7903	0.2575	30.00	69.30	70.00	60.50
1997	10.6347	0.1495	0.1646	0.0602	0.2690	−10.5269	0.2434	50.00	51.40	70.00	64.00
1998	12.4846	0.1642	0.1795	0.0579	0.2633	−10.5045	−0.5343	50.00	51.80	70.00	68.40
1999	11.8326	0.1493	0.1725	0.0623	0.2677	−15.4046	−3.0723	50.00	52.40	70.00	70.80
2000	11.7736	0.1359	0.1525	0.0618	0.3024	−13.5744	−2.6912	50.00	52.90	70.00	71.90
2001	12.0809	0.1496	0.1584	0.0573	0.3022	−8.7945	0.1499	60.00	52.80	85.00	73.60
2002	16.9122	0.1595	0.1642	0.0532	0.2921	−5.2882	1.0347	55.00	51.80	85.00	72.00
2003	20.7536	0.1682	0.1780	0.0545	0.2926	−7.7945	−0.7263	52.00	53.10	85.00	76.70
2004	20.9582	0.1774	0.1873	0.0602	0.2953	−7.8676	−2.5892	60.00	54.40	85.00	77.30
2005	19.4887	0.1833	0.1887	0.0658	0.3078	−5.3546	−1.8723	59.00	55.60	85.00	79.10
2006	22.4333	0.1915	0.1954	0.0637	0.3160	−3.7739	−1.7564	60.00	64.00	75.10	81.70
2007	22.7871	0.2147	0.2218	0.0675	0.3046	−4.6177	−4.1873	61.00	54.60	72.90	78.90
2008	21.5389	0.2113	0.2249	0.0804	0.3022	−7.8477	−5.3002	64.00	62.40	74.10	79.50
2009	22.3901	0.2085	0.2089	0.0696	0.2710	−1.2451	−1.0657	66.00	62.90	84.50	78.60
2010	22.1479	0.1908	0.1951	0.1118	0.2811	−2.9687	−0.7445	67.00	64.00	83.30	76.00
2011	22.3035	0.1891	0.1927	0.1208	0.3304	−2.3912	−0.8189	66.00	65.10	83.60	80.50
2012	26.1969	0.1737	0.1717	0.1233	0.2945	0.3995	1.3204	64.00	64.80	81.40	81.20
2013	25.3486	0.1795	0.1760	0.1232	0.3434	1.9110	3.3124	59.00	65.70	80.70	81.60
2014	24.8059	0.1892	0.1781	0.1173	0.2960	5.9581	5.1229	61.00	58.90	85.40	80.30
2015	29.3384	0.1929	0.1783	0.1206	0.3032	7.0918	3.8177	57.00	58.10	81.20	81.30
2016	30.6196	0.2052	0.1885	0.1133	0.3002	7.7913	4.8268	58.00	58.60	82.00	84.30
2017	34.4684	0.2167	0.2007	0.1239	0.3282	6.5552	6.1661	53.60	58.70	80.60	85.30
2018	32.1076	0.2270	0.2134	0.1296	0.3070	4.5732	5.6705	52.10	58.70	79.50	87.30
2019	34.0069	0.2375	0.2285	0.139	0.345	2.0567	5.99	58.40	79.30	83.60	34.00
2020	38.6	0.254	0.236	0.152	0.353	6.18	7.48	59.20	78.40	82.20	38.60

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