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The spatial distribution of largest firms in the Czech Republic and its managerial implications

Jan Sucháček[1,✉] — Jaroslav Urminský[1] — Stanislav Škapa[2]

[1]VŠB-Technical University of Ostrava, Faculty of Economics, Czech Republic
[2]Brno University of Technology, Faculty of Business and Management, Czech Republic
[✉]*jan.suchacek@vsb.cz*

Abstract

Corporate headquarters, which occupy the top of enterprise organizational hierarchies became the subject of an increased interest in last three decades. Until now, post-transformation economies suffer from a distinct cognitive gap in this respect. The main objective of this paper is to analyse and interpret the development of the spatial pattern of top 100 biggest companies in the Czech Republic. Both quantitative and qualitative dimension of this issue will be investigated in the frame of this article. The basic territorial level we examine is constituted by self-governing regions. Finally, particular managerial and regionally-orientated recommendations for both largest enterprises and public administration will be formulated.

Highlights for public administration, management and planning:

- Foreign owners of largest enterprises perceive the location decision-making as much more complex and versatile process than their Czech counterparts.
- Owners from advanced economies accentuate soft location factors more intensely than their domestic peers.
- Regional authorities should develop more initiatives and improve their institutional density to become investor-friendly and bait the corporate headquarters.
- Both regional authorities and enterprise managements should concentrate on the creation of milieu conducive to quality labour.

Keywords

Large corporations,
Turnover,
Self-governing regions,
Quantitative aspects,
Qualitative aspects

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1 Introduction

We can barely find a firm isolated from its surrounding environment. Contrary to that, numerous relations with surrounding milieu are symptomatic and they moreover tend to grow with the size of the enterprise. From spatial point of view, apart from traditional inputs and outputs, agglomeration economies play a relevant role in the process of the location decision-making (see Aksoy & Marshall 1992; Dunning & Lundan 2008; Lux 2008, or Ascani et al. 2016).

Success of individual enterprises is largely determined by their socioeconomic surroundings. Subsequently, every enterprise can be treated as a specific spatial unit, which differs from its peers from both quantitative and qualitative perspectives. Undoubtedly, spatial distribution of largest enterprises is of utmost importance in this respect (Lyons 1994; van Dijk et al. 1999; Iammarino & McCann 2013, or Hlaváček 2017).

There are only little doubts that large enterprises create the key component of economies in virtually all developed countries. This is not only because of numerous positive multiplication effects but also due to their capabilities to compete on the international markets. Large firms have the distinct effects on labour markets too.

Presence of large firms or banks in concrete territories can be considered as one of co-determinants of regional differentiation (see Sucháček et al. 2017). They also affect spatially differentiated competitiveness, co-determine economic weights of territories and actively co-shape their future developments.

Large enterprises are usually characterised by numerous organisational units. The most intense at-

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tention is typically devoted to enterprise headquarters that can be found on the top of corporate hierarchies. Top management is located in enterprise head offices and decides on the enterprise strategy, allocation of profit investment activities as well as about creation or closure of enterprise branches that can be geographically or functionally rather distant from headquarters (see Massey 1984 and 1995; Fothergill & Guy 1990; Garbe & Richter 2009; Sucháček 2015; Frobel et al. 1980, or Holland 1976). Put succinctly, headquarters' collocation matters enormously.

The importance of enterprise headquarters for territories of various scales is accentuated also by Strauss-Kahn and Vives (2009). Head offices can be treated as centrifugal zones for producer services, highly qualified labour as well as other corporate headquarters. Substantial role is played by the positive image of the region in this context (Štefko et al. 2015). This image helps against delocalisation tendencies of individual firms and strengthens investment attractiveness of the territory in question. This is twofold valid in contemporary turbulent circumstances (Lux & Horváth et al. 2018).

The main objective of this paper consists in analysis and interpretation of the development of spatial pattern of largest companies in the Czech Republic. This will be accomplished from both quantitative and qualitative perspectives. Managerial and regional development implications of the issue will be considered too. The basic spatial level we investigate is NUTS III.

Davis and Henderson (2008) state two main reasons leading towards separated location of headquarters from branch factories. The first reason reflects the need of headquarters to gather large scale of services. The second reason consists in the natural clustering of headquarters that enable both intended and unintended exchange of information. Both aspects contribute to the spatial concentration of corporate headquarters into metropolitan territories.

2 Materials and Methods

Since we deal with largest corporate headquarters in the Czech Republic, quantitative part of our research is underpinned by annually published top 100 databases. These databases capture quite a long period of time and subsequently, we were able to perform the analysis concerning 20-years time span between 1995 and 2015. The only, but at the same time also rather representative indicator is the annual turnover of individual enterprises. The source of data utilized in the framework of quantitative analysis is constituted by the databases of Czech Top 100 company.

This company, among others, compiles the hierarchies of enterprises acting within the country on the basis of their economic performance.

Individual firms were observed at the level of self-governing NUTS III regions. It is worth noticing that two NUTS III regions–Prague and Central Bohemia–were merged into one territory due to the better correspondence with natural geographical characteristics on the one hand, and suppression of the specific urban character of the capital city on the other. Unification of Prague and Central Bohemia into one territorial unit proved to be correct and useful, as also found in previous research (see Sucháček 2013).

Ownership structure of investigated enterprises was monitored too. It should be stated in case of enterprises owned by foreign entities the Czech head offices can be typically treated as sui generis the branch of headquarters collocated abroad. But within the Czech Republic, we are still entitled to talk about the highest organizational unit in the framework of corporate inner organizational hierarchy.

Several indicators are applicable when measuring regional inequalities. Usually we utilize variation coefficient, Gini coefficient, localization quotient, Lorenz curve, concentration coefficient or Theil index. The above indicators can be modified or weighted in various ways. In order to express the unevenness for the purposes of our article, both weighted and unweighted Theil index will be applied. Theil index belongs to the class of generalized entropy and can reach the following values:

Maximum values are observed in case when the indicator is concentrated just in one spatial unit. Theil index can be calculated according to the formula:

$$T = \frac{1}{k} \sum_{i=1}^{k} \frac{y_i}{y} ln \frac{y_i}{y} \tag{1}$$

And weighted variant of Theil index is as follows:

$$T_v = \frac{1}{k} \sum_{i=1}^{k} \frac{n_i}{n} \frac{y_i}{y} ln \frac{y_i}{y} \tag{2}$$

where k is the number of regions, y_i denotes the values of individual observations and n_i their weights in case of weighted variant, y expresses the mean of observed indicator, when if calculating weighted forms we talk about weighted mean (see also Theil 1965). The weight is embodied by the number of inhabitants. Population present in the given territory

can be considered as the primary source of economic activities. Size of the population thus approximately epitomizes the size of the socioeconomic potential of individual regions.
As for qualitative component of the article, it is based on the questionnaire survey performed by the authors. Basic sample was composed of 190 enterprises with the head office collocated in the territory of the Czech Republic. The afore mentioned number of the firms is based on their repetitive occurrence within top 100 databases on the one hand and the failure of some of them within examined time span on the other. Researchers finally collected 53 valid questionnaires, which means that rate of return amounts to approximately 28%. This is a satisfactory value.
At the beginning, the questionnaire reached members of top and middle managements via e-mail. In case of no response, the respective managers have been addressed through telephone and after an illumination of the rationale of this survey, the addressee has got the questionnaire by means of e-mail again.
The questionnaire survey was composed of 22 questions that facilitated obtaining the relevant information on the collocation of corporate headquarters as well as their first-tier affiliates. Apart from the questions utilizing Likert scale, numerous interesting and specific information were gathered via open-ended questions. And just the latter represents the basis of the empirical part of our paper.

3 Results

Results of our research can be divided into two subchapters. While the first one deals with chronological development of spatial distribution of largest corporations, the second one accentuates primarily the qualitative aspects of the location decision-making. Amalgam of both perspectives forms a truly useful point of departure for later discussion and particular recommendations as well as formulation of related managerial implications concerning relevant actors in both public and private spheres.

3.1 Quantitative Perspective

Time period related to the quantitative analysis covers both transformation and post-transformation era. With regards to the limited space for the article, we particularly stress 3 reference years, 1995, 2005 and 2015. Relevant data of these years, i.e. both spatial distribution of largest enterprises as well as related spatially uneven economic power will be exposed to the close scrutiny.
The initial year, i.e. 1995 can be perceived as the representative of the transformation period, which was at that time still largely path-dependent. Insufficient legislation framework together with unfavourable informal institutions opened the gate for ‘creative’ approach towards the transformation. More detailed information on transformation from regional perspective can be found for instance in Sucháček (2013).
In 1995, the aggregate turnover of top 100 corporations in the country amounted to 957 billions CZK. As for spatial distribution of the headquarters of largest enterprises, merged territory of Prague and Central Bohemian region occupied dominant position with 45 % of all top 100 enterprises. Next 14 % of firms had a seat in Moravian-Silesian region and further 9 % in Ústí region, i.e. territories of traditional industry. The bottom of the hierarchy was occupied by Olomouc and Vysočina regions with mere 1 representative among top 100 enterprises.
In contrast to the number of headquarters in individual self-governing regions, the aggregate turnover proved to be more concentrated. While in case of the amount of enterprises, Central Bohemia together with Prague, Moravian-Silesian and Ústí regions accounted for 68 % of their entire number, in case of aggregate turnover, the afore mentioned territories generated 80 % of the total top 100 turnover. These aspects are further widened by the perspective of the population size of individual regions (see figure 1).

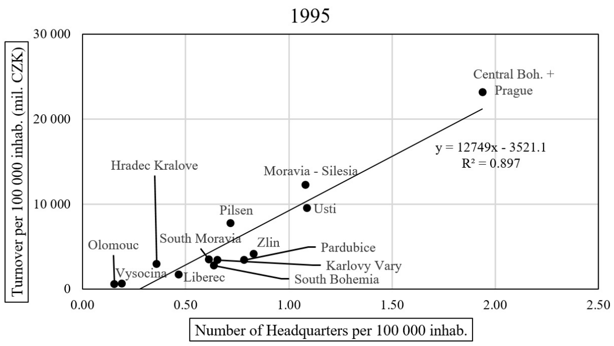

Fig. 1 Number of enterprises and their turnover per 100 000 inhabitants in 1995. Source: authors

Between 1996 and 2005, numerous enterprises were compelled to undergo rather painful restructuring. Large economic problems in 1997 and 1998 revealed the vulnerability of Czech economy and before entering the European Union, firms were forced to adapt themselves to the new and more competitive environment.

In 2005, the total turnover of top 100 in the country reached already 2.38 trillion CZK. Spatial profile of the largest enterprises in the country has been transformed rather strongly. Aggregated region of Prague together with Central Bohemia hosted already 60 % of largest enterprises in the country. Moreover, this region represented 69 % of total turnover of top 100 firms.

The respective numbers for Moravian-Silesian region made 16 % for enterprises and 15 % in case of the share on total turnover. As to Ústí region, the number of headquarters declined to 7 and regional share on top 100 entire turnover descended to mere 3.7 %. Still, these regions hosted 83 of 100 largest firms and their share on the aggregate turnover reached 88 %. Spatial concentration tendencies thus distinctively augmented between 1995 and 2005.

This naturally found its manifestations in the majority of other evaluated self-governing regions: only Vysočina region was able to bait one more head office of largest enterprises and Hradec Králové region remained the same. All other regions lost their representatives within top 100 firms and Olomouc region even had no firms in this hierarchy (see also figure 2).

Prague and Central Bohemia lost 14 headquarters placed within top 100. Other regions remained at more or less constant levels. However, a clear progress could be observed in Ústí region (increase in 4 firms) as well as in Zlín and Plzeň regions (3 more enterprises in both cases).

Subsequently, Central Bohemia, Moravian-Silesian and Ústí regions comprised 72 % of top 100 firms. This makes 11 enterprises less than in 2005. From synthetic perspective, we are in a way entitled to talk about the return of the spatial structure of largest corporations to the initial pattern as observed in 1995.

However, the situation differs in terms of turnover. In 2015, full three quarters of the turnover of top 100 firms was generated in merged region of Prague and Central Bohemia. Contrary to that, Moravian-Silesian region lost nearly 10 % of the share on the total turnover of assessed corporations. Thus, the second position in terms of turnover was occupied by Pardubice region for the first time (see also figure 3).

Above mentioned aspects are synthetically expressed in table 1. The table shows the development of the degree of unevenness of observed indicators through Theil index. We utilised weighted Theil index and the population size of the respective region serves as the weight.

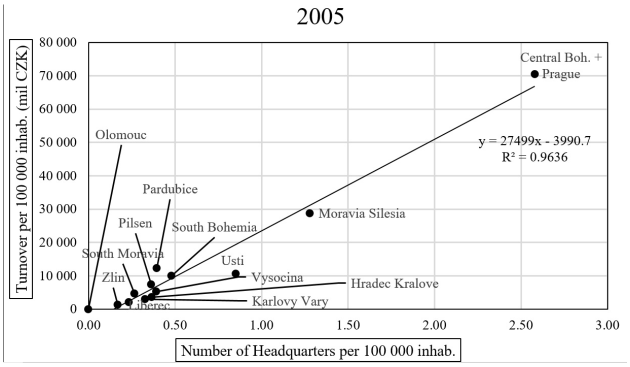

Fig. 2 Number of enterprises and their turnover per 100 000 inhabitants in 2005. Source: authors

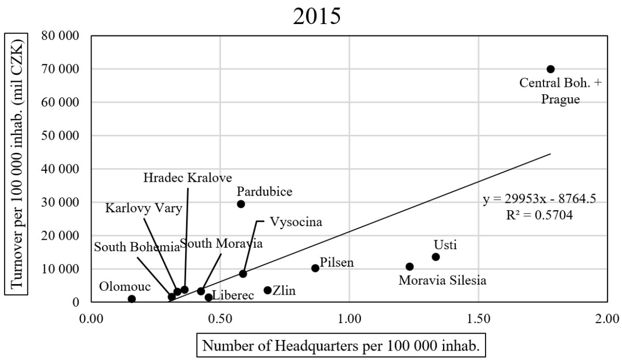

Fig. 3 Number of enterprises and their turnover per 100 000 inhabitants in 2015. Source: authors

The period between 2006 and 2015 is markedly determined by the presence of the country in the European Union and related effects, such as inclusion of the country into Schengen area. Economy of the country underwent several challenges starting from economic depression and ending with fortification of globalisation, for example.

Total turnover of top 100 firms in 2015 reached 2.41 trillion CZK. As for spatial structure of largest enterprises, we are witnessing tendencies towards their higher spatial balance. Between 2005 and 2015, It is apparent that the turnover of top 100 enterprises was more concentrated than the physical amount of the headquarters from the very beginning of the investigated period. It is also lucid that generated turnover has been increasingly spatially concentrated. This can be attributed to the largest enterprise head offices in Prague and its surroundings. When focusing on spatial distribution of headquarters, we get somehow a different picture.

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Table 1 Degree of concentration of selected characteristics of Czech top 100

Headquarters of Largest Enterprises		
Year	Theil Index (weight - population)	
	Number of Headquarters	Turnover
1995	0.570	0.764
2005	0.826	0.961
2015	0.591	1.034

source: authors

While between 1995 and 2005 a distinct concentration processes were running, after 2005 we could observe a clear spatial de-concentration and the value of the year was only slightly larger than starting value in 1995.

3.2 Qualitative Perspective

The next part of the contribution focuses on the qualitative aspects of the collocation of largest enterprises in the country. This subchapter is based on the accomplished questionnaire survey and mainly on the answers to its open questions. In that way we were able to assemble numerous specific as well as contextual information and knowledge.

Since 83 % of enterprises expressed the satisfaction with contemporary location and has no plan to change the place where their head office is collocated, the spatial pattern of headquarters of largest firms in the country looks rather stable. Moreover, in the framework of this question, no apparent differences were found across various economic sectors.

When asked about potential and conceivable places for the collocation of their head offices out of the capital city, largest firms mentioned Brno in 31.2 % of cases and Ostrava in 23.5 %. Further on, Hradec Králové has been mentioned in 17.6 % of cases and Olomouc in 11.8 %. Surprisingly, fourth largest town of the country and important industrial centre Plzeň has been admitted as potential and conceivable town for the head office seat only in 5.9 % of cases. Thus, geographical position of the town turns out to balance the population size of the town in question and its position within settlement hierarchy.

Genuine spatial distribution of top 100 however discloses quite weak position of both Hradec Králové and Olomouc. It should be also underlined, location factors cannot be perceived as static but rather dynamic and variable categories.

Previous subchapter on quantitative aspects of the location of largest firms confirmed the primary position of metropolitan areas and mainly the capital city of Prague. The capital city serves as an exclusive island for the location of biggest companies in the country as it combines both hard and soft location advantages. The questionnaire survey disclosed that in case of Prague, firms appreciate mostly its sound purchasing power, level of infrastructure, and quality of the labour on the one hand and city's image on the other.

As top 100 enterprises in the country are owned by foreign entities in full 76 % of cases it is also worth noticing, what are the differences between domestic and foreign owners of biggest enterprises in the Czech Republic. Put succinctly, foreign owners perceive the process of location decision-making in more complex way than their Czech counterparts (see also table 2).

Since traditional hard location factors are rather disposable in advanced western economies, from which the most owners of Czech top 100 comes from, actors from these countries concentrate on soft location factors rather intensely (see for instance Grabow, Henckel and Hollbach-Grömig, 1995).

4 Discussion

In 1995, when our investigation started, the heritage of the previous socialist period proved to be relevant. There existed an exclusive position of the capital city together with its surroundings in both absolute and relative (i.e. considering the population size) terms. The biggest companies seating in Central Bohemia generated clearly the largest aggregate turnover. This can be ascribed to the certain qualitative advantage of the capital city that hosted export and import firms already during the socialist period. In contrast to the rest of the country, which suffered from the isolation from international trends, managements of these enterprises possessed relevant know-how and enjoyed salient benefits of networking.

Self-governing regions at the second and third place of the corporate hierarchy, i.e. Moravian-Silesian and Ústí regions hosted the headquarters of firms in the field of metallurgy, coal mining or chemical industries. All of these industries were preferred by the previous regime to the detriment of more progressive branches of economy. Not surprisingly, the power of enterprises in these regions was of quantitative rather than qualitative nature

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Table 2 Differences in location preferences between domestic and foreign owners of largest enterprises.

Location factors	Average % evaluation according toforeign firms	Average % evaluation according to Czech firms	Differences
Nearness of decisive authorities	66.6	58.3	8.3
Quality of environment	67.5	59.6	7.9
Image/prestige of the place	71.5	63.8	7.7
Proximity of competition	70.2	63.8	6.4
National policies	71.5	65.3	6.2
Proximity of related industries	72.8	66.6	6.2

source: authors

and paradoxically, their head offices typically seated in great geographical proximity of the production itself.

Ten years later, the basic spatial projection of complex transformation processes became tangible. Central Bohemian region fortified its position again and moreover, acted increasingly as the magnet for immigrants from the other parts of the country. Moravian-Silesian region retained its second position but witnessed also the decline as to the number of inhabitants. Regional economy turned out to be vulnerable namely in the view of 1997−1998 crisis. The same applies to Ústí region and the position of remaining NUTS III regions became more volatile. The only progress – mainly in terms of aggregate turnover – could be contemplated in Pardubice region because of strong specialization on electro-technical industry and quite surprisingly in Vysočina region just for the sake of automotive industry.

Last period of our analysis has been substantially affected by the membership of the country in the European Union. While in case of the regional pattern of largest enterprises, one could basically observe the return to the initial state in 1995, in terms of turnover we witnessed further spatial concentration as confirmed also by Theil index. Central Bohemia kept the size of aggregate turnover at almost the same level as in 2005. But since the amount of inhabitants in this territory augmented substantially, the region actually strengthened its top rank. The same holds true for Pardubice and Vysočina regions again.

Contrary to that, old industrial regions, i.e. Moravian-Silesian and Ústí that underwent severe restructuring, weakened their positions mainly as for the aggregate turnover. The rest of regions has no extreme features, with exception of extraordinary fragility of Olomouc region. As for historical importance and population size, the town of Olomouc itself occupies favourable position within urban hierarchy of the country. Nonetheless, the whole Olomouc region still suffers from an inappropriate structure of the economy and lacks large enterprises.

As mentioned also in other researches (see Sucháček et al. 2017), the capital city of Prague remains an exclusive zone for the seat of headquarters of biggest firms. Answers to our questionnaire survey showed that city´s attractiveness is determined by its purchasing power, infrastructure, availability as well as quality of the labour on the one hand and favourable image on the other.

The other towns conceivable for the collocation of large enterprise headquarters followed the settlement hierarchy only partially and the importance of their geographical position has been stressed instead. Thus, Hradec Králové and Olomouc are treated as more attractive places for enterprise head office collocation than Plzeň.

Last but not least, it is palpable that managements of companies owned by foreign capital representing full 76% of top 100 enterprises in the country perceive the location decision-making as much more complex and versatile process than their Czech peers. And owners from advanced countries, which account for majority of Czech top 100, accentuate soft location factors much more intensely.

On the basis of previous facts, several relevant recommendations can be formulated for both public administration and corporate managements:

(i) Over three quarters of largest companies in the country has foreign owners. There always exists the danger of the isolation of top managements from the reality of corporate branches, where the production takes place. In order to avoid that danger, organizational hierarchies should be as flat as possible and managements should be placed in the minimal possible distance from the places of production. This recommendation is in line with Massey (1984 and 1995).

(ii) Our research has shown that several self-governing regions can aspire to act as the host territory for the headquarters of large firms. Lower costs in these territories can function as balancing factor of nearly complex attractiveness of the united area of Prague with its surroundings. Lower costs constitute surely an interesting locational advantage for self-governing regions and their governments should develop more initiatives to become more investor-friendly and bait the corporate headquarters. The implication for the improvement of institutional thickness is lucid in this case.

(iii) Traditional hard location factors are still accentuated more in post-transformation economies. This is palpable mainly in comparison with standard advanced economies. However, physical infrastructure is gradually developing also in post-transformation countries, which implies the augmentation of the importance of soft location factors in the near future.

(iv) Enterprise managements should generally focus on these factors, which are geographically differentiated across individual regions. Specifically, it is advisable to deal with one of the most important production factors, which is labour. This concerns both quantitative and qualitative components of the labour. Labour quality is regionally rather uneven, which has much to do with population educational structure as well as many other factors. In order to avoid spatial mismatch on the labour market, wages, fringe benefits and other aspects determining the position of the labour should be of utmost importance. However, regional governments should focus on the creation of an appropriate milieu for the labour too.

5 Conclusions

Location decision-making represents one of the most important functions corporate managements perform. As for the development of spatial structure of the headquarters of largest firms in the country, it has much to do with the overall socioeconomic character of the given period and its evolution.

From quantitative point of view, merged region of Prague and Central Bohemia occupied exclusive position during the entire examined period. On the contrary, territories of traditional industry, such as Moravian-Silesian or Ústí regions, enfeebled their positions mainly with regard to their aggregate turnover. Other evaluated regions did not show any salient features, with exception of the fragility of Olomouc region.

From the synthetic perspective, generated turnover of top 100 enterprises in the country proved to be spatially increasingly concentrated. This is not the case of the degree of concentration of enterprise headquarters. While in the first investigated period we could observe rather strong concentration tendencies, between 2005 and 2015, a distinct spatial de-concentration took place in this realm.

Qualitative part of the article helped to disclose further important aspects of the issue. Majority of questioned enterprises turned out to be satisfied with their contemporary location and has no intention to move their head office elsewhere. Interestingly, towns conceivable for the location of corporate head offices followed the urban population hierarchy only partially and their geographical positions have been accentuated instead. And last but not least, enhancement of the importance of soft location factors may be expected in the future.

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