

Deindustrialization and Structural Changes in Commuting Flows in Serbia

Radmila Miletić¹, Vesna Lukić², Dragana Miljanović³

¹ Geographical Institute “Jovan Cvijić” SASA, Đure Jakšića 9, Belgrade, Serbia, e-mail: r.miletic@gi.sanu.ac.rs

² Institute of Social Sciences – Center for Demographic Studies, Kraljice Natalije 45, Belgrade, Serbia, e-mail: vlukic@idn.org.rs

³ Geographical Institute “Jovan Cvijić” SASA, Đure Jakšića 9, Belgrade, Serbia, e-mail: d.miljanovic@gi.sanu.ac.rs

Received on <November 17, 2010>, revised on <February 28, 2011>, accepted on <May 19, 2011>

Abstract

The aim of the paper is to point to the mutual linkage between the changes in the extent and directions of the commuting flows and contemporary changes in the economic structure of Serbia. Even though the increase in the number of commuters in total and commuters employed in the industrial sector has been evident on the national level, on the local level the research results indicate a considerable decrease in the number of industrial commuters in the case of large industrial centres (‘transition losers’). Unprepared for rapid transformation, the industrial centres faced economic (mono-functional economic structure, collapse of large systems, undeveloped entrepreneurship, slow privatisation process), structural (high unemployment), social and demographic problems. Consequently, there have been changes in the intensity and structure of the migration flows.

Keywords: *commuters, industrial labour, deindustrialization, transition, Serbia*

Rezumat. Dezindustrializarea și schimbările structurale ale fluxurilor de navetiști din Serbia

Scopul studiului este acela de a evidenția legătura dintre dimensiunea și direcțiile fluxurilor de navetiști și schimbările actuale din structura economică a Serbiei. Chiar dacă creșterea numărului de navetiști per total, precum și a navetiștilor angajați în sectorul industrial a fost evidentă la nivel național, la nivel local, rezultatele cercetărilor au indicat o scădere considerabilă a navetiștilor din domeniul industrial în cazul marilor centre industriale („victimele tranziției”). Nefiind pregătite pentru transformări rapide, centrele industriale se confruntă cu probleme economice (structură economică mono-funcțională, colapsul marilor sisteme, anteprenariat nedevelopat, proces de privatizare lent), structurale (rată mare a șomajului), sociale și demografice. În consecință, s-au produs schimbări în intensitatea și structura fluxurilor migratorii.

Cuvinte cheie: *navetiști, forță de muncă industrială, deindustrializare, tranziție, Serbia*

INTRODUCTION

Throughout the last decade of the last century, deindustrialization became the recognisable feature of the socio-economic development of the post-socialist countries. Countries of Central and Eastern Europe (CEE) found themselves in a specific situation since parallel with the challenges of transition (transition from the centrally planned economic system to the market economy based on private property) they faced the challenges of globalisation. The transformation from one economic system into another caused dramatic structural changes in the economic, social, political, institutional, ecological, as well as spatial development in these countries (Bachtler et al., 2000; Enyedi, 1998; Mickiewicz and Zalewska, 2001; Turnock, 2001, etc.). Although each country in transition has been characterised by specific transformation processes caused by different initial

conditions and applied adaptation and restructuring policies, similar flows are also evident (see for example Traistaru et al., 2003). Considering the dominant position of industry in the economic structure throughout the centrally planned system, the main point of the reforms is aimed at restructuring this sector.

In Serbia the transformation of the socio-economic system was followed by a series of specifics resulting from historical heritage (public property, self-management, partially developed market experience, etc.), circumstances in which they started, as well as the way and pace of execution of the reformation process. Deindustrialization began in the last decade of the 20th century (it was initiated by non-economic factors above all), and fully expressed after 2000. From 2001, the transition of the labour market developed in two main directions in Serbia: the first direction was the reduction in the total employment

along with low employment of the population and the second one was the maintenance of high unemployment (Matković et al., 2010). Changes in the extent and dominant directions of industrial commuting flows are studied in the context of the current economic transition processes, deindustrialization and tertiary sector employment growth in Serbia.

Certain incompatibility with statistical and temporal range of phenomena and processes is considered to be emphasized. Commuters are examined by residence (total and structure) according to the 1981, 1991 and 2002 population census data (The Statistical Office of the Republic of Serbia). Data on employment according to place of work are taken from the relevant publications of the Statistical Office of the Republic of Serbia for the period from 1981 to 2008. Taking the above mentioned limitations into consideration, the connection between deindustrialization and changes in commuting flows was determined.

About Deindustrialization and Commuters

Deindustrialization began in the developed countries in the second half of the last century and represented a long-term process of economic, social and spatial changes associated with the reduction in production activities. It is considered as an evolution phase of industrial development, caused by both external factors (globalisation, increasing competitiveness on the international market, increase in the extent of the international trade, etc.) and internal ones (application of innovations in the production process, increase in industrial labour productivity, change of demand model for properties and services, etc.)

From the economic-geographical viewpoint, Vrišer (2001) points out two aspects of deindustrialization. The first aspect refers to socio-economic changes in which the significance of the prevailing secondary activities has been reduced to the benefit of the tertiary and quaternary activities in the economic structure. Mass use of computers and other technological innovations as new production paradigm caused reduced employment in industry and change of its qualification structure. The second aspect is associated with the moving of industrial production from old industrial areas and towns into less developed ones. Relocation of industry was influenced by numerous constraints on its development in agglomerations (spatial, transport and ecological), disabling the introducing of modern production processes and new organisational forms in the functioning of this activity.

Drastic decrease in GDP, particularly in industrial production and employment, was mutual characteristic of countries in transition, which implicated the increasing unemployment in the first half of the 1990s¹. Researchers of different profile called industrial towns and regions 'losers' of transition because they have lost the good positions they had in the socialist economy (Gorzalak, 1998; Fassmann, 2000; Lux, 2008; Muller et al., 2005; Redei, 2010 etc.). These are industrial towns and regions being in different phases of industrialization characterised by specialised production, devastated locations, lowly qualified labour force and numerous ecological problems (technical-technological backwardness, low energy efficiency, problems with waste water management, etc.). Many enterprises were not prepared for this rapid transformation, which resulted in production stoppage, closing down of factories, sudden increase in unemployment and social tensions, together with many ecological problems (e.g. Upper Silesia in Poland and Czech Republic, Bistrica, Zilina in Slovakia, etc.). Even though drastic decrease in industry was evident, particularly during the first years of transition (especially in labour-intensive industrial branches e.g. food, textile, etc.), some industrial branches managed to survive the transformation and became new, main generators and driving forces of development throughout the second half of the 1990s. The overall industrial production of Central and Eastern Europe was raised to a higher level by market reforms, investment inflow (especially direct foreign investments), structural changes in production, raising competitiveness and increase in export. Relocation of industrial capacities from highly developed Western European economies to the post-socialist countries was a significant factor in that process (location and geographical factors were deciding ones in selecting a country, as well as workers' skills, relatively cheap labour force, high labour productivity in industry as their comparative advantage, etc.). Except the SEE countries, the dynamic development of the industrial sector – particularly electronics industry and production of precision devices in all countries, manufacture of office equipment (Hungary), as well as

¹ Sudden increase of unemployment becomes mass phenomenon. During a single year (1990-1991), the rate of unemployment increased suddenly and ranged from 1.6% to 11.85 in Slovakia, from 0.8% to 4.1% in Czech Republic, from 1.9% to 8.5% in Hungary, while in Poland the rate of unemployment was very high at the very beginning, it increased from 6.3% to 11.5% (Fassmann, 2000).

manufacturing of motor vehicles (in all countries except Estonia) – was the key factor in the increase in GDP in European transitional countries from the middle of the 1990s, (Jakopin and Bajec, 2009)².

While studying industrial commuters in Serbia, we proceeded from the fact that the probability of participating in commuting, as well as the spatial and temporal variations of the commuting distance have been influenced by the socio-economic characteristics of commuters, hence the extent and structure of commuting flows from some area are liable to changes in the conditions of the development of commuting. The impact of activity sectors, professions and commuters' earnings on the commuting distance is reflected in three ways:

- commuters who work in specialised types of professions travel longer distances;
- commuters employed in industries concentrated in relatively small number of locations travel farther in contrast to school and health workers;
- commuters employed in types of professions providing relatively high incomes commute farther (Cristaldi, 2005; Green et al., 1999).

Commuting flows are also influenced by the economic specialisation of the area. The population of agricultural regions is the least probable to participate in commuting. In more urbanised and economically developed areas, the phenomenon of commuting is more expressed due to demand for various jobs in relation to labour force. In Belgrade employees working in the service sector dominate the convergent commuting flows (73.2%). In Spain for instance, the region of Barcelona attracts large number of workers to its service sector, while industrial workers prevail in the divergent commuting flows, whereas in Italy commuting is the most extended in the central industrial region with homogeneous urban network and long tradition of light industry (Artis et al., 2000; Cristaldi, 2005).

The extent, directions and structure of commuting flows are also influenced by (de)concentration of certain activities which are in accordance with specific location demands. Public

administrative services and the financial sector are most often concentrated in cities, i.e. commuters employed in the service sector generally travel shorter distances than others, which is in connection with the distribution of activities of this sector (Lee and Donald, 2003). The type of industry and location of industrial plants in relation to housing can also influence the extent and directions of commuting particularly if the industrial branches have negative environmental impacts.

In Serbia, as in most countries, the economic motives are the most frequent reasons for the participating in daily and other forms of migration. The impact of the economic factors upon commuting can be either positive (possibility of receiving higher income, better conditions for gaining employment according to qualification, possibilities for specialisations, etc.) or negative (impossibility of gaining employment or loss of job in the settlement of residence, high prices of real estate in the settlement of work, etc.). These factors are in direct connection with the local and regional economic conditions/conditions in the labour market, economic diversification, increase or decrease in demand for certain professions, and the income level. From the perspective of an employer, the change of the place of work has often been perceived as a useful means of professional development of the staff and satisfying the needs for organisation of work in the firm. From the perspective of an individual/ employee, the change of the place of work offers the possibility for progress by using conveniences which are not available elsewhere (Green et al., 1999). Unemployment has been one of the most significant economic factors having a negative impact upon commuting. The higher the rate of unemployment in the settlement of residence causes the larger the competition is on the local labour market, which can result in the increase of commuting. Using the rate of unemployment as indicator for possible employment in some region confirmed that the probability of commuting increases by 4% if the unemployment rate increases by 1% (Artis et al., 2000).

Various literature leads to a conclusion that industry is the sector of activity with the largest extent of commuting (especially light industry), and this is followed by energetics, construction and services. The highest probability of commuting is recorded at employees in chemical, metal and machine-tool industry because these branches of industry can hardly satisfy their needs for workers from the local labour markets (Eliasson et al., 2003), which has also been confirmed in Serbia.

² As authors mentioned, all economies in transition faced with the problem of the surplus of employees in industry. Several years later, after the privatisation and restructuring of enterprises, states succeeded to stabilize the industrial sector, and even the number of industrial workers started to increase. For example, in 2004 the Czech Republic (1.5 million), Poland (3.3 million), Bulgaria (750 000) and Slovakia (577 000) constantly registered an increase in industrial employment, while Hungary (950 000), Slovenia (250 000) and Romania (2.3 million) had a constantly high rate of industrial employment with small fluctuations.

STRUCTURAL CHANGES IN THE SERBIAN ECONOMY AND REGIONAL DIMENSION OF DEINDUSTRIALIZATION

The beginning of reforms in Serbia at the end of the 1980s was interrupted by political and economic disintegration of the former state of the SFR of Yugoslavia during the 1990s, while the war, economic and political sanctions imposed against Serbia were followed by economic fall which deepened the overall crisis. Due to the collapse of the production sector the economic structure underwent some changes. The shares of industry and construction in the economy decreased and the share of agriculture increased, as well as that of the traditional services and the energy/power production, whereas the decline in the formal sector was partially compensated by grey economy (Mijatović, 2000). The unfavourable economic situation before 2000 was marked by low utilisation of capacities (only 30%), high losses, low technological level of production, problem of fictitious employment, high unemployment, lack of financial resources, etc. After changes in 2000, Serbia went through a period of intensive political, economic, social and ecological reforms, by which a new epoch of development began, but the economic backwardness generated in the 1990s has still not been overcome.

In the gross value added (GVA) structure, the disproportion between the service sector and production is more emphasized, therefore the share of industry with construction decreased from 28.6% to 24% while services recorded an increase from 55.7% to 64.2% in the period from 2001 to 2008. In spite of the above-mentioned dynamic growth, Serbian GDP per capita (4.500 euros) reached only

80% of its 1990 level, while it was at the rear in the rank of European countries by developmental characteristics (purchasing power was only 34% of the EU-27 average, the level of industrial production reached only 50% of the production and the level of investments was 45% of its 1990 level). High unemployment rate and low competitiveness (both that of the sectors and the total) were two major problems in the social-economic development of Serbia after the first phase of the reforms – Serbia was at the 85th place out of 134 countries in 2008 (The Report on the Development of Serbia in 2008).

In 2008, the number of employees in Serbia (without data for Kosovo and Metohija) was about 2 million (20% less than in 1990), while the number of unemployed was 730,000 (15% more than in 1990). Although it was decreasing, unemployment was still relatively high. According to the Labour force survey of 2008 the rate of employment of working age population was 53.7% and the rate of unemployment was 14.4%.

A very impressive manifestation of the reform processes is the change in the activity structure of employees, which was visible through the continuing growth of the tertiary sector (from 46.1% in 1990 to 59.9% in 2008) on account of reduction of the secondary one both in absolute and relative amount (from 48.7% to 36.6%). The industrial sector carried the burden of unfavourable economic conditions of the 1990s and structural changes throughout the transition (especially the light industry) by losing more than a half of the employees (Table 1), reducing the share in the structure of employees from 40% to 22% (i.e. to 30% of the total employees in enterprises).

Table 1. Employees and unemployed in Serbia, 1981-2008

	1981	1990	2001	2008
Total	2,263,078	2,543,558	1,904,477	1,999,476
Employees in enterprises and other organizations	2,224,800	2,481,509	1,555,035	1,428,457
Industry (total)	838,559	1,011,500	655,193	439,457
Unemployed	419,000	633,856	780,541	727,621

Source: Municipalities of Serbia 1982, 1991, 2002, 2009, Statistical Office of the Republic of Serbia.

Note: Data for 2001 and 2008 are without Kosovo and Metohija

During the reform processes, two major dimensions of reduction in industrial employment are in the foreground: sectoral and spatial (Jakopin and Bajec, 2009). Decrease of all industrial parameters is particularly conspicuous in traditional branches (textile, non-metal production, part of metal complex, etc.) and in the segment of ore and stone extraction, as well as in large industrial systems. New processes in the industrial

development initiated the transformation of the spatial structure of industry, extreme increase of unemployment and deepening of social differences (Grčić and Ratkaj, 2006). Similar to flows in other transitional countries, towns/regions are differentiated as ‘winners’ and ‘losers’ of transition in Serbia as well.

Regional dimension of industrial devastation can be noticed through the following: change of the

hierarchical structure of industrial centres and moving to lower size categories³; still dynamic development of the metropolitan area of Belgrade; slower decrease in industrial employment in the centres situated on the axes of more intensive development and the phenomenon of industrially devastated areas with very complex developmental and ecological problems. Special emphasis will be put on the new category of undeveloped areas - towns having strong industrial base, which were the driving force of the socio-economic development in national/regional context for many years, but could not have a showdown with developmental challenges. These are the municipalities of 'transitional poverty', 'devastated areas'⁴ or 'towns of unemployed' (Jakopin and Devetaković, 2009), characterised by economic (mono-functional economic structure, collapse of large systems, undeveloped entrepreneurship, slow privatisation), social (high unemployment), demographic (depopulation) and ecological problems (Miletić et al., 2009).

Expansion of devastated areas and more significant disproportions in the level of development are the consequences of both the slow processes of restructuring and the inefficient and unsuccessful stimulating measures for different territorial levels (national, regional and local). In 2007 the devastated areas increased by ten new towns/municipalities – Vrbas, Sremska Mitrovica, Požarevac, Gornji Milanovac, Ivanjica, Novi Pazar, Trstenik, Prokuplje, Vranje, Zaječar (these constitute 18% of the territory of the Republic Serbia, 20% of its total population and 20% of its industrial employees) besides the nine towns/municipalities from previous years (Bor,

Majdanpek, Kragujevac, Priboj, Prijepolje, Kraljevo, Loznica, Leskovac, Knjaževac).

Attention is going to be paid to four industrial centres: Kragujevac, Leskovac, Bor and Loznica. These industrial centres – which differ from each other in industrial labour force and in the extent of commuting flows – lost more than half of their industrial employees during the previous two decades, which caused significant decrease in the number of commuters. They are characterised by the following:

- mono-structural economy dominated by one or two industrial complexes with complementary activities, recognisable in broader national and regional context: metal complex (production of transport means) in Kragujevac, textile and chemical (pharmaceutical) industry in Leskovac; mining and non-ferrous metallurgy in Bor and chemical industry (production of artificial silk and viscous products) in Loznica;
- different position in hierarchical structure of industrial centres which survived even after the aforementioned moving into lower size categories: having lost 67% of the employees, Kragujevac moved from the category of large into medium-sized industrial centre (10-20.000 employees); having lost 70% of its employees, Leskovac moved into the next, lower category (5-10 000 employees), as well as Bor (lost 56% of employees), while Loznica moved to the category of small industrial centres (less than 5.000 employees) due to a decrease by 74% in its industrial workers;
- different position, place and role in the regional structure of Serbia: Kragujevac is the fourth largest city, centre of development of the Šumadija region in Central Serbia (near Pan-European corridor X, a belt of intensive development in Serbia); Leskovac is the seventh largest city, centre of development in the traditionally undeveloped area of South Serbia (along corridor X); Bor is a centre in Eastern Serbia in an area with long-standing problems, mostly demographic ones (depopulation, emigration, significant population ageing) and it is far off the belt of intensive development, and Loznica, a centre in the border region of Western Serbia, is also far off a belt of more intensive development.

Besides the above mentioned developmental characteristics during the last two decades, the following tendencies can also be noticed (Fig. 1):

³ The number of industrial centres with more than 1,000 employees decreased from 62 in 1990 to only 28 centres in 2007 (Jakopin and Bajec, 2009). Zeković (2009) strongly emphasized the decrease in the number of both large industrial centres (more than 20,000 employees) from 9 to only 2 and medium-sized industrial centres (10-20,000 employees) from 17 to 4.

⁴ As the instrument for the status regulation of this group of municipalities the Government of the Republic of Serbia adopted the Regulation on the criteria and indicators for determination of devastated areas (Official Gazette of the Republic of Serbia, 58/2004) and Resolution on determination of devastated areas (Official Gazette of the Republic of Serbia, 63/2004). The aforementioned documents determine the mechanisms and criteria for giving stimulating resources to municipalities which lost more than two-thirds of the national income throughout the 1990s.

- drastic decrease in employment in industry (67% in Kragujevac, 74% in Loznica);
- decrease in the total number of employees (relatively 35% in Kragujevac, 45% in Bor)

and change of the relation between the production sector (industry and construction) and the service sector to the benefit of services both in absolute and relative sense;

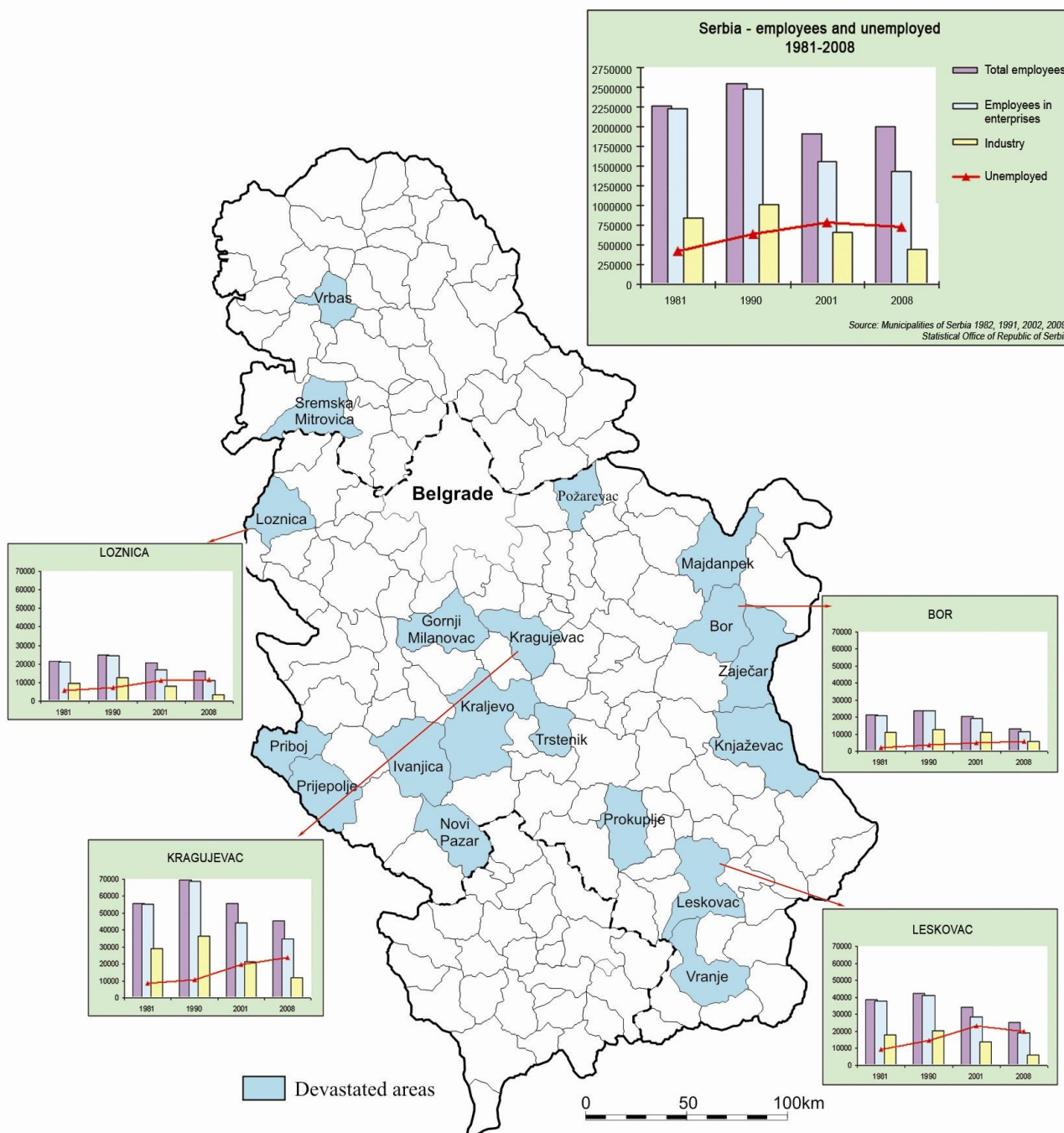


Fig. 1. The devastated areas in Serbia

- increase in the number of the unemployed (e.g. the number of people who do not find employment more than doubled in Kragujevac);
- continuing increase in the number of entrepreneurs – people who undertake and manage an enterprise solely – which is reflected in the increase of their share in the

structure of total employment; which was rather insignificant in 1990, increased gradually during the 1990s, became more significant after the intensification of transition and achieved the level of 13.5% of the total employment in Bor and 29.6% in Loznica in 2008.

In recent years steps have been taken to overcome the destruction of the production sector in Serbia and to intensify economic development on the national, regional and local levels. In the case of the above mentioned towns institutions have been founded for advancement of development: regional development agencies (in Kragujevac and Leskovac) and offices for local economic development (in Bor and Loznica), as well as business incubators formed to stimulate the development of SMEs (in Bor and Kragujevac); strategies for sustainable development of local autonomies have been developed (Kragujevac, Leskovac, Loznica) and spatial-planning documents along with many other activities have been formulated (creation of favourable milieu in the development of SMEs and for attracting investments, education of labour force and entrepreneurs, advancement of competitiveness of enterprises and businesses, promotion of comparative advantages, etc.).

The application of measures and instruments in the revitalisation of industrial activity has resulted in the following:

- introduction of automobile industry in Kragujevac through strategic partnership with FIAT; this complex has become the primary factor of development, stakeholder of reindustrialization of this centre, its area of influence and Serbia as a whole;
- restructuring of pharmaceutical industry in Leskovac (*Actavis* – Icelandic company) and expected recovery of textile industry by the arrival of strategic partners from Germany;
- engagement of the Government of the Republic of Serbia and Canadian investors in the mining and non-ferrous metallurgy recovering in Copper Mining and Smelting Complex Bor through the modernization of equipment for extracting ores and construction of new forge and sulphuric acid factory;
- more intensive development of SMEs in textile industry, food industry and processing of lumber, etc. in Loznica after the production stoppage in the once significant complex of chemical industry.

In the examined cities, as well as in most of the towns in Serbia, one of the effects of transition reforms has been the increase in the number of entrepreneurs.

STRUCTURAL CHANGE IN COMMUTING FLOWS IN SERBIA

In relation to the previous census years, in the published results of the 2002 population census of

Serbia divergent commuters were additionally tabulated by activity they carry out. However, census data were given according to sectors from the classification of activity on the highest aggregation level, and therefore for the needs of the present research an additional statistical data processing was carried out on both convergent and divergent commuters employed in industry.

The causes of commuting in Serbia are mainly associated with the concentration of functions in larger urban settlements, which means that workers are often forced to find a job in a settlement having larger functional capacity. Larger extent of commuting has been caused by the inability of the economy to provide complete employment for the local population due to the inexistence or insufficient use of the local potentials. Differences in economic development, incomes, and standard of living as well as disproportions between offer and demand of labour force of certain qualifications influence the relation between the place of work and place of residence in Serbia. High prices of real estates and relatively affordable prices of public transport influence the option of daily in contrast to residential migration as a form of the spatial mobility of the population.

Employees of the secondary sector have participated most in commuting in Serbia since the 1960s. Of the total number of employees working out of residence, 9.8% of employees worked in the primary sector, 54% in the secondary, 23.5% in the tertiary and 10.8% in the quaternary sector in 1961. Employees in industry, mining and construction participated most in commuting (Statistical Office of the Republic of Serbia, 1967). Commuting was affected by rapid industrialization and transfer of population from agricultural into non-agricultural activities in this period (in 1961 more than a half of the active population were employed in agriculture in Serbia). It was necessary to achieve the balance between the surpluses of agrarian labour force on the one hand and need for industrial labour force on the other. There were many households with the so-called mixed sources of income. Taking into account that they were mainly unqualified or semi-qualified workers earning low wages commuters were bound to their house and estate, since sources of additional income were not available for them. The situation was similar in other former socialist countries.

During the industrialization of the larger towns in the communist period in Hungary, the rural population increasingly turned from agriculture to commuting. An increasing number of the residents of 'traditional' villages around Szeged had non-

agricultural jobs in the city and the majority of them were daily commuters who retained their agricultural activity as a part-time family occupation. This dual character has remained a distinctive trait; maintaining the rural character of the villages despite their closer links with the city for employment and services (Nagy, 1999). The peasantry profited from employment in factories particularly during the communist period. It was usual to maintain a balance between agriculture and industry i.e. to combine the benefits of the worker status (and the high wages paid in the engineering industry) with an element of self-sufficiency (Muica et al., 1999). Daily commuters employed in industry also prevailed in the USA in this period. Over half of the commuters worked in industry and construction, while other commuters worked in the tertiary sector in the USA in the 1970s (Holmes, 1971).

Changes were gradually occurring in the biological and socio-economic structure of commuters and they were made manifest through the decrease in the number of commuters employed in agriculture, increase in the share of women, more educated and qualified workers and increase in the share of other sectors of economy in commuting, except industry. Participation of women in commuting in Serbia (without Kosovo and Metohija) is gradually increasing in accordance with the increasing share of women in the employment of economically active population. However, the rate of activity and commuting of women in 2002 is still lower in Serbia than in the countries of Western Europe and some neighbouring countries (Lukić, 2007).

The direction of transfer of population has changed: previously there was a transfer of population from agricultural to non-agricultural activities and the new tendency is from industrial to service activities i.e. the structure of economy has transformed from the domination of production into the expansion of services. The aforementioned changes were in accordance with the changes in the structure of the total active population according to activity and they reflect the directions and structure of commuting flows, although the largest number of commuters was still employed in light industry in 2002. Of the total number of those employed out of residence in Serbia in 2002, 5.5% worked in the primary sector, 47.8% in the secondary, 27.5% in the tertiary and 33.8% in the quaternary sector (Statistical Office of the Republic of Serbia, 2004).

Current changes in places of residence and work reflect the intensity, structure and directions of commuting flows in Serbia, and even whether

changes in the function of certain settlements or changes in the local labour and real estate market are about, which can be the consequences of certain investment policies. Therefore, the analysis of changes in the extent and dominant directions of industrial commuting was carried out in four selected industrial centres in Serbia, which faced with economic, structural, social and demographic problems.

It was evident that on the national level there was an increase in the number of daily migrant workers and those working in industry; however on the local level the research results indicate a significant decrease in the number of industrial daily migrant workers in the case of the selected industrial centres (Table 2), especially in Kragujevac.

Table 2. Changes in the number of commuters in the period 1981-2002

	Commuters		Commuters employed in industry	
	1981	2002	1981	2002
Serbia	485,952	565,054	225,684	240,062
Bor	4,146	2,609	2,358	1,704
Leskovac	13,808	12,800	7,412	5,907
Loznica	10,339	10,014	5,036	4,199
Kragujevac	21,533	3,973	12,980	1,757

Source: Statistical Office of the Republic of Serbia.

The share of industrial commuters in the total commuting flows decreased by 4% in the period from 1981 to 2002, from 46.4% to 42.5% on the account of workers employed in services whose share in commuting flows increased from 35.3% to 44.1%. In the case of the analysed industrial centres, the decrease in the share of industrial workers in commuting ranged from 7% in Loznica to 16% in Kragujevac, and consequently this was followed by a proportional increase in the share of workers employed in the tertiary sector. Bor is in a special situation where only the decrease in the share of industrial workers in the total commuting flows has been recorded, while the share of commuters employed in services has not changed which is the consequence of the unfinished restructuring process of enterprises in Copper Mining and Smelting Complex Bor – the major stakeholder of the economic development.

When changes in the local labour market, as well as increase of unemployment occur, workers adjust to new conditions either by retraining or finding employment in other settlements – commuting or

migration⁵. In the examined centres, for example, the share of commuters decreased in the total number of employees, while the analysis of the connection between unemployment, extent of commuting and definite moves indicates that migration was a dominant factor in these towns. Bor and Leskovac recorded higher decrease in the share of commuters in the total number of workers than Kragujevac and Loznica. Loznica, which is a border municipality towards the Republic of Srpska, is specific because a large number of refugees moved here after the war (1991-1996) in the area of the former Yugoslavia and its migration balance was positive in the period 1991-2002. The positive rate of migration balance recorded in Kragujevac in the last years (Table 3) indicates the positive effect of the revitalisation of automobile industry.

Table 3. Rates of migration balance

	1991-2002	2006	2008
Serbia	1.1	0.5	0.4
Bor	-5.1	-6.8	-8.0
Leskovac	-1.1	-3.7	-3.8
Loznica	2.4	-3.3	-4.1
Kragujevac	-0.5	1.0	1.9

Source: Statistical Office of the Republic of Serbia; Rašević and Penev, 2009.

Diversification of economy is noticeable (particularly in rural areas) in Serbia due to the decrease in industrial production and unemployment. Besides agriculture, other forms of economy are more and more represented (e.g. tourism, trade, handicrafts, etc.) through different organisation models (e.g. self-employment, small family factories, etc.). Research results indicate that the adjustment processes generally cannot prevent decades of high unemployment in areas where job loss has been very large. In other words mass unemployment was unavoidable in these places. Although farming has an important subsistence role which contributes to stability, the long-term survival of these communities will depend on new sources on income (Webster, 2010; Muica et al., 1999).

CONCLUSION

Deindustrialization in Serbia is visible through its economic effects (changes in the structure of GDP, GVA), social effects (change in the relation

between employees and the unemployed, increase in the rate of unemployment, changes of the structural characteristics by gender, age, qualifications, etc.) and spatial effects (change in the hierarchy of industrial towns, phenomenon of devastated areas). In parallel, contemporary changes in the economic structure of Serbia are in cause and effect relation with the changes in the extent and directions of commuters.

Evident shift of economic indicators towards the services sector in Serbia still does not reflect the contemporary structure of an economy but indicates a widespread devastation and low industrial efficiency. After the expansion of the production sector from the 1950s to the end of 1980s, the decline of production activities – initiated by the crisis of the 1990s and intensified by the reforming processes after 2000 – implicated significant changes: decrease in production and in the number of industrial workers (more than 50%), as well as decrease in the share of industry in the structure of employment (from 40% in 1990 to 22% in 2008), changes in the role of industry in the formation of the national income (from 36% in 1990 to 30% in 2001) and decrease in the importance of industry in the structure of GVA (from 28% to 24% throughout the period of transition from 2001 to 2008).

Concerning the labour market, the transformation of the economic structure of Serbia directly influenced the shift of active population into inactive, i.e. decrease in employment and increase in unemployment. The labour market reflects all characteristics typical for the countries in transition - unbalanced offer and demand of labour force and large structural changes in both categories (employees and the unemployed). Moreover, the still insufficiently developed sector of entrepreneurship is unable to absorb the surplus of labour force caused by the loss of jobs during the proprietary transformation of public enterprises. All the above mentioned factors affect and are reflected in the commuting flows.

The analysis of the phenomena and processes in the selected industrial centers indicates:

- 1) a decrease in the total number of employees during the 1990s with mild increase in the last years;
- 2) a drastic decrease of employees in the secondary sector, particularly in light industry;
- 3) change of relations in the structure of employment to the benefit of the services sector;
- 4) a decrease in the extent of commuters as a whole and increase of migrations;
- 5) sectoral shifts of commuters towards services.

⁵ In Glasgow, in England for instance, where almost two-thirds of the manufacturing jobs were lost in only 15 years 1978-93 most adjustment has been by outmigration (Webster, 2010).

In spite of the increase in the absolute number of commuters employed in industry on the national level, a decrease in this category of commuters can be observed in the case of the analysed towns (both in absolute amount and the share of industrial commuters in the total extent of commuting). Therefore, it can be concluded that the decrease in the absolute number of commuters in industry is in accordance with the decrease of employees in this sector due to the aforementioned processes. Moreover, since the 1980s the share of industrial commuters in the total number of industrial employees has remained on an approximately similar level (about 40%) with insignificant fluctuations. The analysis of the connection between unemployment, extent of commuting and migration indicates that increase in the extent of

REFERENCES

- Artis, M., Romani, J., Surinach, J., (2000). *Determinants of Individual Commuting in Catalonia, 1986-1991: Theory and Empirical Evidence*, Urban Studies, vol. 37, No. 8, pp. 1431-1450.
- Bachtler, J., Downes, R., Gorzelak, G., (eds.) (2000). *Transition, cohesion and regional policy in Central and Eastern Europe*, Ashgate, Aldershot.
- Cristaldi, F., (2005). *Commuting and Gender in Italy: A Methodological Issue*, The Professional Geographer, vol. 57, Issue 2, pp. 268-284.
- Eliasson, K., Lindgren, U., Westerlund, O., (2003). *Geographical Labour Mobility: Migration or Commuting?*, Regional Studies, vol. 37, Issue 8, pp. 827-837.
- Enyedi, G., (ed) (1998). *Social Change and Urban Restructuring in Central Europe*, Akadémiai Kiadó Budapest.
- Fassmann, H., (2000). *Regions in upheaval. Conceptual framework and empirical findings of the regional transformation research*, in: Horvat G. (ed.) *Region and Cities in the Global World*, Hungarian Academy of Science Centre for Regional Studies, Pécs, pp. 126-140.
- Gorzelak, G., (1998). *Regional development and planning in East Central Europe*, in Keune M (ed.) *Regional development and employment policy, Lessons from Central and Eastern Europe*, ILO-CEET, Geneva Budapest, pp. 62-76.

commuting flows did not result from the increase of unemployment but from more expressed emigration from the above mentioned towns.

It should also be noted that the next population census of Serbia (2011) will give a more detailed answer to the relation, extent and direction of diverting commuting flows in industry and about employees of this sector as the consequence of intensive reformation processes from 2001 and the initial revitalisation of the economic activity at the end of this decade.

ACKNOWLEDGEMENTS

This study resulted from the project funded by the Serbian Ministry of Science and Technological Development.

Grčić, M. and Ratkaj, I., (2006). *Strukturne promene i regionalna diferencijacija industrije Srbije u periodu tranzicije (1988-2005)*, Bulletin of the Serbian geographical society, vol. 86, No. 2, pp. 97-112.

Green, A. E., Hogarth, T., Shackelton, R. E., (1999). *Longer Distance Commuting as a Substitute for Migration in Britain: A Review of Trends, Issues and Implications*, International Journal of Population Geography, vol. 5, pp. 49-67.

Holmes, J., (1971). *External Commuting as a Prelude to Suburbanization*, Annals of the Association of American Geographers, vol. 61, No. 4, pp. 774-790.

Jakopin, E. and Bajec, J., (2009). *Challenges of Industrial Development of Serbia*, Panoeconomicus 4, pp. 507-525.

Jakopin, E. and Devetaković, S., (2009). *Regionalizacija u Srbiji*.

www.ekof.bg.ac.yu/centrinde/Jakopin_Devetako_vic.pdf

Lee, B. S. and Mc Donald, J., (2003). *Determinants of Commuting Time and Distance for Seoul Residents: The Impact of Family Status on the Commuting of Woman*, Urban Studies, vol. 40, Issue 7, pp. 1283-1302.

Lukić, V., (2007). *Selektivnost dnevnih migranata u Srbiji prema polu*, Bulletin of the Serbian geographical society, vol. 87, No. 2, pp. 67-78.

Lux, G., (2008). *Industrial Development, Public Policy and Spatial Differentiation in Central Europe: Continuities and Change*, Discussion papers 62, Centre for Regional Studies of Hungarian Academy of Sciences, Pécs.

- Matković, G., Mijatović, B., Petrović, M., (2010). *Uticaj krize na tržište radne snage i životni standard u Srbiji*, Center for Liberal-Democratic studies, Belgrade.
- Mickiewicz, T. and Zalewska, A., (2001). *Deindustrialisation and Structural Change During The Post-Communist Transition*, Working paper No. 383, University of Michigan - William Davidson Institute, Michigan.
- Mijatović, B., (2005). *Opšti pregled tranzicije u Srbiji*. U Begović B, Mijatović B. (ed.) *Četiri godine tranzicije u Srbiji*, Center for Liberal-Democratic studies, Belgrade.
- Miletić, R., Miljanović, D., Todorović, M., (2009). *Industrijski gradovi u tranziciji – problemska područja*, Bulletin of the Serbian geographical society, vol. 89, No. 3, pp.191-206.
- Muica, N., Roberts, L., Turnock, D., (1999). *Transformation of a border region: dispersed agricultural communities in Brasov County, Romania*, GeoJournal, vol. 46, pp. 305–317.
- Muller, B., Finka, M., Lintz, G., (eds) (2005). *Rise and Decline of Industry in Central and Eastern Europe*. Springer, Verlag Berlin Heidelberg.
- Nagy, E., (1999). *Growth and urban differentiation on the urban periphery: A case study from Szeged, Hungary*, GeoJournal, vol. 46, pp. 221–230.
- Rašević, M. and Penev, G., (2009). *Opštine republike Srbije Osnovni demografski, ekonomski i socijalni pokazatelji relevantni za populacionu politiku*. UNFPA, Association of Demographers of Serbia, Belgrade.
- Redei, M., (2010). *The Research Evidence of Regional Restructuring*, Socialiniai tyrimai/Social research, vol. 3 (20), pp. 124-131.
- Traistaru, I., Nijkamp, P., Resmini, L., (2003). *The emerging economic geography in EU accession countries*, Ashgate Publishing, Ltd.
- Turnock, D., (2001). *Environmentals problems and policies in East Central Europe: A changing agenda*, Geojournal, vol. 54, pp. 485-505.
- Vrišer, I., (2001). *Nekateri novejši ekonomskogeografski pojmi*, Geografski vestnik vol. 73, 1, pp. 49-59.
- Webster, D.F., (2010). *Impacts of deindustrialisation on the labour market and beyond*. PhD thesis, University of Glasgow.
- Zeković, S., (1997). *Tehnički progres i regionalni razvoj industrije u Srbiji*, Institute of Architecture and Urban & Spatial Planning of Serbia, Belgrade.
- *** (1967). *Population Census 1961*, vol. 6, *Vital, ethnic and migration indicators*, Federal Statistical Office, Belgrade.
- *** (1981). *Population Census 1981. Tab. 034, Workers by municipality of labour according to activity sector and returning frequency to place of residence*, Federal Statistical Office, Belgrade.
- *** (1982-2008). *Municipalities in Serbia 1982, 1991, 2002, 2008*. Statistical Office of the Republic of Serbia), Belgrade.
- *** (2004). *Population Census 2002*, vol. 13, *Daily migrants – Data by Municipalities*, Statistical Office of the Republic of Serbia, Belgrade.
- *** (2007). *Population Census 2002, Specially Processed Data*, Statistical Office of the Republic of Serbia, Belgrade.
- *** (2008). *Labour force survey in 2008*, Statistical Office of the Republic of Serbia, Belgrade.
- *** (2009). *The Report on the Development of Serbia in 2008*, Republic Development Bureau, Belgrade.