ARE THERE ANY SIGNIFICANT BRANCHES FOR PROFILING OF REGIONS WITH A LOW DYNAMICS OF DEVELOPMENT?

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Abstract

The aim of the article is to examine which branches may affect the development of small regions in Liberec region and in the whole Czech Republic.

The dynamics of development of each municipality in the identified regions was assessed based on criteria defined by the research team.

The article presents results from the research project which was conducted by the Faculty of Economics at the Technical University of Liberec under the title "Innovative approach to dealing with disparities at the regional level" within the scope of the project No. WD-30-07-1.

Introduction

Recently the development of all regions in the Czech Republic has been closely observed not only by citizens and politicians, but also by various experts. From a historical and socio-economic point of view, particular regions have different background and resources for their further development. This of course results in certain disparities that either refer to whole areas or to specific municipalities in the regions only. The level of prosperity of particular regions varies quite significantly - on the one hand we have well-performing regions with developed economics, while on the other hand we have backward regions that are stagnating. The term "disparity" comes from a Latin word that can be divided into two parts - "dis" and "par". The Latin "par" may be understood as a balanced value or stability, but also as an average or a common thing, quality or standard state. On the other hand "Dis" has the opposite meaning to value. Most often "disparity" is perceived as an inequality and dissimilarity of effects or processes. „Regional disparities mean a deviation from certain indicator that was clearly determined and is measurable“ state *Hasprová, Jáčová* and *Syrovátková* [1, page 22].

The Czech Ministry for Regional Development announced a research program for the solution of regional disparities within the framework of those 23 projects which had been approved, dealing with this issue from various points of view. A similar issue has been for example dealt

with by a research team at VŠB-TU Ostrava (*doc. A. Kutscherauer, prof. M. Hučka* and others) that suggested 2-level system for monitoring and evaluation of disparities. At level 1 three basic areas are subject to monitoring - social, economic and territorial. Each area is further divided into 4 to 5 subsystems of second order with various indicators assigned thereto. The research team at the University of West Bohemia in Plzeň (*JUDr. Ing. D. Martinčík* and others) suggested an 18-angle one, consisting of three key areas (the area of macroeconomic enforcement, the area of potential of growth and the area of quality of life), for the purposes of the social-economic level monitoring. Each of these three areas further consists of 7 indicators whereas the first and the closing indicator of the area pass into nearby areas too. Such a model allows for mutual comparison of various regions, comparison of regions with average numbers for the whole country as well as for monitoring situations in individual regions at a time.

As the main goal of the project the Faculty of Economics at the Technical University of Liberec set "to formulate measures that would help to decrease intra-regional disparities with regard to economic development of the Czech Republic". In order to meet this goal it is necessary to identify the key factors that characterize the problematic development of regions, to determine the capability to absorb business support in regions that require concentrated support by government, to suggest brownfields as one of the potentials for the regional development, including description and quantification of regional disparities. The research is based on a presumption that there is no economically weak municipality in a complex way, as each municipality possesses certain strengths that could be further developed or become a comparative advantage thereof [2, s.367].

1 Goal, methodology and decision procedure

Within the scope of the research project we determined a sub-hypothesis „that in municipalities with a low dynamics of economic development there are no significant branches for profiling of the region". In order to verify the hypothesis it was necessary to determine the main economic activity of each subject situated in the area of the municipality under examination. We determined a sample of 1,000 municipalities within the Czech Republic in order to verify the hypothesis. The key indicator for selecting samples from particular regions was the indicator F8 - Economic activity. Based on this indicator that represents dynamics of development, the municipalities in particular regions were ranked in ascending order.

Decision procedure:
a) To determine a low dynamics of development of particular municipalities, F8 factor (Economic activity) was used.
b) We established a sample of 1,000 municipalities from the Czech Republic that all show a low dynamics of development.
c) A sample of municipalities was randomly selected from particular regions, all showing a low dynamics of development.
d) The regional branch of the Czech Statistical Office in Liberec was provided with a database containing the sample of the municipalities under review. The regional branch then prepared - based on the Register of Economic Subjects (RES) - a list of all subjects, the registered office of that is situated in the cadastral area of the randomly selected municipalities. One of the criteria applied to ranking of the municipalities was their main economical activity classified pursuant to CZ-NACE.
e) The resulting data were used by the project team to prepare a table for each particular region, containing the name of municipality and the number of subjects (ordered pursuant

to CZ-NACE classification). Such data facilitated preparation of various summaries and overviews.

f) An average headcount (number of employees) was assigned to particular subjects that were ordered according to their main economic activity. As the data available from the Czech Statistical Office are presented as ranges only, mean value had to be determined for each group of headcount. Mean values were calculated as arithmetical average of the minimum and maximum value of interval limits.

g) For further data processing we used Microsoft Access database working with the input table covering the following data: code of municipality, name of municipality, name of business entity (subject) and ID number, CZ-NACE classification, headcount - mean value. MS Access allows (in a single step) to create a set of data with pairs (code of municipality, CZ-NACE main). For each couple a total headcount is indicated (a sum of the values under the column "headcount mean" for all records with the given pair of values (code of municipality, CZ-NACE)) from the original table. Then the table was converted into a set of data where one record represents one municipality from a particular region. The columns (equal to particular values of CZ-NACE) cover total headcounts. In order to be able to check the data¸ we complete the set of data for each particular municipality by a total number of economic subjects that operate there.

h) To be able to carry out further calculations it was necessary to assign the number of economically active citizens to each municipality. We used Microsoft Excel to calculate the share of headcount in particular CZ-NACE classes in the particular region in the total number of economically active citizens in the region. The result determines the branch with the biggest headcount (number of employees).

i) Finally we determined the total number of employees in all subjects in the selected municipalities of each particular region. Using Microsoft Excel we calculated the share of the headcount in particular CZ-NACE classes in each region in the total number of employees in all subjects in all selected municipalities within the particular region. The result determines the branch with the most employees.

2 General characteristics of terms used within the scope of research

Determination of regions with a low dynamics of development is covered by the Ministry for Regional Development, the Czech Statistical Office and particular regional authorities. However, each of the above mentioned institutions uses different indicators to determine regional disparities. Therefore the project team from the Technical University of Liberec, Faculty of Economics, had to analyze the indicators used by these subjects at first and to make a list of 30 indicators. We asked the Czech Statistical Office to make a database for these particular indicators for the period 2001 - 2006, but because the Czech Statistical Office did not possess of all the necessary data, the number of indicators had to be reduced. By means of factor analysis the indicators were distributed into 8 factors: Factor 1 - Unemployment, Factor 2 - Migration, Factor 3 - Settlement, Factor 4 - Age structure, Factor 5 - Civil and technical amenities, Factor 6 - Economy structure, Factor 7 - Sustainable development and Factor 8 - Economic activity. The team suggested new methodology in order to determine low dynamics of municipality development or - on the contrary - its sustainable development.

On the web site of the Technical University of Liberec, Faculty of Economics, the above mentioned eight factors with values of particular indicators for the period 2000 - 2007 were published for specific municipality. Remark: by means of factor analysis we set a limit for each factor determining the municipalities with a low dynamics of development (green subtext means positive value, while red subtext means negative value). This distribution then

allowed us to prepare cartograms for each particular region as well as for the whole Czech Republic, including information on the dynamics of development of each specific municipality.

2.1 Factor 8 (Economic activity) description

The level of dynamics of the municipality development was assessed based on factor 8 - economic activity (hereinafter referred to as "F8" only). The higher the value of this factor, the more dynamic the development of particular municipality. F8 data were ranked in an ascending order - this facilitated distribution of municipalities into two groups - municipalities with low and municipalities with a high dynamics of economic development. The dividing line between these two groups was the value beyond the last negative value of F8. For simplification purposes the municipalities with a low dynamics of economic development were referred to as weak while the municipalities with a high dynamics of economic development were referred to as strong.

The basic methodical tools for the assessment of regional disparities are the indicators that were most often created on the basis of ratio indicators. Such indicators are calculated as a division between two items that are - in a certain way - interrelated with regard to their content.

Economic activity in the analyzed municipalities and regions may be generally assessed from various points of view. The team of authors especially tried to consider those indicators that have a high and direct impact on the economic situation both with regard to the municipalities and the economic situation of their citizens. To evaluate these two points of view the following indicators were used:

- Tax incomes per capita (DAN),
- Number of job vacancies (PP).

a. Tax revenue per capita

Tax revenue per capita (DAN) characterizes the level of economy in the particular municipality, as a result of tax policy enforced by government, municipality as well as the number of entities operating in the municipality that are subject to taxation, as stated by Hasprová, Jáčová and Syrovátková [1, page 50].

Tax revenue is a non-refundable income and each municipality may freely dispose of such means. Revenues have a significant impact on autonomy of municipalities because of the proportion they represent in total incomes (approx. 50%). Tax revenues of municipalities cover local fees and administrative charges as well as taxes that enter into budgets of municipalities either in full or partially. In general the tax system is applicable nationwide which means that municipalities may affect their budgets by tax rates only partially. Municipalities are not allowed to establish and enforce their own taxes. The higher the indicator is, the more financial means the municipalities have at their disposal.

$$TAX = \frac{\text{Annual tax revenues}}{\text{Number of citizens}} \qquad (1)$$

- In numerator there are the actual tax revenues of municipalities since the beginning of the year.
- In denominator there are a total number of citizens in the given area at the moment that was determined as the mean value of the period under review.

b. Number of job vacancies

The indicator titled as the "number of job vacancies" (PP) characterizes the number of job opportunities in municipalities and their close surroundings attributable to a single economically active citizen.

$$PP = \frac{\text{Total number of job positions}}{\text{Economically active citizens}} \qquad (2)$$

- In numerator we count with a total number of job positions representing the sum of all employed (without working students and trainees) including the balance of commuting to job (according to SLDB 2001).

- In denominator there is the number of economically active citizens (according to SLDB 2001).

This is obviously an indicator of maximization type with a limit value of 1. If the value of the indicator is lower than 1, we can conclude that more citizens have to commute to work outside the area. The value exceeding 1 indicates that there are some job vacancies in the region.

2.2 CZ-NACE

Regional disparities are also significantly affected by a distribution of business activities implemented by subjects located in the region. More particularly it is the main scope of business as well as secondary businesses that must be considered. According to CZ-NACE there are 88 economic activities, respectively 89 (as the business activity 00 is not identified). CZ-NACE, as a classification of economic activities in particular branches, is a local mutation of NACE (Nomenclature générale des Activités économiques dans les Communautés Européennes), a standard classification of economic activities in the European Community.

The source of input data was the Register of Economic Subjects (RES) and Administrative Register of Economic Subjects (ARES). RES contains attributes of economic subjects (structured as registry entries) considered as significant for a statistic monitoring of each unit. The Register of Economic Subjects contains economic subjects (legal entities), organization units of government as well as physical entities (enterprisers).

3 Determination of the most frequent economic activities in the Liberec region

To verify the hypothesis that "in municipalities with a low dynamics of development there are no significant branches for profiling of regions" it was necessary to determine what "profiling" means. Statistical office does not state any significant value for profiling, but considers it as "significance".

An important question was how to determine the moment when a branch starts to be significant pro profiling of the region. Our project was based on the presumption that significant for profiling of the region are such branches that employ most of the citizens in each particular region.

As profiling is a term that is not statistically defined, it may be specified differently by various work teams - this may eventually lead to different results, different interpretations and different conclusions.

The paper shows results for the Liberec region only, despite originally the team processed data for all thirteen regions in the Czech Republic. To verify the hypothesis we randomly selected 47 municipalities from 215 municipalities in the Liberec region.

Profiling economic activities in particular regions may be expressed from the share of the most frequently represented subjects (pursuant to CZ-NACE) in the total number of subjects determined in the region.

From *Table 1* it is obvious that in the Liberec region, from 89 economic activities that are covered in CZ-NACE classification, three economic activities prevail: 010000 - Crop and livestock production, hunting and related activities, 470000 - Retail, except for retailing of motor vehicles and motorbikes and 430000 - Specialized building works.

Tab. 1   Three most frequented economic activities in selected municipalities in the Liberec region (based on the number of subjects identified)

Most frequent CZ-NACE in the region		Share of economic activities *
CZ-NACE code and name	Number of subjects in the particular CZ-NACE class	
010000 - Crop and livestock production, hunting and related activities	630	12,13
470000 - Retail, except for retailing of motor vehicles and motorbikes	594	11,44
430000 - Specialized building works	496	9,55

Source: own calculations based on data from ČSÚ (Czech Statistical Office)
*Remark: The share of the most frequent economic activities in the region in the total number of subjects (resp. economic activities) identified in the region.

Should we determine that a profiling activity must at least amount to 30%, we have no representative in the Liberec region that would make it. In fact the 30% limit was not achieved in any of the thirteen regions of the Czech Republic. However we should not forget that we examined 1,000 municipalities with the lowest dynamics of development - therefore in future this would have to be verified with all municipalities in the Czech Republic or with a randomly selected sample of municipalities.

While considering the profiling branch in the region as a branch that overcomes the limit of 30% of the identified economic activities, we can state that the determined sub-hypothesis that "there are no significant branches for profiling of the region in municipalities with a low dynamics of development" was acknowledged.

4 Representation of main economic activities in the Liberec region, based on the headcount (number of employees)

Profiling branch in each region was subject to further examination based on the share of the headcount (number of employees) registered for each main economic activity (CZ-NACE) in selected weak municipalities in the total number of economically active citizens in each particular region. As statistical data on the number of employees give the ranges only, we assigned the mean value of the headcount to each particular subject - this enabled us to calculate the total headcount for each economic activity pursuant to CZ-NACE.

Table 2 shows the three most frequent economic activities by headcounts in particular CZ-NACE categories compared to the total number of economically active citizens. It is obvious from the table that in the weakest 47 municipalities in the Liberec region the biggest share of employees work in the branch 850000 - Education (16.7% of all employees from the total headcount and 4.8% of all economically active citizens in the region). The second and the third most important branches are 010000 - Crop and livestock production, hunting and related activities and 840000 - Public administration and defense. The branch 010000

employs 11.5% of all employees from the total headcount, which means 3.3% of all economically active citizens in the region. In the branch 840000 there is 6.9% of all employees from the total headcount determined, which is 2% of all economically active citizens in the region.

Tab. 2   Share of employees in particular CZ-NACE categories to economically active citizens in selected municipalities in the Liberec region

CZ-NACE code and name	Headcount (number of employees)	Number of employees in determined subjects (by CZ-NACE)/ economically active citizens in the region (in %)	Number of employees in determined subjects (by CZ-NACE)/ total number of employees in determined subjects in the region (in %)
850000 – Education	**625,00**	**4,77**	**16,68**
010000 – Crop and livestock production, hunting and related activities	**429,00**	**3,28**	**11,46**
840000 – Public administration and defense	**258,00**	**1,97**	**6,89**

Source: own calculations based on data from ČSÚ (Czech Statistical Office)
Remark: number of employees in particular branches was determined on the basis of mean values of intervals within the particular size categories of subjects.

While comparing the three most frequent economic activities in all regions of the Czech Republic, in respect of the mean value of their headcounts compared with the total number of economically active citizens in the region, we conclude that the most frequent from these three economic activities is 850000 – Education (in eleven cases). Another frequent activity is 010000 - Crop and livestock production, hunting and related activities (seven cases), while the activity 840000 - Public administration and defense appeared six times amongst the three most frequent activities in the regions.

Profiling economic activities for particular regions may be also indicated on the basis of the average headcount in each particular economic activity.

Tab. 3   Overview of the number of subjects, headcount and their average number in subjects registered with three most frequent activities (pursuant to CZ-NACE) in selected municipalities in the Liberec region

Three most frequent economic activities according to CZ-NACE in the region	Number of subjects registered for particular CZ-NACE activities in the region	Headcount (number of employees) registered for particular CZ-NACE activities in the region	Average headcount in subjects registered for particular CZ-NACE activities in the region
850000 – Education	**82**	**625,00**	**7,62**
010000 – Crop and livestock production, hunting and related activities	**630**	**429,00**	**0,68**
840000 – Public administration and defense	**96**	**258,00**	**2,69**

Source: own calculations based on data from ČSÚ (Czech Statistical Office)

Table 3 shows information on the average headcount for the three most significant economic activities according to CZ-NACE, listed pursuant to the calculated mean of headcount. It is

obvious that in most cases the big number of economic subjects registered for the particular economic activity does not necessarily mean the employment of many people and vice versa.

Economic activities covered in *Table 2* employing most citizens according to the share of employees in particular CZ-NACE in the total number of those economically active in the region, i.e. education, public administration and crop and livestock production, bring only a limited amount of financial means into budgets of their municipalities. On the other hand they contribute to deepening of the debit side of municipality budgets. On the one hand education means higher expenditures for municipalities, but on the other hand it may promote employment, allow women to return from maternity leave back to their jobs or increase the interest in living in the relevant municipality. Similar situation is in the field of public administration and defense. As for agricultural activities, they are usually executed by self-employed persons. Their effectiveness is rather small and therefore such activities especially contribute to landscape preservation.

Conclusion

The research pointed to the fact that it is not so easy to determine the profiling of regions. Using various criteria to assess the profiling of regions, the authors came to different conclusions. While assessing the number of subjects based on their main economic activity, without considering their headcount, the most frequent economic activities were Agriculture, mainly represented by independent farmers who often work without any employees or have only very low headcounts, and also Retail. This seems to be in compliance with the general characteristics of the regions. For instance Liberec is considered to be an agricultural region and our conclusions were that the majority of business entities in this region is engaged in agricultural production.

Should we consider the profiling of the region based on the share of employees registered for particular economic activities (pursuant to CZ-NACE) compared with the total number of economically active citizens, we would have to conclude that the most frequent branches are Education and Public administration with more employees than in Agriculture and Retail.

To get a better insight into the branches profiling the particular regions, we calculated average headcount in subjects registered for three most significant economic activities (pursuant to CZ-NACE). The conclusion was that a high number of economic subjects registered for the specific economic activity does not necessarily mean employment of big numbers of employees and vice versa.

Regional policy may be therefore considered as activities aimed at the reduction of disparities amongst particular regions and intended to assure the harmonic development of the regions. The main purpose of the regional policy is to give all regions the same presumptions and background for a full-fledged utilization of their potential. Each region is unique and obviously the key role in development must be played by the regions themselves. They must be able to make use of their capacities efficient and to look for new opportunities for further development. Should the regions not be able to solve their problems by themselves, state should be the one to take care by means of various subsidies, donations or grants, in order to mitigate the disparities as much as possible. As for the elimination of disparities, municipal authorities should also play bigger role, besides the government.

In future more attention should be paid to those regions that are structurally affected, economically weak (rural areas) but to other regions as well to avoid splitting the country to economically weak and rapidly developing areas. Solution of this situation is not only the task for the municipalities concerned, but also for regional authorities, government and state departments.

The paper was made on the basis of the existing findings of the research project by the Faculty of Economics, the Technical University of Liberec, titled as "Innovation Approach to the Solution of Disparities at Regional Level", reg. No. WD-30-07-1, supported within the framework of the research program of the Ministry for Regional Development of the Czech Republic.

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EXISTUJÍ VÝZNAMNÁ ODVĚTVÍ PRO PROFILACI REGIONU S NÍZKOU DYNAMIKOU ROZVOJE?

Cílem příspěvku je prozkoumat, která odvětví mohou ovlivňovat rozvoj malých regionů v Libereckém kraji a v celé České republice.

Dynamika rozvoje obce byla posuzována na základě metodiky vytvořené v rámci řešeného projektu. V článku prezentujeme výsledky výzkumného projektu EF TUL reg. č. WD-30-07-1 "Inovační přístup k řešení disparit na úrovni regionu".

CZY ISTNIEJĄ BRANŻE ISTOTNE POD WZGLĘDEM PROFILOWANIA REGIONU O NISKIEJ DYNAMICE ROZWOJU?

Artykuł ma na celu zbadanie, które branże mogą wpływać na rozwój małych regionów w Kraju Libereckim oraz na terenie całych Czech.

Dynamika rozwoju gminy została oceniona na podstawie metodologii opracowanej w ramach realizowanego projektu. W niniejszym artykule zaprezentowano wyniki projektu badawczego Wydziału Ekonomii Uniwersytetu Technicznego o nr rej. WD-30-07-1 pn. "Innowacyjne podejście do kwestii różnic na poziomie regionu".

GIBT ES BEDEUTSAME WIRTSCHAFTSZWEIGE FÜR DIE PROFILIERUNG EINER REGION MIT NIEDRIGER ENTWICKLUNGSDYNAMIK?

Das Ziel dieses Beitrags besteht darin herauszufinden, welche Wirtschaftszweige die Entwicklung kleiner Regionen im Liberecer Bezirk sowie in der gesamten Tschechischen Republik beeinflussen können.

Die Entwicklungsdynamik der Gemeinde wurde auf Grundlage der im Rahmen des bearbeiteten Projekts beurteilt. Im Artikel präsentieren wir die Ergebnisse des Forschungsprojekts der Ökonomischen Fakultät der TUL, Reg. Nr. WD-30-07-1 "Innovativer Zugang zur Lösung von Ungleichheiten auf der Ebene der Region".