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INFLUENCE OF STRUCTURAL DISTRIBUTION OF FDI INFLOWS ON LABOUR PRODUCTIVITY OF VISEGRAD COUNTRIES

Although FDI flows into most post-socialist countries are based on their market transformation development, the largest volume is directed to the Visegrad countries that are generally perceived as above-average successful in attracting foreign investors. The paper analyses how does the inflow of FDI into Czech Republic, Hungary, Poland and Slovakia contribute to the growth potential of labor productivity during period of 2010-2016. The shift-share analysis of OECD data within 11 key sectors decomposes the determinants of labour productivity and determines contribution to the potential of labour productivity growth. The results are interpreted on the basis of the sectoral, competitive and residual effect. Findings proved no significant differences in productivity between economics however the localization of foreign capital to technology-intensive industries does not put pressure on progressive productivity growth. Decreased inflows of foreign capital, averaged by 8% from all sectors within the region, are driven in each country by a different industry. Results also demonstrated more attractive structure of the sectors of the Czech and Hungarian economics for stimulation the inflow of foreign capital into a country. The presented approach contributes to the issue of complexity of the FDI localisation and the countries´ ability to assume the presence of foreign capital. The stated recommendations are considering the economic regulations related to pandemic situation in 2020.

Keywords: *multinationals, national productivity, shift-share analysis, transition economies*

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1. INTRODUCTION

The Visegrad countries (V4 - Czech Republic, Hungary, Poland and Slovakia) are characterized by similar historical developments that have affected their industrial capacity and economic maturity. The economic transformation in the V4 countries was linked to the redistribution of the labour factor across economic sectors. On the one hand, there has been a significant change in the shift from the public to the private sector, which logically puts pressure on changes in labour productivity. Transforming and emerging industries created a need for new skills, leading to change in the educational structure and increase labour productivity. In the case of the V4 countries (as well as other transit economies), economic changes in the trend of EU-15 countries are foreseen: the decline of the agricultural sector position; strengthening the service sector and reducing the position of manufacturing (Bielik & Rajcaniova, 2008).

Although FDI flows into most post-socialist countries, the largest volume is directed to the V4 countries, which are generally perceived as above-average success in attracting foreign investors, especially for the local labour costs and labour productivity (Bacovic et al, 2020). According to Suder & Sohn (2016), this may be up to 80%, while Slovakia lags behind in this respect compared to the Czech Republic, Hungary and Poland. Slovakia´s weaker position in terms of FDI attractivity within V4 is also indicated by current data where the highest volume of FDI inflows to Poland (13 220 million USD), followed by Czech Republic (7 577 million USD), Hungary (5 205 million USD) and finally Slovakia (2 449 million USD) (UNCTAD, 2020). In addition to the generally valid characteristics of emerging economies that have cheap labour and other inputs, the Czech Republic, Hungary and Poland were not only relatively low in political risk and macroeconomic stability, as reported by Mišun & Tomšík (2002), the main reasons were also the speed of the liberalization process and the early start of restructuring.

The EU membership in 2004 offered additional benefits for the V4 countries. These include, for example, access to EU funds, almost unlimited access to EU markets, intra-Union VAT-free trade, a stable regulatory environment, less regulated labour migration, lower operating costs due to market liberalization, including improved transport corridors. The global financial crisis and recession in 2008-2009 had a strong impact on the investment environment in whole Europe (Russu, 2016). In this period, FDI inflows to the EU decreased by as much as 62% (from USD 793 billion to USD 302 billion) (Dudas & Dudasová, 2016). In last years, V4 countries are characterized by the highest labour force utilization rate, up to 50% of the total workforce compared to other EU states (Russu, 2016).

The paper examines the effect of structural distribution of FDI inflows on national productivity in V4 countries. Literature review is devoted to the importance of FDI and its impact on the host market productivity. The following chapter therefore classifies the impacts of foreign investment inflows and at the same time explains the continuity of the issue in question with the existence of a system of government investment incentives. The methodological part of the paper presents a shift-share analysis that allows to decompose determinants of labour productivity and leads to answering the basic research question: How does the magnitude of FDI inflows reflected in the sectoral focus contribute to the potential of labour productivity growth? The results are interpreted on the basis of the observed effects, i.e. the sectoral, competitive and residual effects.

2. FDI IMPACT ON HOST COUNTRY PRODUCTIVITY

FDI is often cited as an important driver of productivity, investment, and economic growth. For economies that have undergone transformation, they are also considered as an accelerator of technological growth (Estrin et al., 2009). At the same time, the inflow of FDI is referred to as a criterion for successful economic transformation (Hlaváček & Bal-Domanska, 2016). The role of FDI in relation to the economic development of Central European countries was dealt with, for example, by Hafner & Kleinert (2018); Hlaváček & Bal-Domanska, 2016; or Curwin & Mahutga, (2014); Bellak et al (2008). The FDI penetration within individual V4 economies was examined in the case of the Czech Republic by Toušek & Tonev (2003); for the Slovak Republic investigation; Nowak & Wolniak (2007) for research of Poland Gorynia, (2007) and Boudier-Bensebaa (2005) for Hungarian analysis.

Usually, FDI serves to support the internationalization of production and stimulates the commercial openness of the economy, which is expected to have a positive impact on its growth and competitiveness. The presence of FDI generally increases competitive pressures in markets and stimulates technology transfer, knowledge and innovation. In addition, foreign capital provides financial resources that may be scarcer in the host countries, thereby reducing the credit constraints on investment (Wang, 2010; Frankel & Romer, 1999).

The inflow of foreign capital brings a number of direct and indirect effects affecting the productivity in the host country (Bellak et al, 2008). Unlike direct impacts (e.g. increased productivity of acquired firms) that are clearly visible and measurable, indirect impacts, also known as spill-over effects (e.g., dispersal of technology among local competitors, increase in supplier firms productivity),

are reflected in the longer term and proving causation is much more complicated (Hampl & Havránek, 2018). FDI spill-over can take place through five main channels with domestic firms: demonstration / imitation, labour mobility, exports, competition, and backwards and direct links.

Demonstration (by international firms) or imitation (by domestic firms) is probably the most noticeable spill-over channel. Given the cost and risk of introducing new technology, an important supportive factor for local companies is the case when a foreign company already successfully uses technology. It is clear that the importance of this effect increases with the similarity of goods produced by two types of enterprises (Ha & Giroud, 2015).

The second channel is related to the possibility of domestic firms to acquire human capital, formerly operating in an international enterprise, so these workers are able to implement the acquired knowledge and skills in a domestic firm (Kottaridi et al, 2019). The arrival of a foreign investor is usually associated with greater labour productivity than domestic firms, especially in the case of transition economies. Foreign capital plays an important role in the development of human capital and especially in labour productivity, since not only inflows of capital and other intangible assets are expected, but also productivity growth due to the upgrading of employees of foreign companies at all levels of the enterprise (Ali et al., 2016). The increase of company productivity results in higher profits and higher wages and it is generally known that higher wages in foreign companies are due to higher qualifications. These higher wages consequently increase the purchasing power of the population and higher productivity ensures the competitiveness of companies in all markets. However, it is important to emphasize the possible negative impact that this channel has in the opposite direction. International businesses can thanks to higher wages attract skilled workers from domestic companies who have already been trained by these local businesses. It is argued that FDI can even destroy existing local firms unable to compete with the attractiveness of foreign firms supported by government incentives (Javorcik & Spatareau, 2008; Pavlínek, 2004).

Export is the third channel through which multinational companies (MNCs) can contribute to increasing export capacity of domestic firms ((Blomstrom & Kokko, 2001). The export activity includes costs of setting up distribution networks, transport infrastructure or knowledge of consumer preferences. By monitoring the export processes of foreign firms, domestic firms can reduce foreign market entry costs. The profits obtained may have a positive impact on the productivity of the domestic business (Sass et al, 2018).

Increased competition in the host market caused by the presence of MNCs is the fourth channel of the FDI spillover effect. It is an incentive for domestic enterprises to use existing resources and technologies more effectively, or even to push

them to adopt new technologies. However, this channel may negatively affect the efficiency of domestic firms, as the presence of MNCs may entail significant losses in their market shares, forcing them to cooperate less effectively, with consequent increases in average costs (Aitken & Harrison, 1999; Marcin, 2008; Plummer & Acs, 2014).

The last channel concerns the relationships between domestic firms in local markets and MNCs as their suppliers (backwards) or domestic customers and distributors (direct links). The presence of foreign firms may trigger an increasing demand for local inputs of higher quality. Some international companies may also use advisory, marketing or logistics services of domestic companies, thus stimulating the tertiary sector. The use of quality domestic production is a manifestation of vertical spill-over effects. Regarding the channel of direct links, horizontal spill-over effects are manifested in offering better or cheaper inputs to domestic consumer goods manufacturers for final users. The horizontal spill-over effects are evaluated positively only from the perspective of the host economy and not from the view of a foreign investor (Newman et al., 2015).

The ability to establish links between a foreign company and local entities is one of the determinants of investment stability. The host market may develop dependency on foreign capital over a longer period of time, whether in a positive or negative impact. Creating some dependence on the domestic supply network reduces the possibility of relocating a given FDI to another region or country, on the other hand, however, FDI may be displaced by existing firms and the so-called dual economy may arise. The location factor for FDI placement is a prerequisite for cheap production costs, including lower employee wages, but in some countries, including V4, wages are naturally increasing over time (Pavlínek, 2004).

Spillover effects through labour productivity belong to key reasons of most emerging economies for offering generous government incentives to foreign investment (Demir & Duan, 2018). As FDI activities and the degree of interaction with other enterprises in the host country may take different forms, the final impact of FDI on the host economy is ambiguous.

Characteristics of industry, such as technological intensity, requirements for factors, links to local and foreign markets, and the degree of vertical integration of foreign affiliates, affect the growth impact of FDI in various ways. Similarly, the characteristics of individual sectors may influence the mode and extent of the effect. This is primarily a differentiation between sectors that are more demanding in terms of industry and technology. A comparison of the growth rates among groups of host economies shows stronger link between FDI and economic growth in the services than in manufacturing sector. The definition of "desirable" FDI is associated with an analysis of the effects of structural FDI distribution that enter host economies and their impact on productivity (Nunnenkamp & Spatz, 2004).

3. METHODOLOGY

The main aim is to evaluate the dynamics of labour productivity over time and its influencing factors. National decision-making on economic development is a multidimensional process that involves political, economic and social aspects. One of the widespread techniques for economic development evaluation is shift-share analysis. Its use lies mainly in the area of forecasting, strategic planning and political evaluation of individual areas (Střeleček, et al., 2010). It is therefore a suitable supporting tool for assessing the benefits of FDI inflows and the localization of foreign capital to host economies.

Shift-share analysis is applicable in the field of labour productivity research (Zdeněk & Střeleček, 2012; Šimanová & Trešl, 2011; Zdeněk & Lososová, 2009; Maudos et al., 2008). The decomposed variable may also be employment (Zdeněk & Střeleček, 2012; Bielik & Rajčániová, 2008; Riguelle et al., 2007) or value added (Esteban, 2000). The applicability of the method is also possible in the case of other variables, where it is necessary to appraisal the relationship of the monitored factors from both a static and a dynamic point of view (Zdeněk & Střeleček, 2012). In this case, the shift-share analysis is applied to research the relationship between productive labour and the sectoral distribution of FDI inflows, to assess the development and structural changes in terms of individual sectors.

The method is based on decomposition of changes of the given variable (labour productivity) into effects influencing it and residual component. Esteban (2000) presents a static shift-share analysis to evaluate multi-sectoral structure of labour productivity with regional differences. Similarly, Maudos et al., (2008) express changes in labour productivity through a static sectoral effect of reallocating resources into multiple productive sectors. The difference in labour productivity of the two periods is then explained by the intra sectoral effect, the static sectoral effect and the dynamic sectoral effect. The last two are so-called structural change effect. The analysis was applied to 47 industries in the EU-15 and US. Many other authors have analysed changes in the productivity of labour factor relative to the structure of the economy (Levenko et al., 2019; Klíma & Palát, 2005; Blaas 2004).

Because of its decomposing character, a shift-share analysis is a suitable method for evaluating sustainable development. That is, whether (regional) development is driven or hampered by the economic, social or environmental component. A shift-share analysis assessing Polish regions was used by Cieslak et al. (2019) who observed abrupt changes over the years 2003 and 2013. They identified striking regional disparities and relatively low progress despite expectations and starting position of regions.

3.1 The effects of structural distribution of FDI inflows on national productivity indicator

The shift-share analysis will answer the basic research question: How do the FDI inflows reflected in the sectoral focus contribute to the labour productivity growth potential? The paper analyses the distribution of FDI inflows to V4 countries within the key sectors (according to OECD classification; OECD, 2019): (a) agriculture, forestry and fishing; (b) mining and quarrying; (c) manufacturing; (d) electricity, gas, stream and air conditioning supply; (e) water supply, sewerage, waste management and remediation activities; (f) construction; (g) services; (h) private real estate activities; (i) activities other than finance and insurance; (j) other (not allocated and confidential).

The paper provides both a static view of the distribution of FDI inflows (for a given year) and a dynamic view of the change in relation to productivity and at what stage the change happens. The OECD statistics (2019) provided data on labour productivity and FDI inflows into individual sectors. To answer research questions and visualize the dynamics of changes in regional productivity, the data is structured as follows.

Year of 2010 is the baseline, given the values measured in USD in constant prices in 2010, so that FDI inflows are not distorted by inflation. The unit of measurement has been unified due to the different national currencies of the V4 countries. The most recent year in terms of data availability for the analysed region and therefore the last considered year is 2016 (OECD, 2020). FDI data are collected from the annual reports of individual companies, which are available on national portals for publication only up to two years late, and from the information of the national banks. The time lag phenomenon is gaining momentum in complementing data in international research. Nevertheless, the seven-year period is sufficient to visualize and interpret the findings whether and to what extent V4 economies are using the sector to distribute localized long-term capital for growth potential. For a dynamic version of the shift-share analysis, tracking the values over two years indicating the beginning and end of the period under review is sufficient (Zdeněk & Střeleček 2012; Esteban, 2000). Nevertheless, the additional year of 2013 was chosen to indicate when significant changes occurred.

Using shift-share analysis, it is possible to decompose the labour productivity determinants. Based on the approach of Zdeněk & Střeleček (2012) and the methodology of Bielika & Rajčániová (2008) dealing with the decomposition of employment growth in the V4 countries; the following were constructed (1):

$$SP_{FDIi} = SE_i + CE_i + RE_i \quad (1)$$

Where:

SE_i represents sectoral effect.

CE_i represents competitive effect.

RE_i represents residual effect.

The constructed indicator of the impact of the structural distribution of FDI inflows on national productivity (1) monitors the change in the distribution of foreign capital inflows in individual V4 countries and the link of this distribution to productivity (technological level) of individual economies. Given the results for the whole group of countries under review (benchmark), it is possible to interpret the position of economies in international comparison. It means, which economies achieve below-average or above-average positions in overall distribution or in terms of individual factors (particular effects or key industries).

The sectoral effect (2) measures the impact of differences between the initial distribution of FDI inflows into the industries under review in the country i ($IFDI_i$) and the overall sample structure (($\overline{IFDI_{V4}}$)):

$$SE_i = \sum_{i=1}^{n} (IFDI_{ijt} - \overline{IFDI_{V4_{ijt}}}) \quad (2)$$

Where:

$IFDI_{ijt}$ means structural distribution of FDI inflows to the country i to the sector j in the year t.

$\overline{IFDI_{V4_{ijt}}}$ means average FDI inflow to the region (area) V4 countries in the period year t. $\overline{IFDI_{V4_{ijt}}}$ figures as a benchmark to determine the position of the economies in the international comparison in terms of distribution of FDI inflows into individual sector j.

ΔAP_{Lit} means a productivity labour change in country i in the year t.

Structural FDI inflows distribution in a country *i* ($IFDI_i$) is quantified as (2):

$$IFDI_i = (\sum_{i=1}^{n} I_{ijt} - \sum_{i=1}^{n} I_{ij(t-1)}) / \sum_{i=1}^{n} I_{ij(t-1)} \quad (3)$$

Where:

$\sum_{i=1}^{n} I_{ijt}$ represents the FDI inflow to the country *i* to the sector *j* in the year *t*.

$\sum_{i=1}^{n} I_{ij(t-1)}$ represents the FDI inflow to the country *i* to the sector *j* in the year *t-1*.

The sectoral effect (2) shows the difference in the sectoral distribution of foreign capital inflows in the country and the total group of countries. The negative value of the effect indicates a low inflow of foreign capital into the economy in benchmark comparison (the average inflow of foreign capital into the V4 region). On the other hand, a positive value signals an above-average inflow and an above-average position of the economy within the group. The final value of the effect is determined by size of the FDI inflow into the economy i and its sectoral distribution is also influenced by the size of labour productivity in the country i. The ideal situation is for the economy i to have positive high values of the sectoral effect and to succeed in increasing over time. In this case, the economy shows above-average FDI inflows multipliable by above-average or increasing productivity, localization of capital to high value-added industries and high-tech sectors, or their combination.

Competitive effect measuring the impact of differences in labour productivity (4):

$$CE_i = \sum_{i=1}^{n} (\Delta AP_{L_i t} - \overline{\Delta AP_{L_{V4t}}})\, IFDI_i \tag{4}$$

Where: $\overline{\Delta AP_{L_{V4t}}}$ means average contribution of labour productivity in the V4 region. $\overline{\Delta AP_{L_{V4t}}}$ figures as a benchmark to determine the position of the economies within the international comparison in terms of productivity.

The competitive effect is the difference in labour productivity in the country i in comparison of the whole area - V4 region (benchmark). The difference is multiplied by the sectoral distribution of FDI inflows into the economy *i*. The labour productivity and the sectoral distribution of FDI inflows are closely linked. A capital located to the strategic sectors requiring skilled labour puts pressure on the national productivity growth and vice versa. In economies where foreign capital is located into low value added industries (agriculture, forestry and fishing; mining and quarrying), low labour productivity, resp. low growth dynamics is expected.

For the increasing competitiveness, it is ideal for this component to achieve positive, increasing values over time. This would indicate an above-average labour productivity growth multiplied by a significant (in time increasing) inflow of foreign capital into the economy *i*. If the competitive effect is negative, either economy *i* is in view of labour productivity below-average in benchmark comparison or there is decrease in the foreign capital inflow into technology-intensive industries.

Residual effect (5) is a combination of the previous effects

$$RE_i = \sum_{i=1}^{n} (IFDI_{it} - \overline{IFDI_{V4_t}})(\Delta AP_{L_i t} - \overline{\Delta AP_{L_{V4t}}}) \tag{5}$$

The residual effect (5) illustrates the interconnection of the previous two effects. The ideal situation is to achieve low values close to zero. Otherwise, high values would indicate anomalies in the set of countries in terms of above-proportional inflows or outflows of foreign capital to or from sectors that do not correspond to the level of national productivity. E. g. significant FDI inflows to low value-added industries in economies with above-average productivity growth etc.

Finally, after presenting all components of the indicator (1), it is necessary to consider certain assumptions (some of them are restrictive and limitative the informative ability of the indicator - but it is not possible to include them into the model). It abstracts from the interdependence of economies; e.g. the transfer of technological knowledge gained from FDI between economies which can obviously happen. Secondly, due to the limited availability of data sources, it works with the overall productivity of a given economy, not with the productivity of an industry. Lastly, it does not consider the absolute benefit of distributing foreign capital inflows into individual sectors. The absolute benefit of the distribution of foreign capital could be a limit, respectively how much foreign capital the industry is able to accept in analysed economy - given national productivity, in order to generate positive spill-over effects and benefits from FDI localization (Crespo & Fontoura, 2007). It is appropriate to monitor a 'market saturation indicator' and its capacity. The values of this indicator could then be a certain limit to the use of the indicator (1).

4. RESULTS AND DISCUSSION

Labour productivity analysis can be done by assessing the differences in productivity of individual economies and productivity of the benchmark ($\Delta AP_{L_i t} - \overline{\Delta AP_{L_{V4t}}}$) and the components that influence it (FDI distribution by key sectors). The benchmark in this case is the average productivity increase of the V4 countries ($\overline{\Delta AP_{L_{V4t}}}$).

Table 1 illustrates the coefficients of structural distribution of FDI inflows in individual periods. At the end of the period under review in 2016, compared to the beginning of the period, the FDI inflow to the Czech Republic dropped by 7.1%. More dramatic FDI outflow occurred between 2013-2016. The reason were significant transfers of real estate, originally owned by foreign investors (the outflow of capital from private development projects compared to 2010 reached up to 250%!). This fact most affected the overall balance of capital distribution within the sector. In summarizing the inflow of foreign capital by industry j, none of the countries of the V4 region recorded as significant fluctuation as in real estate sales in the

Czech Republic. Only Hungary experienced an outflow of foreign investment in the energy supply of around 60%.

Table 1:

STRUCTURAL DISTRIBUTION OF FDI INFLOWS

	2010-2013	**2013-2016**	**2010-2016**
Czech Republic	2,95%	-9,77%	-7,10%
Hungary	13,97%	-22,25%	-11,39%
Poland	8,81%	-16,37%	-9,00%
Slovakia	13,09%	-17,55%	-6,76%
Benchmark	**9,71%**	**-16,49%**	**-8,56%**

Source: own proceedings, OECD data (2019)

The capital outflow in all sectors contributed to Poland's overall negative balance in the second half of the period. Contrary, the positive overall balance between 2010-2013 is due to the increasing inflow into all sectors except energy supply. It can be claimed that Poland has not managed to keep growing interest of foreign investors. The same conclusion applies to Slovakia. Overall, the distribution of foreign capital inflows decreased by 8.56%, resp. within the region, capital outflows from all sectors averaged 8%. In each country, however, this fact was driven by a different industry.

Table 2 shows the balance of the individual effects and the overall level of the impact of structural FDI distribution on national productivity. The balance of the sectoral effect for the Czech Republic is positive, but at a low value (1.584%). Hungary experienced the opposite development due to a noticeable inflow of foreign capital into primary industries, services and real estate trade. Before 2016, however, there was an outflow of FDI from low-tech industries, which caused a negative overall balance (-2.287%) of FDI inflows compared to the beginning of the decade. Other countries have not experienced such dramatic changes in the distribution of FDI inflows into individual sectors.

Table 2:

SUMMARY RESULTS OF THE SHIFT-SHARE ANALYSIS INCL. DECOMPOSITION OF EFFECTS

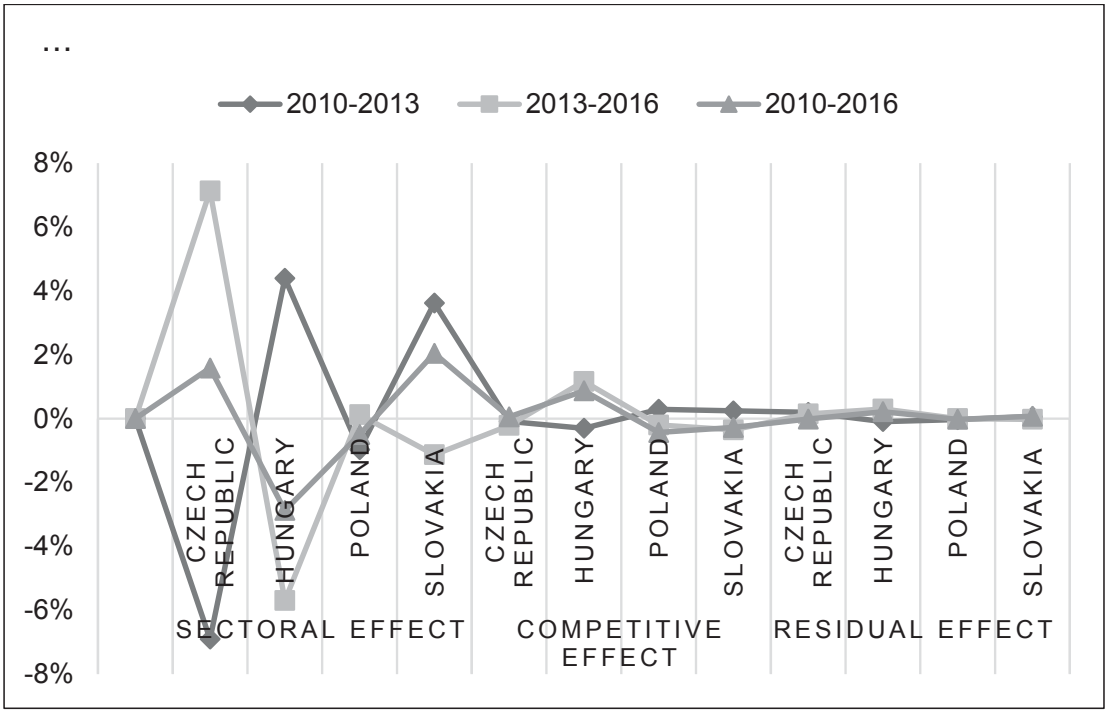
	Country *i*	**2010-2013**	**2013-2016**	**2010-2016**
Sectoral effect	Czech Republic	-6,90%	7,13%	1,58%
	Hungary	4,39%	-5,70%	-2,87%
	Poland	-0,97%	0,13%	-0,50%
	Slovakia	3,62%	-1,13%	2,05%
Competitive effect	Czech Republic	-0,09%	-0,21%	0,06%
	Hungary	-0,30%	1,17%	0,87%
	Poland	0,29%	-0,20%	-0,43%
	Slovakia	0,24%	-0,35%	-0,28%
Residual effect	Czech Republic	0,20%	0,15%	-0,01%
	Hungary	-0,09%	0,30%	0,22%
	Poland	-0,03%	0,00%	-0,02%
	Slovakia	0,06%	-0,02%	0,07%
Final values	Czech Republic	-6,79%	7,06%	1,63%
	Hungary	4,00%	-4,23%	-1,79%
	Poland	-0,71%	-0,07%	-0,95%
	Slovakia	3,92%	-1,51%	1,84%

Source: own processing based on own calculation from data OECD (2019)

In terms of the competitive effect, the spread of FDI inflows into the Hungarian sectors increased its competitiveness over time (see Figure 1). There is the long-term effort of economic policy-makers to bring foreign capital to Hungary in technology-intensive industries. The aim is to change the direction from "made in Hungary" to "invented in Hungary", to attract foreign capital to innovative sectors with high value added. Although Hungary has experienced a noticeable change in the distribution of foreign capital in the second phase of the period, FDI distribution contributes to labour productivity growth. The reason for the positive and relatively higher value of the competitive effect in Poland in the first half of the period was faster productivity growth than the benchmark. However, this growth slowed down and caused a decrease in Poland's competitive position within the group and a negative value of the competitive effect tending to zero.

Figure 1:

EFFECTS OF STRUCTURAL DISTRIBUTION OF FDI INFLOWS ON NATIONAL PRODUCTIVITY

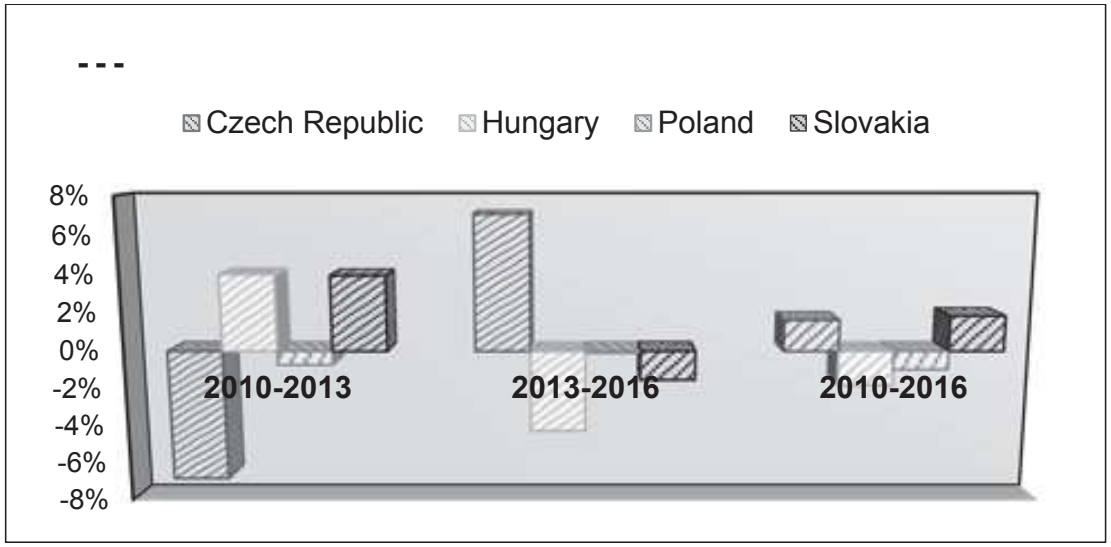


Source: Own processing based on own calculation from data OECD (2019)

The results of the residual effect in all economies tend to be zero values indicating no anomalies and therefore the distribution of foreign capital corresponds to the technological level of economies. The overall assessment on Figure 2 shows the distribution of foreign capital into sectors that inadequately and insufficiently stimulate productivity growth in comparison with other V4 countries. The countries are on the benchmark level, with the best result (1.843%) being achieved by Slovakia in relation to the Czech Republic (1.628%). However, both of these results are due to other facts (see decomposition of effects). The Czech Republic recorded an above-average foreign capital inflow before 2016, while Slovakia was more successful in locating and absorbing foreign capital at the beginning of the investigated period. In the competitive and residual effects, the countries do not differ significantly. Their differences in productivity by industry are not striking and the distribution of capital reflects this level.

Figure 2:

FINAL EFFECT OF STRUCTURAL DISTRIBUTION OF FDI INFLOWS ON NATIONAL PRODUCTIVITY



Source: Own processing based on own calculation from data OECD (2019)

The values of the indicator of the (interconnection) effect of the structural distribution of FDI inflows on national productivity (1) reflect how the magnitude of FDI inflows reflected in the sectoral focus contributes to the potential of labour productivity growth. The greatest stimulus was realized in the second half of the surveyed period in the Czech Republic, when the value of the indicator (1) exceeded the 7% point limit.

Unlike Poland and Slovakia, the Czech Republic and Hungary have more attractive structure of the sectors to stimulate the inflow of foreign capital. The analysis confirms previous studies with no significant differences in productivity between economies, yet labour productivity per hour increases more slowly in the Czech Republic than in other V4 countries. The problem was indicated in the localization of foreign capital to low-tech industries that do not create potential for progressive productivity growth and there is a convergence effect on productivity at the levels of the countries surveyed (Pegkas, 2015). Nunnenkamp & Spatz (2004) demonstrated a stronger link between FDI and economic growth in the service sector than in the manufacturing sector. The findings also correlate with the conclusions of previous studies (Suder & Sohn, 2016; Mišun & Tomšík, 2002),

claiming that V4 countries are perceived by investors as one homogeneous region due to low disparities in labour productivity, similar system of investment incentives and educated and relatively cheap labour.

The territorial structure of incoming investors´ origin does not differ much between the V4 countries, even in the time horizon. For all countries, the Netherlands and Luxembourg are in top 5 partner countries. For these countries, it should be noted that they are often chosen for tax optimization reasons and therefore do not indicate the actual country of origin of the investor. Germany is a strong investor in all V4 countries except of Slovakia, and with the exception of Poland, Austria holds the same position. Only Slovakia has non-European country within the five strongest investors, namely South Korea (Hungarian Central Statistical Office, 2018). This development follows the trend of previous research (Dorożyński & Kuna-Marszałek, 2016).

Strict measures to prevent the spread of COVID-19 restrict economic freedom. The law factor and the regulatory regime are the assessment criteria in a number of international indicators and ratings of global agencies in which a fall is expected. These ratings are especially important for new investors considering entering foreign markets. On the other hand, it is possible that although new capital will not be attracted and the investment structure will not change, the positions of the existing MNCs will be strengthen (Cuervo-Cazurra & Genc, 2008). Secondly, the impact of the economic slowdown is paradoxically attractive for new market-seeking MNCs that are motivated by high exchange rates (depreciated currency), as opposed to performance-seeking MNCs (Xing & Wan, 2006). Given the dramatic economic downturn and structural problems associated with the COVID-19 pandemic, the findings call for recommendations aimed at economic policy makers in the field of investment incentives. The current form of financial support for retraining and job creation is not directly linked to the local population. This is related to high costs associated with employing the local population in comparison with the use of agency workers from third countries.

5. CONCLUSION

The aim of the paper was to determine the impact of the structural distribution of FDI inflows on the productivity of the V4 countries. Shift-share analysis is applied to research the relationship between productive labour and the sectoral distribution of FDI inflows. The paper analyses the distribution of FDI inflows within 11 key sectors in period of 2010-2016 based on available OECD data. Sectoral, competitive and residual effects were constructed for impact assessment. Con-

structed indicator of the overall influence (coherence) of the structural distribution of FDI inflows on national productivity follows the change in the distribution of foreign capital inflows in individual V4 countries and links this distribution to the productivity of individual economies that enables to interpret position of particular economies in international comparison; as in comparison of total distribution or in terms of individual factors.

Shift-share analysis proved that there are no significant differences in productivity (in depth of lagging) between economies and confirmed previous studies (Mišun & Tomšík, 2002), however the problem has been identified in the sectoral distribution of investments, in the localization of foreign capital to technology-intensive industries that do not put pressure on progressive productivity growth. Among the V4 countries, the Czech Republic and Hungary have the highest share of FDI in GDP, yet their balance of sectoral effects is the opposite. The decomposition of the total value of the indicator showed that the Czech Republic and Hungary have more attractive structure of the economic sector structure to stimulate the inflow of foreign capital, unlike Poland and Slovakia where the competitive effect reached a negative balance. Overall, for the group of countries under review, the distribution of foreign capital inflows decreased by an average of 8.56%, respectively within the region, capital outflows from all sectors averaged 8%. In each country, however, this fact was driven by a different industry. The Czech Republic recorded significant changes in the summary of foreign capital inflows in field of real estates; and in Hungary, the outflow of foreign investment in energy supply was around 60%.

When observing the trend, it is necessary to mention the decline in FDI on the Czech market. This is related to the generally most advanced position of the Czech economy (in terms of highest GDP per capita) in comparison among V4 states. The Czech economy is confronted with its limits on growth (Zdeněk & Střeleček 2012; Russu, 2016), and this has been manifested especially in recent years by tight labour market and related rise in labour costs. Foreign investors are therefore discouraged from investing by a lack of available skilled labour. In this issue, it should be taken into account that almost 1/3 of all jobs in the Czech Republic are provided by MNCs, which is more than in other CEE countries (Szabo, 2019). Greater openness and closer connection of the Czech Republic to the German market is next reason for the lagging behind other V4 countries.

Conclusions contribute to discussions about the current political situation. The new regulation of the European Parliament's Committee on International Trade for FDI Control is currently linked to the openness of economies to foreign investors and future developments in FDI inflows. Although the decision to authorize investments remains within the competence of the Member States, there is a risk that some of them, including the V4 countries, may be a gateway to risky investors in the EU internal market.

This study presents an original methodological approach with an appropriate sample and original application of the benchmarking based on the shift-share analysis. In terms of the scientific field, the main contribution is the proposed methodology of the effects identification, the construction of indicator and the assessment of the monitored effect as part of the development of the former countries behind the Iron Curtain. The paper contributes to the existing studies by explicit dealing with complexity of the FDI localisation and the countries´ ability to assume the presence of foreign capital.

The authors recommend replicating a research of the same nature with updated data once available. Future research is recommended to focus on evaluating other geographical areas or a comparison with EU-15 trends. In view of current situation of the COVID-19 pandemic, affecting V4 states as well, there will be potential for economic analyses of changes in FDI distribution caused by the restrictive regulations of national governments and investors to this unpredictable situation.

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UTJECAJ STRUKTURNE DISTRIBUCIJE PRILJEVA IZRAVNIH STRANIH ULAGANJA NA PRODUKTIVNOST RADA U SKUPINI VIŠEGRADSKIH ZEMALJA

Sažetak

Iako se FDI tokovi u većini post-socijalističkih zemalja temelje na razvoju njihove tržišne transformacije, najveći obujam usmjeren je u višegradske zemlje koje se općenito percipiraju kao natprosječno uspješne u privlačenju stranih ulagača. U radu se analizira kako priljev izravnih stranih ulaganja u Češku, Mađarsku, Poljsku i Slovačku doprinosi potencijalu rasta produktivnosti rada tijekom razdoblja 2010.-2016. Analiza udjela pomaka podataka OECD-a unutar 11 ključnih sektora rastavlja determinante produktivnosti rada i utvrđuje doprinos potencijalu rasta produktivnosti rada. Rezultati se tumače na temelju sektorskog, konkurentskog i rezidualnog učinka. Nalazi su pokazali da nema značajnih razlika u produktivnosti između ekonomija, no lokalizacija stranog kapitala u tehnološki intenzivne industrije ne vrši pritisak na progresivni rast produktivnosti. Smanjeni priljevi stranog kapitala, u prosjeku za 8% iz svih sektora unutar regije, u svakoj zemlji potaknuti su različitom industrijom. Rezultati su također pokazali atraktivniju strukturu sektora za poticanje priljeva stranog kapitala u zemlju češkog i mađarskog gospodarstva. Predstavljeni pristup pridonosi pitanju složenosti lokalizacije izravnih stranih ulaganja i sposobnosti zemalja da preuzmu prisutnost stranog kapitala. Navedene preporuke razmatraju gospodarske propise vezane uz pandemijsku situaciju u 2020. godini.

Ključne riječi: multinacionalne kompanije, nacionalna produktivnost, analiza udjela pomaka, tranzicijska gospodarstva