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Localization potential of the Czech regions

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Abstract

The article examines the entrepreneurial potential of the administrative districts of the Czech Republic. This potential is measured by theoretically adjusted localization factors of entrepreneurship, which are related to labour force characteristics, location´s characteristics and entrepreneurial climate characteristics. Cluster analysis is employed to indicate groups of districts with similar entrepreneurial potential. Although the issue of entrepreneurial activity seems to be crucial for regional development and growth, the relevant research on entrepreneurial potential of regions is rather scarce in the post-communist countries. Findings of the article provide several important conclusions for decision-making of firms, public authorities, but also for further research.

Keywords: Entrepreneurial activity; Localization factors, Cluster analysis; Administrative districts

1. Introduction

The article targets to issues related to regional characteristics influencing localization of entrepreneurial activity. Administrative districts of the Czech Republic (districts in further text) are used as basis of regional decomposition. To reveal the assumptions of particular districts to attract entrepreneurial activity, the article uses traditional localization factors indicated in research works. Localization of entrepreneurial activity is crucial question for many economic and regional theories throughout history (e.g., Damborský and Wokoun 2010 for further discussion), but also for public authorities facing the development or structural doubts. From another point of view, choice of location is essential for entrepreneurial entities as well, influencing significantly their success on the market (e.g., Batnagar and Sohal 2005).

Considering abovementioned ideas, the article tries to indicate entrepreneurial activity localization potential of defined districts, based on relevant localization factors. The article structure follows consequent structure:

- the first part draws theoretical cornerstones of the localization of entrepreneurial activity and localization factors,
- the second part is dedicated to applied methodology,
- the third part summarizes main empirical results,
- the final part concludes and provide discussion.

2. Theoretical background

The history of research on localization of economic activities goes to the 19th century. The first famous theories considered transportation costs and distance from production factors or markets to be the most important localization factors (e.g., Weber 1928 or von Thünen 1826). Following theories of localization examined various localization factors and their impact on entrepreneurial activity and success. The review of these theories provide Damborský and Wokoun (2010). In addition, actual research agreed on the importance of further localization factors examination. The entrepreneurial activity localization is now more than ever influenced by modern economic processes, such as globalization, cluster issues, agglomeration economies, changes in customer preferences, public sources limitations and so on (see, e.g., Pavelková and Jirčíková 2008; Waxell and Malmberg 2007; Phelsp 2004; Chakrabarti 2001 or Hájek 2011 for more details).

Blažek and Uhlíř (2011) provides basic definition of localization factor. Thus, in this article it is understood as characteristics of the region that influences the location of economic activity. These characteristics have, according to Batnagar and Sohal (2005), impact on only on the sole location of entrepreneurial entity, but also on its competitiveness or market success. Fisher and Nijkamp (2009) add that entrepreneurial activity and success is essential condition for regional development as a whole. Knowledge of presence and impact of particular localization factors in regions is obviously important for entrepreneurial entities and their management as well (see, e.g., Porvazník and Ladová 2010).

Following abovementioned ideas, the regional decomposition is important task for localization factors impact examination. According Dicken (2007), we can distinguish between three levels of entrepreneurial activity localization – (1) macro-level, (2) mezzo- level and (3) micro-level. Considering (1), entrepreneurial entities choose the country or other macro-region for their localization; usually these are supranational corporations (see, e.g., Dimitropolou et al. 2013 for more detailed review). Considering (2), entrepreneurial entities choose intra-national regions for their localization (see, e.g., Ellram et al. 2013 for more detailed review). Considering (3), entrepreneurial entities choose the particular location, such as industry zone (Koll-Schretzenmayr 2000) or choose between greenfield or brownfield location solution (Novosák 2009).

As far as the subject of this article aims on mezzo-level of entrepreneurial activity localization, it has been examined several groups of relevant localization factors. These groups are indicated as follows:

- spatial proximity of entrepreneurial entities and agglomeration economies (e.g., Krugman 1998 or Phelps 2004),
- transport accessibility (Weber 1928),
- market characteristics (Krugman 1998),
- labour-force characteristics (Laabas and Weshah 2011 or Lucas 1990),
- location´s characteristics (Adams et al. 2001 or Novosák 2009).

Introduced research concepts provide the theoretical background for further examination in this article. Note, that the research on impact of localization factors on entrepreneurial activity and potential of regions to attract entrepreneurial activity is rather limited in post-communist countries (see, e.g. Wyrwich, 2014). Thus, the article tries to contribute to filling this research gap.

3. Methodology

In this section is introduced applied methodology. The main purpose of the article is to reveal the various potential of the Czech regions to attract entrepreneurial activity. Regarding theoretical support, the 77 administrative districts are used for regional decomposition for the evaluation of entrepreneurial activity localization potential. These districts are defined by the Czech Statistical Office (CSO in further text). The article uses the Czech Republic as a case study. Thus, the choice is in accord with the idea about entrepreneurial specifics of post-communist countries.

Table 1: Groups of localization factors

Group	Localization factors	Impact on entrepreneurial activity localization
Labour force characteristics	Share of persons with tertiary education on district population	+
	Share of persons with primary education on district population	-
	Share of persons older than 65 years on economically active district population	-
	Share of persons commuting to different municipality on economically active district population	+
Location´s characteristics	Transport accessibility of district	+
	Unemployment rate	-
	Economically active population	+
	Average size of parcel	+
	Average price of parcel	-
Entrepreneurial climate	Awarded investment allowances per district population	+
	Awarded foreign direct investments per district population	+
	Share of entrepreneurial entities on economically active district population	+

Source: CSO, CNB, CzechInvest

Table 1 brings the information about localization factors used for entrepreneurial activity potential evaluation. Note that these factors were chosen according to relevance and according to the availability of official data. The source of particular data is CSO - Census 2011, regional statistical almanacs to be specific; data of Czech National Bank (CNB hereafter) and data of CzechInvest Agency. The data were aggregated for particular districts and for the period

2000 – 2011. Afterwards, it was made the standardization of the data to ensure their comparability between districts. Consequently, the data were modified according to their positive or negative impact on entrepreneurial activity attractiveness of district.

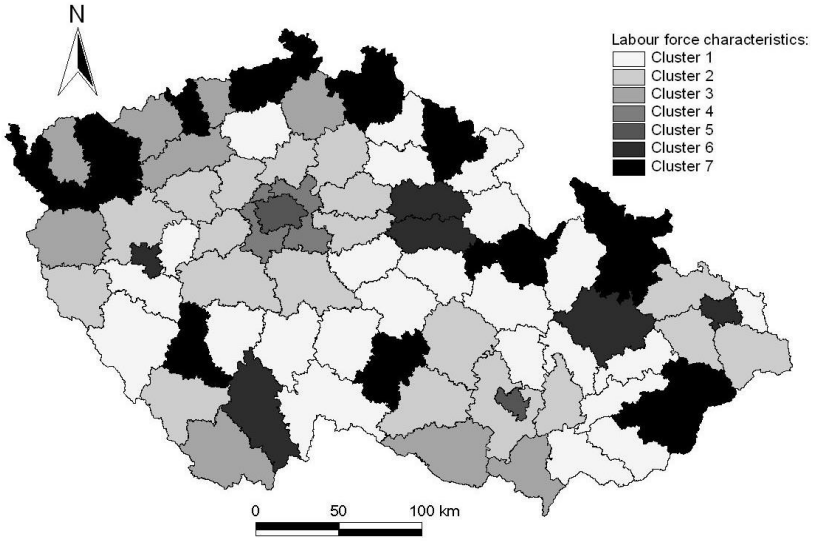
For evaluation of entrepreneurial activity location potential of particular districts was applied cluster analysis. Cluster analysis determines groups of districts with similar localization characteristics, which are simultaneously maximally different from each other. Cluster analysis was applied either for each group of location factors separately (see table 1) and either for the whole set of localization factors. For particular groups of localization factors were identified clusters of districts with better $(0;\infty)$ or worse $(-\infty;0)$ values of particular indicators. Consequently, the absolute ranking of districts according to localization factors values was appointed as well.

For cluster analysis was used SPSS Statistics software. The results were afterwards visualized in ArcGIS software. The best values are in figures indicated as the darkest; the opposite is true for the worst values, thinking about entrepreneurial activity potential.

4. Empirical results

Using above described methodology, this section summarizes the main empirical results of the evaluation of entrepreneurial activity localization potential of particular Czech districts. Figure 1 illustrates identified clusters of the Czech districts according to labour force characteristics. Regarding the evaluation results, districts near the main agglomerations of the Czech Republic – Prague and Brno, have the best potential to attract entrepreneurial activity. Larger agglomeration area of these two cities and districts surrounding the Ostrava city reach good results as well. The worst potential is indicated for districts in North-western Bohemia, Northern and Eastern Moravia.

Figure 1: Clusters of the Czech districts according to labour force characteristics

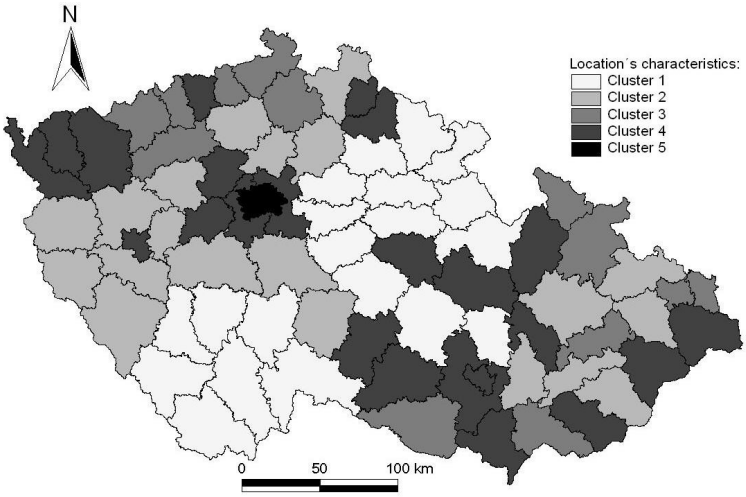


Source: own elaboration based on CSO, CNB, CzechInvest

Figure 2 visualizes the evaluation of districts according to location´s characteristics. In this regard, the situation is rather different compared to the first evaluated group of localization factors. From this point of view, the most attractive districts are located in Plzeňský region

(district of Plzeň-město is exemption), districts in Southern and Eastern Bohemia, districts surrounding regional capitals in Moravia and the district of capital city Prague. Similarly to the previous evaluation, the districts in North-western Bohemia and also Eastern Moravia indicate the worst entrepreneurial activity potential, thinking about location´s characteristics.

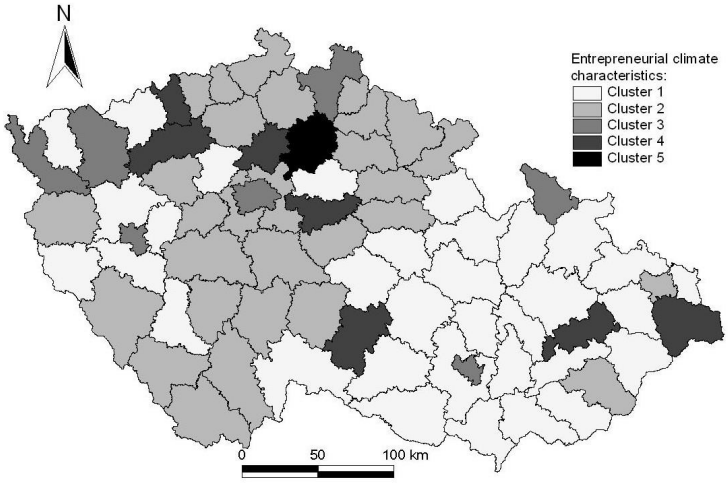
Figure 2: Clusters of the Czech districts according to location´s characteristics



Source: own elaboration based on CSO, CNB, CzechInvest

Entrepreneurial activity potential of the Czech districts, evaluating entrepreneurial climate, seems to be the best in Mladá Boleslav district (especially because of the best values of foreign direct investments and investment allowances), and consequently in districts of Prague, Plzeň and Brno. Almost all of the Moravian districts reach the worst results (see figure 3).

Figure 3: Clusters of the Czech districts according to entrepreneurial climate characteristics



Source: own elaboration based on CSO, CNB, CzechInvest

Clustering of the Czech districts according to aggregate values of entrepreneurial potential reveals following - districts with relatively best values are Prague and its surroundings,

Plzeň and Brno. The worst entrepreneurial activity potential indicate districts in North-western Bohemia and districts in Northern and Eastern Moravia. Table 2 provides additional information about district ranking with the best, respectively the worst, aggregated standardized index of entrepreneurial activity potential.

Table 2: Absolute ranking of districts

District ranking	Aggregated standardized index	District ranking	Aggregated standardized index
1. Mladá Boleslav	15,15	68. Šumperk	- 3,98
2. Praha - západ	12,06	69. Znojmo	- 4,14
3. Praha - východ	10,70	70. Karviná	- 4,99
4. Praha	10,39	71. Chrudim	- 5,07
5. Beroun	5,02	72. Třebíč	- 5,70
6. Plzeň – město	4,94	73. Děčín	- 5,84
7. Brno – město	4,90	74. Svitavy	- 5,93
8. České Budějovice	4,80	75. Bruntál	- 6,75
9. Kolín	4,39	76. Sokolov	- 7,37
10. Liberec	4,20	77. Jeseník	- 8,24

Source: own elaboration based on CSO, CNB, CzechInvest

Tables 3 to 5 add information about aggregate standardized indexes of particular identified district clusters, according to evaluation of labour force characteristics, location´s characteristics and entrepreneurial climate characteristics, respectively.

Table 3: Ranking of districts according to labour force characteristics

District cluster	Aggregated standardized index
Cluster 1	9,89
Cluster 2	3,92
Cluster 3	1,12
Cluster 4	0,98
Cluster 5	-0,88
Cluster 6	-1,26
Cluster 7	-1,48

Source: own elaboration based on CSO, CNB, CzechInvest

Table 4: Ranking of districts according to location´s characteristics

District ranking	Aggregated standardized index
Cluster 1	2,92
Cluster 2	1,92
Cluster 3	-0,26
Cluster 4	-0,88
Cluster 5	-1,07

Source: own elaboration based on CSO, CNB, CzechInvest

Table 5: Ranking of districts according to entrepreneurial climate characteristics

District ranking	Aggregated standardized index
Cluster 1	9,57
Cluster 2	2,11
Cluster 3	2,06
Cluster 4	0,38
Cluster 5	-1,51

Source: own elaboration based on CSO, CNB, CzechInvest

4. Conclusion

The final chapter of the article provides some conclusive remarks on topic entrepreneurial activity potential of the Czech districts. These remarks are based on realized evaluation and are related to broader socio-economic climate of the Czech Republic in post-communist era. Potential of the Czech districts to attract entrepreneurial activity was evaluated through the identification and classification of localization factors, adjusted in current research work. The entrepreneurial activity potential evaluation of the districts can provide following findings and recommendations. These findings are relevant for entrepreneurial entities on one hand and for public bodies on the other, when give headings for strategic and development documents formulation.

It is possible to sum up these findings in following theses:

- Relatively best values of evaluated indicators perform districts on west-eastern axis of cities Plzeň – Prague – Brno.
- Considering entrepreneurial activity potential of the Czech districts from the viewpoint of labour force characteristics, the weakest position indicate border districts, especially in Northern part of the Czech Republic.
- Considering entrepreneurial activity potential of the Czech districts from the viewpoint of location´s characteristics, the strongest is position of districts in Western and middle part of Bohemia and districts surrounding the capital cities of

Moravia. Altogether, the Czech Republic as a whole can be perceived as macro-region with favourable location´s characteristics.

- Considering entrepreneurial activity potential of the Czech districts from the viewpoint of entrepreneurial climate, the strongest position occupy particular districts in Northern part of the Czech Republic and districts of capital city of Prague, Brno and Plzeň.

The recommendations for public policies formulation can be considered from two opposite viewpoints. The first is the viewpoint of growth poles support. Prague, Brno, Plzeň and Ostrava cities can be labelled as the main growth poles, in the conditions of the Czech Republic. Regarding the growth pole strategy and realized evaluation, the public support should concentrate mainly on human resource development. Furthermore, this support should be designed in accord with entrepreneurial entities needs. In case of the Ostrava city, the public support should pay attention also to entrepreneurial climate enhancement.

The second viewpoint targets on lagging regions support. In this regard, the attention of public authorities should be oriented on entrepreneurial climate support and human resource development. The entrepreneurial climate support should target also to infrastructure facilities and investment attraction to accelerate entrepreneurial activity. The public support of human resource development is justified mainly in border regions of the Czech Republic, based on realized evaluation.

Realized evaluation of entrepreneurial activity potential of the Czech administrative districts provide initial information, which deserve further examination. Thus, one direction of research could focus on enhanced basis of theoretically justified localization factors. The other direction could focus on industry decomposition. The preferences of investors and potential entrepreneurs can vary significantly according to the industry. Nevertheless, the article revealed some important issues for entrepreneurial activity location potential of the Czech districts with significant implications for entrepreneurial entities and public authorities as well.

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