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COMPARISON OF DEVELOPMENT TENDENCIES OF UNEMPLOYMENT RATE IN CR REGIONS

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Abstract

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A high unemployment rate represents an endangering of favourable economic development of a given territory which invokes deterioration of the state of level of living of inhabitants living there. In the Czech Republic as a whole, the unemployment rate decreased in 2004–2007; there was a slight increase in 2008, and in 2009 the growth was more significant. If we evaluate the unemployment situation in regional point of view, the situation is very differentiated in particular regions and in some districts it even exceeds 10% at present. Than, there is necessary to introduce such measures to be able to set right the unfavourable state because besides the generally worsened economic situation in a region it can happen that inhabitants of the region will migrate into areas with better job opportunities. It would subsequently lead to an economic and demographic fall of this-ways endangered areas. The paper deals with a statistical analysis of development tendencies of unemployment rate in particular CR regions. Its aim is to determine positions of regions from the given point of view, so a definition of region groups with favourable development and endangered regions.

unemployment rate, CR regions, development tendencies, statistical analysis

Regional development can be evaluated from many aspects. Development specifics depend on natural conditions, settlement, and a social and technical infrastructure of the region, and especially on human resources (Dufek, 2008). It is necessary so that conditions for human resources would be at such a level to enable high-quality living conditions and a level of living of inhabitants in the given region. From this point of view, one of a very monitored indicator is an unemployment rate. Its high value affects negatively a development potential of region (Wokoun, 2008). Generally, in 2004–2007 there was a decrease in unemployment rate in the Czech Republic and owing to the crisis, the unemployment rate increased again in the next years. These trends showed themselves in all CR regions, however, with different intensity. Overcoming of the unfavourable situation in unemployment represents a smaller problem for some regions, however, in endangered regions it will be dealt with a long-term process which can entail also some other unfavourable phenomena like for example a negative migration balance. It can lead to a lower interest of investors and consequently to a further deepening of unemployment on the given territory.

MATERIAL AND METHODS

The paper monitors a development of yearly rate of registered unemployment in 2004–2009, both over the CR in total and over the particular regions. The aim is to evaluate differences in the development and to define a degree of exposure in particular areas. For these purposes at first a comparison of development tendencies was made by the help of simple statistical indicators of dynamics; subsequently multidimensional methods were used by means of which groups of regions with similar development tendencies, groups of regions with favourable development, and groups of endangered regions were determined. A cluster analysis and an analysis of main components were used here (Řehoř, 2007).

The aim of cluster analysis is a classification of the given collection of units, which are characterized by a group of characters, into several relatively homogeneous groups (clusters) so that the objects inside the clusters would be similar each other as much as possible, and the units belonging in different cluster would be similar each other as least as possible. Results of the analysis depend on a choice of variables, a chosen rate of distance among objects and clusters, and on a chosen calculation algorithm. Regarding a data character and a requirement so that clusters would be roughly of the same size, Ward method was chosen (Hebák, 2004), expressed from a matrix of Euclidean distances.

The main component analysis enables to realize a reduction of variables on base of processing of multidimensional collection and to determine indicators which have a pivotal influence. At the same time it determines an influence strength of the given indicators on the resulting effect. On base of results of the main component analysis, an evaluation of region position was carried out from a view-point of the unemployment rate development (Hendl, 2004).

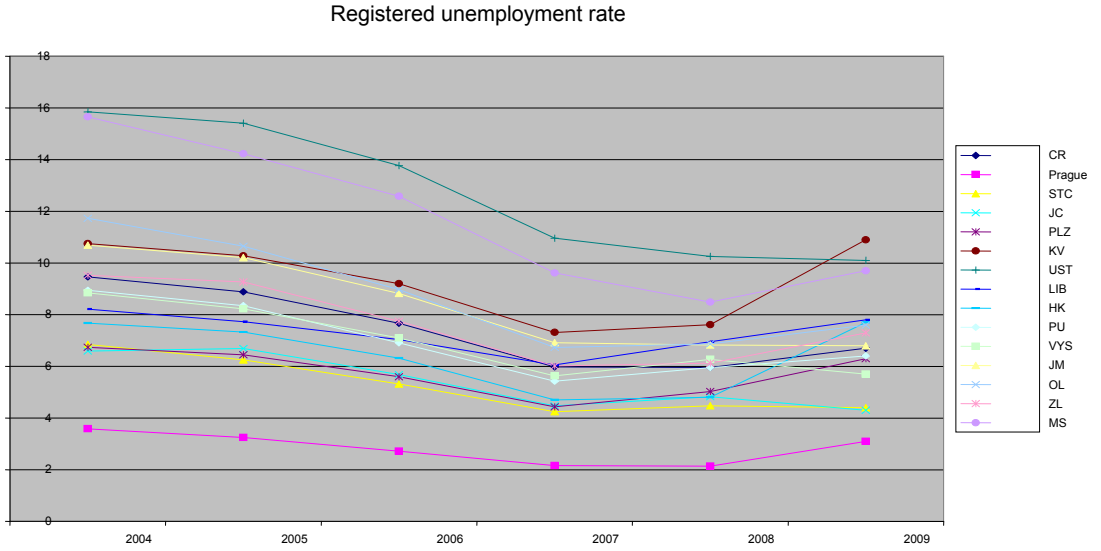
RESULTS AND DISCUSSION

The unemployment rate in the Czech Republic amounted to 9.46% at average in 2004. Till 2007, a favourable decrease of the unemployment rate can be recorded to as main as 5,98%. In 2008, the situation was the same in fact as in the foregoing year, however, the year 2009 brings an increase to 6,7%. A main tendency, it is the decrease of unemployment rate till 2007 and subsequently its increase, are practically in all regions the same. However, they differ in their absolute size and a size of growth or decrease rate.

Traditionally, the lowest unemployment rate is in the city Prague where it amounted to 3.58% in 2004 and 3.1% in 2009. The unemployment rate in other regions is always higher, whereas, the second region in sequence has the unemployment rate double against Prague. The unemployment rate in 2004 exceeded 10% in five regions and in 2009 the border 10% was exceeded only in two regions.

As it is obvious from the table I, the unemployment rate slightly grew in most regions in 2008, however, in 2009 there is a significant increase. Nevertheless, the changes are highly differentiated. The unemployment rate decreased in regions Central Bohemia, South Bohemia, Ústí, Vysočina and South Moravia, by contrast it grew by more than 40 percents in the regions Karlovy Vary and Hradec Králové. The absolutely higher rate of unemployment can be recorded in Moravian-Silesian, Ústí and Karlovy Vary regions, in the entire monitored period. The table II gives information on a sequence of the regions and its changes according to the unemployment rate size in 2004, 2007 and 2009.

If we have a respect to the sequence of regions in the monitored years, than we record only smaller changes in the sequence in 2007 against the year 2004. As a more significant it can be evaluated a change in Liberec region which fell from the sixth place on the ninth one. More considerable changes can be recorded in 2009. It is dealt especially with deterioration of a state in the regions Karlovy Vary, Liberec and Hradec Králové.



1: *Development of unemployment rate in CR and CR regions in 2004–2009*
Source: CSO
Explanatory note: CR – Czech Republic, STC – Central Bohemia region, JC – South Bohemia region, PLZ – Pilzen region, KV – Karlovy Vary region, UST – Ústí region, LIB – Liberec region, HK – Hradec Králové region, PU – Pardubice region, VYS – Vysočina region, JM – South Moravia region, OL – Olomouc region, ZL – Zlín region, MS – Moravia-Silesia region

I: *Unemployment development rate in CR and CR regions in 2004–2009*

Region	Registered unemployment rate – %					
	2004	2005	2006	2007	2008	2009
Czech Republic	9.47	8.88	7.67	5.98	5.96	6.70
City Prague	3.58	3.25	2.72	2.16	2.14	3.10
Central Bohemia	6.85	6.25	5.32	4.25	4.47	4.40
South Bohemia	6.59	6.69	5.68	4.47	4.83	4.30
Pilsen	6.74	6.45	5.60	4.43	5.03	6.30
Karlovy Vary	10.75	10.28	9.20	7.32	7.62	10.90
Ústí	15.85	15.41	13.77	10.96	10.26	10.10
Liberec	8.22	7.73	7.04	6.05	6.95	7.80
Hradec Králové	7.67	7.33	6.32	4.70	4.81	7.70
Pardubice	8.94	8.35	6.91	5.43	5.95	6.40
Vysočina	8.85	8.23	7.10	5.63	6.27	5.70
South Moravia	10.69	10.21	8.82	6.92	6.83	6.80
Olomouc	11.73	10.65	8.97	6.73	6.87	7.60
Zlín	9.53	9.27	7.75	6.02	6.13	7.30
Moravia-Silesia	15.66	14.23	12.58	9.62	8.49	9.70

Source: CSO

II: *Sequence of regions according to unemployment rate size*

Region	Year		
	2004	2007	2009
City Prague	1	1	1
Central Bohemia	4	2	3
South Bohemia	2	4	2
Pilsen	3	3	5
Karlovy Vary	11	12	14
Ústí	14	14	13
Liberec	6	9	11
Hradec Králové	5	5	10
Pardubice	8	6	6
Vysočina	7	7	4
South Moravia	10	11	7
Olomouc	11	10	9
Zlín	9	8	8
Moravia-Silesia	13	13	12

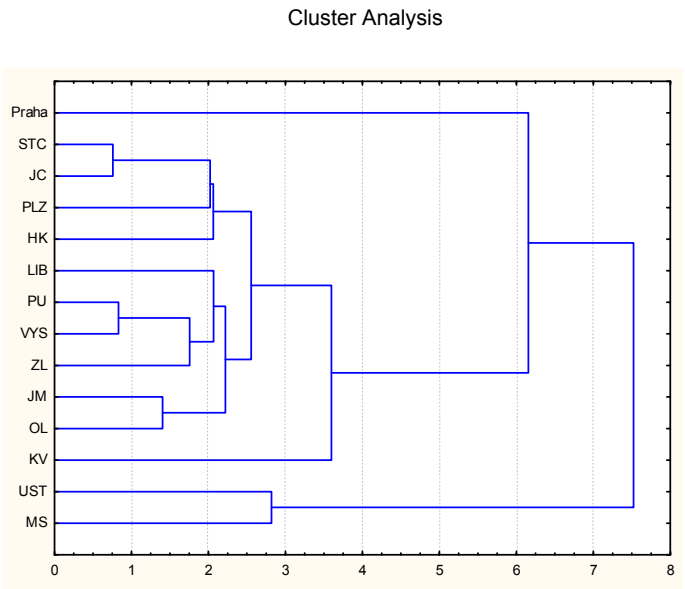
Source: CSO

By means of the above mentioned, a state and changes in particular years were described, so in a partial way. For further elaboration, methods of multidimensional analysis were chosen which enable to characterize the unemployment rate development more comprehensively in the mentioned period. The cluster analysis method was chosen as the first. On base of its results groups of regions were created in which the unemployment rate develops similarly.

On base of clustering it is possible to create 3 groups of regions and two regions standing separately:

1	Prague
2	Central Bohemian region
	South Bohemian region
	Pilsen region
	Hradec Králové region
3	Liberec region
	Pardubice region
	Vysočina
	Zlín region
	South Moravian region
	Olomouc region
4	Karlovy Vary region
5	Ústí region
	Moravian-Silesian region

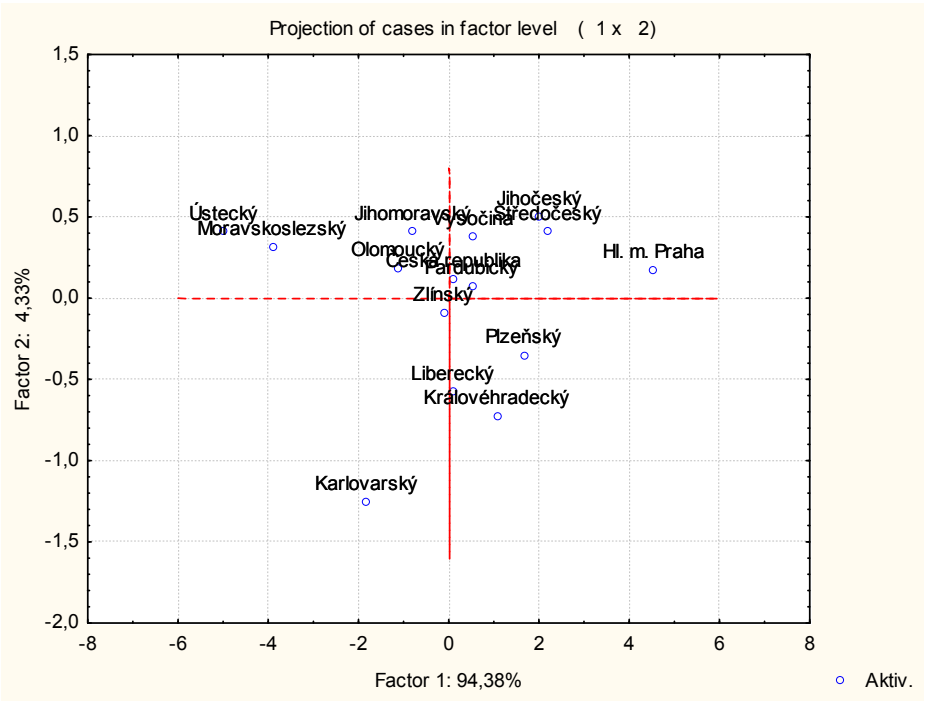
As it has been mentioned, the city Prague is from the view-point of unemployment rate strongly below the CR average and differs significantly from the other regions. The second group is formed from regions where the unemployment rate is below the CR average in all periods. An exception here is only the region Hradec Králové which recorded a significant increase in unemployment rate in 2009. Regions merged in the forth group belong from the view-point of unemployment rate to regions average to below-average. A slight improvement happened in the last year of monitoring in comparison with other regions. The region Karlovy Vary is traditionally the region with a relatively high unemployment rate; the unemployment rate is the



2: *Results of cluster analysis – region groups* (*Simple connection, Euclides distances)*
Explanatory note: Praha – City Prague, STC – Central Bohemia region, JC – South Bohemia region, PLZ – Pilzen region, KV – Karlovy Vary region, UST – Ústí region, LIB – Liberec region, HK – Hradec Králové region, PU – Pardubice region, VYS – Vysočina region, JM – South Moravia region, OL – Olomouc region, ZL – Zlín region, MS – Moravia-Silesia region

highest of all regions in 2009 here. The regions Ústí and Moravia-Silesia belong to regions with a very high unemployment rate throughout the whole monitored period and in the region sequence are always on the latest places.

On base of results of the cluster analysis, groups with similar development tendencies can be determined. Than, the analysis of main components will enable to characterize the position of regions more deeply and to define regions with more



3: *Results of main component analysis – position of regions*
Explanatory note: Hl. m. Praha – City Prague, Středočeský – Central Bohemia, Jihočeský – South Bohemia, Plzeňský – Pilzen region, Karlovarský – Karlovy Vary region, Ústecký – Ústí region, Liberecký – Liberec region, Královéhradecký – Hradec Králové region, Pardubický – Pardubice region, Vysočina – Vysočina region, Jihomoravský – South Moravia region, Olomoucký – Olomouc region, Zlínský – Zlín,region, Moravskoslezský – Moravia-Silesia region

favourable development and the endangered regions. The graph 3 shows the position of regions according to two main components which explained the total dispersion from 99 %.

The graph divided the regions in quadrants. The regions in the first quadrant (the right upper) can be characterized as a promisingly developing, the second (the right bottom) as regions with a relatively good development, the third (the left upper) as regions lagging behind, and the forth one as the endangered regions.

SUMMARY

An aim of the paper was to evaluate differences in development and to define a degree of engangering of particular areas. As it is obvious from the realized analyses, the unemployment rate has a similar development in all CR regions in the monitored period. It decreases till 2007, a slight increase was recorded in 2008, than a higher increase in 2009. However, its size is considerably different in particular regions. Traditionally, it is the lowest in Prague, the absolutely highest in the regions Moravia-Silesia, Ústí and Karlovy Vary. If we take into consideration the position of regions according to the size of unemployment rate in particular years, certain changes can be recorded in the sequence. It means that positive or negative changes happen in some areas and it is necessary to have a respect to them in determination of other measures. The methods of multidimensional statistic analyses, used in the work, provide summarizing, so more complex information about the position of regions from the viewpoint of whole development on the given period. The cluster analysis established groups of similarly developing regions from the viewpoint of unemployment; the main component analysis than enables to define regions promisingly developing and endangered regions.

On base of these results it is possible to evaluate regions where the unemployment does not represent an important problem. It is dealt with the regions Prague, Central Bohemia and South Bohemia. The regions Pardubice and Vysočina are found on a border of this group where the unemployment rate is higher but a more development happens in the recent period.

It is possible to range also the regions Pilsen, Liberec and Hradec Králové in the second group of slightly endangered. The third group of regions can be defined as regions with unfavourable development or as regions lagging behind. This group includes the regions Ústí, Moravia-Silesia, South-Moravia, Olomouc, and Zlín. The region Karlovy Vary was marked as a significantly endangered region from a viewpoint of the unemployment rate development. This region has permanently high unemployment rate and this trend considerably deepened in the last period. So, here, a big attention should be paid to measures for redemption or at least modulation of this unfavourable state.

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