

## CHANGES OF REGIONAL LINKAGES IN THE SUBURBAN EPOCH

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### Abstract

Regional linkages are permanently in progress thanks to the processes that are very often contradictory. The East and Middle Europe is presently going through the epoch that was typical for the West Europe and the North America few decades ago – epoch of suburbanization. This process affects urban environment as well as the rural one. The suburbanization is very well described as well as its development and impacts by many project proceedings, books and science papers. But the same regional processes could be seen as a natural continuation of urbanization processes where the extensive urbanization was replaced with the intensive form of urbanization. The physical relocation of population was replaced with increasing number of linkages and strengthened relations between regional cores and their hinterland. It has impacts into many aspects of rural life including adoption of the urban life style by the inhabitants of many formerly rural villages.

The aim of this paper is to identify changes in the regional linkages between the cores of selected regions in the Czech Republic and their hinterland. For that purpose there were analyzed several indicators that could show increase or decrease of the core's regional power.

**Keywords:** region, suburbanization, urbanization, regional ties

**JEL Codes:** R58, R11, R23

### Introduction

Although residential structure is stable in the Czech Republic, the strength of relationships between regional cores and their outskirts is gradually evolving. Suburbanization can certainly be included among the social and economic phenomena that have a direct effect on the relationship between the core and the outskirts. Suburbanization is understood as the process of suburban sprawl, spatial variation of settlements, characterized by the mass migration of the population from central parts of urban agglomerations and conurbations to their edges and administrative beyond the boundaries of urban units, while maintaining the narrow functional relationships of newly populated areas with the residential cores (Pásková, Zelenka, 2002) or as a phase of the urbanization process, in which the population of the core city is stagnating or declining, and the number of residents in the suburban zone communities is growing (Koutný, 2006). The process of suburbanization is a continuous change in the social and physical environment from rural to suburban.

Although a wide range of authors focuses on the effects of suburbanization, there are not many methodologies available to define the suburban areas in the Czech Republic. Most active in this area is probably Ouředníček, who uses a combination of statistical indicators regarding the number of immigrants, the number of completed dwellings and the number of population to determine the size of a suburban zone (Ouředníček et al. 2013). Based on these indicators, he also derives the strength of individual regional ties. From other authors we can mention Kučerová (in Šilhánková et al., 2013), who works with the index of population development, population density, migration, population, commuting to work and school, and the building index. A simply different attitudes to describe suburban areas uses Hnilička who is focused mainly to the residential form of the urbanization (Hnilička, 2012). All kinds of suburbanization have their impact to spatial division of towns and villages (Šilhánková 2007) and to their economic efficiency (Šilhánková 2007, Šilhánková, 2013).

The suburbanization has its own specifics in each country. It depends on society's systems of values, politic establishment, building- and spatial planning-system and other circumstances. It also a reason for using only Czech definitions in previous parts of the paper.

For the needs of the presented research, the authors of the paper set the following hypothesis: Despite ongoing suburbanization, the regional links between regional centers and their outskirts are increasing.

The aim of the research was to determine in the selected regions whether the position within the regions is strengthened by the center through the decline of the population in the core of these regions, or whether the movement of residents into the outskirts of towns also reduces their influence in the region. Three regions in eastern Bohemia were selected for the research. While Hradec Králové and Pardubice form a joint conurbation on the inter-regional level, their mutual reach within this agglomeration does not overlap too much. The Svitavy region has been selected as a complementary region for these two. Even in this peripheral region, there are signs of suburbanization and the team of authors has therefore decided to use it for research on regional bonds.

### Methodology

The actual research was conducted using a combination of methods by Dr. Kučerová and Assoc. Prof. Ouředníček, this combination was further adjusted. There was also used the assessment method of statistical indicators. Data from 2001 and 2011 were compared and their percentage change examined. The total number of analyzed municipalities is 109 (Svitavy 27, Hradec Králové 42, and Pardubice 40).

For these 109 areas we monitored selected indicators from 2001 to 2011, or 2001 and 2011 (census of population, houses and apartments). The source of data is the Czech Statistical Office (hereinafter CSO), which also provides information on the CPHA used in the practical part of the paper as one of the data sources.

Data examined in all 109 areas are:

- population
  - average age
  - migration
  - natural addition
  - finished dwellings
  - number of economic units
  - commuting to work outside the municipality
  - commuting to work inside the municipality
  - occupied dwellings
- 

For each indicator we individually specified the interval from when the municipalities met this indicator. The first group consists of four indicators assessing the suburban municipalities. Those that met three of the four criteria (75%) are classified among the most suburbaning. They have a strong population influx (indicator of population, the number of occupied dwellings) from the core cities, while maintaining the narrow functional relationships of the newly populated areas with the residential cores (the "commuting to work" indicator).

### Results

In the monitored regions we found a relatively low rate of suburbanization, especially in the Svitavy region and Hradec Králové. According to the indicator analysis method, the most suburbaning region is Pardubice, in which the most suburbaning municipalities have been identified from among all the analyzed regions. Selected indicators – especially commuting to work – rather surprisingly showed that there was no significant increase in commuting to work in the suburbaning municipalities in the 2001-2011 period. The resulting evaluation is shown in the following cartograms.



**Figure 1** Suburbing municipalities, Hradec Králové and Pardubice Regions  
 Source: Own Construction

The selected analysis identified only two suburban municipalities in the Hradec Králové region, which are Býšť and Vysoká nad Labem. Both municipalities met the same three out of four criteria: population, commuting to work and the number of occupied dwellings. Two criteria were met by Bělč nad Orlicí, Borek, Divec, Sendražice, Třesovice, but also the core city of Hradec Králové.

The required number of criteria in the Pardubice region was met by five municipalities: Němčice, Spořil, Srch, Srnojedy and Starý Mateřov. Němčice, Spořil, Srch and Starý Mateřov meet the criteria of population, commuting to work and occupied dwellings. Spořil met all four requirements. Two criteria were met by Černá u Bohdanče, Chrudim, Mikulovice, Staré Hradiště, Staré Jesenčany, Stěblová, Úhřetická Lhota and Veselí.



**Figure 2** Suburbing municipalities, the Svitavy Region

Source: Own Construction

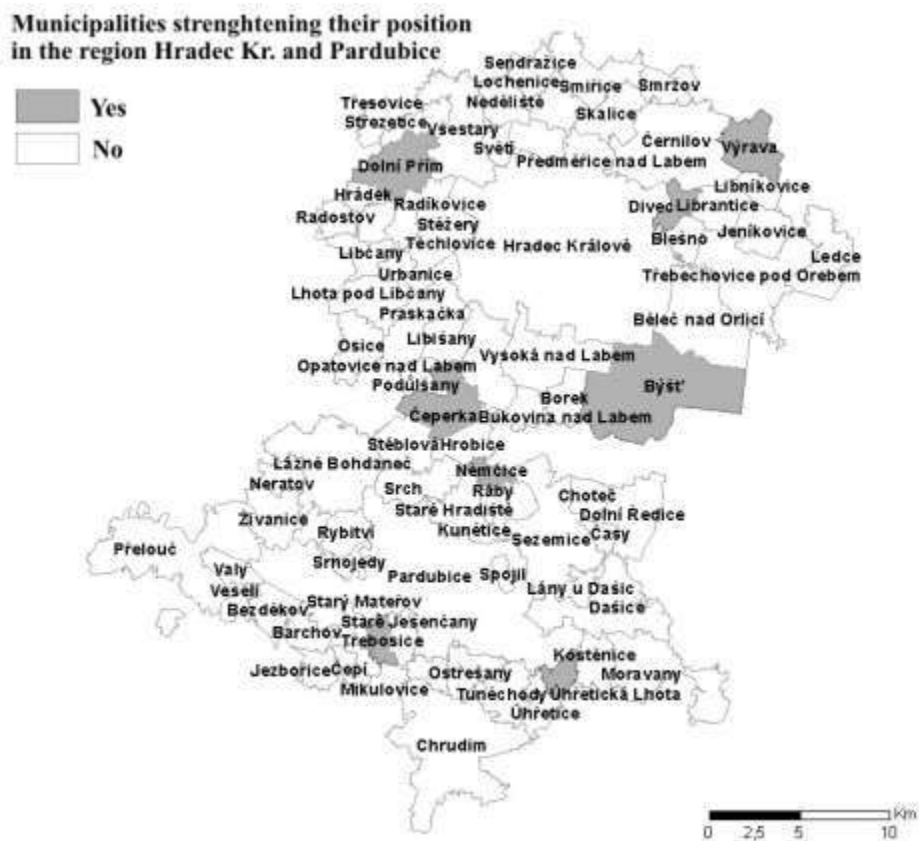
In the Svitavy region, there are only two municipalities that have met at least three of the four criteria. Janov met the criteria of population, commuting to work and occupancy of dwellings. Kukle has fulfilled all the criteria. Other municipalities in the Svitavy outskirts failed to fulfill even two of these four criteria, at least two criteria achieved by the core city of Svitavy, which is apparently losing its power of core city.

**Table 1** Suburbing municipalities

Suburbing municipalities according to the indicator method	Region
Býšť	Hradec Králové region
Janov	Svitavy region
Kukle	Svitavy region
Němčice	Pardubice region
Spojil	Pardubice region
Srch	Pardubice region
Srnojedy	Pardubice region
Starý Mateřov	Pardubice region
Vysoká nad Labem	Hradec Králové region

Source: Own processing based on own data collection

The second group of municipalities is *municipalities strengthening their position* in the region. In such municipalities, the number of economic units is increasing, thereby not only is the offer of jobs increasing, but it can be assumed that the offer of services in the municipality is expanding. These phenomena are related to the reduction in commuting to work. For the municipality to be defined as one strengthening its position in the region, it is necessary to fulfill both these indicators, i.e. both the number of economic units and commutes to work. Most municipalities strengthening their position in the region are in the Hradec Králové region. The Svitavy region has the least such municipalities.



**Figure 3** Municipalities strengthening their position, Hradec Králové and Pardubice Regions, Source: Own Construction  
 Source: Own processing based on own data collection

In the Hradec Králové region there are five municipalities strengthening their position: Býšť (which is also suburban), Čeperka, Divec, Dolní Přím and Vyrava. The percentage commute to work was mostly negative. Only three municipalities are strengthening their position in the Pardubice region, according to established standards. Némčice (which is also suburban), Třebosice and Úhřetická Lhota. The percentage of commutes to work was also mostly negative in the area of Pardubice.



**Figure 4** Municipalities strengthening their position, Svitavy reg.  
 Source: Own Construction

There are only two municipalities strengthening their position in the Svitavy region: Koclířov and Květná. Other municipalities have failed to achieve the specified limits mainly because commuting declined from 2001 to 2011, therefore it has been positive, which is crucial in this assessment.

**Table 2** Municipalities strengthening their position, Source: Own Construction

Municipalities strengthening their position according to the indicator method	Region
Býšť	Hradec Králové region
Čeperka	Hradec Králové region
Divec	Hradec Králové region
Dolní Přím	Hradec Králové region
Koclířov	Svitavy region
Květná	Svitavy region
Němčice	Pardubice region
Třebosice	Pardubice region
Úhřetickálhota	Pardubice region
Výrava	Hradec Králové region

The results of the analysis of these six indicators determined which municipalities are suburbanizing, but also which are strengthening their regional position. This method revealed a very low intensity of ties between the regional centers and outskirts. Only a few municipalities meet the criteria. Above all, the municipalities in the Pardubice region are among the most suburbanizing from selected regions, but in spite of this the ties in this region are very weak. The largest municipalities to strengthen their position are situated in the Hradec Králové region; in the Svitavy region, the number of these municipalities is the lowest.

A special category is formed by municipalities classified among suburbanizing and also among municipalities strengthening their regional position. For inclusion in these groups, the municipalities had to meet the criteria of both groups, and it means that the residents are moving in masses into these areas, but also that a new micro-regional center with new job opportunities and civic amenities is being established, and this center is competing with the existing regional center.

### Conclusion

The analysis showed that suburbanization at the level of regional centers also has an influence on the change of their position in the regional system. Especially in the case of Hradec Králové, there is a reduction in its position in the region and the emergence of new centers at the micro-regional level. These centers will probably increasingly compete with the core city in the future and thus contribute to the suburbanization tendencies in the region. In the case of the Pardubice and Svitavy regions, these tendencies are indeed also evident, but to a much lesser scale than in the aforementioned Hradec Králové. The hypothesis that although suburbanization is happening in the regions, but due to the economic power and concentration of work activities within the core of the regions, the position of the centers in the regional system is being enhanced or at least stagnating, has not been confirmed. But there is still a separate question then becomes, if the cities are able to defend themselves against this development at all, or what resources they use.

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