

## COMMUTING TRENDS AND PATTERNS BEHIND THE REGIONAL IMBALANCES IN SLOVAKIA

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### Abstract

The paper focuses on regional imbalances, which likely drive commuting patterns and also affect the economic performance of the regions in the Slovak Republic. Based on population Census data the results have shown relative great differences in commutation turnover among the districts (1.1% to 205% variation for in-commuters and 3.3% to 47.9% variation for out-commuters) as a share to the economic population base of the particular region. Higher commuting rates (both for in- and out-commuters) are concentrated predominantly in the West (Bratislava, Trnava, Nitra, and others) and Northwest (Trencin, Zilina, Puchov and others) of the country. Contrarily, in economically depressed South of Slovakia, (Velky Krtis, Revuca, Lucenec, and others) commutation turnover has been mute. Using multivariate analysis, the results further point on regional heterogeneity in terms of the development. Acting regional policies so far fail to substantially narrow the differences.

*Keywords:* in-commuting, out-commuting, settlement centre, cluster group, regional imbalances

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### 1. INTRODUCTION

Economists and other social scientists have been interested in migration for more than a century. Migration scholars, partly in conjunction with statistical agencies, converged on a broad definition of migration as a move over a long-enough distance to entail an appreciable change in the local economic environment: early examples of the literature on "distance migration" include (Sjastaad, 1962 and Schwartz, 1973; cited in Molloy et al., 2011). Migration scholars today generally make two decisions to define migrants: 1) they choose geographic units to define the potential origin and destination locations; and 2) they define the time period in which individuals must move between origins and destination (Molloy et al., 2011).

Shields and Swenson explain, that like migration, commuting represents a response to relative economic incentives. In small, open economies, commuting is often an alternative to migration. Households may choose to commute rather than migrate because perceived transportation costs may not be as high as relocation costs, both real and psychic (Shields and Swenson, 2000).

There are a number of reasons for migration or for commuting. Apart from traditional neoclassical theory and Keynesian approach, (Evers, 1989) lists among the main motives as

improvements in working conditions, in housing conditions, in physical-environmental conditions, in the social-cultural environment, and in the amenities. Different categories of migrants will put different weights on each of the motives. Selectivity has been postulated and observed according to age, the distance of migration, income, profession, family context and so on (Dick et al., 1989).

Guidon et al. point out that commuting is an outcome of the combined choice of home and work location. As further adds, individuals make a trade-off between commuting time and distance, the characteristics of the home and work location, and opportunities that arise by combining the commute with other activities (such as shopping on the way home) (Guidon et al., 2018).

Sharma and Chandrasekhar gave us reasons, which likely contribute to evolving commuting in India. Since the beginning of economic reforms in 1991, there has been a redistribution of activity across rural and urban India. The redistribution and the emerging spatial distribution of jobs in primary, secondary and services sectors affect the decision to commute. Finally, regions with a large urban and peri-urban population are likely to see commuting by workers (Sharma, Chandrasekhar, 2014).

## 2. BACKGROUND

### 2.1 Theories and patterns of migration and commuting

The first more detailed works about migration were composed by Ravenstein (1889), which based on observations of migration in Great Britain and the United States contain a description of the principles of the migration processes. Referring to Ravenstein, most people tend to migrate gradually and mostly short distantly. Long-distance migration aims at big cities. Each migration flow tends to form counter migration flow. Big cities either grow due to immigration flow than to natural birth (cited in Llinitchi, 2010).

For a better understanding of the migration determinants, gravity models became widely used. The simplest versions of gravity models relate bilateral migration to the relative size of the origin and destination countries and the distance between them; however, there are additional factors that can affect migration flows. For this reason, gravity models are enlarged with variables related to different migration pull and push factors. For instance better economic opportunities in the destination country (i.e. prospects for higher wages or lower unemployment rates), safer conditions, and higher political freedom, among others (Ramos, 2016).

Gravity models, rather represent the mathematical construction of the migration phenomena. Later, gravity models were completed by Stouffer (1940), Zipf (1946), and Hagerstrand (1957) (cited in Llinitchi, 2010). Theoretically, they were completed or sometimes contrasted with the others, like *New economics of labour migration* (Stark and Bloom, 1985) or *Relative deprivation theory* (Stark and Taylor 1989) which explain that potential gains in absolute incomes through migration are likely to play an important role in households' migration decisions. Thus, the incentive to migrate is a lot higher in areas that have a high level of economic inequality.

Carrington et al. proposed the network theory, which assumes that the migrants in the target country create so-called "networks", which decline costs for new incoming migrants. (Carrington et al., 1996). However, others see migration from a different point of view. For instance, Piore (1979) proposed the dual market theory, arguing that international migration is caused by a permanent demand for immigrant labour that is inherent to the economic structure of developed nations. According to Piore (1979), immigration is not caused by push factors in sending countries (low wage or high unemployment), but by pull factors in

receiving countries (chronic and unavoidable need for foreign workers. This built-in demand for immigrant labour stems from four fundamental characteristics of advanced industrial societies and their economies (cited in Massey et al., 1993).

Considering of various factors affecting the migration/ commuting, like for instance residential and employment locations, transport modes, commuting and housing costs and others, the number of theories were developed (Dai et al., 2016).

Among the foremost ones can be noted, *trade-off theory* (Muth, 1961) and *spatial mismatch theory* (Kain, 1968) and established the *concentric circle* (Alonso, 1964), *gravity* (Dodd, 1950), *pull-push* (Guest and Cluett, 1976) and *discrete choices* (Anas, 1981) models (Dai et al., 2016).

Polése explains, why people travel or commute for various reasons (work, services, etc.) and why different sized cities exist, thus creating a settlement network with relative unique urban hierarchy in countries over the world. Primarily, the existence of different sized cities is present because of the relative weights of the costs and benefits of locating in a big city are not the same for all firms. The secondary reason is the composition of the service sector. For instance, services for which proximity is vital – food stores, pharmacies, tailors, eating and drinking places, primary education, basic health care, etc. will give rise to numerous small centres. On the other hand, services that require larger markets and for which consumers are inclined to travel greater distances will only be found in larger service centres (Polése, 2009).

Cuadrado-Ciuraneta and Durá-Guimerá underlined the demand for housing as a potentially significant factor associated with short-range movement (from local to regional context, including movements at the county level). On the local level, the reference about the displacement of the population towards the low-density residential areas that are on the edge of existing towns, because of looking for better housing conditions and the discomfort involved in living in the urban centre, in terms of the urban fabric and building typology. Similar reasons should prevail on the county-level (Cuadrado-Ciuraneta, Durá-Guimerá, 2018).

Aldrich et al. added that commuting is not exclusively limited to metro areas. Also a small town or a place, whether an incorporated town or a densely settled unincorporated area, can serve as either residence or a place of work. This means that bringing jobs into a community may result in both residents and non-residents seeking and getting the jobs (Aldrich et al., 1997).

Finally, migration and commuting are also influenced by specific attributes like gender, social status, education, professional occupation, marital status, and others. Sandow (2008) on a study of commuting behaviour in sparsely populated areas of Sweden focused on different social, economic, demographic and geographical factors, which likely influence an individual's propensity to commute on longer distances.

Overall, from the gender point of view, labour market results in commuting differences between women and men. The empirical results show, that the probability of an individual will accept a longer commuting distance rise, given that the individual is a man, has a high education level, works in a private sector and has a high income. Less likely to accept a longer commuting distance are women, low-income earners, those with a low educational level and employees in the public service sector. Household-related factors such as children and a spouse were found to reduce the propensity to commute longer distances (Sandow, 2008).

## 2.2 Migrating and commuting patterns in Slovakia

The topic of the interregional migration in Slovakia is being predominantly seized by Bezak who analyses migration flows between the regions using various indicators (Bezak, 2002; and Bezak, 2006). He also incorporates relatively in Slovakia little-used migration or commuting distance (Bezak, 2008). Various aspects of internal interregional migrations are being devoted to Podolak (2006). The topic of in- and out-commuting is being seized by Michniak in his works (Michniak, 2005; and Michniak 2016).

Mladek and Cupelova (2010) compare the driving factors of internal migration in Slovakia over the period of socialism and transformation after 1989. In the period from 1950 to 1980, the percentage of urban population doubled. The most likely factors behind this trend were perhaps industrialization, agricultural intensification and massive construction of dwelling in cities. Later, from the mid-'70s also the policy of centralized system of settlements was adopted, which have contributed to the strengthening of the growth of the selected communes.

However, the internal migration trend in Slovakia after the '90s became overturned and deconcentrating tendencies prevailed. Nowadays, living in small communes and in the hinterland of big and medium-sized cities is becoming more attractive (Mladek and Cupelova, 2010).

Furthermore, between the mid-'80s and '00s, a phase with a distinct drop of migration, mobility is evident in the case of internal and also interregional migration. For instance, according to the data, the trend of internal migration had slowed down on to ca. 81,000 from the previous ca. 100,000 at the end of the '80s. After 2000 the trend again picked up and the rate of internal migration values started to increase up to the present level of ca. 89,000 from 1996 to 2007. Interregional migration took 54.46% share on average on total migration volume between 1996 - 2007 based on calculations of the authors Michalek and Podolak, (2011).

Migration flows in above mentioned time periods were influenced by the emerging regional-income gap, which had gripped the country after 1989. According to the OECD, (2011) the income imbalance, measured GDP in PPS, between the regions on the NUTS II level in Slovakia had been rising faster in the first half of the '90s. The main driver of the imbalance became Bratislava region, which by its macroeconomic performance significantly outpaced lagging eastern regions and followed by central regions of Slovakia. In 2007, the total share of Eastern and Central region of Slovakia on GDP was just 36.1% (OECD, 2011).

A comprehensive overview of the Slovak economic performance from the regional perspective was given by Banjere and Jarmuzek (2010). On the basis of *per capita GDP*, regions in Slovakia can be divided into two broad groups; richer western regions comprising Bratislava, Trnava, Trencin, and Nitra and poorer eastern regions comprising Zilina, Banska Bystrica, Presov, and Kosice. Between the 1998 – 2001, Slovakia had been passing the challenging process of restructuring of the economy and regional imbalances in labour utilization have widened over time, especially since the year 2000. The labour utilization fell in both western and eastern regions in the initial period, but the fall was deeper in the eastern regions. The decrease in labour utilization reflected labour shedding associated with an enterprise restructuring process that was not offset by new job creation. Whereas employment and labour utilization picked up in western regions from 2001 onward, such a recovery was absent in the eastern regions where the labour utilization ratio broadly stabilized (Banjere and Jarmuzek, 2010).

Bezak (2006) distinguishes in internal migration (migration within the country), its interregional and intraregional aspect. The first type represents the migration in adequate chosen regional units, the second one represents the migration among the pairs of these units

(Bezák, 2006). Moreover, (Bezák, 2014) considered the so-called functional urban regions, as the ideal spatial framework for studying the processes of growth and redistribution of the population, migration mobility a regional dimension of settlement systems, than the traditional administrative-territorial units.

Referring to the methodology of the Population Census in 2001 (Michniak, 2005) explains, that in-commuting or either out-commuting to the workplace includes all economically active people who work in another municipality outside their place of permanent residence.

The main trends in commuting in Slovakia, identified on the base data of the 2001 and 2011 Censuses, included the increase of the total number of out-commuters, the increase of the number of cross-border commuters, the strengthening of the position of Bratislava as the largest commuting Centre in Slovakia and the changing position of other commuting centres, based on their ability to face up to transformation of the economy after 1989 and their ability to attract foreign direct investment (Michniak, 2016).

Regional and local commuting centres in Slovakia had been formed along with the urban system formation since the medieval ages. In relation to settling the territory of Slovakia, Klobucnik and Slavik, (2013) divide the development of current Slovakia's settlement network into four distinct phases:

1<sup>st</sup>: until the 12<sup>th</sup> century, only 187 municipalities have the first written mention of their existence. The largest concentration of municipalities is in the southern part of former Nitra's province and only sparsely continues towards the north and the east.

2<sup>nd</sup>: the period from 12<sup>th</sup> to the 14<sup>th</sup> century, can be characterized by the “great colonization” phase with the highest number of newly founded urban sites. In the 13<sup>th</sup> century, it had been 983 municipalities and in the 14<sup>th</sup> century, it was additional 865 municipalities, respectively.

3<sup>rd</sup>: from the 14<sup>th</sup> to 17<sup>th</sup> century, in relation to Ottomans offensives there were identified several “colonization waves”. However, these waves approached only selectively, namely “the Valaska, Horalska, and Kopaniciarska kolonizacia”, into the mountain and foothill areas. Moreover, there was another smaller colonization wave “the Croatian and the Laban colonization” pointing to the west of Slovakia.

4<sup>th</sup>.: since the 17<sup>th</sup> century up to present, the lowest incremental changes in the number of the municipalities, rather interregional population migration among the municipalities, at the end of the socialism in 1989, the number of municipalities in Slovakia became less than 3,000.

The structure of the Slovak settlement system includes a network of settlement core areas, development axes, settlement centres and other regional and local networks of municipal and rural settlements (Slovak Spatial Development Perspective, 2012).

The foundations of the system represent settlement centres, which are developed on the five-tier hierarchy. Settlement centres fill the role of tertiary and even quaternary service centres. In their respective hinterland, settlement core areas are being formed, which are belts of the settlement groups. Development axes in the Slovak Republic are created within a hub-belt settlement system, the core of which is made up of settlement centres and transportation-communication system connecting individual centres.

The settlement centres with their respective core areas became focal nodes for commuting to work and services from their subordinated towns and countryside, on a short-term and long-term frequency basis, and even place for exchange the labour between these centres. Moreover, these areas support labour mobility and migration on interregional and even national basis (Slovak Spatial Development Perspective, 2012).

Another classification includes so-called functional urban regions, which represent a specific category of functional region, based on criteria of spatial interaction between the city

and its background (Bezák 2001; and Bezák, 2000). The regional system comprises 51 functional urban regions (so-called regional system FMR 91-A) identified and based on 1991 population Census data on in-commuting to the workplace, where each functional urban region seizes spatially contiguous area, that besides the requirements of internal coherence and external closures with respect to daily work movements, fulfill an additional condition of a minimum size of 35,000 inhabitants in 1991 (Bezák, 2008).

### 3. ANALYSIS

The main objective of the paper was twofold. Primarily, the paper evaluates the commuting trends and patterns on the basis of population Census data on the in-commuting and out-commuting of the economically active population and target of commuting. Secondly, the paper studies several economic factors, which likely influence the commuting and migrating patterns which refer to regional imbalances affecting Slovakia.

As a basic comparative statistical unit, we chose a district – spatial unit at LAU1 level according to the European classification of NUTS. So our sample is equal to a basic set, thus  $n = 79$ . Variables of the interest are the aggregate sum of out-commuters, coming out from particular district and in-commuters incoming to a particular district  $\sum_{i=1}^n 1, 2, \dots, n$ . For comparison purposes, we expressed each variable by each district in relative frequency, such as a share of out-commuters and in-commuters on the total amount of economically active population in a particular district.

As a main source of the statistical data, we used cross-section data coming from the national population Census, realized in 2011. Despite the relative obsolescence of the data, the Census results still represent valuable information about spatial patterns of commuting and migration, which even still prevail.

For further spatial analysis and comparisons, we used thematic maps projecting aggregate sums of out-commuters coming out, and in-commuters incoming to a particular district, as a share of total economically active people per each district. For projecting above mentioned phenomena we used cartogram method.

Observed phenomena and patterns in a given geographical area are likely influenced by the number of other economic factors. Maintaining the criteria of simplicity, we included three other variables: population density, long-term employment rate, and average regional wage. Adding these two variables to former ones we resort to the multivariate analysis method.

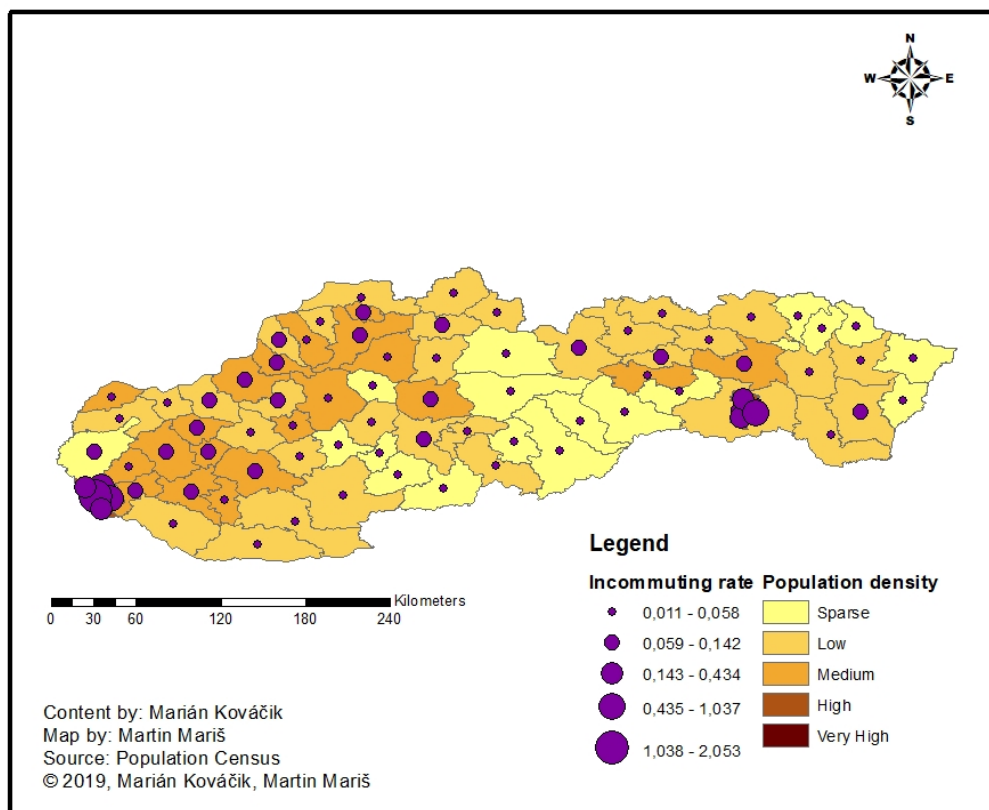
For our objective, we used the agglomerative hierarchical clustering (AHC) method applied to a set of examining objects – districts, based on examining variables (out-commuting, in-commuting, population density, long-term employment rate, and average wages) using ones as indexes (base index = 100). For intercepting of the dissimilarity (or similarity) of objects we used the Euclidean distance to calculate the square root of the sum of the squares of the distances which can be formally written as follows:

$$V_{YZ} = \sqrt{\sum_{i=1}^k (y_i - z_i)^2}$$

Where  $Y, Z$  refer to vectors (observations) and  $k$  is an examined variable (Hendl, 2012). The result of the hierarchical clustering (dendrogram) is a way of arranging items in a hierarchy based on the distance or similarity between them.

The result of a clustering calculation is presented either as the distance or the similarity between the clustered items depending on the selected distance measure. Cluster analysis would help us to find clusters of similar districts and thus revealing the common trends and patterns.

A launching point in our analysis is an examination of in-commuting patterns in the spatial perspective of Slovakia. For this purpose, we used cross-sectional data sampled by the Statistical Office of the Slovak republic through the national population Census in 2011. The in-commuting rate was calculated as a share of economically active people in-commuting to a target district without the permanent residency in a target district, to a total number of economically active people in the target district.

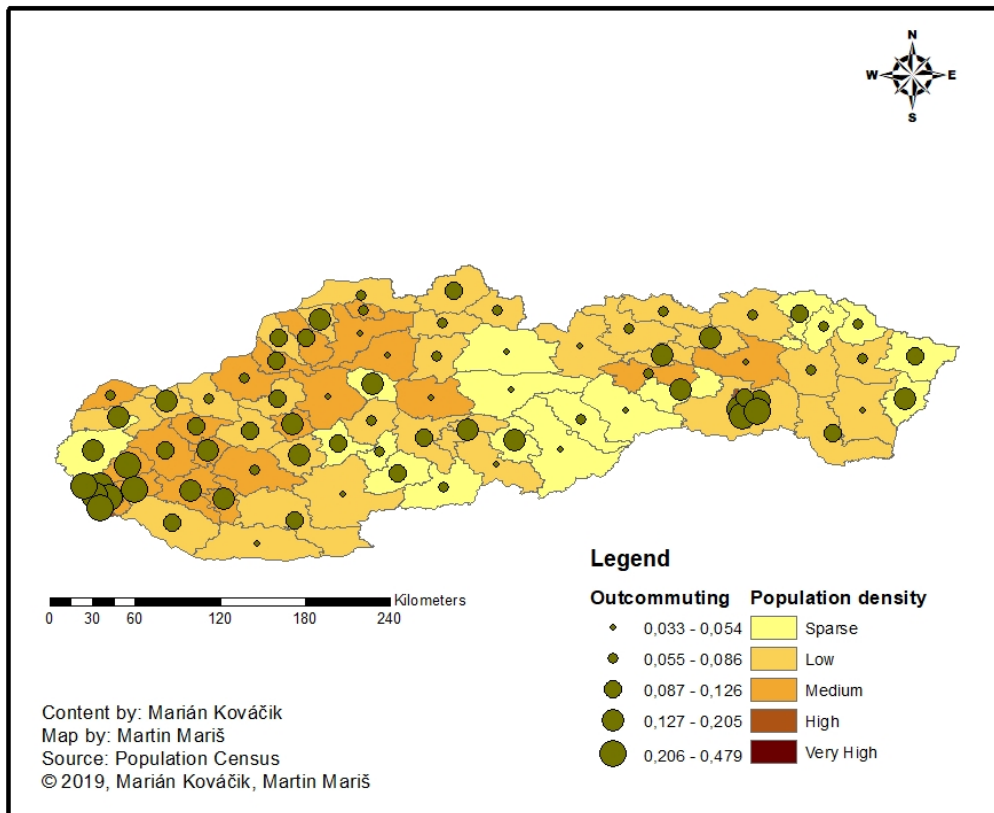


**Figure 1.** The in-commuting rate in spatial perspective in Slovakia, National Census 2011.

Figure one displays in-commuting rates among the districts over Slovakia as a share on the total base of economically active people in a target district. At first, we might say, that the in-commuting range extends from 1.1% for the least in-commuting districts to 205% for the most in-commuting districts. The variation range is divided into five classes using the method of Natural breaks (Jenks optimization).

The national top in-commuting districts are Bratislava I to V districts, in which the in-commuting rate evenly exceeds its own total economically active population base by two times. In the East, Kosice I-IV districts record similar values. In the rest of the country, in-commuting rates are much lower. However, there are significant differences between the Western (Trnava, Nitra) and Northwestern part (Trencin, Povazska Bystrica, Zilina) of the Slovakia and on the Southeastern (Komarno, Nove Zamky, Levice) and Southeastern part (Rimavska Sobota, Velky Krtis, Lucenec, Poltar) of Slovakia, where in-commuting rates are

minimal. On the East of Slovakia, there are some regional commuting centres like Poprad, Presov, Michalovce, but generally, in-commuting rates are low. This indicates prevailing imbalances and uneven distribution of regional commuting centres over Slovakia.



**Figure 2.** The out-commuting rate in spatial perspective in Slovakia, National Census 2011.

Figure two displays out-commuting rates among the districts over Slovakia as a share on a total base of the economically active population in the target district. The out-commuting range is significantly smaller, extending from 3.3% for least out-commuting districts to the 47.9% of the most out-commuting districts, as a share on the total stock of economically active people in the target region. The variation range is divided into five classes using the method of Natural breaks (Jenks optimization).

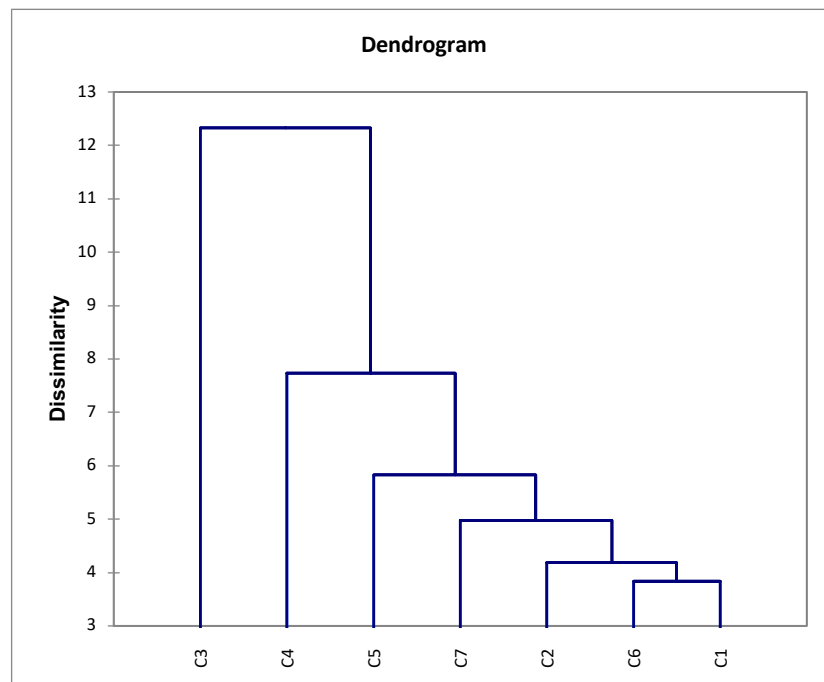
Again, the top national leaders in terms of out-commuting are Bratislava I-V districts and in the East Kosice I-IV districts. In the rest of the country, we might observe a significant increase of regional mobility among various districts on the West, Northwest, and also in the central South and even on the East of the country. In the West, there is clearly visible the “pull” of Bratislava, where even neighbouring districts (Pezinok, Senec) record great commuting levels. The pull force of Bratislava might also extend to western part (Trnava, Nitra, Zlate Moravce), passing the central part (Zvolen, Detva) and evenly reaching the East (Levoca, Sabinov, Presov) of the country. The workforce from North and Northwestern districts (Trencin, Puchov, Povazska Bystrica, Bytca, etc...) can either commute to Bratislava or even to the Czech Republic or Poland because these regions provide for its people more opportunities. Also commuting between the districts can't be ruled out.

In the case of South and Southeast of Slovakia, except for the few exemptions (Krupina, Detva, Poltar), the districts record minimal activity in terms of out-commuting. Southern frontier zone of districts (Komárno, Levice, Velky Krtis, Lucenec, Rimavska



Sobota, Revuca, Roznava, etc.) belongs to the most undeveloped part of Slovakia with muted economic activity with a further grim prospect.

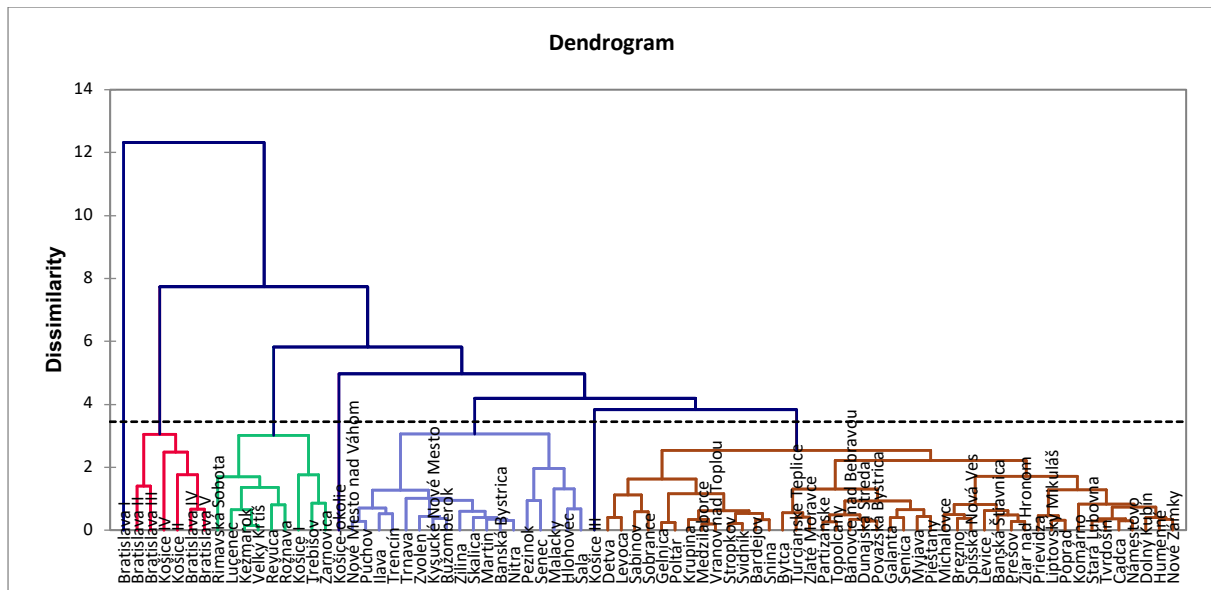
The analysis reveals commuting/migration patterns among the districts which highlight the issue of regional imbalances over Slovakia. For the identification of more subtle features in origin districts, we resort to the use of the AHC method. This method should help us to identify districts, which share similar features and differ from more dissimilar ones. As an agglomeration method, we choose the complete linkage.



**Figure 3.** Clusters using the complete linkage method, Self-computation, XLStat.

Figure three displays the cluster tree, resulting from criteria of dissimilarity among the groups, based on examining variables (out-commuting rate, in-commuting rate, population density, employment rate, and average wages). This figure shows seven cluster groups with matching regions and suggests an even higher level of regional heterogeneity, however, three “clusters” (C6, C7, C4) comprise only a few districts, which in any case did not match with any cluster. The lowest level of the dissimilarity shows clusters C1 and C6, followed by the clusters C2 and C7, and clusters C5 and C4, whereas cluster C3 shows higher dissimilarity among the other cluster pairs.

Figure four shows respective cluster groups of the districts resulting from the hierarchical agglomerative cluster analysis. Taking from the right, Cluster C1 (brown colour) is the biggest among all clusters and comprises several subgroups. District subgroups are mostly located in the Central part of Slovakia, in the North and the East, mostly along the Polish border. Despite its frequency, the C1 is flatter than other clusters, which points on the lowest heterogeneity in terms of examining variables among the districts. Thus, it means that slightly variations among the variables might occur. These districts are characterized by lower in-commuting rate, higher out-commuting rate, and mediocre or lower population density. Slight variations might occur in terms of the employment rate and wage levels.



**Figure 4.** Groups of clustered districts using the complete linkage method, Self- computation, XLStat.

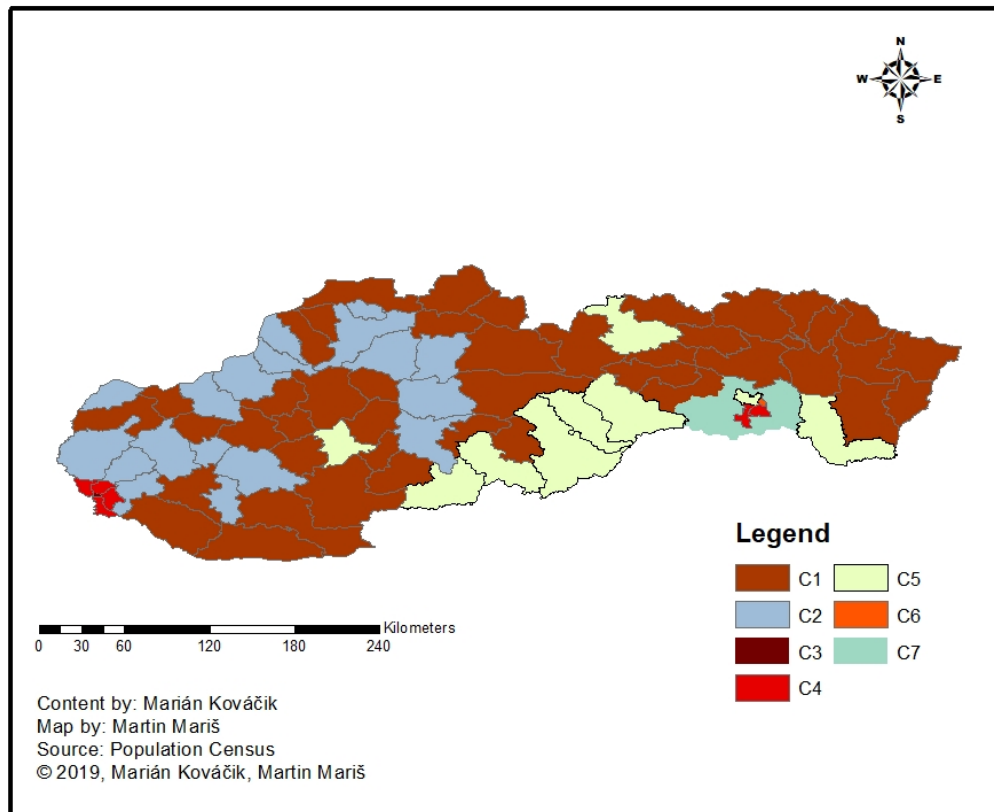
Cluster C6 comprises only single district Košice III, which is part of Kosice city, which became aligned to cluster C1. Following, Cluster C2 is divided into two respective subgroups. Districts are in general more developed and share higher values in terms of examining variables. The right subgroup represents districts close or neighbouring the Bratislava metropolis. The left subgroup represents western and north-western districts along the Czech border. Cluster C7 again comprises only a single district of Kosice – okolie, which represents the area surrounding the city of Kosice. The cluster is separated from the others, however, aligned to cluster C2.

Next, there is the cluster C5, which comprise districts located in the South, mostly along the Hungarian border. Even though slight variations in terms of examining variables, the districts belong to the most undeveloped parts of Slovakia, persistently suffering from high unemployment, low wages, and poor infrastructure.

Cluster C4 comprises districts that create Bratislava metropolis and Kosice city. Bratislava is a central point of gravity for almost all areas over Slovakia, thereby providing the greatest scale of economic opportunities. Similarly, Kosice city represents the gravity point on the regional level, attracting activity mostly from the East of Slovakia. The last cluster is cluster C3, which comprises only single district Bratislava I, otherwise central business district, relatively unique in terms of Slovak regional structure, however, aligned to cluster C4.

Figure five shows cluster groups in the spatial perspective of the geographical area of Slovakia. Practically we might speak only about four districts because three cluster groups (C3, C6, C7) comprise fewer districts. Cluster group C1 comprises several subgroups, predominantly located in the East (Poprad, Prešov, Michalovce, Humenne and others), in the North (Cadca, Namestovo, Ruzomberok, Liptovsky Mikulas and others), in the Centre (Topolcany, Banovce nad Bebravou, Ziar nad Hornom and others) and in the South (Dunajska Streda, Komarno and Nove Zamky). Cluster group C2 comprises districts located mostly in the West (Pezinok, Senec, Trnava, Nitra, and others), Northwest (Trencin, Ilava, Žilina, and others) and partly expanding to the Centre (Banska Bystrica and Zvolen). Cluster Groups C3 and C4 represent Bratislava urban agglomeration and part of Košice city (Košice II and IV). Cluster group C5 comprises districts (Velky Krtis, Lucenec, Poltar, Rimavska

Sobota, Revuca and others) located along the southern Hungarian border. Cluster groups C6 and C7 represent the rest of the Kosice city and its hinterland.



**Figure 5.** Group of clustered districts in geographical – spatial perspective, Self-computation.

#### 4. CONCLUSIONS

The paper is focused on the evaluation of commuting patterns over the regional structure of Slovakia and the economic factors which likely contribute to establishing these patterns. In terms of commutation, results have shown relatively higher commuting rates (both in- and out-commuting) in the West and Northwest of Slovakia, than in the South and Southeast of Slovakia, except the district of Kosice and a few other districts. However, also central and eastern parts of Slovakia recorded fairly high levels of out-commuting values comparing to their western counterparts. Lowest in-commuting and also out-commuting rates were recorded mostly in Southern and North-eastern part of the country, which is represented by the peripheral and bordering districts with economic constraints. It suggests, that in spite of economic hardship facing in its own districts, people are not willing to commute/migrate for work to more developed ones, which makes the whole situation even worse.

The second part of the paper was devoted to economic factors that likely influence the commuting/migrating patterns. For this purpose, we used the AHC method. Using this method we developed seven classes that separate districts into seven cluster groups. However, in reality, we can acknowledge only four cluster groups, because three cluster groups (C3, C6, and C7) comprise fewer districts. The biggest cluster group became C1

districts, which can be called the “economic semi-periphery” which in general are mediocre developed and often serve as a hinterland for more developed districts with bigger urban sites. The next is cluster group C2, which comprises two subgroups with moderate differences. Districts are predominantly localized in the West and Northwest of the country and we can mark them as developed above the national average. Some of them directly neighbour with Bratislava and others are districts with bigger urban sites. Cluster group C5 represents most economically depressed areas clustered mainly along the Hungarian border in the South of the country. In general, their structural problems are deep and long-lasting. To this day, the government could not find efficient tools for solving their issues. Cluster C4 comprises two subgroups. The first subgroup comprises districts of Bratislava II-V, what is de-facto entire urban agglomeration (except Bratislava I), the place with the highest concentration of economic activity and the other, which comprises districts of Kosice II and IV, which are part of eastern urban agglomeration. District Bratislava I is a unique category, thereby marked as a central business district.

In conclusion, we can sum up that prevailing trends and the commuting/migrating patterns are the results of economic factors, geographical factors, location factors and factors of urban hierarchy. Observed commuting trends and patterns and also results of multivariate analysis point on prevailing and even expanding regional imbalances between the districts. The relatively better geographical position of Northwest districts along the Czech border favour them in terms of higher scale of economic opportunities, while Southern districts along the Hungarian border share their economic hardship with their Hungarian counterparts. On the other hand, the proximity location near the Bratislava agglomeration, favour its neighbouring districts. Moreover, urban hierarchy predominantly located in the West and in the Centre of the country might diffuse positive spill-over effects over the lower levels of urban hierarchy. However, peripheral districts in the North and in the East are struggling for economic momentum. The government should address better tools for initiating the endogenous growth and supporting the regional mobility on short distance level.

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