

The Contribution of Foreign Direct Investments to the Convergence of Regions in the Czech Republic

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Abstract

The debate about the economic impact of multinational firms on a host country has been taking place for many years. Part of this discussion involves the effect of foreign direct investment (FDI) on the unemployment rate and economic growth. Analysis of FDI development, unemployment rate and the real domestic product (GDP) was carried out within the regions of the Czech Republic over the last decade. Comparative method and correlation analysis was applied to investigate the degree of dependence between the FDI level and the convergence of the poorer regions towards the more developed ones in terms of the examined characteristics. Results of the comparative analysis indicate that the effect of FDI on unemployment and GDP is insignificant. Statistical dependence between foreign investment inflow and economic growth has not been demonstrated; neither has the correlation between FDI and unemployment been proved. Insensitivity of the monitored variables on FDI development can be regarded as a serious problem for the “effectiveness” of this type of incentive policy.

Keywords: foreign direct investment effectiveness, unemployment, real output, convergence.

Introduction

The European Employment Strategy (EES) first appeared in 1997 as a response to a deep recession accompanied by rising unemployment and restrictive measures. The Member States of the European Union (EU) in its context committed themselves to the establishment of a set of common employment policy objectives, in particular, concerning job creation and quality improvement. At present, the EES is a part of the Europe 2020 growth strategy implemented as a part of the annual cycle of closer policy coordination between the EU Member States and EU institutions (European Commission 2016).

Many economists regard the fundamental European problems as the originator of the increase in unemployment – unemployment has been seen as the result of structural

rigidity known as „eurosclerosis“(Giersch 1985). The prominent manifestation of eurosclerosis is the rigid legislation that does not allow people flexibility in changing jobs and the burdening of entrepreneurs with excessive bureaucracy and taxes; this in turn prevents employment growth and contributes to the growth of long-term unemployment (Van Rie and Marx 2012).

The causality between the strict regulatory measures of the labour market across countries of the Organisation for Economic Cooperation and Development (OECD) and unsatisfactory changes in unemployment development has been discussed by many contemporary economists (e.g. Cahuc et al. 2013; Hadjimichalis and Hudson 2014; Dietrich and Möller 2015; Caporale and Gil-Alana 2014.). The main object of the criticism is the enforcement of laws on minimum wages, termination and retrenchment policy, labour taxation and a high degree of bureaucracy. The regulatory interventions of this type ultimately always lead to higher unemployment, lower productivity in manufacturing and the growth of labour costs. The proposals on how to “soften” the negative impact of regulation, at least partially, is presented in Bertola et al. (2007) and Bertola (2016) – the suggestions concern the partial deregulation of the labour market by increasing the flexibility of relations between employee and employer in terms of promoting part-time jobs, work from home, short-term placements, etc.

The fiscal measures targeted at job supply are the contemporary trend of European employment policy. In a real economic policy this trend projects into promoting investment in vocational training, activating labour market policy and moderating wage policy (including non-wage labour costs) within the so-called flexicurity (the principle, which is based on the need to improve the adaptability of both the workers and the companies to a rapidly changing labour market and labour market segmentation). The strategy aimed at activating labour market policy allows for access to incentives and subsidies from national and international funds for companies within foreign direct investments (FDI), among others. From the perspective of EES the main goal of FDI is its contribution to the labour market, i.e. in relation to new job creation by attracting foreign investors, especially into areas with high unemployment (Barros and Cabral 2000). Generally it applies that the support of investments in entrepreneurship is beneficial a) if the unemployed workforce is being involved in the process and / or b) the technological possibilities of the economy will be improved.

From the perspective of economic theory an investment incentive is a form of selective state support, which affects the market allocation of resources, thereby distorting the market. The economic theory is being mismatched in view of whether the investment incentives are beneficial or not, or whether the market distortion is desirable or not (Ferguson 2015; Plehwe et al. 2007). The positives are associated with the production of positive externalities in the host countries in the form of higher employment, higher wages, technology transfer, production and productivity growth and export increase. The access to financial resources to poor economies that would allow their economic upswing is also viewed positively (Zilinske 2015; Zhai 2014). The criticism highlights negative externalities in the form of distorted costs and a negligible, if any, impact on the

unemployment decline due to the displacement of existing firms, which do not receive subsidies.

The effectiveness of incentives in terms of foreign direct investments in relation to the labour market will be explored in more detail in the framework of selected regions of the Czech Republic. In this context, the relationship between the development of the unemployment rate, the real product and the development of foreign direct investments over the last decade will be analysed. Based on the analyses the hypothesis is assessed as to whether foreign direct investments contribute to the reduction of disparities in the unemployment rate and in the real product, and therefore contribute to the convergence of “poorer” regions towards the “richer”.

Materials and Methods

The interregional comparison is performed in terms of the total volume of received foreign direct investment (FDI) in mil. CZK (ČNB 2016), in terms of development of regional unemployment indicators (MPSV 2016), and in terms of the development of the real gross domestic product (Český statistický úřad 2016). The method of comparison is complemented by a statistical correlation analysis carried out according to conventional methodology and by the analysis based on a model $Y(r,t) \sim A(r) \cdot B(t)$. The model is based on the assumption that the proportions among the regions are approximately constant over time. Such proportionality can also be traced in Figures 1 to 3 (see the following section). The variable $Y(r,t)$ is the value of the indicator in the year t for the monitored region r . The variable $A(r)$ represents the parameter of the region r , $B(t)$ is a parameter of the year t . For the purpose of uniqueness the geometric mean of parameters $B(t)$ is fixed and laid equal to 1. Thus, for the data from R regions after T years $R+T-1$ of “free” parameters are obtained; each region is characterized by one parameter. After taking the log of the model the following additive relationship is obtained; to estimate logarithms of the parameters the method of least squares can be used:

$$(1) \quad \ln(Y(r, t)) \sim \ln(A(r)) + \ln(B(t)).$$

Within the least squares method the 95 % confidence intervals for each parameter are expressed, with the help of which it can be compared whether the regions vary considerably in terms of unemployment, GDP and FDI.

The completeness of the analysis and its subsequent evaluation of FDI impact on a specific region requires taking into account that the amount of received FDI reflects both the level of quantitative economic characteristics, and the level of the so-called “soft” factors. The quantitative factors of the inflow of direct foreign investments into the economy include in particular the economic growth, the level of domestic investment, the openness to foreign trade, the level of human capital, infrastructure, taxation and subsidy policy, etc. The “soft” determinants of the foreign investments play a key role in the selection of a region in the host country; they include e.g. regional geographical characteristics, sociological factors, the development production factors market, the relationship between institutions and the business community, quality of infrastructure and the

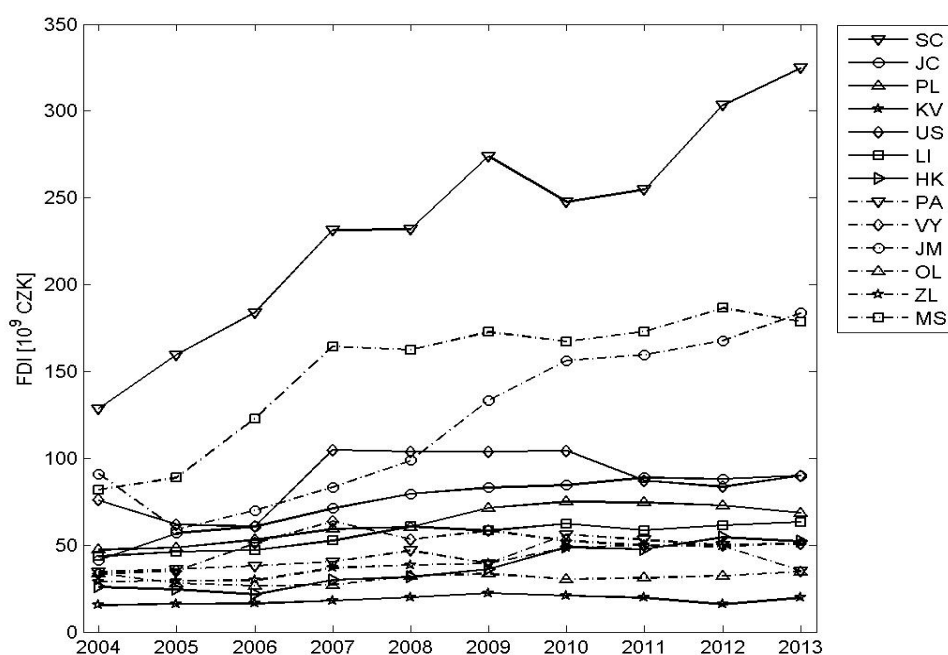
“significance” of the region, among others (Fallon and Cook 2010; Váchal et al. 2016; Hadjimichalis 2006).

Changes in the labour legislation were implemented during the monitored period, which could have reflected in the unemployment rate. The effect of these changes is difficult to quantify and is therefore neglected in the analysis. The unemployment rate is assessed by means of the indicator “The share of unemployed people” expressing the proportion of unemployed job seekers aged from 15 to 64 years of all residents in the same age range. Hidden unemployment, which is not covered in the indicator, is not considered in the analysis.

Results of comparative analysis of the impact of FDI on unemployment and the gross domestic product

In terms of the inflow of foreign direct investments measured over the period 2004-2013, Prague has the dominant position; its cumulative FDI volume reached more than 50 % of the total FDI inflow. It is followed by the Central Bohemia Region (SC), Moravian-Silesian Region (MS) and South Moravia (JM) with shares: SC \approx 12 %, MS \approx 7 %, JM \approx 6 %. Other regions (Usti Region (US), South Bohemia (JC), Pilsner Region (PL), Liberec (LI), Hradec Kralove (HK) etc.) take shares of 4 % or less. The lowest investment inflow was to the regions of the Carlsbad (KV \approx 1 %), Olomouc (OL \approx 1.5 %), Zlin (ZL \approx 2 %) and Pardubice (PA \approx 2 %). The cumulative development of the volume of FDI received by the end of each year is captured in Figure 1; due to the exceptional position of Prague it is not included.

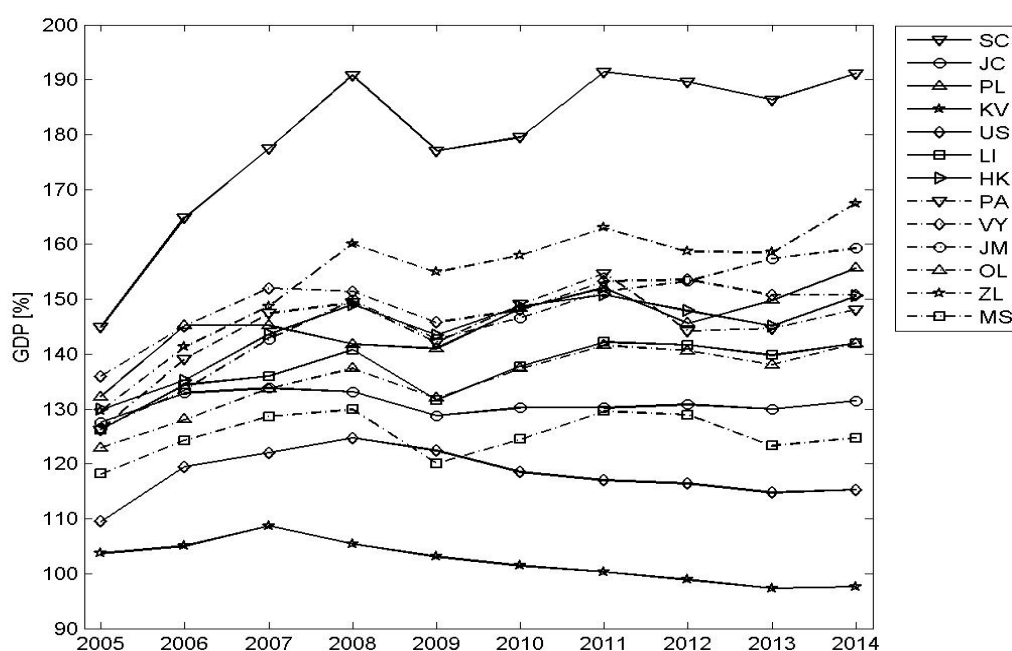
Figure 1: Development of supported cumulative FDI in terms of selected regions of the Czech Republic for the period 2004-2013 in mil. CZK



Source: ČNB (2016), Authors

Figure 1 allows us to classify regions according to the aggregate volume of FDI into three categories (except Prague). The greatest group of FDI among selected recipients includes the Central Bohemia Region, which in terms of the development of real GDP achieves the largest growth (see Figure 2) with relatively low unemployment rate (see Figure 3). The medium group of recipients includes the Moravian-Silesian Region and South Moravia; despite a considerable proportion of FDI they are characterized by a high level of unemployment and below average output. The regions with the lowest investment inflow differ significantly: the Carlsbad Region with an above-average long-term unemployment rate belongs to the below average GDP producer. Conversely, the Zlin Region with below average unemployment is one of the most productive and the Pardubice Region with low unemployment is a region with an average real product. The development of the real output and unemployment rate in Figures 2 and 3 is captured from 2005, i.e. one year later compared to the observed development of FDI. The purpose of the time shift is to capture at least to some extent the potential impact of FDI on the monitored variables GDP and unemployment.

Figure 2: Real GDP development in the regions of the Czech Republic during 2005-2014, volume indices (year 1995 = 100)

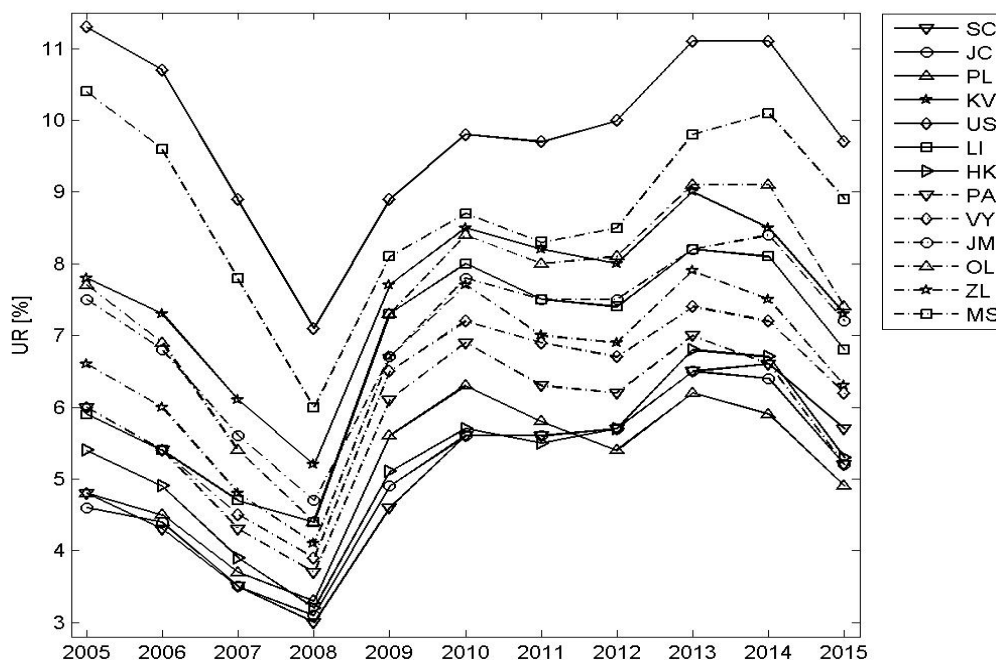


Source: Český statistický úřad (2016), Authors

The behaviour of the unemployment rate in the period 2005-2015 can be described to some extent as “homogeneous” in the sense that all the monitored regions followed the same “proportional” development, i.e. the curves almost do not intersect and maintain the same order. The difference in unemployment rates between 2005 and 2015 declined; it grew in regions with initially low unemployment (SC, JC, PA) by nearly 0.5 % and

decreased by more than 1 % in the regions with the initially highest unemployment (US, MS).

Figure 3: Proportion of unemployed persons (in %) in the surveyed regions of the Czech Republic in 2005-2015



Source: MPSV (2016), Authors

The time series characterizing the development of the cumulative FDI, GDP and unemployment rate during 2004-2015 capture a steady growth of FDI and GDP and a decline in unemployment until 2008, in most monitored regions. From 2008 to 2009 the most striking manifestations of the global financial crisis are obvious; all the regions have experienced a significant decline in GDP, the FDI inflows approached zero, and unemployment grew most rapidly. After 2009 all monitored variables fluctuated until 2013. From 2013 an economic recovery is apparent being manifested by the GDP growth and the decrease of unemployment. This development is typical for all monitored regions to a different extent.

The results of the analysis based on a quantitative model and the correlation analysis

Quantitative resolution of regions in terms of unemployment and FDI development, including confidence intervals, is performed according to relation (1) for the selected regions of South Bohemia, Usti Region, Central Bohemia Region and Pilsner Region within the monitored period.

The parameter estimation according to (1) characterizing the unemployment rate of the South Bohemia Region is 5.0641 (4.7981; 5.3448), for the Usti Region it is 10.0287

(9.6845; 10.3728). The parentheses contain the 95 % confidence interval obtained from the method of least squares. Regarding the parameters characterizing FDI in these regions, for the South Bohemian Region 72.4922 (64.1759; 81.8861) applies and for the Usti Region it is 85.9625 (76.1009; 97.1019). In the case of the Central Bohemian Region the estimate of the unemployment characteristics is 5.0854 (4.8183; 5.3673), for the Pilsen Region the estimate is 5.1699 (4.8983; 5.4565). The parameter characterizing the level of FDI for the Central Bohemian Region is 225.8358 (199.9283; 255.1006), and for the Pilsen Region is 62.1905 (55.0561; 70.2494).

First, the statistical correlation analysis was performed on the basis of comparison of the computed parameters characterizing the level of the unemployment rate, FDI and GDP in the region. It was aimed at tracing dependence of these indicators across the regions. Results of correlations carried out from 13 values characterizing the 13 regions showed a strong negative correlation between unemployment and GDP (-0.637) and a negligible correlation between FDI and unemployment (-0.006). The correlation between FDI and GDP lies on the borderline of significance (0.482). In this case, it is necessary to take into account the effect of the FDI values of the Central Bohemian Region, which act as a leverage point because of the significantly higher FDI level compared to other regions. Excluding this effect from the analysis, the correlation between FDI and GDP for the remaining 12 regions is insignificant (-0.055).

A more detailed correlation analysis is based on the comparison of the time series within the monitored period. Specifically, an analysis has been carried out of statistical dependence of annual FDI growth in the period 2004-2013 and the subsequent annual changes in the unemployment rate and GDP from 2005 to 2014. While the parameters characterizing the regions can be considered as independent of each other, the values within the region form an autocorrelated time series. Thus, the correlation coefficients can be formally calculated; however, the assessment of their significance is only approximate.

The correlation results are similar to the previous simplified analysis: the relatively strong negative correlation between GDP growth and the unemployment change (-0.364) has been confirmed; the dependence of GDP growth on FDI increments shows a weak correlation (0.104). Without the influence of the Central Bohemian Region it is insignificant (0.013). The result of the comparison of FDI increase and changes in unemployment, including FDI of the Central Bohemian Region, shows a weak positive correlation (0.178); without the values of FDI of this region the correlation increases slightly (0.224). However, in this case, a negative correlation, i.e. the impact of higher FDI to the reduction of unemployment, should be expected.

Results discussion

The economic development of the region is largely associated with the unemployment development; the period of economic expansion is accompanied by a fall in unemployment, conversely in recession. This relationship is evident from the course of

the development of unemployment and GDP in Figures 2 and 3 in the case of almost all regions during the monitored period. This contradictory trend was confirmed by the simplified and detailed correlation analysis, which showed a strong negative correlation between unemployment and GDP, or respectively between the change in the unemployment rate and the change in GDP.

The contribution of FDI to the economic growth, or respectively to the unemployment decrease is, however, conflicting (see Figures 1, 2 and 3). This can be demonstrated in many examples in the context of the analysis performed. For instance, let us compare the development of unemployment in South Bohemia (JC) and the Usti Region (US), which takes place simultaneously but in opposite dimensions (JC: one of the lowest unemployment, US: the highest unemployment overall) and the cumulative development of FDI, which is basically identical for both regions (see Figures 1 and 3). The mismatch between the development of unemployment and the almost equivalent FDI inflows is confirmed by the quantitative model. In the case of FDI the confidence intervals overlap significantly in both regions; therefore it can be concluded that the regions do not significantly differ in this respect; however, in terms of unemployment development there is a noticeable difference.

The Central Bohemian Region (CS) and Pilsner Region (PL) are the examples from the opposite spectrum. The FDI growth is considerably different here, but the unemployment development in both regions follows a similar pattern. Confidence intervals for FDI in both regions do not overlap, which confirms a significant differentiation, yet the trend of unemployment is similar, which is reflected by the intervals intersection.

The analysis of the interrelationships in the sense of statistical correlations of FDI growth and changes in the unemployment rate or changes in GDP value pointed to the insignificance of these relationships; this finding is supported by the examples listed above. This “insensitivity” can result from the fact that the basic characteristics of the regions (economic, population, geographical, historical, sectorial, cultural, etc.) are given so strongly that the state-support direction of FDI does not significantly affect the convergence of the poorer regions. Another reason may be the lack of competitiveness of unsupported companies. State-subsidized entrepreneurship has demonstrated the decrease of overall costs, by means of which the supported companies are more competitive regarding wage levels and market prices compared to firms not so advantaged. In extreme cases it can lead to the extinction of unsupported firms with the result of a zero total balance of new jobs. Insensitivity of the monitored variables “the unemployment rate” and “GDP” on the FDI development in the regions of the Czech Republic can be considered as a serious fundamental problem for the “effectiveness” of this type of incentive policy.

Conclusion

The issue of the benefit of foreign direct investment support to the national economy has been discussed at theoretical and empirical level. Theoretical perspective was based on

the findings of scientific literature; the foreign direct investment support in relation to the labour market and economic growth is perceived ambiguously. Positives are referred to externalities in the form of higher employment, higher wages, technology transfer, production and productivity increase, growth of export and the opportunity to access financial resources. The foreign investment policy critics counterbalance with the negative externalities in the form of distorted costs associated with state support and the negligible or zero effect on unemployment and economic growth.

The empirical perspective is based on the analysis of time series from 2013 to 2015 of the characteristics of foreign direct investments, unemployment rate and real output in selected regions of the Czech Republic. The purpose was to evaluate the effect of foreign direct investments on the convergence of the “backward” regions (in terms of high unemployment and below average output). Analyses results did not support the hypothesis of effectiveness of foreign direct investments on the regions convergence.

In the monitored period the development of unemployment and GDP indicators retains a more or less stable proportion between the regions irrespective of FDI development. The connection between the development of unemployment, or respectively GDP and FDI development in terms of statistical correlation is insignificant. The inflows of FDI had a minimal impact on unemployment and GDP development. If this is a fundamental phenomenon, then such “insensitivity” means that this “macroeconomic tool” aiming at convergence of regions is inefficient. Moreover, it can be assumed that unregulated and uncontrolled inflows of foreign investments would further deepen disparity among the regions in terms of unemployment and GDP production.

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HAŠKOVÁ, S. and P. VOLF, 2017. The Contribution of Foreign Direct Investments to the Convergence of Regions in the Czech Republic. *Littera Scripta* [online]. České Budějovice: Institute of Technology and Business in České Budějovice, **10**(2), 23-33 [accessed: 2017-12-15]. ISSN 1805-9112. Available at: http://journals.vstecb.cz/category/littera-scripta/10-rocnik-2017/2_2017/.