ANALYSIS OF FOREIGN PRESENCE AS A CONSEQUENCE OF INTERNATIONALIZATION IN THE CZECH REPUBLIC

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Abstract

The aim of the paper is to evaluate a degree of foreign presence in a region of the Czech Republic. Firstly, data from CzechInvest covering the period 2002-2014 is used for analysis of foreign investors´ source countries. Their cultural distance from the Czech Republic is measured based on Hofstede´s framework by using Kogut-Singh index and Euclidean index. The highest cultural distance was calculated in case of Netherlands, followed by Austria and United Kingdom. Secondly, based on the comparative analysis of data from the companies` annual reports and the Czech statistical office and CzechInvest, the foreign presence is calculated. The values illustrate low degree of foreign presence – till 5 % and so low potential for the creation of spillovers. This conclusion also confirms the trend of the technology gap. The technology gap is probed by the Shift-share analysis as a decomposition of the technology level of Královehradecký region on the technology, employment and combination of both these effects. The result is corresponding with the localization of manufactures or fragmentation´s manufactures with low numbers of new created jobs and with no usage of possibility of grow using technology absorption of foreign firms located in the Královehradecký region.

Key words: cultural distance, Czech Republic, foreign direct investment, internationalization, spillovers

JEL Code: F21, F23, F66

Introduction

Foreign direct investment (FDI) has become a significant part of national economies over the world. The rationale for increased efforts of national governments to attract more FDI stems from the belief that its presence brings positive effects on productivity, triggers technology transfer, enhances managerial skills and know-how, introduce new processes to the domestic markets, and develop international production networks (Alfaro et al, 2000).

Localization of FDI in the host region produces a wide range of effects. Direct effects of FDI, are easily identifiable and measurable. Indirect (spillovers, crowding-in, crowding-out)

are in the form of externalities, the measure is very complicated because it must take into account many variables (Mišun and Tomšík, 2002). Foreign presence in the region or sector is an indicator affecting a number of factors, whether it is product differentiation, the specialization and the role of global networks (Benáček, 2000). If the effects will be generated depends not only on the presence of foreign firms. The actual location of FDI is just sort of the first step, the final effect is primarily dependent on the interaction between domestic and foreign enterprises. Indirect effects of FDI are also conditioned of the size of the technology gap and mutual position of the firms. (Blomström, 2002).

1 Aim and methodology

There have been many attempts to state a general relationship between inflows of FDI to a host country and economic situation of the host market. It applies particularly to research of the Central and Eastern European countries over the last years since they were not the recipients of FDI to a significant degree till 1990, after that they started to lowered the barriers to FDI.

The aim of this paper is to evaluate the presence of multinational companies that localized its FDI into Královehradecký region in the Czech Republic. These analyzed multinational companies gained the institutional support in the form of investment incentives offered by the local government via the The Business and Investment Development Agency CzechInvest. The paper analysis the situation of foreign investors in the Královehradecký region using the latest data and exploring period from 2002 to 2014. The research sample consists of totally 20 foreign investors that came from totally eight countries (CzechInvest, 2017). Based on the selected sample, conclusions regarding to benefits from investment incentives can be stated.

1.1 Cultural distance

Since various cross-border business activities are affected by differences in national culture, the construct of national cultural distance (CD) has wide-spread application in the field of international business. CD characterizes differences in languages, rules of behaviour, beliefs and norms, consumer preferences etc. The presented CD measurement is based on framework of national cultural dimensions of Hofstede´s dataset with the updated scores (Hofstede, 2010, 2015). Four cultural dimensions including PDI - power distance index, INV - individualism, MAS - masculinity and UAI - uncertainty avoidance index are complemented with two later-added dimensions of LTO - long term orientation and IND - indulgence.

In order to measure the CD in this paper, Kogut-Singh index (1988) and Euclidean index (Barkema and Vermeulen, 1997) were chosen due to their common and popular applicability. Despite certain limitations that were demonstrated by other researchers, most of the relevant studies use these composite measurements of CD. Firstly, a formula developed by Kogut-Singh (1988) is calculated as following:

$$CD_{jk} = \sum_{i=1}^{n}\left\{(I_{ij} - I_{ik})^2/V_i\right\}/n \qquad (1)$$

where CDjk is the cultural distance between the jth and kth country, Iij and Iik are indicators of the ith cultural dimension for the jth and kth country, Vi stands for the variance of the ith cultural dimension, n is the number of cultural dimensions (Kogut and Singh, 1988). Secondly, Euclidean index with the symbols of the same meaning as in the previous formula is used:

$$CD_{jk} = \sqrt{\sum_{i=1}^{n}\left\{(I_{ij} - I_{ik})^2\right\}/V_i} \qquad (2)$$

As it has been mentioned, the CD concept in this paper is based on continuously updated data of cultural dimensions recognized in Hofstede´s study (2010, 2015). Following figure 1 displays the minimal and maximal values of considered cultural dimensions of investors´ countries in the Královehradecký region. Moreover, the gaps between the Czech scores and those values for each cultural dimensions are clearly displays for purpose of comparison.

Fig. 1: Selected scores of cultural dimensions with focus on difference from the Czech Republic
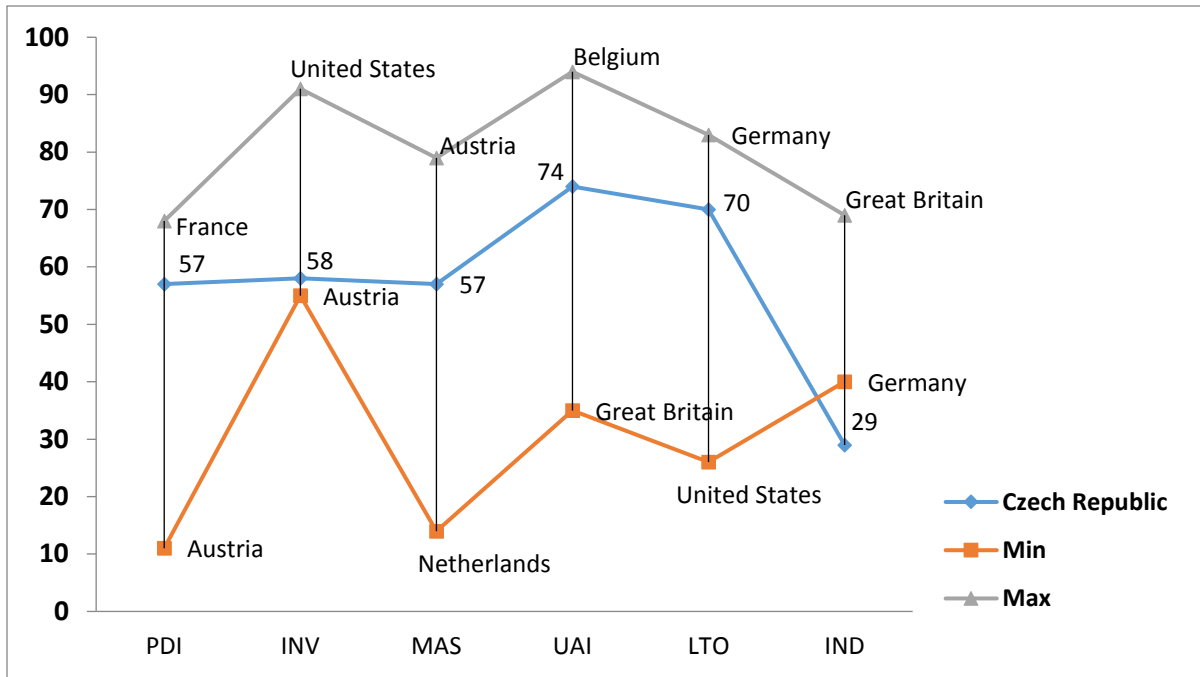
Source: own processing based on data from Hofstede (2015)

1.2 Foreign presence

Foreign presence is the level of state of foreign investment in the economy, region or sector, expressed by foreign companies' employment in total employment in the economy, region or selected sectors (Görg and Greenaway, 2004) and is calculated as presented in formula (3):

$$FP = \frac{\sum_{i=1}^{n} E_{FDI_i}}{E} * 100 \qquad (3)$$

E_{FDI} represents the number of employees in FDI, which received investment incentives in the Královehradecký region. The data was obtained from annual reports analyzed FDI in each year (Ministry of Justice, 2017), E represents the number of people employed in the region, according to CSO statistics (2017).

1.3 Technology gap

As mentioned above, the technological gap is one of the fundamental determinants of spillover effects. Technological gap is measured in the literature on the basis of differences in productivities of labour between countries of origin of the investor and the host economy. To fulfil the objective of this paper it is necessary to modify the approach and descend viewing technology gaps at the national level in terms of the host economy at regional level regions.

Constructed technological gap of the regional foreign presence monitors the difference between productivity (technological superiority) of foreign companies that have obtained investment incentives and investigated region. Based on the development of this indicator over

time we can predict what the dynamics of productivity growth in the future may have a region with a high level of foreign firms compared to the county under-representation of these companies. The indicator with its values (level values), and values of the individual components, indicate the lagging region, respectively selected group of regions in cooperation of technology level of FDI and identifies where this fact is generated:

a) in a depth of a lagging - a degree of the FP,

b) in a width of a lagging - the difference in the productivity of labour.

The development of the technology gap (TG) will be determined by the method of Shift-share analysis; respectively by a decomposition technological regional level on the effect of technology, employment and the effect of the combination of both effects. TG is calculated by formula (4):

$$TG = \frac{\sum_{i=1}^{n}\left(AP_{Li}^{FDI}-AAP_{B}^{reg}\right)\cdot FP_{B}^{reg}}{AAP_{B}^{reg}} + \frac{\sum_{i=1}^{n}\left(FP_{i}^{FDI}-FP_{B}^{reg}\right)\cdot AAP_{B}^{reg}}{AAP_{B}^{reg}} + \frac{\sum_{i=1}^{n}\left(AP_{Li}^{FDI}-AAP_{B}^{reg}\right)\cdot\left(FP_{i}^{FDI}-FP_{B}^{reg}\right)}{AAP_{B}^{reg}} \quad (4)$$

where:

AP_{Li}^{FDI} is a productivity of labour of FDI impressed by productivity of labour of the FDI investor´s country of origin (OECD, 2017) in concrete year i[1],

AAP_{B}^{reg} is a productivity of benchmark impressed as a mean of productivity of labour of chosen regions as a benchmark,

FP_{i}^{FDI} is a proportion of employees of companies of the country and the total number of people employed in a region in a given year,

FP_{B}^{reg} is an average proportion of employees in foreign companies in the surveyed region in a given year as well.

As a benchmark the average of six border regions of the Czech Republic (Plzeň, Karlovy Vary, Ústi nad Labem, Liberec, Hradec Kralové and Pardubice region) was chosen.

In literature, Shift-share analysis is a method often used for determining the particular dynamics of the development of employment, productivity of labour or value added (Zdeněk and Střeleček, 2012). The main advantage of the shift-share analysis is its application to arbitrary regional level and choose of assessed components. In the construction of the formula (2) can be methodically retraced the possible decomposition. That is formed as the sum of the

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[1] It represents the labor productivity of foreign firms OECD (2017) reported in constant prices of the year 2010, where the rate of exploitation of labor input is measured by total worked hours.

three components of the basic approach determination TG. The component of productivity, the component of employment and the component of the combination of both effects.

2 Presence of foreign investors in Královehradecký region

During the examined time period 2002-2014, investment came from totally 8 countries, majorly from Europe. When analysing the composition of the investors´ countries, it is important to note that some countries, such as Netherlands and Luxembourg, are often used for their attractive tax systems and the actual origin of the investors varies. The CD of such cases therefore must be considered with limitations.

Countries analysed in this paper are alphabetically listed in table 1 below. The table shows difference between a source and host of the investment in single cultural dimensions. Finally, it displays the calculations of CD based on Kogut-Singh as well as Euclidean index.

Tab. 1: Cultural differences between dimensions of investment source countries and the Czech Republic

Country	ΔPDI	ΔINV	ΔMAS	ΔUAI	ΔLTO	ΔIND	Kogut-Singh index	Euclidean index
Austria	-46	-3	22	-4	-10	34	1,45	2,95
Belgium	8	17	-3	20	12	28	0,55	1,81
France	11	-13	-14	12	-7	19	0,37	1,49
Germany	-22	9	9	-9	13	11	0,35	1,47
Luxembourg	-22	2	-7	-4	-6	27	0,40	1,54
Netherlands	-19	22	-43	-21	-3	-39	1,81	3,29
United Kingdom	-22	31	9	-39	-19	40	1,63	3,13
United States	-17	33	5	-28	-44	39	1,77	3,29

Source: own calculations based on data from Hofstede (2015)

The values of CD resulting from Kongut-Singh and Euclidean index show very similar trend. The largest CD between the Czech Republic and examined countries was found out in case of Netherlands as very feminine and also collective-oriented culture. The United States, United Kingdom and Austria follow next. Austria has the largest difference in a dimension of power distance. Values´ differences from the Czech Republic for every examined country in each cultural dimension are clearly displayed in table 1 and it explains why CDs of certain countries might be surprisingly larger or smaller than others.

Next, regarding to the labor productivity in the region, as illustrated in figure 2, during the examined period of 13 years, it grew up in very dynamic way.

Fig. 2: Productivity of labour in the Královehradecký region
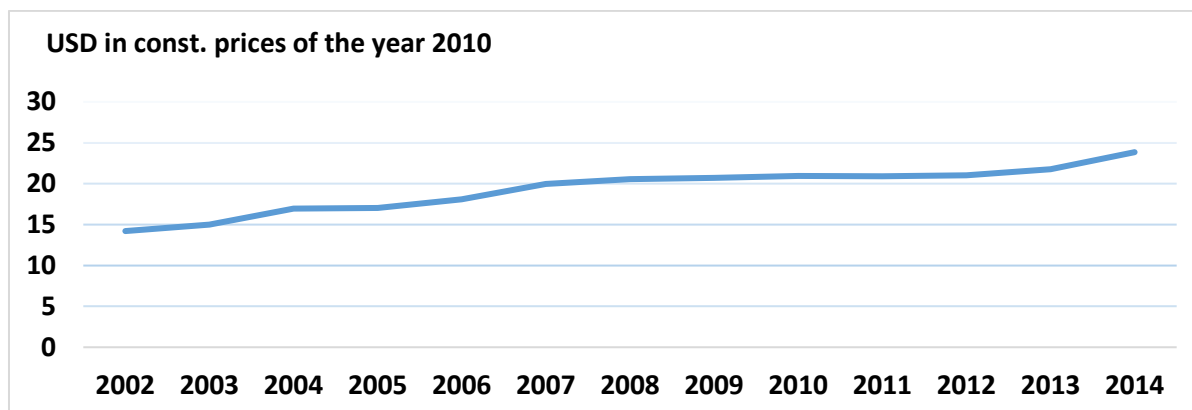
Source: own processing based on data from CSO (2017)

According the development of TG (see table 2) it is possible to make a conclusion that Královehradecký region could benefit from the growth of opportunities with the help of the transfer and absorption of foreign technological level, which would subsequently be positively reflected in the growth of labor productivity.

**Tab. 2: Calculated values of the TG and its components**

	Component of productivity	Component of employment	Component of both effect	TG
2002	0,132125	0,000521	0,003145	**0,13579**
2003	0,140748	0,00149	0,005532	**0,14777**
2004	0,129378	-0,00557	-0,01273	**0,111079**
2005	0,134292	-0,00131	-0,00263	**0,130352**
2006	0,123503	-0,00219	-0,00436	**0,11695**
2007	0,120822	-0,00676	-0,01171	**0,102358**
2008	0,120742	-0,00901	-0,0156	**0,096133**
2009	0,10613	-0,00584	-0,01008	**0,090211**
2010	0,113168	-0,01061	-0,01677	**0,085784**
2011	0,11198	-0,00933	-0,01441	**0,088238**
2012	0,10774	-0,01807	-0,03003	**0,059643**
2013	0,110163	-0,01307	-0,02063	**0,076465**
2014	0,107501	-0,00381	-0,00589	**0,097796**

Source: own processing based on own calculations from OECD data, CSO and annual reports analyzed FDI

The region has the potential for self-intensive growth. The reason may be a relatively strong economic position of the region within the other regions of the Czech Republic and broad representation of companies from abroad. The region did not have to be in the centre of interest of investment incentives from both the actual representation of the region and state representation.

Moreover, little involvement of the potential growth in the use of technology knowledge transfer from foreign companies with investment incentives next to evolution RRTG indicates the development of the proportion of employees of foreign companies with investment incentives in the total number of employees of Královehradecký region - see figure 3.

Fig. 3: Development of the share of employees from FDI with investment incentives in total employment in the Královehradecký region
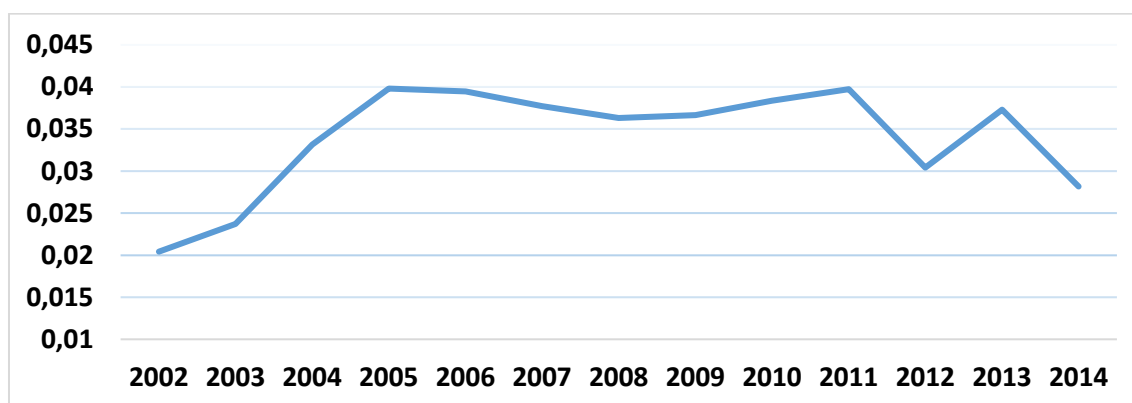
Source: own processing based on own calculations from CSO data and annual reports analyzed FDI

The share of employees from FDI with investment incentives in total employment in the Královehradecký region has never exceeded the 4%. Concerning decomposition of TG indicator, it can be said that a larger share of the growth had a component of productivity. A component of employment since 2004 was throughout negative. This is not a surprising result considering aforementioned very low share of workers employed by individual foreign companies with investment incentives in the region. Development of values of components clearly showed in table 2.

Conclusion

The paper analyzed the presence of multinational companies that gained the institutional support in the form of investment incentives from the Czech government and localized its FDI

into Královehradecký region. The research sample consisted of totally 20 foreign investors from 8 different countries. Data of 2002-2014 period was investigated.

When foreign firms enter markets of other countries, several aspects must be taken into account. Firstly, the differences between home and host region as a concept of distance. Later, an indicator of foreign presence and technology gap as determinants of spillover effects. In terms of CD, the largest value between the Czech Republic and examined countries was found out in case of Netherlands, mainly for very low value in cultural dimension of masculinity. The CD for United States, United Kingdom and Austria followed next. The implications of these differences in practice require further research.

As shown by the calculation of foreign presence and technology gap, the region has a low potential for spillover effects. Ideal for a continuous productivity growth in the region; resp. it would be for the productivity component if new companies with increasing productivity and increasing supply of jobs come to the region constantly. This development would lead to the growth of indicator at a condition of perfectly absorbing technological skills. The second component, the employment component, is the contribution of a relative difference in the level of technology generated by the difference in size of the foreign presence. The component shows the depth of technology decline and the possibility of reducing the aid of increasing foreign presence in the region (see the formula 8). If this component is growing, it can be concluded that foreign companies with investment incentives in the region collectively form a large number of jobs. The high number of jobs in these companies enables faster transfer of technology and knowledge levels in the economic life of the region.

Acknowledgment

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