EVALUATION OF INNOVATIVE QUALITY OF BUSINESS ENVIRONMENT OF MORAVIA-SILESIA REGION IN PRE-ACCESSION PERIOD OF CZECH REPUBLIC INTO EUROPEAN UNION

HODNOCENÍ PROINOVAČNÍ KVALITY PODNIKATELSKÉHO PROSTŘEDÍ MORAVSKOSLEZSKÉHO KRAJE V PŘEDVSTUPNÍM OBDOBÍ ČESKÉ REPUBLIKY DO EVROPSKÉ UNIE

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Abstract

With regard to the transformation of centrally planned economy to market economy there have occurred great changes in the business environment under new conditions in the pre-accession period of the Czech Republic into the European Union. The business environment is very various, dynamic and complex. It is influenced by many factors, which can have positive or negative impacts on the environment. These factors can be included into 6 groups. There are business factors, labour factors, infrastructural factors, local factors, price factors and environmental factors. The paper deals with the evaluation of the innovative quality of business environment based on these factors. For this purpose a methodology of the evaluation it is worked out. It is applied to the evaluation of the innovative quality of business environment of the Moravian-Silesian Region and of other Czech regions in the pre-accession period of the Czech Republic into the European Union. Finally, changes in the business environment of the Moravian-Silesian Region after the accession to the European Union are described in this paper.

Abstrakt

S ohledem na transformaci centrálně plánované ekonomiky na ekonomiku tržní došlo v nových podmínkách v předvstupním období ČR do EU k velkým změnám v podnikatelském prostředí. Podnikatelské prostředí je velmi různorodé, dynamické a komplexní. Je ovlivněno mnoha faktory, které mají pozitivní nebo negativní dopady na prostředí. Tyto faktory je možné rozdělit do 6 skupin. Jsou to obchodní, pracovní, infrastrukturní, lokální, cenové a environmentální faktory. Článek se zabývá hodnocením proinovační kvality podnikatelského prostředí na základě těchto faktorů. Za tímto účelem je vypracována metodika hodnocení. Je aplikována na hodnocení proinovační kvality podnikatelského prostředí Moravskoslezského kraje a ostatních českých krajů v předvstupním období ČR do EU. V závěru jsou popsány změny v podnikatelském prostředí Moravskoslezskéko kraje po vstupu do EU.

Key words: business environment, factors, innovation, Porter's model.

1 INTRODUCTION

The Moravian-Silesian Region was and today also is characterized by a significant impact of the manufacturing and mining industry on the economic development of the region. In the 90th of the last century large restructuring changes took place in the region related to the transition from a centrally planned economy to a market economy. They had both macroeconomic and microeconomic effects on the economy of the region. From the macroeconomic point of view there were changes in the structure of GDP and employment. From the microeconomic perspective with the decline of major enterprises new business entities were formed, in particular small and medium businesses. This new situation raised the question what factors determine the real business environment and how to evaluate the quality of business environment under the market conditions. The paper focuses on the identification and interpretation of the factors, which mainly affect the innovative potential of regions, classification of regions according to these factors and assessing the innovative quality of business environment in regions based on the proposed methodology of evaluation. The evaluation is applied to the

business environment of the Moravian-Silesian Region and other regions in the pre-accession period (2001-2003) of the Czech Republic into the EU.

The real business environment is very varied and structured. It has its own factual, time, space, efficiency and purposeful dimension. It can be described using model factors that apply to the business environment [2]. There are about four basic approaches to the business environment that predestine solving the problems of its identification, cognition, formation and development. These are economic, business administration, territorial and holistic approaches. In this paper the territorial approach is used.

2 BASES OF EVALUATION OF INNOVATIVE QUALITY OF BUSINESS ENVIRONMENT IN REGIONS

The methodology of the territorial evaluation of the innovative quality of business environment results from the business approach based on the evaluation of investment preferences of business entities that can be understood as basic indicators or quality factors of the business environment. The multi-factor evaluation so respects up-to-date concepts of localization analyses resulting from the quantification of relevant demand of potential investors. Since the requirements of the investors seeking for an optimum combination of the factors demanded vary according to the focus of their activities, the respective analyses of the quality of business environment [5] were performed separately for the main sectoral groups of economical activities, such as the manufacturing industry and so-called productive services[1]. The methodology used respects the global character of economy and in this sense to a great extent eliminates drawbacks of the methodological approaches resulting from opinion surveys of the Czech business representatives, reflecting more subjective concepts than a deeper general and special knowledge of decisive tendencies and trends manifested in the development of world economy.

The starting point for the evaluation of the innovative quality of business environment in region is the identification of factors affecting the innovative quality of business environment (IQBE[2]) in regions and determination of weights of such factors in two sectoral groups markedly participating in the gross value added in individual regions.

The innovative quality of business environment is affected by 6 group factors (see Tab. 1) - working, environmental and infrastructural factors that can be interpreted according to Porter's model [4] as factors of inputs, or let us say offer factors, business and price factors (factors of demand without partial factors of leading corporations and support services that can be ranked to the factors of related and supporting sectors) and local factors (factors of related and supporting sectors without the partial factor of knowledge basis ranked to the offer factors).

To express the quality of business environment it is necessary to have relevant estimations of the individual factor weights available that can be directly obtained through qualified surveys of potential investors' opinions and indirectly using statistic analyses. In the first case (see Tab.1, values of columns A) as input the adjusted data was used found out by the Netherlands Economic Institute in cooperation with the known auditing firm Ernst and Young [3]. In the final determination of the respective weights of individual factors opinions of major investors and representatives of selected towns were taken into account. A disadvantage of this approach is that it is primarily focused only on new investments, in practice known as green field investments. In the other case (see Tab. 1 values of columns B) the data was used found out using the method of factor analysis. This approach involves also other types of investments. However, the application of factor analysis has shown the existence of significant stochastic dependences. Then for the final evaluation of the quality of business environment average weights were used determined by the application of both approaches (see Tab.1 values of columns C).

The determination of IQBE evaluation results from the primary data of the research project „**Regional evaluation of the quality of business environment in the Czech Republic**" [5]. The data base consists of territorial units of individual regions in the Czech Republic (territorial districts of municipalities with extended powers - the so-called authorized municipalities of grade 3) including the capital city of Prague[3], which were classified into 5 groups based on classification criteria of the individual factors (see Chapter 3) that affect the development of regional business environment. These territorial units corresponded to the current statistical

[1] Productive services – so-called higher market services – banking, insurance, telecommunications, computer science, research and further services for enterprises.
[2] IQBE – innovation quality of business environment.
[3] Prague as the capital city of the Czech Republic is not a region, but in this paper for the purposes of comparison with other regions the concept Prague Region is used.

regions LAU1 EU level (formerly NUTS 4). The total number of territorial units involved in the research was 203. In the first group those territorial units were included that had fulfilled the best values of these factors, while in the fifth group those with the worst values of the factors tracked.

Tab. 1 The quality factors of business environment and their meaningful weights in the selected sectoral groups of economic activities [5]

Factors	**Manufacturing industry**			**Productive services**		
	A[4]	**B**[5]	**C**[6]**(VP_i)**	**A**	**B**	**C(VS_i)**
Business factors:	**28**	**28**	**28**	**30**	**25**	**27**
Proximity to markets	11	8	10	9	3	6
Major firms	11	9	10	6	10	8
Presence of foreign firms	4	2	3	7	3	5
Support services	2	9	5	8	9	8
Infrastructural factors:	**17**	**17**	**17**	**24**	**19**	**21**
Quality of roads and railways	11	6	9	8	8	8
Airport proximity	4	5	4	6	5	5
Development of ICT[7]	2	6	4	10	6	8
Labour factors:	**22**	**18**	**20**	**16**	**16**	**16**
Availability of labour forces	12	9	10	8	10	9
Quality of labour forces	8	4	6	6	4	5
Flexibility of labour forces	2	5	4	2	2	2
Local factors:	**16**	**14**	**15**	**11**	**17**	**14**
Offer of development areas	11	6	9	-	-	-
Knowledge base	-	-	-	8	10	9
Financial assistance	5	8	6	3	7	5
Price factors:	**11**	**13**	**12**	**12**	**13**	**13**
Labour cost	6	5	6	5	5	5
Land price	5	8	6	-	-	-
Rental price	-	-	-	7	8	8
Environmental factors:	**6**	**10**	**8**	**7**	**10**	**9**
Urban and natural attractiveness of the area	4	5	5	4	5	5
Environmental quality of the area	2	5	3	3	5	4
Total sum	***100***	***100***	***100***	***100***	***100***	***100***

[4] Columns indicated with the letter **A** represent the weight of partial and group factors in both sectorl groups found out by the Netherlands Economic Institute in cooperation with the firm Ernst and Young.

[5] Columns indicated with the letter **B** represent the weight of partial and group factors in both sectoral groups determined by the application of the factor analysis method.

[6] Columns indicated with the letter **C** represent the weight average of partial and group factors in both sectoral groups determined by the application of both approaches (**A and B) ,** where **VP_i is the weight of the i-th partial factor in manufacturing industry and VS_i is the weight of the i-th partial factor in productive services.**

[7] ICT – information and communication technology.

Volume LV (2009), No.4
p. 1-13, ISSN 1802-5420

The monitored territorial units were assessed in two selected sectoral groups of economic activities (manufacturing industry and productive services). Each region has been classified individually according to the classification of its territorial units to the groups. This data base has become the principal basis for determining the innovative quality of business environment.

To determine the evaluation of the innovative quality of business environment in regions it is necessary to deal with the issues of weights of individual factors in more detail. Tab. 1 shows that the weights of individual factors are different for both selected sectoral groups of economic activities. Moreover, the shares of the individual sectoral groups in gross value added (GVA) in region are also diverse. An extreme difference is between the Prague Region and other regions, where in the Prague Region there is a significantly higher share of productive services in GVA of the region than in other regions. The weights of partial factors must be determined for each region individually, without distinction to the various factor weights of individual sectoral groups, but with respect to the various share of these groups in regional GVA.

3 CLASSIFICATION OF REGIONS ACCORDING TO THE FACTORS AFFECTING IQBE

As already mentioned the innovative potential of regions is determined in particular by the following group factors.

Business factors:

This group of factors characterizing the market environment of individual regions is for the quality of business environment of utmost importance. Its objective structure consists of four partial factors.

Factor of proximity to markets

The factor of proximity to markets informs on existing location advantages deriving from the economic potential of available markets. Its higher volume means greater competition in markets of products and services enforcing companies to greater innovation efforts. The factor involves both foreign and domestic markets, whose shares are adequately anticipated by the ratio of domestic and foreign demand, quantified by the share of exports in GDP.

The individual territorial units in regions have been classified into classification groups based on their distance to near foreign and domestic markets. The evaluation criterion for integration into an appropriate group was GDP in the parity of purchasing power of individual markets.

Factor of major firms

The factor interprets the innovation benefits generated by the presence of strong large industrial firms stimulating spread of innovations within their established networks of production, technical and trade cooperation (in case of a high level of development of these networks these companies occupy a position of so-called drive-intensive firms and smaller companies working with them then get into a position of driven firms).

The territorial units in regions have been classified under this factor in the manufacturing industry into relevant classification groups according to the number of major firms. In the sectoral group of productive services the methodology of classification of major firms has been based on the number of employees in these firms.

Factor of presence of foreign firms

The factor classification reflects generally a positive impact of foreign firms on the innovative potential of business environment, which is particularly relevant for less developed countries with insufficient capacity of domestic capital.

For purposes of the evaluation of IQBE in regions under this factor the data on foreign firms has been used (more precisely, firms with foreign participation) with 20 or more employees in their organization unit. For the classification of the territorial units in regions into classification groups as an assessment criterion the ratio of the number of employees of foreign companies to the number of economically active population of the territorial unit has been used.

Factor of support services

The factor interprets the indispensable importance of offer of support services (especially services for enterprises including scientific research and information services and financial services) for the development of different types of innovations undertaken predominantly by minor specialized firms.

For the evaluation of regional territorial units the data on the number of business entities providing support services (excluding the entities without employees) has been used.

Infrastructural factors:

The group of infrastructural factors occupies as for the importance of their respective effects on the quality of business environment in the case of industry the third position, in the case of services the second position. The category of labour factors takes a similar meaningful position. Its objective structure consists of three partial factors.

Factor of road and railway quality

The factor of the road and railway quality interprets the link of regional centres to the most significant segments of railway and road networks (motorway, express roads, class 1 roads, railway tracks without local branches and with current preferences of major international routes), taking into account the respective shares in the division of work in freight transport.

For the classification of the regional territorial units according to this factor into groups the decisive aspect was the quality of transport links of their regional centres to the most significant segments as for hierarchy of the railway and road networks playing a key role in the field of long-distance goods traffic. In the case of roads the operated motorways and expressways have been involved in the evaluation, including the operated segments and segments within the building and class 1 roads. In the case of railways all the lines have been included in the evaluation, except branches connecting municipalities falling outside the regional centres.

Factor of airport proximity

The factor informs on a potential availability of international and regional airports, which positively affects the business environment, especially in the case of productive services.

The territorial units in regions have been classified into groups according to distances from airports with regard to their transport capacity.

Factor of the development of information and communication technologies (ICT)

The factor provides information on potential external cost savings generated by covering the area by respective networks (identification based on household amenities as telephones and personal computers).

For the evaluation of IQBE according to this factor the territorial units (or their regional centres) in regions have been classified into groups based on the household amenities as fixed and mobile phones, or telephone lines and personal computers with internet connection. The information had been obtained within the census in 2001. The proportion of people living in flats equipped with appropriate infrastructure has been taken as an indicator.

Labour factors:

The second most important category along with the infrastructural factors are labour factors that provide the information on regional labour supply. This category involves three partial factors.

Factor of labour force availability

This factor provides information on overall regional availability of labour resources (economically active segment of the population), representing the basic functional and relatively stable framework for meeting diverse preferences of the demanding entities. The factor is affected especially by the quality of the labour force.

For the IQBE evaluation the territorial units in regions have been classified into groups according to the number of inhabitants of these units as of March 1, 2001, the decisive moment for the census of people, houses and flats.

Factor of labour force quality

The quality of labour forces is a meaningful factor affecting the economic development, whose level depends on the achieved level of schooling (for the purpose of elimination of differences in education of urban and rural populations the evaluation relates only to the regional centres).

For the IQBE evaluation according to this factor the territorial units in regions have been classified into groups according to the indicator of percentage of graduates with a complete secondary and higher vocational education in the population with the current age of 15 years and over and the indicator of share of graduates with a university education in the population with complete secondary and higher education. In terms of distribution of the factor values the dependence on hierarchical position of regions has been clearly demonstrated.

Factor of labour force flexibility

The flexibility of labour forces in general reflects the degree of adaptability to a constant change being characteristic for the current economic development and accordingly is seen as a qualitative factor.

For the IQBE evaluation according to this factor the territorial units in regions have been classified into groups using the indicator interpreting the highest quality component of flexibility that is entrepreneurial flexibility (measure of the number of entrepreneurs per 1,000 inhabitants according to the regional centres).

Local factors

The local factors provides the information on the potential assumptions of individual regions for generation and support of innovations. The category is formed by three partial factors and they occupy the fourth order of importance.

Factor of offer of development areas

Building up industrial zones is undoubtedly one of the most successful tools to attract investments and thus enhance and improve the business environment. For classification of the territorial units in regions into groups there were 4 decisive criteria. They involved volume and dimensions of ownership, connection to the technical infrastructure, connection to the traffic infrastructure and user incentives and limits (e.g. level of service and promotion).

Factor of knowledge base

This is the most important factor constantly and broadly affecting the quality of economic development of society, whose major component consists of processes associated with creating innovations. The factor identifies institutional conditions for a permanent increase in population education and development of science and research (including the stimulation of transferring the scientific research findings into practice). In this context, it is mainly about universities (in hierarchically less important regions, or regional centres, higher vocational and secondary schools providing complete secondary education), as well as scientific and research institutes and so-called scientific and technological parks.

For the IQBE evaluation according to this factor the territorial units in regions have been classified into groups according to the criteria, whether there are universities, higher vocational schools, secondary schools, scientific research institutes, scientific and technological and research centres, technological parks and STP[8] on their territory.

Factor of financial assistance

The factor covers certain potential possibilities of financial assistance in regions for improving IQBE[9], primarily determined by the amount of tax revenues of regional centres per capita that compared to other revenues are certainly of more stabile character under almost complete exclusion of random effects. The long-term explanatory power of the factor depends mainly on applying the principle of merit in creation of territorial budgets.

For the classification of regional territorial units according to this factor into groups as a criterion the amount of tax revenues per capita has been chosen.

Price factors:

The price factors may be considered as specific IQBE indicators revealing the level of demand and supply in relevant markets. The category includes the labour price factor, rent factor and land price factor. The category is formed by three partial factors that occupy the fourth order of importance. At the macroeconomic level their importance is, of course, more important and in number of investment decisions may play a decisive role.

Factor of labour price

The labour cost may be seen as a projection of diverse relationships of demand and supply in regional labour markets identified in the selected sectors of productive services and manufacturing industries. In this development also macroeconomic or microeconomic conditional changes in the structural characteristics of regional economy are naturally taken into account. A key role here is played by economic efficiency, which can be interpreted in the given context in a most complex way through the development of indicators of labour productivity.

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[8] Scientific and Technological Park.
[9] Innovative quality of business environment.

For the classification of regional territorial units according to this factor into groups as a criterion the average wage has been chosen [5].

Factor of land price

This factor of price of building land for building-up production objects or warehouses is a significant price factor (from the investor's perspective - costs factor), describing the business environment in terms of regional conditions for the development of manufacture activities.

For the purposes of the classification of regional territorial units into groups as an evaluation criterion the average price of land offered mainly in the industrial zones has been taken.

Factor of rental prices

The factor gives the information on average net annual rental prices of office rooms obtaining from the records of estate agencies. The rental price of office rooms is an important price factor characterizing the business environment in terms of the development of productive service sector.

For the purposes of the classification of regional territorial units into groups as an evaluation criterion the average net annual rental price of office rooms in the region, not including operating costs has been determined.

Environmental factors:

The comparatively less important (sixth order) group of two major partial factors shows the site-specific quality of life, which help to create the business environment. However, this category especially in the Moravian-Silesian Region, where the environmental quality was one of worst, may have far greater impact on IQBE. Although the importance of these factors in advanced economies steadily rises, their relatively low weight in the evaluation of the quality of business environment was given by the preference especially for economic factors.

Factor of urban and natural attractiveness

The factor has a significant impact on the region's „image", which undoubtedly helps to create IQBE. Its most important impacts are naturally linked to the development of entrepreneurial activities in the field of tourism and recreation – a tourist attractiveness of the area.

For the IQBE evaluation according to this factor the territorial units in regions have been classified into groups according to the natural attractiveness of the area (PLA[10], national parks, health resorts etc.), urban attractiveness (cultural historical sites) and tourist significance in terms of available accommodation infrastructure (economic activation of offer).

Factor of environmental quality

The factor results from the analysis of data characterizing the hygiene level of environment, complemented by the data on the intensity of road transport and ecological stability of landscape. From the perspective of business environment it may be considered as a secondary factor, however, in the case of extreme disturbance of the environment quality may constitute a significant barrier to the economic development not only in the meaning of its ongoing sustainability, but also a significant decrease of the investment attractiveness of the region. It can be said that the level of environmental disturbance has the strongest ties to localization of a high quality jobs offer in the productive services (including science and research) with high demands on the quality of living environment.

For the classification of regional territorial units according to this factor into groups as an assessment criterion the quantity of pollutants in the air has been determined.

4 METHODOLOGY OF IQBE EVALUATION

The evaluation of innovative quality of business environment in regions consists in determination of:

- Factor weights in individual regions
- IQBE value,
- Classification groups,
- Position of IQBE value in regions with respect to the maximum value of IQBE.

Determination of factor weights in regions

[10] Protected Landscape Area.

For the determination of factor weights this paper proceeds from the factor weights in individual sectoral groups (see 2 chapter, Tab. 1 values of columns C) and proportions of these groups in the gross added value realized in both groups in different regions. The weights of partial factores in individual regions may be determined as follows:

$$V_{ir} = VP_i \,.\, PP_r$$

provided that the i-th partial factor is evaluated in manufacturing sectoral group. These are the factors i = 1, 3, 11, 14, 17, 19 from Tab. 2.

Where:

V_{ir} - weight of the i-th partial factor in the r-th region, r is the index of the number of regions <1,14>,

VP_i - weight of the i-th partial factor in manufacturing industry (see Tab. 1),

PP_r – share of GVA[11] in manufacturing industry in GVA in both sectoral groups in the r-th region.

$$V_{ir} = VS_i \,.\, PS_r$$

provided that the i-th partial factor is evaluated in the group of productive services sector. These are the factors i = 2, 4, 12, 15, 18, 20 from Tab. 2.

Where:

VS_i - weight of the i-th partial factor in the productive services (see Tab. 1),

PS_r – share of GVA in productive services sector in GVA in both groups in the r-th region.

$$V_{ir} = VP_i \,.\, PP_r + VS_i \,.\, PS_r$$

provided that the i-th partial factor is evaluated in both sectoral groups. These are the factors i = 5, 6, 7, 8, 9, 10, 13, 16, 21, 22 from Tab. 2.

– share of GVA in manufacturing industry in GVA in both sectoral groups in the r-th region (PP_r) is determined, as follows:

$$PP_r = HPHP_r / (HPHP_r + HPHS_r)$$

Where:

$HPHP_r$ – gross value added in manufacturing industry (%) in the r-th region,

$HPHS_r$ – gross value added in productive services (%) in the r-th region.

– share of GVA in productive services in GVA in both sectoral groups in the r-th region (PP_r) is determined, as follows:

$$PSr = HPHS_r / (HPHP_r + HPHS_r)$$

For determination of the weights of group factors the following must apply:

$$VO_r = \sum_{i=1}^{6} V_{ir}$$

Where:

VO_r - weight of business factors in the r-th region.

$$VI_r = \sum_{i=7}^{9} V_{ir}$$

Where:

VI_r - weight of infrastructural factors in the r-th region.

[11] GVA – gross value added.

$$VP_r = \sum_{i=10}^{13} V_{ir}$$

Where:

VP_r - weight of labour factors in the r-th region.

$$VL_r = \sum_{i=14}^{16} V_{ir}$$

Where:

VL_r - weight of local factors in the r-th region.

$$VC_r = \sum_{i=17}^{20} V_{ir}$$

Where:

VC_r - weight of price factors in the r-th region.

$$VE_r = \sum_{i=21}^{22} V_{ir}$$

Where:

VE_r - weight of environmental factors in the r-th region.

$$VO_r + VI_r + VP_r + VL_r + VC_r + VE_r = 100$$

For ease of reference, the following Tab. 2 indicates all the factors according to which the innovative quality of business environment is assessed.

Calculation of the innovative quality value of business environment (IQBE)

The determination of the IQBE value results from the fact that the investigated territorial units in regions have been classified into five classification groups based on the fulfillment of specific criteria of partial factors (see 3 chapter). I the case that all tracked territorial units of a given region are according to a certain factor classified into the first group, the value of IQBE is equal to 1 (maximum), while if they are all included in the fifth classification group the value of IQBE is equal to 5 (minimum). Based on the above mentioned a method is determined to calculate the value of IQBE according to the group factors and all partial factors.

$$IQBE_i = \left(\sum_{j=1}^{5} j \,.\, P_j\right) / \sum_{j=1}^{5} P_j$$

Where:

$IQBE_i$ - the value of innovative quality of business environment according to the i-th partial factor (i = 1 to 22) determined separately for all regions. $IQBE_i$ values are in the interval <1,5>.

j – the number of classification group.

P_j – quantity of the examined territorial units in the region classified into the j-th classification group according to the i-th partial factor.

$$IQBE_O = \left(\sum_{i=1}^{6} V_{ir} \,.\, IQBE_i\right) / VO_r \qquad (1)$$

Where:

$IQBE_O$ - the value of innovative quality of business environment according to the weighted business factors (i = 1 to 6) determined separately for all regions.

$$IQBE_I = \left(\sum_{i=7}^{9} V_{ir} \,.\, IQBE_i\right) / VI_r \qquad (2)$$

Where:

$IQBE_I$ - the value of innovative quality of business environment according to the weighted infrastructural factors (i = 7 to 9) determined separately for all regions.

$$IQBE_P = \left(\sum_{i=10}^{13} V_{ir} \,.\, IQBE_i \right) / VP_r \qquad (3)$$

Where:

$IQBE_P$ - the value of innovative quality of business environment according to the weighted labour factors (i = 10 to 13) determined separately for all regions.

$$IQBE_L = \left(\sum_{i=14}^{16} V_{ir} \,.\, IQBE_i \right) / VL_r \qquad (4)$$

Where:

$IQBE_L$ - the value of innovative quality of business environment according to the weighted local factors (i = 14 to 16) determined separately for all regions.

$$IQBE_C = \left(\sum_{i=17}^{20} V_{ir} \,.\, IQBE_i \right) / VC_r \qquad (5)$$

Where:

$IQBE_C$ - the value of innovative quality of business environment according to the weighted price factors (i = 17 to 20) determined separately for all regions.

$$IQBE_E = \left(\sum_{i=21}^{22} V_{ir} \,.\, IQBE_i \right) / VE_r \qquad (6)$$

Where:

$IQBE_E$ - the value of innovative quality of business environment according to the weighted environmental factors (i = 21 to 22) determined separately for all regions.

$$IQBE = (VO_r \,.\, IQBE_O + VI_r \,.\, IQBE_I + VP_r \,.\, IQBE_P + VL_r \,.\, IQBE_L + VC_r \,.\, IQBE_C + VE_r \,.\, IQBE_E) / 100 \qquad (7)$$

Where:

$IQBE$ - the value of innovative quality of business environment according to all weighted group factors determined separately for all regions.

Determination of classification groups

The determination of groups results from the existing research project (Viturka et al. 2003). IQBE values have been classified into 5 groups.

Class A <1; 1,5> represents highly above-average IQBE, class B (1,5; 2,5> above-average IQBE, class C (2,5; 3,5) average IQBE, class D <3,5; 4,5) below-average IQBE and class E <4,5; 5> highly below-average IQBE.

The determination of the regional IQBE value position with respect to the maximum value of IQBE.

For comparison of IQBE values in individual regions according to the partial factors, group factors and synthesis of all factors it is suitable to determine the position of IQBE relatively to its maximum value, as follows:

$$Position = 100 \,.\, (5 - IQBE) / 4$$

The position of IQBE value becomes the maximum value of 100 % for IQBE=1 and minimum value of 0% for IQBE=5.

Tab. 2 Factors of the innovative quality of business environment [5]

S[12]	Group factors	i[13]	Partial factors
O	Business	1.	Markets proximity (industry)
		2.	Markets proximity (services)
		3.	Major firms (industry)
		4.	Major firms (services)
		5.	Presence of foreign firms
		6.	Support services
I	Infrastructural	7.	Quality of roads and railways
		8.	Airport proximity
		9.	Development of information and communication technologies (ICT)
P	Labour	10	Availability of labour forces
		11	Quality of labour forces (industry)
		12	Quality of labour forces (services)
		13	Flexibility of labour forces
L	Local	14	Offer of development areas
		15	Knowledge base
		16	Financial assistance
C	Price	17	Labour cost (industry)
		18	Labour cost (services)
		19	Land price
		20	Rental price
E	Environmental	21	Urban and natural attractiveness
		22	Environmental quality of the area

5 APPLICATION OF METHODOLOGY TO IQBE EVALUATION

For a large number of partial factors the evaluation of the innovative quality of business environment in regions of the Czech Republic in the pre-accession period of the Czech Republic into the EU is carried out by the application of the IQBE methodology to the group factors (see chapter 4, relations (1) to (6)) and their synthesis (see chapter 4, relation (7)).

Based on the innovative quality evaluation of business environment, the Moravian-Silesian Region has achieved according to all group factors and their synthesis of a below-average level (see Tab. 3) and from all regions in the Czech Republic hit has been the worst in the overall ranking.

The Moravian-Silesian Region has reached the worst innovative quality level of business environment according to the business and labour factors. This state was caused/is caused especially by the positional business factors (markets proximity), which cannot be affected immediately. The region borders on countries that are in the parity of purchase power relatively poorer than the Federal Republic of Germany and Austria. Another disadvantage of the region was that from the perspective of transport connections it was a transit region. There was no connection of the region to important communications of national and European importance. In the 90th of the last century a significant and complex restructuring took place in the region resulting in a dramatic decrease of employment. The region was characterized by a high concentration of large firms and after their

[12] Identification of group factors.
[13] Identification of partial factors.

decline a sufficient number of petty, small and middle firms has not occurred that increase the factor of labour force flexibility. As well improper and often insufficient qualification of labour force affected the level of the labour factors. In the region there were the greatest share of workers with lower education and the lowest share of workers with university education in economically active population within the Czech Republic. Apart from the gradual improvement of the quality of environmental factors the situation in the Moravian-Silesian Region is worst of all regions in the Czech Republic.

Especially suitable regional and structural measures at the level of region and structural assistance of the European Union could/can overcome this difficult situation.

Tab. 3 Complex evaluation of the innovative quality of business environment in ČR regions according to the group factors and synthesis of all weighted group factors in the pre-accession period of CR to EU

Region	$IQBE_O$	$IQBE_I$	$IQBE_P$	$IQBE_L$	$IQBE_C$	$IQBE_E$	IQBE
Prague	1,32	1	1	1,13	1	2,72	1,26
Central Bohemian	3,11	2,79	3,2	3,23	2,97	3,35	3,09
Liberec	3,22	3,68	3,29	3,24	3,51	2,72	3,31
Karlovy Vary	3,16	3,4	3,57	3,42	3,6	2,94	3,35
South Bohemian	3,55	3,65	3,52	3,15	3,59	2,51	3,42
Usti nad Labem	2,99	3,42	3,86	3,22	3,37	3,91	3,39
Pilsen	3,24	3,69	3,72	3,41	3,6	3,01	3,46
Hradec Kralove	3,4	3,6	3,5	3,71	3,5	2,73	3,46
South Moravian	3,74	3,1	3,57	3,48	3,45	3,1	3,46
Pardubice	3,38	3,59	3,74	3,52	3,84	2,99	3,53
Vysocina	3,6	3,72	3,64	3,13	3,79	2,71	3,51
Zlin	3,97	3,44	3,26	3,4	3,54	2,91	3,52
Olomouc	3,93	3,75	3,49	3,43	3,44	3,17	3,62
Moravian-Silesian	**4,22**	**3,53**	**3,93**	**3,62**	**3,69**	**3,71**	**3,84**

6 CONCLUSIONS

After the accession of the Czech Republic into the EU in the period of 2004 – 2006 positive changes in the socioeconomic environment occurred, in particular in the Moravian-Silesian Region. These changes became evident especially in the dynamic development of gross domestic product (GDP), development of gross value added (GVA), development of rate of unemployment and development of investment activity [1].

GDP per capita in purchasing standard parity increased from a level of 52.9 % in 2003 to 68.1 % in 2006, which is significantly higher growth than in other regions. Since 2001, GDP has been growing and the dynamics of this growth was the highest among the regions (49.4 %) in the period 2001 – 2006. A very positive phenomenon is that the gross value added of the region, unlike the national average, has risen particularly with the accession of the Czech Republic into the EU. The unemployment rate in the region declined from a level of 16.6 % in 2003 to 12.6 % in 2006, representing a greater reduction than the national average. In the framework of investment incentives for manufacturing industry a total of 13 investors were supported in the period from July 1998 until the end of 2003, who invested almost CZK 9 billion and created over 2 200 new jobs. In the period of 2004 – 2006, 37 investors were endorsed who invested about CZK 24 billion and created over 6,200 jobs, which is almost three times the investment activity compared to the previous period. It follows that the accession into the EU in a short period of 2004 – 2006 increased significantly the dynamics of positive changes in the business environment of the region compared to national average [1].

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RESUMÉ

S přechodem na tržní ekonomiku v období před vstupem České republiky do Evropské unie dochází k zásadním změnám v podnikatelském prostředí jednotlivých krajů. Mění se jeho struktura, dynamika v souvislosti s otevřením země vůči zejména evropským zemím a priority. Podnikatelské prostředí se stává více rozmanitým, komplexnějším a citlivějším vůči změnám ve vnějším prosředí. Dopady se projevují jak na makroekonomické tak i na mikroekonomické úrovni v podobně změn ve struktuře HDP, v cenové stabilitě a v samotné struktuře ekonomických činností. Vyvstává tedy problém co a do jaké míry ovlivňuje podnikatelské prostředí a jakým způsobem je možné ho hodnotit. Článek se pokouší odpovědět na výše nastolené otázky. Jsou v něm identifikovány, interpretovány a ohodnoceny faktory, které významně ovlivňují proinovační kvalitu podnikatelského prostředí regionů (krajů), vypracována vlastní metodika hodnocení proinovační kvality podnikatelského prostředí a její aplikace zejména na Moravskoslezský kraj v předvstupním období ČR do EU. Dále na základě analýzy příčin stavu podnikatelského prostředí v tomto období jsou stručně popsány změny v socioekonomickém prostředí Moravskoslezského kraje v období po vstupu ČR do EU.