Labour Migration and Mobility in the Districts of the Slovak Republic

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Abstract

The political, economic and structural changes in Slovakia since 1990 resulted in significant regional disparities in terms of unemployment, brain-drain, increased number of people living below poverty line, infrastructure etc. The migration and mobility are closely related to each of those indicators. Moreover, the migration is radically changing our present and affects the future. The knowledge on migration, its influence on economic and social life becomes crucial. The article deals with migration and population mobility of the Slovak Republic and explores the migration relationships between its districts.

The various types of indicators have been used for mapping the inner migration development and mobility in the article. The data connected with migration and mobility from r 1996 to 2012 has served for the application of factors and cluster analysis in order to determine the best working - attractive districts, the biggest waves of migration and connections between districts in the Slovak Republic. The data is mainly drawn from the Population and housing census 2011 and from the Annual Report of Population Movement in SR. The demographic indicators have been reviewed and nine variables have been submitted in order to apply the factor and cluster analysis. The main focus was on the internal working migration. Through demographic indicators the most attractive regions for labour migration and population mobility have been identified. The factor and cluster analysis recognised the groups consisting of districts with similar qualities. The article discusses also the development of the waves of migration.

Key words: labour mobility, labour migration, labour market, human capital.

1 Introduction

"As the migration objectively affects our future, it is necessary to influence the process of migration, too."

The 21st century is typical for its significant mobility and migration. Migration and mobility are regular and everyday phenomena. As a result, there is no country, region, district or city which has not been influenced by the migration and mobility. Thanks to the external type of migration, there is a sufficient supply of the labour force, more diverse culture, but on the other hand the resulting tensions, too.

The main objective of the analysis is to identify the regions and districts, which are the most attractive for labour migration and commuting to work The current situation of the working mobility and internal migration between the Slovak districts and regions in the time period 1996 to 2012 forms the main part of the paper.

2 Human Capital in the Labour Market and Economic Migration and Mobility

The term migration is close to related word mobility. Sometimes they are even used as synonyms, but they should be clearly distinguished. The terms movement and mobility are conceptually not easy to define. The distance of mobility varies from almost zero to thousands kilometres, as well as the duration of a stay at destination differs hours to decades. An extensive is related to carrying different forms of commuting to the place of work, leisure activities, visiting friends or family members, shopping, business trips, etc. Such occasional movements should be differentiated from the permanent repeating types of movements (mobilities). As well as from the movement meaning a change of the living place - a place of usual residence for - a different place (migration). Mobility is the fundamental element of human freedom. For these reasons it is freedom to look for the opportunities and possibilities to change living standards and education or jobs affairs. (Known, 2009; Lindstorm, Soctt 2010)

The simplest definition of mobility–is the ability to get from point A to point B. Mobility in the article is considered as an act of moving between locations (the situation when a person moves from one administrative unit to another). Countries, districts, regions, cities may represent such locations (administrative units).

The concept of mobility in economics is associated with the mobility of the factors of productions (land, labour and capital). The third factor of production of capital is almost a synonym of mobility. On the other hand, the production factor land is absolutely immobile. The labour factor is somewhere between the land and capital. The neoclassical theory considers labour moving in response to interregional wage differential increases (Clark, Gertler, 1983).

The primary idea is that there exists equilibrium between wage differentials and the movement of labour. In fact the specific problem of mobility is connected with the first factor. The extensive social links and underpinnings (family, friends,   the cost associated with the moving and new housing, job opportunities, the level of the education, skills) are very diverse, not always known. Job or spatial mobility can be defined and distinguished:
   a) **Job mobility** – represents the ability of workers to move between different jobs, and statistically is registered as a job change. The term is often used to describe someone´s working life (for example it is situation, if employee decide to leave the current job and find new job in another company or moreover in another sector). Some of the decisions to change the current job are voluntary and motivated, otherwise are forced Job mobility is also paramount at the societal level because job mobility may enhance the diffusion of knowledge, innovation and technology across firms (Saxenian, 1996) and, thus, stimulate the growth of intellectual capital in a society.
   b) **Geographic mobility** - means the geographical movement of workers between the countries or regions, describing migration flows made by individuals from one place to another (either within the country or crossing its borders). (Eliasson, Lindgren, Westerlund 2003)

Migration flows is defined as the sum of all migrants leaving the same place (departure) and all have the same point of destination (whether it is a country of destination, or other administrative unit - county, district, city). In other words, migration is the kind of the

movement or transfer of persons in direction from the source country (region, district, city) to the destination country (region, district, city), or commuting from one administrative unit to another. According to definition it means the movement for the purpose of taking up permanent residence (Everett, 1966).

People migrate for many reasons, a decisions is always based on a comparison of the advantages and disadvantages, either to stay or move. Explanations of the migration are usually explained by disparities in the living conditions between different places. Poverty is always a first reason or a key driver of migration. However, it has been recognised that the poorest often cannot migrate since resources are needed to do so, especially for international migration (Tapinos 1990). In that light, the factors can be recognised either as push or pull factors (Zimmermann, 1996):
- **Push Factors** include dramatic reasons for emigrating leaving a place) is a difficulty (such as a food shortage, war, political turbulence, pursuit, flood, humanitarian crises, ethnic or racial conflicts, etc.).
- **Pull Factors** represent less critical reasons for immigrating (moving into a place) is something desirable (such as better employment, out of poverty, nicer climate, better food supply, freedom, higher quality of life, etc.).

Push factors are important and relevant if the repelling factors in the home country are inversely proportional to the pulling opportunities in the country to which they migrate. An individual decides much easier in the case of a direct threat to his or her life – considering especially push factors. In a situation of the effort to improve the respective economic situation, the person evaluates more pull factors – which target country is the most appropriate (Fiast, 2000), although, the push and pull factors affect the individuals together.

The concept of push and pull factors is not able to explain the case when a factor is no longer effective but migration still persists. Although the effect of push factors that forced the individuals to leave the country has already faded, they stay abroad or continue to commute to work. Increasing tensions, worsening employment situation in the target country or region usually does not cause the return to original place. The macroeconomic migration theory based on wages is not able fully explain the migration flows and several interesting works highlight e.g. the presence of interpersonal migrant networks in the receiving country as an of the explaining pull factors (Taylor, 1986).

Typically, the networks assist the next migrants in the proper migration transfer as well as in many aspects of everyday life in the new destination. Together with the networks theory, the concept of social capital (the norms of reciprocity and solidarity) is a resource explaining mutual help to new waves of migrants.

The dual labour markets theory (Piore, 1979, Loveridge, R. and Mok, A., 1980) explains the segmentation of labour markets involving the factor of migrant workers. The native population occupies better jobs, whereas newcomers take up the 3D jobs (dirty, dangerous and difficult). Based on the dual labour market conception two sectors can be distinguished:
- *Primary sector (good jobs).* Employees are required relatively high level of knowledge and competencies, but this working position is evaluated on the basis of individual characteristics and not on the basis of work. Such employees are protected from external pressures. (Ritter, Anker, 2002)
- *Secondary sector (bad jobs).* The responsibilities are clearly defined and a greater control is possible. Compared to good jobs, the attention is paid on the performance

and the jobs are comparatively less valued. The positions in the secondary sector are occupied by the foreign labour migrants. (Ritter, Anker, 2002)

Consequently, migrants are the people who migrate moving between two countries or between two territorial units, from the one where they come from and the one to which they are coming (Soysal, Yasemin Nuhoglu, 1994).

The international theories of migration are more focused on the external migration, when crossing the borders is necessary.

Based on this, there are two basic types of migration (Bilsborrow,1998):

- *Internal migration* - is the movement of the population in which people commute to other cities – e.g. commuting from rural to urban area within a country.
- *External migration* (interantional) – means moving to another country, crossing an administrative boundary In the European Union the distinction between the internal and international migration is getting less marked by the process of European integration, as the free movement of persons/workers is a fundamental right guaranteed to EU citizens.

Internal – interregional migration has still usually different character than the international one. It is more based on "exchange of skills", particularly among those regions where economic factors are the major driving force of migration. A decision to move to a larger distance is influenced, besides economic, also by cultural and social conditions.

As an example, we indicate the most important studies dealing with labour migration. *Macroeconomic neoclassical theory* is explained on the geographic explanations, not considering the state borders and reflecting regional differences. Migrants are seen as those who decide to migrate – to leave their region/country because of high unemployment and impossibility of appropriate job opportunities.

A flow of goods and capital from the core to the peripheries in search of land, raw materials, labour, and new consumer markets is counterbalanced by the flow of labour in the opposite direction (Massey, 2011).

Having exact data on points of origin and destination, the tabulation would be possible; nevertheless, this is only an ideal case, rather far from the reality.

In this article we pay attention only to internal migration of the workers. The issue of labour migration clearly exists in Slovakia as well thanks to interregional differences between the west and the east of the country. Population of Slovakia working abroad or commuting to work abroad (especially to Czech Republic or Hungary) is comparatively high. This significantly affects the regional disparities between regions and districts. Consequently, migratory labour movements (regardless of whether it involves changing of the residence of the person or the person regularly commutes to work outside the residence) belongs among the most important spatial aspects influencing the structure of the population in districts.

As a result of the transition change in 1989, many people lost their jobs and a new trend occurred – residents commuting to work outside for their district of their permanent residence, even abroad. Over time, the number of residents who commute to work has increased compared to the past. These are three main reasons to address migration and mobility (Domonkoš, Páleník 2010):

- Migration is considered one of the demographic processes that affects the structure and composition of the population in a given area.
- Migration is significant element bringing population growth in the core districts, but at the same time creating depopulation of peripheral districts.

- Migration of inhabitants with the change of their residence also affects significantly the demographic composition of the population.

Population migration to work has a close relationship with other phenomena and processes. The core districts offer better options in terms of careers, education, leisure and social activities. It also means higher housing cost. The reasons for migration and its character has changed over the years (Champion and Fielding, 1992).

Migrating is not a spatial population movement resulting in the elimination of regional disparities implicit in the labour markets. The labour migration (and also commuting) has a strong selective character. Social groups that migrate are significantly characterized by their age, education, skills. The internal inter-district migration in Slovakia confirms two main effects (Janotka, Gazda, 2012). First, the migrants move predominantly to the most developed centres – districts of Bratislava and Košice what can be explained by the urbanisation effects and is primarily motivated by the economic motives The second effect is associated with the process of suburbanisation, flows going out of the industry areas, or cities (core), mostly to the nearest villages or smaller towns (periphery). The subject of labour migration and mobility is in this article analysed using factor and cluster analysis.

3 Methodology

Theoretical background of the labour migration and labour mobility cane be used as an input for further analysis. Two research hypotheses are studied:

Hypothesis 1: *The district centres with higher population are the most labour attractive for migrants.*
Hypothesis 2: *The higher is the rate of the unemployment in the district, the higher is the percentage of commuting workers.*

Both hypotheses combine demographic, spatial and economic approaches. The main purpose of the factor analysis is to reduce the number of variables, especially in the case of a big number of variables. To showing the role of the factors on the explanatory variable, new variables (latent factors, components) are constructed. In the common factor analysis it is supposed that the variance of a single variable can be decomposed into two types of variability: common variance shared by other variables in the model, and unique variance to a particular variable including the error component. Clustering is considered to be one of traditional method of data analysis. The main goal of the cluster analysis is to group the objects into clusters according to their similarity. The greater is the similarity within a group and on the other hand greater difference among the clusters, the better result is reaches as a basis for typology (of the district in our analysis). The algorithm determines the required number of k-averages in the form of the resulting clusters. The diameter shall be assigned to those objects (in our case districts) that are relevant to the diameter of the smallest distance. There are two basic types of clustering algorithms – non-hierarchical and hierarchical. In the analysis dominant non-hierarchical method k-means is used which allows categorising dataset into a predetermined number of the clusters - k groups. The k-means clustering algorithm determines the required number of k-means in the form of the resulting clusters. The k-means method is aimed to minimize the sum of squared distances between all points and the cluster centre.

Two main databases are used for the factor and cluster analysis - The Annual Report of Population Movement provides an overview of the moving population of the Slovak Republic in the time period 1996 - 2012.

The Population and housing census 2011 provides information about the residents regularly commuting to work to other districts. The analysis is based on two kinds of data:

-        Panel data – both time and cross-sectional from The Annual Report of Population Movement. This resource includes information on migration for the working purposes, for each district and region and year in time period 1996 - 2012.

-        Time series data – time values come from the different time moments –collected monthly, quarterly or annually.

Of course, the preferences and motivation for the labour migration and mobility can be different. The possibility of careers, wage level and the need for commuting is certainly also perceived differently in each person. The following quantitative analysis provides results of the comparison by districts, although it is not able to articulate the human factor in terms of personal motives and preferences.

4 Development and Typical Features of the Migration and Mobility in the Districts of the Slovak Republic

The demographic indicators from the years 1996- 2012 were mainly drawn from the database of the Annual Report of Population Movement. In fact, we focused on the overview of the internal migration between the districts. Each relocation of the inhabitants of the Slovak district is connected with the duty to choose the reason of the migration (job opportunities, health reasons, marriage, divorce and so on).

This working paper and analysis are primarily focused on the inner migration (and mobility), furthermore we focused on the labour migrants.
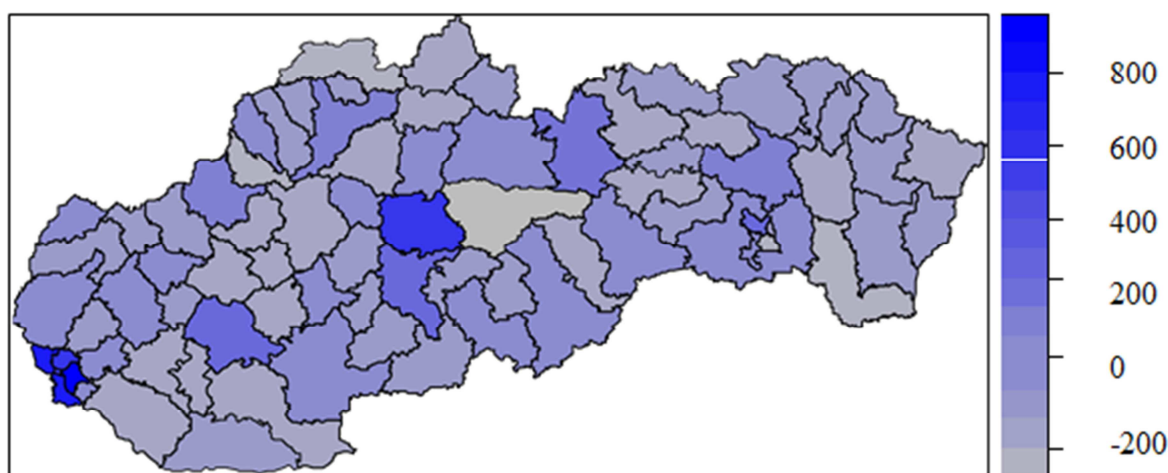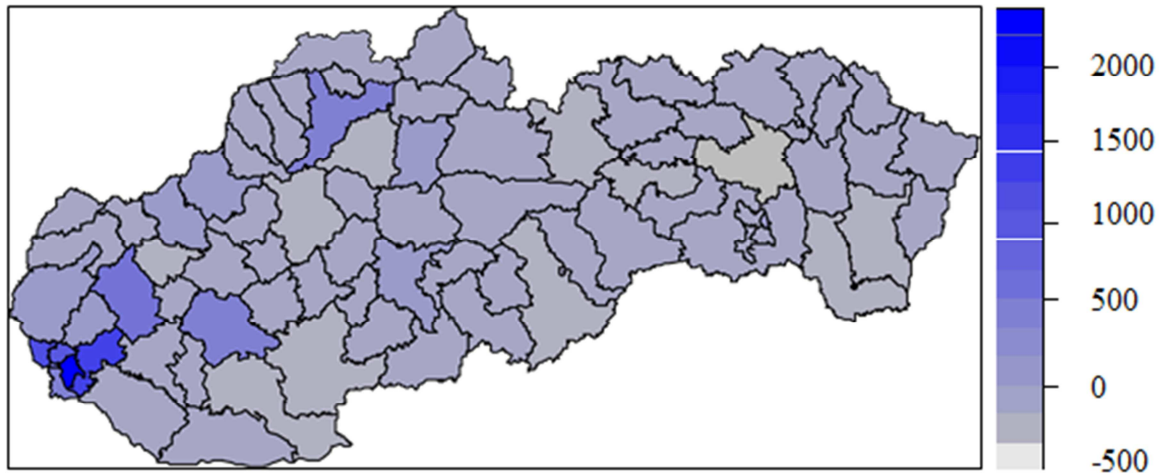
Fig. 1 Net labour migration between the districts of the Slovak Republic in 1996-2012 and 2009-2012.

The Fig. 1 represents net labour migration between the districts of the Slovak Republic, the upper part expresses the net migration in the years 1996 - 1999, the lower part in the years 2009 - 2012. Many districts have been depopulating over the whole time period 1996-2012 and they still leave their inhabitants. On the other side, significant position in the positive net migration among the Slovak districts has the Senec district, together with the capital city of Bratislava. The Senec districts are at the same time extraordinary in Slovakia as the region with the highest labour commuting.

The trends confirmed also by demographic indicators show both urbanisation and depopulation trends, as well as deepening disparities between districts Slovak Republic. This process can be linked with several types of push and pull factors. There is a considerable concentration of the population in the Slovak districts. The Figure 2 represents the values of the Index of migration effectiveness defined as

$$I_{ms} \frac{MS}{MO} = \frac{I - E}{I + E}$$

Where:
I_{ms}	index of net migration,
MS	net migration (the difference between the number of immigrants and emigrants),
MO	migration turnover (total number of immigrants and emigrants in a given territorial unit, usually per year),
I	immigration,
E	out-migration.

The values of the index are in the most districts close to 1, confirming spatial concentration of the population.
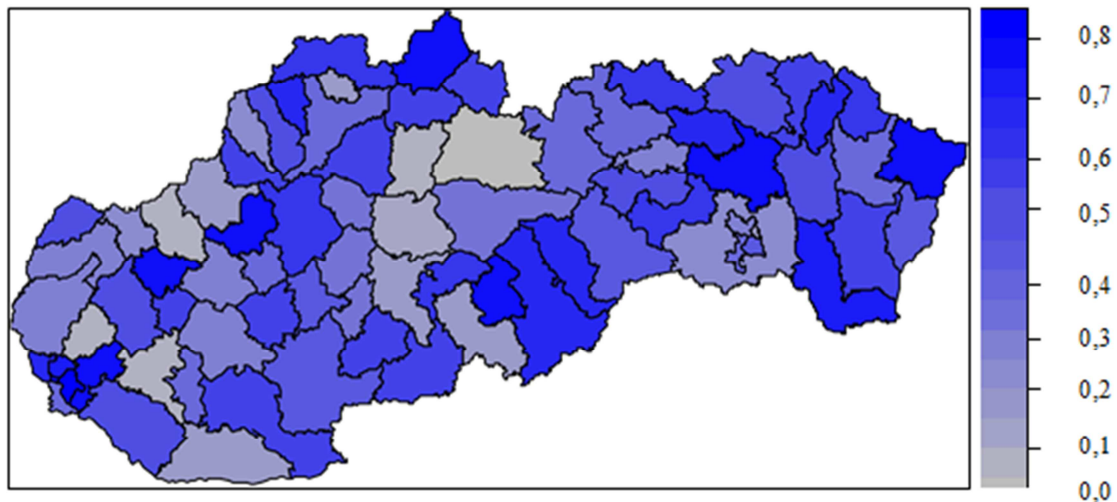
Fig. 2 Index of migration effectiveness in the districts of the Slovak Republic in 1996-2012.

The commuting people prefer to attend the geographically nearest district. As an example, the most dynamic Bratislava region in terms of migration is shown on the map indicating the maximum and minimum flows of the economically active persons commuting between districts within the Bratislava region. Two maps (Fig.3) depict the largest and smallest flows of the economically active persons commuting between districts within the Bratislava Region. The number of commuters outside the border of the region was in the most cases negligible. Also in other regions is the nature of flows commuting same.
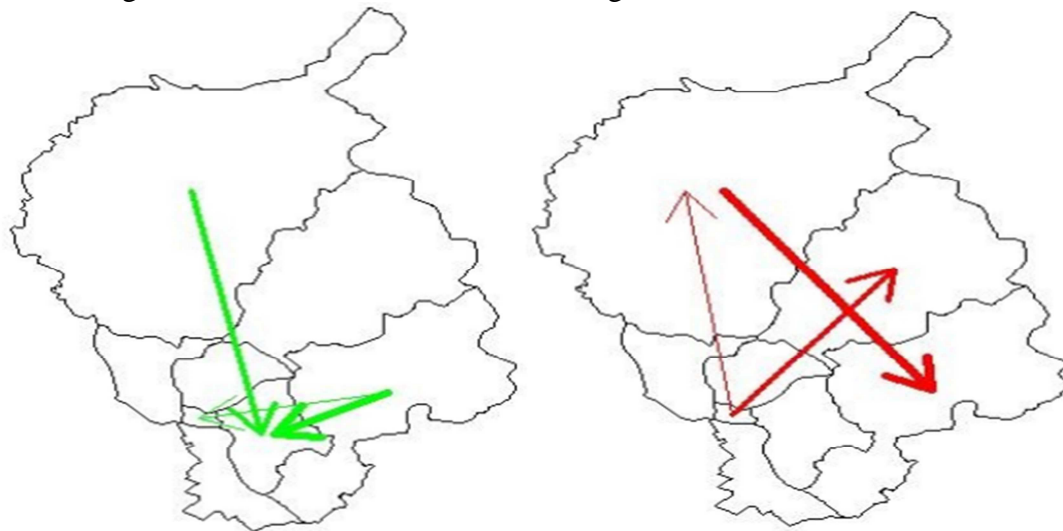

Fig. 3 People commuting for working purposes within the region (the largest -left and smallest -right migratory flows).
Source: own construction.

Why the relationships between the Slovak districts and regions have been more balanced in the past?
The political, economic and structural changes in Slovakia since 1990 resulted in significant regional disparities in terms of unemployment, brain-drain, increased number of people living below poverty line, infrastructure, etc. Processes of the migration and mobility have been influenced and stimulated by many various factors. The political, economic and structural

changes in Slovakia resulted to significant regional disparities in terms of unemployment, brain- drain, increased number of people living below poverty line, infrastructure etc. Infrastructures differences (technical, social) have been more and more intensified and emphasized. Effect of these factors over the years deepened regional differences and evolved economically prosperous and attractive labour districts.

5 Typology of Slovak Districts

The cluster analysis enabled to create the typology of the Slovak districts in terms of clusters based on their similarity. The cluster analysis used was limited by the availability of data and cooperation with the Statistical Office of the Slovak Republic, too. The factor and cluster analysis enabled to identify five major types of Slovak districts according to migration type. Altogether, nine variables have been processed in the final analysis:

Tab. 1 The average value of the variables within the districts

Group Variable	1	2	3	4	5
Unemployment	102,59	246,58	202,03	83,30	137,85
Immigrants for working purposes	0,71	0,26	0,66	5,34	0,52
Emigrants for working purposes	0,72	0,74	1,46	0,71	0,89
EAP do not commute to work	202,62	371,01	434,86	233,41	513,44
EAP commute to work to district from the others	483,68	166,05	153,48	431,10	152,97
EAP working abroad	28,21	70,49	62,03	23,10	42,74
EAP commute to work from others regions	174,20	130,64	110,55	1195,16	99,02
Number of EAP	548,75	462,02	470,60	508,09	494,59
Nominal wage	797,00	709,00	723,11	1099,00	778,38

The result of the factor and cluster analysis is shown on the map of the Slovak republic in five colours assigned to 5 basic migration district types:
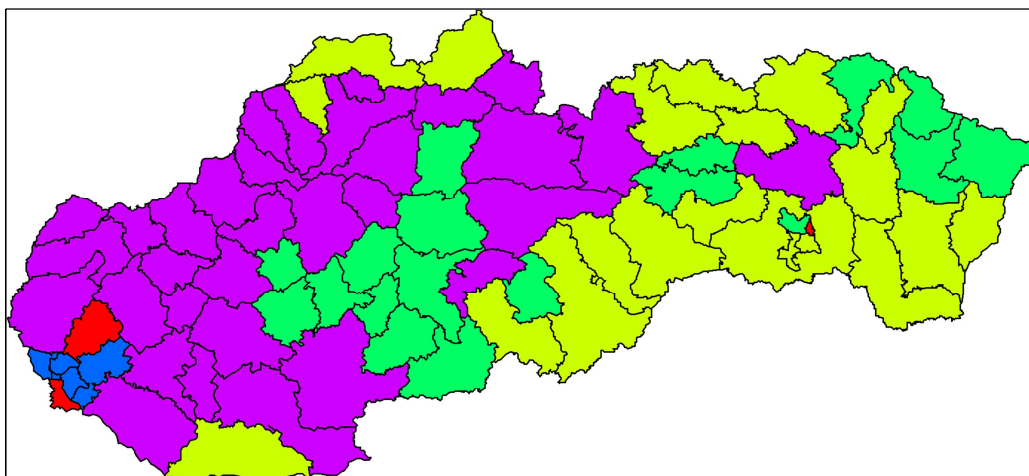
Fig. 4 Migration district types: cluster analysis.
Source: Own construction.

The first hypothesis - districts with the highest unemployment rate have the highest labour commuting has not been confirmed. This is because those districts have the highest number of residents working abroad.

The districts with the highest nominal wages (group 4) receive the highest number of economically active persons commuting to the district to work. The group consists of Bratislava districts and neighbouring districts.

Cluster 1 has the highest number workers residing on its territory, and also the highest number of labour commuters to other districts. Factor and cluster analysis confirmed the assumptions of the significant concentration of the migration flows. The capital city Bratislava and the nearest located districts provide the most of the job opportunities.

6 Conclusions

Unemployment, poverty, regional disparities have not been so sharp before the year 1989. Demographic indicators showed that the relationship between districts and regions were previously more balanced than today. . Surely, there were districts and regions with more and less dominant position. The economic decline, collapse of industries affected more the less resilient regions and districts resulting in emigration and depopulation because of the low job opportunities. Over the 25 years the regional disparities have even emphasized and intensified. On the basis of demographic indicators, the population movement is currently getting spatially concentrated only in a few districts. In labour commuting the economically active persons in particular prefer shorter distances, otherwise the solution is to looking for a job abroad.

Acknowledgements

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