MODEL FOR EVALUATION OF BUSINESS ENVIRONMENT QUALITY

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ABSTRACT
The submitted paper brings the most important results of a wide research study that is an output of the first stage of a three year research project whose key solvers are the authors. The study is focused on the quality of the business environment in the Czech Republic. The evaluation is carried out at microregional level which is represented by 205+1 administrative districts of municipalities with extended competence (level between LAU 1 and LAU2). The final model classifies individual regions into five established types of business environment quality. This model is created with the use of a wide range of data aggregated to form key factors of business environment quality with various degrees of significance. On the basis of the composite evaluation of the position of the individual regions their centres are typologically defined as development poles of various significance and development centres with differently favourable business environment. The whole study is connected with the idea that innovations play an important role within the transformation of traditional economics to modern knowledge economics.
Keywords
Business environment, competitiveness, development poles, regional development

1. INTRODUCTION

The research of the business environment quality is ideologically based on two groups of economic theories mainly. The first one comprises location theories, which are generally considered the oldest part of the regional development theory. Their grounding premise can be summarized as the statement that a limited spatial mobility of production resources determines the creation of territory-specific economic structures, and in correspondence with this, the main objective of location theories is to find the factors which condition the location of economic activities and use them as a basis for the explanation of the regularities in the spatial distribution of economy [1]. In this respect, we can differentiate four basic directions of location theories: the clarification of location decisions of particular companies, the research into interdependences of location decisions of companies, the analysis of behavioural aspects of location, and the synthesis of the overall spatial distribution of economy. The more up-to-date location theories still represent a significant information source useful for the practical decision making of managements of highly mobile global companies. However, it is necessary to add that the search for comparative location advantages is highly affected by a number of hardly quantifiable subjective factors.

The second group of these economic theories is represented by models of endogenous growth; these originated as a reaction to the fact that basic neoclassical models were not able to satisfyingly interpret long-term production growth. Therefore, endogenous models endeavour to internalize the other factors affecting the economic growth which were considered exogenous in the original economic models and in correspondence with this they are characterized by certain forms of the spill-over of economic effects ensuring individual and social return of investments. We can distinguish between two main types of endogenous models, which generally emphasise the key roles of 'knowledge capital' [2]:

❖ R. Lucas's model which assumes that the level of human capital mainly depends on the way in which individuals divide the available time between work and training. The human capital in the above mentioned context is demonstrated by two effects: 1) earnings of each worker depend on his skills, which stimulate them to achieve higher qualifications; and 2) the average level of the human capital subsequently contributes to the increase in productivity of other production factors.

❖ P. Romer's model which assumes that innovation efforts of businesses enhance the general scope of technical knowledge, in other words the level of knowledge capital. The model emphasizes that the development in technology is determined by science and research to a great extent but the commercial utilization of its results requires private investments in innovations, which are then

the main source of the spill-over effects improving the productivity of all production factors including the general level of technological development.

Modern endogenous models lay stress on the issue of global competitiveness, which is a result of multidimensional cooperation of social and market forces. In the general model, the processes and factors affecting competitiveness are evaluated on four basic system levels: meta (developmental orientation of a society), macro (stable framework of economy), meso (economic policies and supporting institutions), and micro (companies and their associations).

From microeconomic perspective it is necessary to state that the quality of business environment is of significant influence on the economic development of a specific territory and in correspondence with a high level of inertia it creates the basic framework for the perception of its long-term competitiveness. In the conditions of market economy the determining development influences are naturally generated by the entrepreneurial sector. Optionally, also effects of specific factors are visible (e.g. the occurrence of attractive natural resources, strong regional 'rooting' of large companies, the advantages caused by the vicinity of dynamically evolving development poles or the position on a development axis). In relation to this, it is useful to mention M. Porter's theory of competitiveness (the diamond model). Porter is of the opinion that competitive advantages are strongly affected by local conditions even in the global economy and they arise from the concentration of skills and knowledge, institutions, companies, and customers [3].

2. RESEARCH METHODOLOGY

The evaluation of business environment quality is based on an approach the core of which is the identification of investment or development preferences of entrepreneurs. These preferences can be expressed in a concentrated way which is based on a pre-defined set of business environment quality factors. The multifactor evaluation of business environment quality (BEQ) respects the logics of modern concepts of location analyses, which put the main stress on the consideration of the corresponding entrepreneurs' demands. In this context, the results of the conducted empirical studies lead us to the general statement that the decisions of companies concerning the location of new or expansion investment are (besides subjective factors) influenced by a wide range of objective factors; the strength of influence of the individual objective factors cannot be correctly defined using simple deterministic models. However, even in the case of multifactor evaluation this is a generalized statement, which is from the perspective of specific companies modified by their subjective requirements concerning the optimum combination of demanded BEQ factors.

We have chosen a complex approach to BEQ evaluation taking account of development preferences of selected industries and services of the market sector of economy. In agreement with the used statistical classification of economic activities EU NACE – Rev. 2,[4] these are location-sensitive fields belonging to the manufacturing industry (section C – Manufacturing, divisions 10–33) and to selected fields of market services, hereinafter referred to as progressive services (section J – Information and communication activities, divisions 58–63; section K – Financial and insurance activities, divisions 64–66; section L – Real estate activities, division 68; section M – Professional, scientific and technical activities, divisions 69–74; section N – Administrative and support service activities, divisions 77–78 and 82) with approximately 55 % of current share in the total production of the Czech economy. The created methodology respects the global character of economy and in this sense it also considerably reduces the usual faults of methodological approaches based on surveys of opinions as expressed by representatives of the Czech entrepreneurial section, which rather reflect their subjective ideas than deeper general and specific knowledge on the determining tendencies and trends present in the particular context within the global economy.

For the evaluation of BEQ to be possible it is naturally necessary to have relevant estimates of appropriate degrees of significance of the selected factors. These can be established with the demanded degree of objectivity using qualified international surveys of corresponding opinions of potential investors and subsequent statistical and other analyses. For this purpose, especially the data found out by Netherland Economic Institute in cooperation with the well-known advisory and auditing company Ernst and Young [5] were used, together with the results of other international surveys carried out by recognized European institutions (e.g. IFO Munich [6]). There is a certain disadvantage to these international surveys; it is the fact that they are primarily focused on new investments, referred to as Greenfield Investments in practice. Therefore, for the final selection and the establishment of degrees of significance of the particular factors also other data were used, especially analyses of significant foreign investors' opinions on location attractiveness of the Czech Republic, the results of our own survey of representatives of selected Czech towns, and also the results of conducted statistical analyses based on the factor analysis method and aimed at the identification of the determining dependencies

occurring in foreign investments [7, 8, 9, 10, 11]. The described approach takes into account not only Greenfield Investments but other types as well (acquisitions, joint ventures, etc.). However, their allocation is more considerably affected by the economic situation and the development prospects and strategies of foreign and Czech companies. The identified main factors of the BEQ can be divided into six groups (business, labour-related, infrastructure-related, local, price-related, and environmental factors) or according to their position in significance (the most significant factors, factors of medium significance and less significant factors).

It is necessary to emphasize that the establishment of the degrees of factor significance is largely influenced by the adaptation to the conditions of the 'knowledge economy', which considers innovations as the main drive of significant development. The transition to the knowledge economy is connected especially with the weakening of the overall significance of infrastructure-related factors and also of a comparable significance of some partial factors (e.g. the factor of public administration assistance). On the other hand, there is an increase in the overall significance of labour-related factors (the factor of workforce quality) and environmental factors and some partial factors (especially the business and knowledge base factor).

Table 1. BEQ factors and their degrees of significance

Factors	Typological Groups	Degree
the most significant factors:		48
business and knowledge base	local factors	11
workforce availability	labour-related factors	10
vicinity of markets	business factors	9
concentration of key customers	business factors	9
workforce quality	labour-related factors	9
factors of medium significance:		35
price of real estates	price-related factors	7
quality of roads and railways	infrastructure-related factors	6
labour costs	price-related factors	6
information and communication technologies (ICT)	infrastructure-related factors	6
support services	business factors	5
urban and country attractiveness of the area	environmental factors	5
less significant factors:		17
presence of foreign companies	business factors	4
environmental quality of the area	environmental factors	4
public administration assistance	local factors	3
vicinity of international airports	infrastructure-related factors	3
workforce flexibility	labour-related factors	3

Source: authors' research

The total information relevance of the methodology has been verified using the hypothesis that the BEQ values at regional level (BEQ values at regional level are not presented in this paper for the space is limited) have strong connections to the level of GDP. This hypothesis was confirmed on the basis of the obtained results – the calculated value of the correlation coefficient between BEQ and GDP exceeds 0.95 (data from 2006). We obtain similar data when the values of GDP of the previous or the following years are used. From a theoretical viewpoint this fact can be considered the verification of the causal relationship between the BEQ and the quality of companies. As for the most significant differences in the degrees of significance of particular BEQ factors between the above mentioned aggregations of economic activities, i.e. the manufacturing industry and the progressive services, we can see that they are to be found in the factor of the vicinity of markets (with a considerably higher significance for the manufacturing industry), further the factor of information and communication technologies and the factor of support services (both with a considerably higher significance for progressive services). Naturally, there are also differences in the degrees of significance dependent on the size of a company. In this respect, small and medium-sized enterprises (hereinafter SME) are in comparison with larger companies much more sensitive to price-related factors mainly (the factors of labour costs and the price of real estates). As far as markets for products and services are concerned, SME are more oriented at regional, or only local markets, therefore, the significance of the factor of vicinity of markets is lower [12].

The territorial units used for the regional evaluation of BEQ were administrative districts of municipalities with extended competence (MEC). The total number of these districts in the Czech Republic is 205+1 (including the territory of the capital – Prague). These units are not included in the European system of NUTS; MEC represent a level between LAU 1 (districts) and LAU 2 (municipalities). From a regionalist perspective, these units represent a microregional level of evaluation (hereinafter they will be referred to as region, or regional level).

The evaluation of the selected BEQ factors in the individual regions was then carried out in the agreement with classification which had been developed and thoroughly verified in practice before. The classification consists of five groups: 1st group – values well above average; 2nd group – values

slightly above average; 3rd group – average values; 4th group – values slightly below average; and 5th group – values well below average. If the values were placed in a position similar to usual statistical distribution, the limits of individual classification groups were set on the basis of the standard order from the 1st to the 5th group (x = arithmetic mean, Sx = standard deviation): x and Sx, x + 0.33 Sx, x – 0.33 Sx, x – Sx. In the other cases, the limits of the classification groups were set by means of specific procedures adapted, besides the statistical distribution of the values of the factors, to their factual character.

3. RESULTS AND CONCLUSIONS

As it would be highly beyond the scope of this paper to present the results of the analyses of partial BEQ factors, we are only going to provide the complex, user-oriented, regional evaluation of the business environment. The obtained results can be used not only for the formulation of regional strategies and various conceptions of the regional development but also for the needs of the decision making processes in companies concerning options of their further development or investment priorities, especially regarding potential external savings or territorial relationships (supplier-customer relationships) of companies.

The total values of BEQ are weighted sums of the values of their partial factors conducted within the established territorial units. The used procedure can be generally expressed using the following formula:

$$S = \sum_{i=1}^{n} (P_i \cdot w_i)$$

where: S = total BEQ, P = values of partial BEQ factors, w = weights of partial BEQ factors.

Table 2. Number of regions according to complex BEQ types

Region:	type A	type B	type C	type D	type E	mean	total
Praha	1	0	0	0	0	1	1
Středočeský	0	7	17	2	0	2.8	26
Jihočeský	0	2	9	6	0	3.2	17
Plzeňský	0	1	6	8	0	3.5	15
Karlovarský	0	1	4	2	0	3.1	7
Ústecký	0	1	10	5	0	3.3	16
Liberecký	0	1	5	4	0	3.3	10
Královéhradecký	0	1	10	4	0	3.2	15
Pardubický	0	1	8	6	0	3.3	15
Vysočina	0	1	8	6	0	3.3	15
Jihomoravský	1	0	8	12	0	3.5	21
Olomoucký	0	1	4	7	1	3.6	13
Zlínský	0	1	6	6	0	3.4	13
Moravskoslezský	0	1	6	14	1	3.7	22
CR in total*	2 (1)	19 (9)	101 (49)	82 (40)	2 (1)	3.3	206

*the brackets show the proportion in %
Source: authors' research

The values were first calculated for all MEC regions, which were consequently classified into the established BEQ complex types (table 2): type A – regions with outstanding business environment (the values of the total BEQ range between 1 and 1.5), type B – regions with very favourable business environment (1.6 to 2.5), type C – regions with favourable business environment (2.6 to 3.5), type D – regions with less favourable business environment (3.6 to 4.5), type E – regions with unfavourable business environment (4.6 to 5). Within an economic framework, the particular complex types of business environment can be described as: type A – services or selected industrial activities with the highest added value, type B – services and industries with a high added value, type C – industries and services with a medium added value, type D – industries and services with a lower added value, type E – industries or selected agricultural activities with a low added value.

Naturally, these are highly simplifying characteristics (but corresponding with the confirmed positive dependence between BEQ and GDP), which are mainly related to the crucial bearers of the developmental dynamics from the point of view of the above defined complex types of BEQ. The real economic structure of the individual regions has a much more diversified form and in this sense it includes various and varied business activities with considerably differing levels of the added value creation. The obtained composite evaluation of the positions of the individual regions based on the values of the total BEQ can be used to classify their centres into the following main significance degrees or levels [13].

I. Macroregional and mesoregional hierarchic level

With respect to performing administrative functions, the natural centre at macroregional hierarchic level is the capital of the country in question and at mesoregional hierarchic level in the conditions of the Czech Republic it is a regional capital. Economically speaking, these centres can be

called development poles and their basic defining criterion within the presented methodological approach is their business environment level above average.

I.1 Development poles of supranational significance

The development poles of supranational or European significance are metropolitan regions with outstanding business environment classified as type A. These development poles have the crucial importance for the economic development of the entire Czech Republic and its competitive position within the global economy. These are especially Prague and to a lesser extent Brno, which lies on the edge between types A and B according to the results of the BEQ synthesis. It means that only Prague can be considered a real European metropolis, whereas the position of Brno can be described as a 'smaller European metropolis' (development pole of secondary supranational significance in the Appendix 1) – only further development will show if the city can gain a stable position in this respect (as has been maintained by Austrian Salzburg for some time now). According to sociogeographic regionalization of the Czech Republic these are the centres of mesoregional (macroregional in case of Prague) significance.

I.2 Development poles of national significance

The development poles of national significance are metropolitan regions with very favourable business environment, classified as type B. The results show that this criterion is to the demanded extent met by all the remaining 11 regional capitals. The highest value is achieved by the Plzeň region and the lowest by the Zlín region (however, when the Zlín region is connected with the neighbouring region of administratively artificially disconnected Otrokovice, which can be considered its industrial suburbs, its value increases to the level comparable with much larger Ostrava). According to the results of the sociogeographic regionalization, all the regional capitals (except Jihlava) are centres of mesoregional significance. Also Mladá Boleslav falls within this group even though it is not a regional capital (it is only a strong nodal centre; the function of the regional capital of the Středočeský region is performed by Prague); its region has a very favourable business environment. This fact reflects especially the location of the largest Czech company Škoda Auto, which crucially affects the territorial division of labour in the Středočeský and the neighbouring Liberecký regions thanks to its production interactions.

II. Microregional hierarchic level

From the perspective of administrative function performance this level is represented by the remaining 192 MEC regions. From an economic viewpoint these MEC play the role of development centres. Their particular significance position is determined by the overall level of their business environment in the interaction with their real economic significance and further their nodal functions. In this way we can define the nodal centres of microregional significance (the limit of 15 thousand inhabitants of the entire region and 5 thousand inhabitants within the surroundings [13]) and functionally subordinate centres.

II.1 Development centres with very favourable business environment

This group involves regions in the Středočeský region with the centres in Kolín, Beroun, Benešov, Brandýs n. L. - S. Boleslav, Říčany and Černošice, together with Tábor in the Jihočeský region. The fact that there are six regions from the Středočeský region in this BEQ type documents the high developmental dynamics of the economic area of the Středočeský region, with the leading role of Prague as the main development pole of the Czech Republic. Out of the above mentioned centres, Říčany and Černošice do not perform the role of nodal centres (they are functionally subordinate development centres) and in this respect their regions belong to the nodal region of Prague. In general, we can state these are highly attractive regions regarding investment and migration (their migration attractiveness is selectively strengthened by suburbanization processes), with strong economic and social links to Prague.

II.2 Development centres with favourable business environment

There are 101, i.e. nearly a half of regional centres in this group, spatially characterized by large territorial agglomerations around regional capitals (interconnected with similar agglomerations in the neighbouring regions) with better job opportunities. Exceptionally, there are also isolated regions (e.g. the Šumperk region). In this respect we can say that there is an obvious shift as even less urbanized regions with smaller centres (often with less than 10 thousand inhabitants) started to be economically developing with success. The economic prospects of these centres and their regions mainly depend on their economic structure and their ability to overcome weaker points of their business environment. Only a small part represented by 14 regional centres is not centres of nodal regions, i.e. they are subordinate centres with considerably weaker economic influence on their administrative districts.

### II.3 Development centres with less favourable business environment

In total, 82 centres belong to this group. Their regions are to be found in the Moravskoslezský region (these are structurally affected regions where the decline of coal mining and the reduction of

metallurgical production revealed the economic risks following from single-oriented economic base, or regions in peripheral position) and in the Jihomoravský region (here, they are especially the little urbanized regions of the wider surroundings of the regional capital Brno). The improvement of their economic prospects requires either the enhancement of their business environment or the strengthening of their links to economically stronger or more successful regions. Similarly to the previous category, there are agglomerations of these regions, but there is a higher number of isolated regions. 42 regional centres in total, i.e. more than a half of them, do not perform the function of the centre of a nodal region; they are subordinate centres. They are especially administrative centres in the close surroundings of regional capitals (mainly Brno, Ostrava, Plzeň).

II.4 Development-insignificant centres with unfavourable business environment

There are only two economically insignificant regional centres with unfavourable business environment, Konice and Vítkov. In both cases, they are subordinate centres which do not create any functional nodal regions. Their development depends to a great degree on the economic development of their superior nodal regions – Prostějov and Opava.
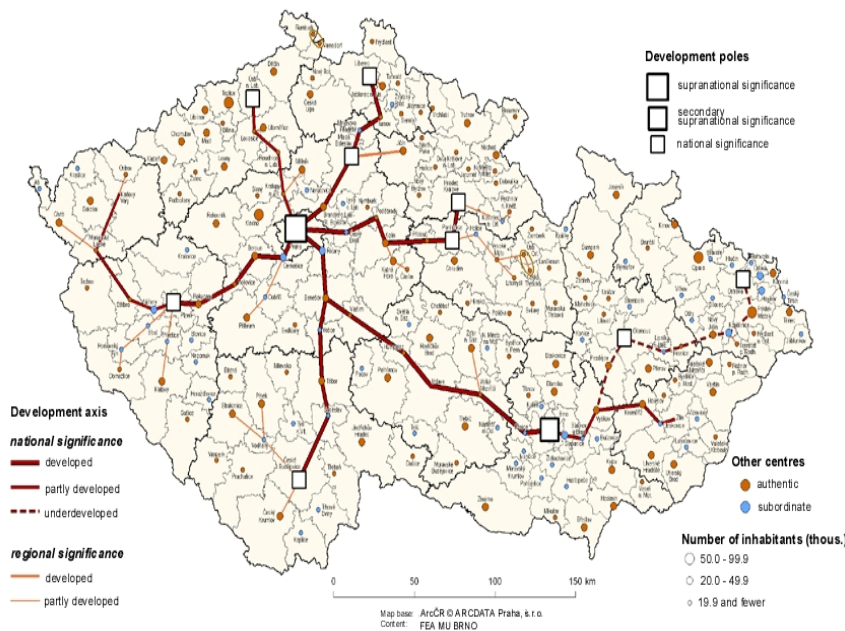
Appendix 1. Spatial model of the development potential of the Czech regions. Source: authors' research

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