

The Influence of Economic Development on Dynamic of Commuting in Srem Region, Republic of Serbia

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ABSTRACT This paper reviews the findings of the study carried out in Srem region, to establish whether non-permanent population mobility is a phenomenon of social, economic, and demographic significance for the region itself and a country as a whole. This well-known immigration area in Serbia was inhabited for centuries because of its specific economic and political reasons, and recently became one of the most important regions in the country in terms of commuting process of commuting. Very intensive absorption of commuters is the result of the economic development regarding the new investments in this region. Agrarian settlements became a base for the labor force in recent period. The aim of the paper is to highlight how commuting correlates with economic development.

INTRODUCTION

Different forms of temporal migrations are neither a new phenomenon nor a new form of mobility. In the past, even before the current national borders existed, “many migration moves have been pursuing livelihood strategies by consciously taking advantage of opportunities in time and space in order to meet their needs under scarce resources” (Hugo 1982). Migrants optimize their income, savings, and investment strategies according to employment options and possibilities in the places of origin and destination and therefore improve their economic, social and personal situation taking advantage of each situation in each country (Constant and Zimmermann 2012). With the rapid progress in transport technology, time and travel costs and with easier access to the information in the last decades, the large increase of all types of non-permanent migration occurred. They are contributing in creation of migration markets and therefore can provide employers with a flexible labor force, but also migrants themselves can profit from repeated or circular moves (Hugo 1982; Hugo and Smailes 1985). It is not easy to make distinction between permanent and non-permanent population mobility. The difference

lies in the intentions of individuals and the nature and level of their commitment to particular places, and such phenomena defy attempts to establish temporal criteria. Zelinsky (1971) argued that circulation denotes a great variety of movements, usually short term, repetitive or cyclical in nature, but with lacking any declared intention of a permanent or long lasting change in residence. Temporary work-related migration by individuals are characterized with maintaining close social and economic ties with their place of origin, with returning in regular intervals, and with no intentions of settling permanently in the destination region.

The interdependence of commuting and migration was initially noticed in the 1970s (Yapa et al. 1971; Holmes 1971). Some authors include this relation in their typologies of migration (Gawryszewski 1978; Termote 1980). Reitsma and Vergossen (1987) pointed the causal role of commuting within the decision on migration. Zax and Kain (1991) demonstrate that commuting distance, as an important determinant, can stimulate mobility of workers. Considering the distance there are several opinions that commuting is a substitute to migration in intraregional mobility but is complement to migration in interregional population mobility (Zax 1994; Holmes 1971).

In modern definitions the circular migrations only refer to international migrations. Instead of that the term commuting has the same characteristics but it is used for internal migrations, or more precisely migration between rural and urban areas and vice versa. In support of that is a Constant and Zimmermann (2011) definition of circular migration as the systematic and regular movement of migrants between their homelands and foreign countries typically seeking work. But they argue that if there is free border mobility, the terms commuting or “revolving-door migration” have been used. Empirical studies conducted by Huber and Nowotny (2011) highlighted the interaction between migration and commuting in the cross-border context, considering commuting as an alternative form of cross-border labor migration.

Migration and commuting are two potential forces reducing regional inequalities in economic opportunities, helping to adjust disequilibria in the labor market and spatial separation. The interrelations between them is a function of the degree of spatial, sectoral, professional, and occupational disaggregation (Termote 1980). Commuting or in other words journey to work refers to a worker’s travel from home to work. Place of work refers to the geographic location of the worker’s job. Commuting can be also a step before or after definite migration, pointing to existence of mutual relationship between different types of spatial mobility of population (Lukic 2009). The importance of circulatory movement has been accepted in developed world recently, but in the developing nations importance of commuting has long been recognized with all forms it takes because it has been the road to eliminate poverty (Boyle et al. 1998). In Serbian statistic it is often used as the term of daily migration instead of commuting or circulation. Daily migrations represent a special form of spatial mobility of young or economically active population performing occupation of pupils and students. The flows of daily migrants, besides macro-level factors related to economic and regional development policies are shaped by factors on micro and meso level relevant to individuals and households (Lukic 2013).

Objectives

The relationship between economic development and commuting has been the topic of

numerous theoretical and empirical researches (Evers 1989; William et al. 1994; Renkow and Hoover 2000; Renkow 2003; Skeldon 2006; Vertovec 2007; Partridge et al. 2010; Lukic 2011; Castles and Ozkul 2014; Geddes 2015). Researchers in this field indicate that commuter dynamic is closely related with the vicinity of the capital city, metropolitan areas, regional centers and functionally developed cities. Furthermore, economic development and modernization, progress of service sector and information technology, as well as the growing dominance of international companies, leads to the change of spatial distribution of employment opportunities and more dispersed paths of commuting. Organization of working zones in Srem region after 2000 influenced the changes in the regional and municipal economic policies. Economic development still has been based on agro-industry, but the new industrial zones are becoming the basis for the development of industry and services. Industrial companies which are operating in working zones represent a continuation of the development of former strong industrial plants during the period of Socialistic Federative Republic of Yugoslavia, but nowadays in the private sector. Investment in the economy through Greenfield model is becoming more and more present. The Srem region, in particular the municipalities that gravitate towards the City of Belgrade, like Stara Pazova, Indjija and Pecinci, represent the territory with the largest number of Greenfield investments in the Republic of Serbia. The inherited economy of the former socialist regime, influenced the flow of commuters to the inter-municipal levels, while large Greenfield investments increase the number of commuters from other areas, mainly Belgrade, due to skilled labor that is needed.

Study Area

The scope and directions of commuting are influenced by a number of demographic, socio-economic, geo-transportation and other factors in place of origin and place of work (SORS 2013; Lukic 2013). These links are more important for relatively small regions, and depend on the location of the region within a regional system (Termote 1980). This may be illustrated by some empirical data, in this case for selected administrative region in Serbia. Srem region is located in the south part of Vojvodina province, and in-

cludes seven municipalities with functional centers. According to 2011 Census, in 109 settlements lived 312,278 inhabitants. Due to the natural predisposition of the terrain, the area is agrarian oriented, but the number of inhabitants is increasing in urban settlements, primarily because of economic reasons. In urban areas live 135,635 inhabitants and in rural areas 176,643 inhabitants. According to the 2011 Census, Srem region had 35,573 active population performing the occupations outside the place of permanent residence, of which 17,400 within the same municipality, 4,121 in other municipality in the same region and 13,897 in other region.

A relatively greater fraction of new jobs in metropolitan areas and regional centers are filled by in-commuters, while employment growth in surrounded, medium-sized and small-sized cities is significant for local economic development and appears to have an effect of reductions in out-commuting and population growth of these areas. Considering that Srem region, located between Belgrade, capital of Serbia, and region-

al centers – Novi Sad, and Šabac, is contemporary characterized by rapid economic development due to increase of new, mainly foreign investments, this area shows changes in characteristic of commuting – intensive absorption and resorption of commuters, more dispersed paths of commuting, reduction in out-commuting, increase of in-commuting etc. Municipal centers are functional centers for settlements which gravitate towards them. The settlements are also economically oriented toward capital city of Belgrade and capital of Vojvodina Novi Sad (with distance less than 100 km). Those gravitational centers are the basis for gathering the commuters who fulfill their economic, social and cultural needs outside the place of permanent residence. Also, that is a good starting point for studying daily interactions between the rural and urban areas.

METHODOLOGY

In international statistics, the cross-sectional nature of standard census data sources fails

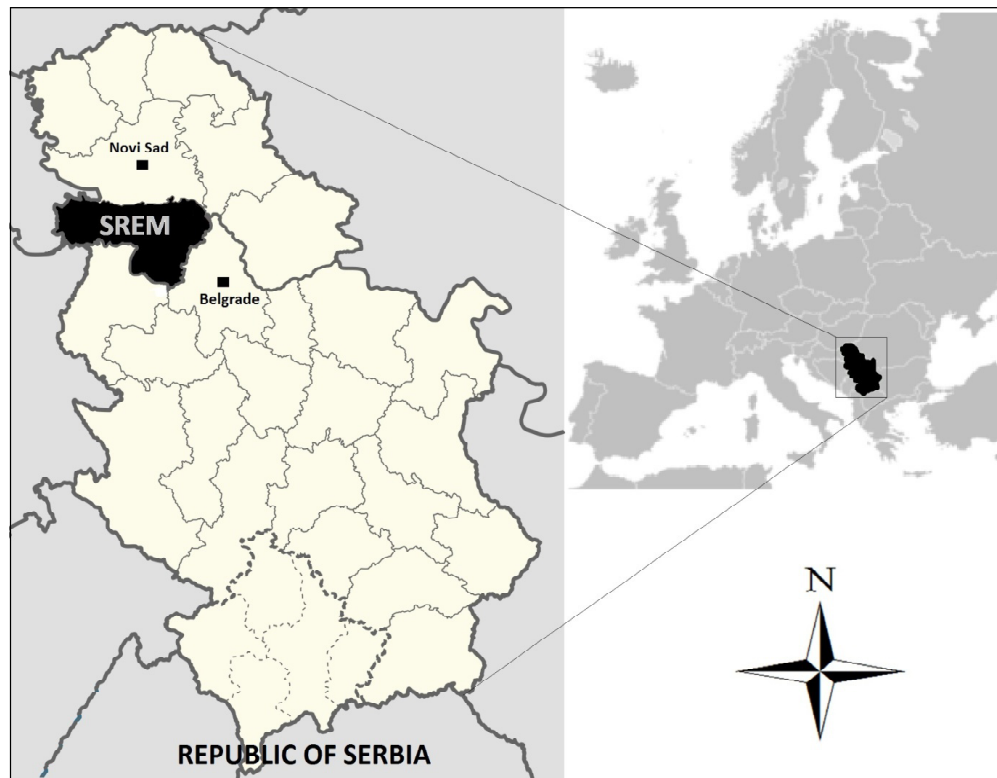


Fig. 1. Study area

to illuminate circulatory patterns. Most data on commuting are collected in censuses and sample surveys. Chapman and Prothero (1985) argued that it is necessary to obtain the sets of data derived from field researches, permanent mobility registers, family genealogies, retrospective movement histories and oral historiography reconstruction of residential transfers. Various patterns of circular migration, rural-to-urban commuting, and return migration exist simultaneously, and the type of migration captured by the census is only a small part of the movement in total. The majority of the studies in Serbia contains analysis related to the various demographic structures of commuters and are based on the additional data set from the Statistical Office of the Republic of Serbia. Also they refer to the area of one or several municipalities (Stamenkovic 1989; Stamenkovic et al. 1995; Stamenkovic 1996; Bubalo-Zivkovic et al. 2009; Matijevic 2009; Lukic 2011).

The 1961 Census was the first in the Serbian history which included questions about commuting. Since then, every census conducted the question about "Place of work", which represents the accurate location at which the person performs an occupation and which is compared with the place of usual residence in order to see more clearly the daily mobility of the population. The inclusion of a non-core topic "Place in which the person attends a school", enabled collecting data on daily migrations of the pupils and students. If the person currently works and goes to school outside the place of his/her residence, the advantage during the data processing was given to the work, so that the daily migrations of those persons are considered only from the perspective of the place of work (SORS 2013). According to the 2011 Census methodology, daily migrants/commuters are those "persons who work or go to school/university outside the place of their usual residence, but whose return is on a daily basis or several times a week" (SORS 2013). Attention in this paper has been focused on population movements to seek or engage in work, which has been done deliberately to establish the direct significance of non-permanent mobility for economic development.

For the purposes of this study, the researchers used data from the 2011 population census, combined with database on economic structures of population obtained from the Serbian Statistical Office. Also they conducted the field re-

search in order to collect the new information about daily mobility of Srem region population, in order to update data six years since the census was conducted. They did also a desk research in order to point out several decades long daily migration studies in Serbia.

In order to examine the daily mobility of workers, the researchers presented a model which allows them to determine the variables that could highlight the settlements with different share of commuters in total number of employed population. As an indicator for that they used the migration coefficient which represents the ratio between the number of commuters and the total number of employed population in certain settlement. Ilic (1970) used this coefficient in order to make systematization and structure of settlements according to the share of commuters in total number of employed persons. Also, Lukic (2011) analyzed daily urban system of a city in Serbia in order to define the functional areas, using the migration coefficient. Based on the migration coefficient, they classify settlements into: migratory inactive (migration coefficient below 10%) and migratory active (migration coefficient more than 10%). Furthermore, depending on the frequency of commuters, migratory active settlements, can be divided into: *migratory poorly active* (10-25% of commuters), *migratory partly active* (25-50% of commuters), and *highly migratory active* (over 50% of commuters). An analysis of the frequency of commuting in Srem region will be demonstrated using the given migration coefficient in order to obtain criteria for the classification of settlements and to determine the gravitational areas of urban centers. The gravitational area is characterized by an array of convergent and divergent influences of the city and their territorial accessibility (Stamenkovic and Bacevic 1992). Analyzing the spatial distribution of commuters, it can be identified for the functional-gravitational connections of the settlements and highlighted those with the ability to attract the highest number of commuters. The definition of functional areas was derived from the analysis of commuters of the Srem area. Using the migration coefficient, and based on the obtained results, the functional typology of the gravitational characteristics of the settlement has been confirmed, which has been present in the Serbian literature for decades.

RESULTS AND DISCUSSION

The situation in the former Yugoslavia republics, and in Serbia as well during the 1990s led to the breakdown of the economy, which was also typical for the Srem region. The initial transition period is marked by bankruptcy of companies and unfavorable privatization. But the large part of the Srem region, in the first place the east part, even in this period had better economic patterns. The process of transformation of economic development poles was very intensive in this part of Serbia. Most important economic centers: Sremska Mitrovica and Ruma, begun to lose their economic primacy. Gigantic factories, which were the backbone of industrial development in socialist period, in 1990s collapsed which led to an increase in unemployment and these cities become economically devastated. The latest development phase, with attractive investments, led to the situation that the economy of this region becomes a stable system. Unlike the mentioned ones, the municipalities of the eastern part of Srem, Indjija, Stara Pazova and Pecinci had a different economic development after the economic collapse. Several gigantic factories remained until today, with good privatization, but the biggest positive effect are within small and medium-sized enterprises. The municipalities of Indjija and Stara Pazova in the former Yugoslavia were well known for the economic expansion because of the large number of small and medium enterprises. Those were the reason for the lower extend of economy decrease and the unemployment rates. Also, the factory workers transferred their work places into private companies and continued the tradition of the industry's development that is present here, such as metalworking, wood, plastics, paper industry, etc. The latest stage of the economic development in the new millenium is characterized by the formation of industrial zones, especially in central settlements in eastern part of the Srem region. In other parts of the region, the agro-industry is growing more and more. The geographical location and proximity of Belgrade were crucial for the expansion of logistics and distributive centers in the eastern part of the Srem region, which in turn entails the development of other branches of industry, while the western part of the region remains without significant investments in this field.

The major factors that influenced commuting process in Srem region are processes of industrialisation, overpopulation in agrarian sector, proximity of two major urban areas in Serbia: Belgrade and Novi Sad, good orientation in relation to the central settlement, permanent migration, good traffic communications, the possibility of different forms of traffic and the optimal time of the worker's journey (Matijevic 2009). The research of gravity zones is of particular importance in order to better understand the commuting pocess and the relationships and connections of the settlements with gravity centers. Curcic (2001) connected the settlements of the Srem area within the gravitational zones of Belgrade, Novi Sad and Šabac, based on the grouping of the settlements towards the meso and micro gravitational zones, as defined by B. Bukurov (1970). Cikić and Stojšin (2017) analyzed daily commuting of female population in Vojvodina. From the standpoint of the examination of commuting, it is necessary to consolidate the gravitational affinity of the settlement towards the central settlement. Examining the factors that contributed to the daily interaction the researchers will use a model for the consideration of primarily economic causes and lead to connections between economic development and increase of commuters.

The latest phase of economic development, after transition of economic system in 2000, is related to new trends in investment in the economy. Former fields of economic development that were represented in municipalities Sremska Mitrovica, Ruma and Šid, continue to develop, but the development axis of Srem region has become characteristic of the formerly largely agrarian-oriented municipalities, Stara Pazova, Indjija and Pecinci. Their geographical position, free agricultural land, good industrial potential and well qualified labor force, influence the changes in the economic trends. So, fast economic growth affected the increase in the total number of commuters in this part of Srem region. The location of the settlements between the two largest cities and markets in the Republic of Serbia (Belgrade and Novi Sad) directly influenced a new perspective of economic development.

Gravitational area of Novi Sad is composed of all settlements that are part of the Irig municipality, making gravitational microregion of Irig. Only one settlement outside this municipality is

a part of this gravitational area, Cortanovci, the settlement in Indjija municipality. In this settlement, out of a total of 344 commuters, 288 persons or eighty-four percent worked in Novi Sad, and this confirms the existence of the newly established mesogravitational area on the territory of municipality of Indjija. *Gravitational area of Belgrade* includes the territory of the municipalities of Indjija, Stara Pazova and Pecinci. Municipalities of Indjija and Stara Pazova consist of all settlements in their municipalities (excluding Cortanovci in municipality of Indjija as the researchers already mentioned). The commuters are directed towards the central settlement of these municipalities, but also towards Belgrade, as a capital city and big market. Microgravitational area of Stara Pazova is characterised by the fact that sixty-one percent of commuters work in Belgrade municipality. The settlements with the highest number of commuters are Stari Banovci 1,249, Stara Pazova 1,774, Novi Banovci 2,239 and Nova Pazova 3,319. Actually, the highest number of commuters in the whole Srem region is from Nova Pazova. Settlement is located very close to the Belgrade municipalities and residents meet their economic, educational, cultural and health needs both in Belgrade and in the municipal center. Functional center of municipality, Stara Pazova according to 2011 Census had 1,774 commuters, from which 808 commuters or 45.5 percent were oriented towards Belgrade. All settlements of the lower Srem region are part of the Belgrade gravitational area, but its influence is very heterogeneous, and this is considered as the most heterogeneous zone in the Srem region.

Gravitational area of Šabac is the smallest in the whole region and is consists of the nearest settlements to the city of Šabac together with several settlements of the municipality of Ruma. *Gravitational area of Sremska Mitrovica* extends towards the central and western part of the Srem region and is consists of three microgravitational areas of Sremska Mitrovica, Ruma and Šid municipality. The settlement with the highest number of commuters in observed gravitational area is Lacarak, in municipality of Sremska Mitrovica, with 2,042 commuters in 2011 which is 1/5 of total settlement population, that can be explained by the location of this settlement next to the city of Sremska Mitrovica. Other settlements in this municipality had up to 500 commuters, with the exception of the city of Srem-

ska Mitrovica with 1,504 commuters out of a total of 25,877 economically active population. Microgravitational area of Ruma consists of settlements in its northern part. City of Ruma as a functional center had 1,708 commuters, of which forty-one percent worked in another area. Microgravitational area of Šid is located in the western part of the Srem region, next to the border to Croatia. Because of that represents an exception in relation to the rest of the region. The eccentricity of the geographical position caused the existence of a smaller number of settlements that gravitate towards this municipality (Curcic 2001). But all settlements that are part of it, the 18 of them, gravitate towards the central settlement, city of Šid. There was 622 commuters in 2011, but only 6 of them worked in other municipality.

Based on the migration coefficient, the researchers classify settlements into: migratory inactive and migratory active. The high frequency of commuting in the Srem region caused only two settlements as migratory inactive. Those are Stara Bingula in municipality of Šid at the Northwest with only 5.6 percent of commuters in total number of employed population and Dobrodol in municipality of Irig at the East with 9.5 percent of the commuters in total number of employed population. These are typically agrarian settlements, in which the population is oriented to work on their own properties.

Migratory active settlements, depending on the frequency of commuters, may be:

- **migratory poorly active settlements** (from 10 to 25% of commuters) are the functional centers of the western part of the Srem area, Sremska Mitrovica with 12.4 percent of commuters, Šid with 13.1 percent, and Ruma with 17.4 percent of commuters. These three municipal centers are characterized by the small migration coefficient, that is, the small share of commuters in the total number of employed population, as they gather labor from the surrounding settlements which gravitate towards them. The distance from the most important markets of the Srem area, Belgrade and Novi Sad, also influenced the formation of stronger gravity centers in this part of Srem region.

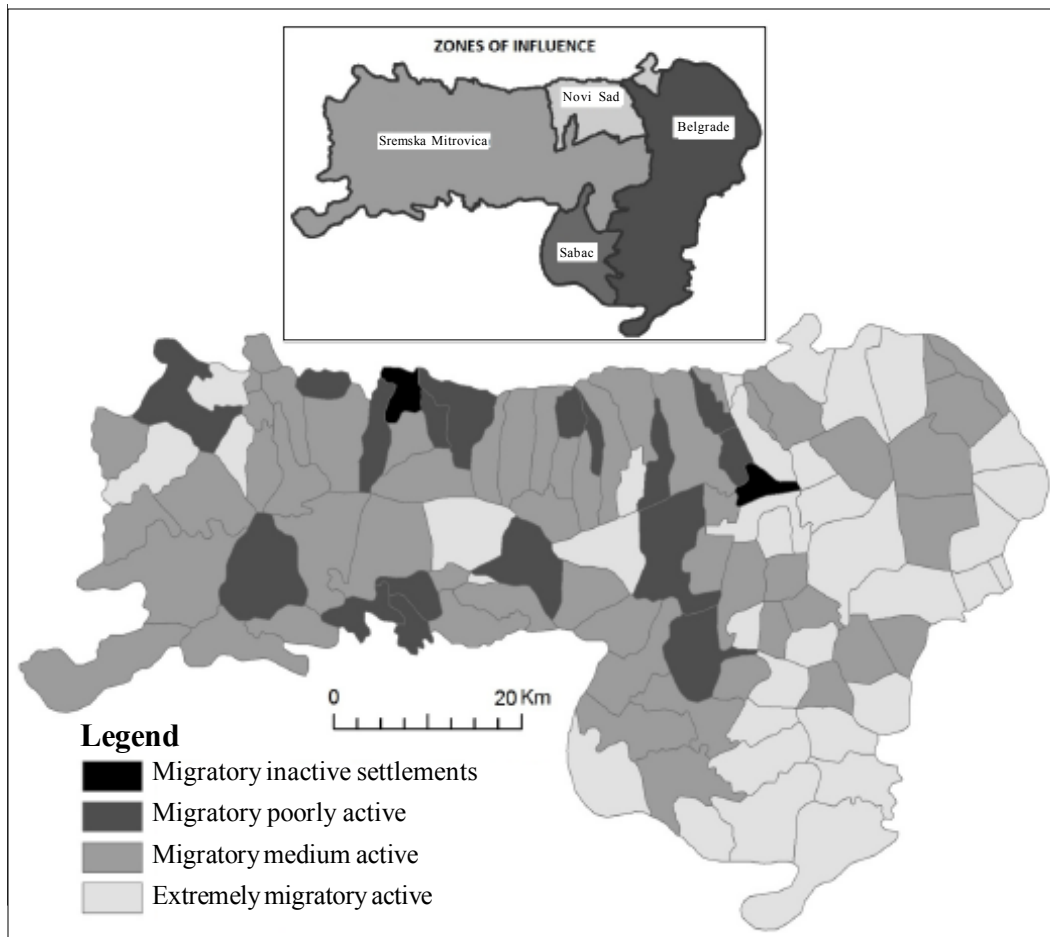
- **migratory partly active settlements** (from 25 to 50% of commuters) represent the majority of the settlements of the Srem region, with municipal centers: Stara Pazova and Pecinci with twenty-nine percent of commuters in both, Irig with twenty-eight percent and Indjija with twenty-

ty-five percent of commuters. The proximity of the capital city was influenced by the formation of the Belgrade gravitational center which was the only gravitational area that had an increase in number of commuters from 2002 Census (17,320 commuters) to 2011 Census (19,935 commuters), with 10,650 commuters or 53.4 percent of them commuting outside the area of Srem. Municipality of Indjija is characterized with the highest number of commuters toward the other areas. According to Census 2011 some 1.173 commuters or 55.7 percent of their total number went to another area looking for a job. But recently, as a result of new investments in Indjija municipality, the trend of reducing the total number of commuters has been noticed. The firms like Grundfos, Metal Cinkara, IGB Lokomotive, Mk Group, Thyssenkrupp, Henkel and others opened their offices offering new jobs for the local population. But the number of them traveling to another municipalities remain almost the same and is consistent with the selection of a job that matches their qualifications. In the municipality of Stara Pazova is recorded the highest number of commuters who work in other municipalities 6,579 commuters or fifty-nine percent. These figures are not in the line with big investments in this municipality and with the opening of the representative offices of Husqvarna, DHL, Muhlbauer, Alumil, Greiner I JPPacking, Nestle, Streit Group, Hemofarm, Grubin. Also, there are large investments in tertiary sector, so in the last few years the trend of opening logistics centers has been noticeable. The most important logistic and distributive centers and Delhaize, Lidl, Eye Maxx and Delta DMD. These investments are very significant for the municipality and the area, but they can't attract a large number of workers, such as investments in industry sector. Logistic centers gather an incomparably smaller number of workers in comparison to industrial plants, and the tendency of the local development policy is to work on the representation of the manufacturing industry, which has a long tradition in this region. Pecinci municipality, whose commuters are highly oriented towards Belgrade, are experiencing the new phase of economic development, based on the realization of 40 greenfield investments: in Mashine Industry Klemann Lifts, Bosch, Gorenje, food industry Forneti, Don caffe and chemical industry JUB colors. Also, there is an increasing number of logistic and distribution centers: ITM, Lagermax, Naturacoop, Loz, Termomont. Settlements of the municipality of Irig gravitate to-

wards the central place and towards Novi Sad. The main characteristics of the most of those settlements are that they are agricultural oriented using a favourable geographic location for vine production (Kovacevic winery), agroindustry (Frigo Srem) and highest production of apples in Serbia (Rudnap Agrar). Recently, the municipality has been focused on the investments in the ecological industry and organic production.

- **highly migratory active** settlements (over 50% of commuters) are mainly positioned next to the functional centers, with the highest share of commuters in the total number of employed population. Accordingly, no functional center of the Srem region has been identified in the category of migratory most active settlements. Other settlements have the characteristics of satellite settlements of gravity centers which are positioned along the border with the Belgrade agglomeration. In contrast, in the municipality of Stara Pazova (7 out of 9 settlements) and Pećinci (10 out of 15 settlements), most settlements belong to the category of highly migratory settlements. The smallest number of extremely migratory active settlements is in the municipality of Sremska Mitrovica, 2 out of 26, with the exception of satellite settlement Lacarak with migration coefficient of sixty-four percent, which is the highest in Srem region. The largest number of commuters in relation to the total number of active population is in the suburban settlement Nova Pazova. This is also a settlement with the largest number of commuters in the Srem area. The economic active area in this settlement is along the M-22 highway which connects Belgrade and Novi Sad, represents the most powerful working area of the municipality and gathers more and more investors and a large number of workers, which affects the decrease in the number of commuters. Based on the obtained values of the migration coefficient, the eastern part of the Srem region, which gravitates towards Belgrade, is classified into the most active migratory part of the region. The characteristic of the Srem region is that there are no municipal centers in the category of highly migratory active settlements, which confirms the fact that these settlements are functional centers that gather other settlements around them, and represent larger immigration than emigration areas of commuters.

The orientation of commuters to the certain functional centers is a good indicator for the existence of the gravitational areas in Srem re-



gion. The settlements of its eastern part are characterized by the highest mobility of the labor force, because of the proximity of the city of Belgrade and favorable socio-economic structure, as well as good geographic position along the main roads and corridors. Greenfield investments linked to the manufacturing industry affect the reduction of unemployment and the increase of commuters, while investments based on the service sector do not gather a large number of workers. It is important to emphasize that by opening log centers, a significant area of fertile agricultural land is usurped.

CONCLUSION

Srem region represents in economic terms, the development axis of this part of Republic of

Serbia. Physical and geographical characteristics of the terrains influenced the formation of a strong agro-industry, while the favorable infrastructure connection and proximity of the two most important markets, Belgrade and Novi Sad, influenced the existence of a strong industrial base. These are the reasons why this research is conducted in Srem region to determine the impact of economy and investment, both domestic and foreign, on the scale and frequency of commuters, resulting in the formation of gravitational zones. The absence of nearby employment centers in some municipalities of this region means the spatial adjustment of the working population is accomplished mainly via migration, while in regions close to those economic centers the population is able to adjust to local economic conditions by commuting. The

demographic and socio-economic consequences, and correspondingly the impact on urbanization, are obvious. The statistical monitoring of the changes in the commuting trends of a certain area is significant for a number of sciences, as well as for the local and regional planning and implementation of spatial development programs. Nevertheless, we have seen not only that commuting has become of immense significance in this region of Serbia but that a proliferation of non-permanent mobility strategies has made possible a greater physical separation of dwelling and workplace than is possible with conventional commuting. European-type commuting generally represents an alternative to migration, permitting a concentration of production points along with a certain dispersion of the population, which produces a different urban spatial structure.

RECOMMENDATIONS

This study has applicative role in spatial planning and future development strategies. Also, further investigation is required into the relationships between non-permanent mobility and social and economic patterns, social inequalities, and development. There is also a need for further research in this area and developing theoretical framework in order to make studies of non-permanent migrations more satisfactory and useful. More research should also be directed toward identifying and clarifying the policy implications of this form of mobility.

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