# SOCIO-ECONOMIC CHARACTERISTICS AS LIMITING FACTORS OF REGIONAL DEVELOPMENT. THE CASE OF KOLUBARA DISTRICT, REPUBLIC OF SERBIA

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*Key-words*: population, economy, settlements, regional development, local residents, Republic of Serbia.

**Abstract**. One of the essential preconditions for the regional development of an area is a positive demographic, economic and development of the settlement network. Positive population trends, positive net migration and the share of young, educated and active population contributes to the good demographics of the area, thereby facilitating its development. Sustainable agriculture and planning, the maintenance of existing industries and the construction of new and modern industrial facilities contribute to regional development. Population mobility and the transport of goods are greatly facilitated by the existence of an adequate transport infrastructure, which is closely linked to regional development. A well-developed network of settlements is important for the quality of life of residents, and proximity to big centers can be a great advantage, but in some cases can also be a disadvantage. In order to highlight the importance of socio-geographical features of regional development a survey was conducted among residents of Kolubara District. This paper consists of two parts. The first part deals with the socio-economic characteristics of the Kolubara Region based on statistical data, and the second part presents the perception of the local population about socio-economic changes. The main instrument of the study was a closed type survey. The results showed that respondents perceived aging and population emigration as a big limiting factor for regional development. They also believe that the proximity of large urban centers influences the emigration of population and depopulation.

## 1. INTRODUCTION

Socio-geographical characteristics are to a great extent determined by the natural characteristics of an area. In this way, both natural and social characteristics of the area influence its regional development. This paper focuses on the socio-geographical characteristics and their adverse influence on the regional development of Kolubara District. The population, and the economic features of an area and its settlements are the backbone of socio-geographical characteristics and if these elements are not positive, they greatly slow down the development of the region. The Republic of Serbia is still in transition and adapting to the contemporary trends of regional development. In this sense, it lags far behind European and world countries. Bad socio-geographical indicators only deepen problems and prevent development (Hugo, 2001; Yan *et al.*, 2005).

The European Union developed a regional policy of its own, with progressively more resources devoted to economic and social cohesion. The objectives of the EU regional policy are: to reduce

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inequalities between regions, to increase efficiency at national and European level and to decrease inequalities between the Member States of the EU (Bachtler and Wishlade, 2005). In recent years, it has been possible to identify a significant shift in the paradigm of regional development (Bachtler and Yuill, 2001). There was no approach made to solving the regional problems of development in Serbia before 2007, because at that time there was no strategy at a national level, nor the basic instruments, institutional framework or coordinating system for the financing and stimulation of the construction of a regional infrastructure and allocation of public services and investments, and there were no specialized financial institutions and regional development agencies. Generally defined goals, mainly repeated for years with inefficient stimulating policies, deepened the regional and structural development problems (Miljanović *et. al.*, 2010; Đukičin Vučković *et al*., 2018).

This paper presents the socio-geographical indicators that mostly influenced and limited the development of the Kolubara District. The demographic indicators, the economic characteristics and the characteristics of the settlement are presented based on the Census of Population Books, statistical annals and other statistical materials, and the negative trends in the domain of these characteristics are pointed out. Also, a special part of the paper is devoted to the presentation and analysis of the survey research among the inhabitants of the Kolubara District. The research was conducted in order to find out what the local population thinks of the poor socio-geographical trends that hinder regional development. In order to better examine the attitudes of the local population, a survey was carried out. The research was conducted through personal inquiries and the attention was paid to the membership of respondents to different social-demographic groups.

The starting hypothesis was that statistically poor demographic, economic indicators and settlement characteristics slow down the development of the research area. Another hypothesis considered in the paper was that the local population agrees that regional development is slowed down by those factors. The third hypothesis was that there are statistically significant differences in attitudes among respondents of different gender, age, educational attainment and location towards socio-geographical characteristics and regional development.

## 2. AN OVERVIEW OF THE STUDY-AREA

The Republic of Serbia, situated in Southeast Europe, belongs to both Southern Europe (about 80% of the territory) and Central Europe (in the Pannonian Plain where around 20% of its territory lies), occupying an area of 88.361 km². It is a continental country bordering on Hungary, Romania, Bosnia and Herzegovina, Croatia, Montenegro, Bulgaria, Albania and the former Yugoslav Republic of Macedonia (see Reference List no. 8; Stancetic, 2009; see Reference List no. 9).

The Kolubara District is covered by more than four-fifths of hilly and mountain units, and a little less than one fifth by plain areas. The district is made up of six municipalities: Valjevo, Osecina, Mionica, Ljig, Lajkovac and Ub. The district covers an area of 2,474 $km^2$ with a population of 174,513 inhabitants according to the 2011 Population Census (see Reference Lists nos. 29 and 30). The population density (70.5 people per $km^2$) is lower than the national average (81.3 people per $km^2$), but the dense settlement network (218) requires high transport connectivity. The population of Kolubara District represents 2.3% of the total population in Serbia of which 49.5% are males and 50.5% are females. The active population represents 47.96%, 18.84% being income-based and 33.20% dependent persons. The share of population engaged in agriculture is 40.1%, in industry and mining 19% (Tošić, 2006; see Reference List no. 36).

The district is open towards the northwest, north, and especially northeast with the wide Kolubara River Valley, while the Valjevo Mountains separate it from neighbouring natural areas in the southwest, south and southeast. Specific to the Kolubara Region is its location near the Belgrade area and at the crossroads of significant routes. Another important feature of this area is its historical

character. The proximity of Belgrade and good traffic connection with the capital has always attracted the residents of the Kolubara District. When going on the road that follows the Kolubara Valley, Valjevo is 96 km far from Belgrade (see Reference List nos 8 and 9). This valley has always been a crossroad and a bridge that connects the Pannonian Basin with Central Serbia and Pomoravlje with Bosnia and Herzegovina. The construction of roads and the development of industry have influenced changes in human activities that turned from agricultural to the secondary and tertiary sectors. Part of the Kolubara lignite mine is located in the north-eastern part of the Kolubara District, which adds one more specific feature to the regional development of this area. The exploitation of raw materials requires a number of changes in watercourses, relocation of settlements, in agricultural activities and in the socio-economic structure of the population which seriously disturb the natural environment (Gaskell, 1979; Jankovic, 1983).

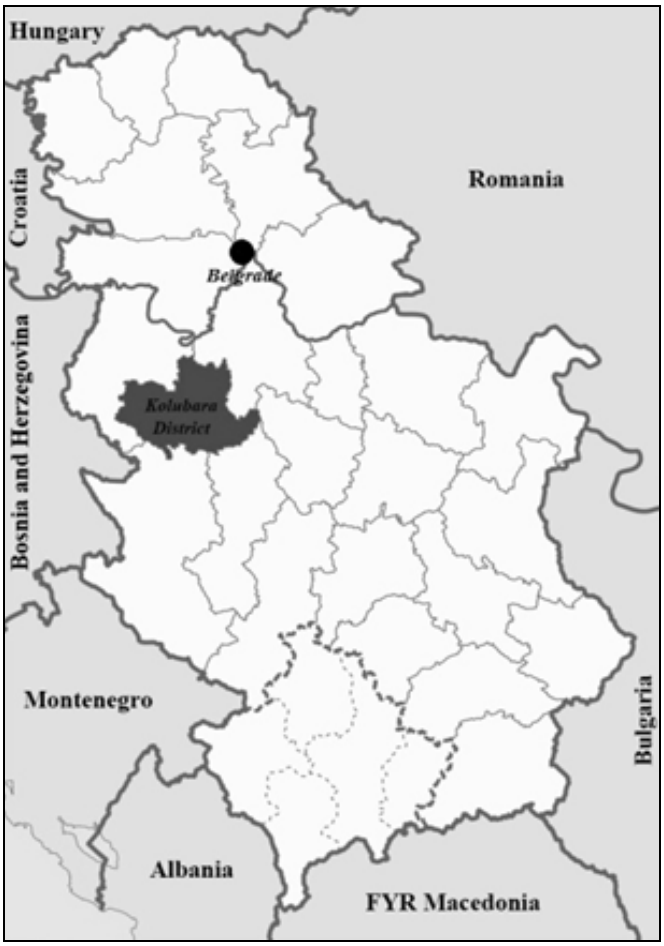



Fig. 1 – The geographical position of the Kolubara District in the Republic of Serbia.

The Kolubara District with its two municipalities – Ub and Lajkovac –belongs territorially to the western part of The Kolubara Lignite Mine (see Reference List nos 14, 15 and 16; Đukičin Vučković *et al.*, 2018). The Kolubara Lignite Mine includes 21 exploitation fields and only six of them belong to the Kolubara District municipalities and occupy the western part of the mine. Significant land-use changes have occurred due to current and future extensions of excavations (Spasic *et al.*, 2009; Zivanovic Miljkovic, Djurdjevic, 2010; Djukicin *et al.*, 2014).

## 3. METHODOLOGY

The authors used the statistical data from the Population Census and Statistical Yearbooks. The descriptive statistics methods helped the authors identify the indicators appropriate for the socio-geographical characteristics of the Kolubara District. In addition to analytical methods, comparative and synthetic ones were used to represent these data. Furthermore, annual statistical bulletins were employed to examine the socio-economic characteristics of the Kolubara Disctict.

In this study, the field survey research method was also resorted to. In order to best examine the attitude of the local population towards the transport infrastructure of Kolubara District, a survey was conducted, sampling 0.1% of the population, meaning that 176 residents of the Kolubara District participated in it. The research was conducted as a personal survey questionnaire given to every respondent to fill in. The questionnaires contained mainly closed questions and were anonymous, so that respondents could freely give honest answers. It was a random stratified sample. Out of the 176 respondents participating in the survey, 48.3% were male and 51.7% female. When looking at the distribution of respondents according to age, most of them (40.9%) were over 51 years old. The group of respondents aged 26 to 50 ranked second, with a share of 33%, and the least frequent group (merely 26.1%) was made up of respondents under the age of 25. With regard to the educational structure, the largest share of respondents had completed a secondary education (65.9%), their highest qualification grade. This reflects the educational structure of the country's total population, where secondary education is the most common highest qualification (44.2%), 22.2% of the respondents having graduated only the elementary school. The smallest share held individuals with a college or university education (only 11.9% of the respondents). This research included individuals from all the six municipalities in the Kolubara District. The largest share went to respondents from the Municipality of Valjevo (51.1%), followed by those from the Municipality of Ub (17%). Respondents from the Municipality of Lajkovac renked third, with 9.1%, while those from the Municipalities of Ljig and Mionica were on the fourth place with 8% each. The smallest population of respondents (6.8%) comes from the Municipality of Osecina, this municipality having the fewest inhabitants.

The participants voluntarily agreed to participate in the study. The study was anonymous. A two-part questionnaire, with 12 items, was used for data collection. The first part (4 items) was applied to collect demographic data. The second part (8 items) was a 5-item Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree) that measured people's attitudes. The content of the questionnaire is original; it is not based on any available research of this type. Cronbach's alpha test was run to estimate its reliability and the value obtained was 0.72. Bearing in mind that the reliability coefficient higher than 0.7 is considered satisfactory, the questionnaire used has acceptable reliability (Miscevic-Kadijevic, 2009).

The data obtained are analyzed in the statistical programme IBM SPSS Statistics, widely applied in similar researches. The most common statistical analyses applied in this research are: an initial descriptive statistical analysis followed by t-test analysis for independent samples (Sheldon and Abenoja, 2001) and one-way analysis of variance, ANOVA (Vargas-Sánchez *et al.*, 2011).

In order to determine the significance of the difference among individual groups, the post-hoc Scheffe test was used as one of the most rigorous and most commonly applied tests. The t-test for independent samples is used for comparing the mean values of the results and for determining the statistical significance of their differences. The t-test of independent samples was applied in order to compare the arithmetic means of two groups of respondents: male and female. The application of the one-way analysis of variance, ANOVA, was meant to investigate if a statistically significant relationship exists between the dependent variables (items related to the attitudes of respondents) and the independent variables (social characteristics of the respondents) (Đukičin Vučković *et al.*, 2018).

## 4. RESULTS AND DISCUSSION

### 4.1. Socio-economic assessment

The section dealing with demographic indicators analyzes only the parameters which are directly connected to regional development. Demographic changes can best be observed on the basis of official lists. Due to the topic of this paper, monitoring the population movement began with 1948. That year was taken as starting point because the most intensive development and most changes in the Kolubara Region happened in the second half of the 20th century.

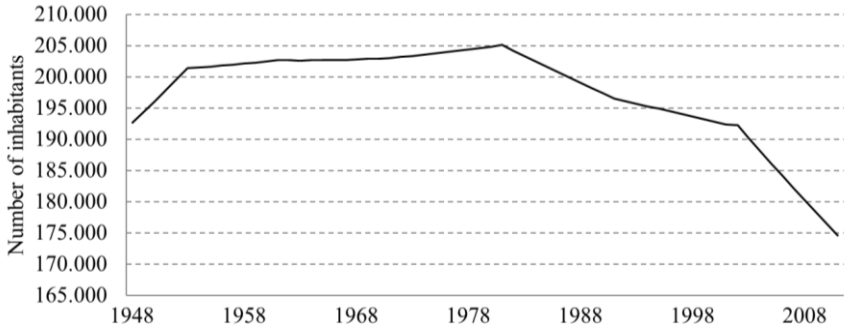



Fig. 2 – Movement of the population in Kolubara district from 1948 to 2011.

*Source*: Statistical Office of the Republic of Serbia, 2004, Census of Population, 2002, Book 9, Comparative Overview of the Number of Population 1948, 1953, 1961, 1971, 1981, 1991 and 2002; Statistical Office of the Republic of Serbia, 2012, Census of Population 2011, Book 1, Ethnicity.

As shown in Figure 2, the population decrease in Kolubara District versus to exponential population growth is visible since 1992. The population movement depends on natural increase and migrations and these two factors did not have a positive influence on population increase in this area over the last 30–40 years. The process of urbanization, the growth of city settlements and the movement of people from smaller to larger areas are all connected with the general numerical decrease of inhabitants. These negative trends slowed down regional development and thus, represent a limiting factor. It is difficult to plan regional development in areas where the population is decreasing.

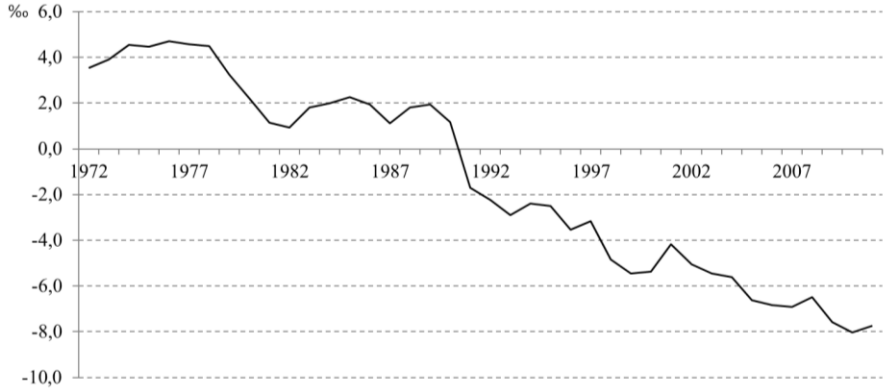



Fig. 3 – Changes in the natural increase rate in Kolubara District from 1972 to 2011.

*Source*: Statistical Office of the Republic of Serbia, 1974–1989, Municipalities in the Republic of Serbia, 1972–1988; Statistical Office of the Republic of Serbia, 1990–1998, Municipalities in the Republic of Serbia, 1989–1997; Statistical Office of the Republic of Serbia, 1999–2010, Municipalities in the Republic of Serbia 1998–2009; Statistical Office of the Republic of Serbia, 2011–2012, Municipalities and regions in the Republic of Serbia 2010–2011.

The natural increase is directly connected with birth and death rate values, the findings revealing a decreasing in Kolubara District the natural increase rate from 1972 to 2011.

As seen in Figure 3, at the beginning of the observation period the natural increase rate was of 3.5 ‰, increasing to 4.7 ‰ until 1976. The first negative natural increase rate occurred in 1991 (-1.7‰), a situation going on until the end of the observed period, basically a constantly negative value and a downward trend. The lowest natural increase rate even -8 ‰ occurred in 2010. The negative rate of natural increase is a limiting factor for the development of Kolubara District.

The modern trend of social development shows migrations to be a very important component among the main demographic categories with significant consequences for the areas they are taking place in.

*Table 1*

The indigenous and migrant population of Kolubara District

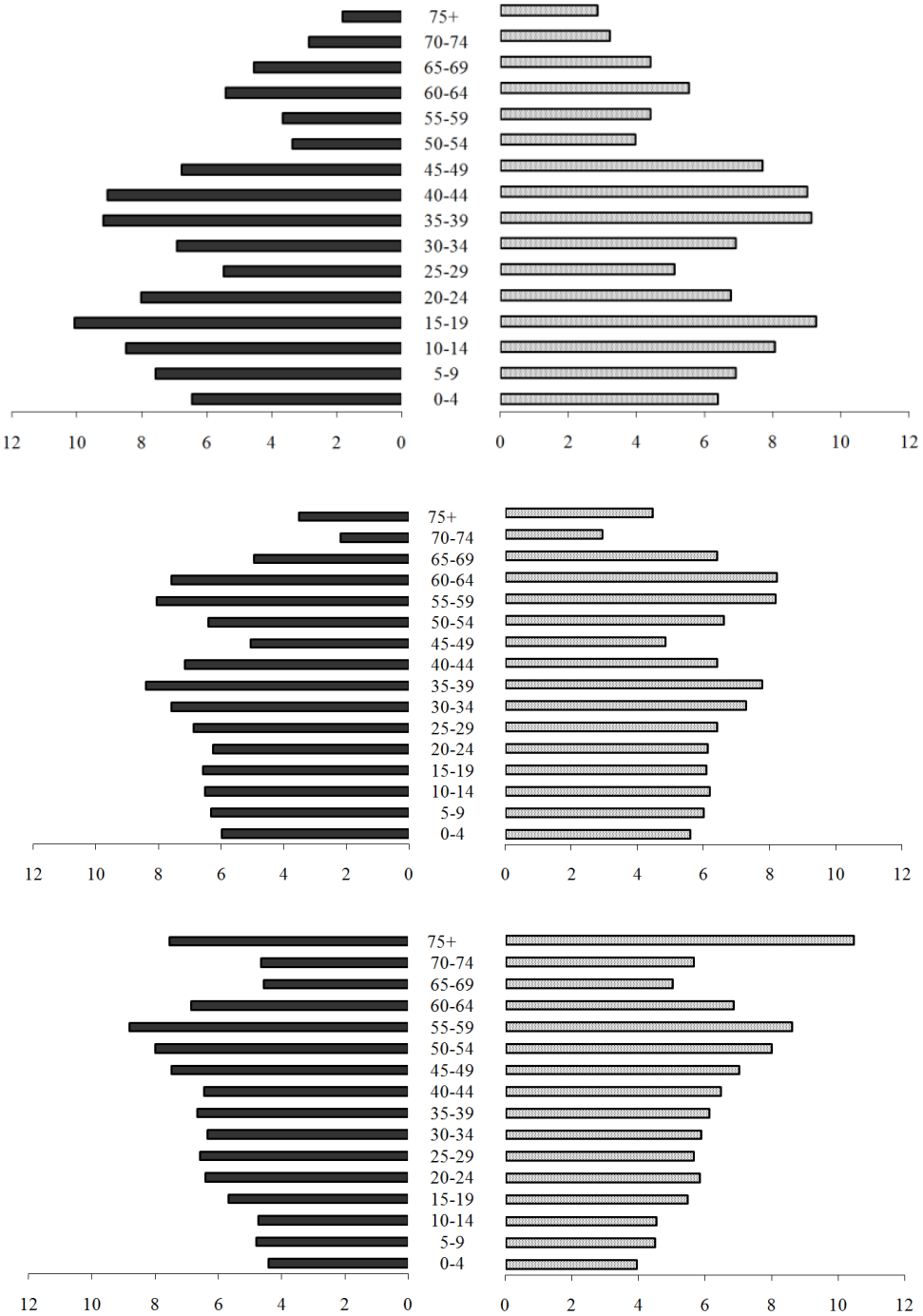
| Census years | Population total | Indigenous | | Migrant | |
|---|---|---|---|---|---|
| | | Total | % | Total | % |
| 1961 | 202,630 | 123,911 | *61.2* | 78,719 | *38.8* |
| 1971 | 202,990 | 127,591 | *62.9* | 75,399 | *37.1* |
| 1991 | 196,556 | 111,815 | *56.9* | 84,741 | *43.1* |
| 2002 | 192,204 | 112,390 | *58.5* | 79,814 | *41.5* |
| 2011 | 174,513 | 102,828 | *58.9* | 71,685 | *41.1* |

*Source*: Statistical Office of the Republic of Serbia, 1965, Census of Population 1961, Book 12, Migration; Statistical Office of the Republic of Serbia, 1974, Census of Population 1971, Migration; Statistical Office of the Republic of Serbia, The Census of Population – electronic form 1991; Statistical Office of the Republic of Serbia, 2004, Census of Population 2002, Book 8, Migration; Statistical Office of the Republic of Serbia, 2013, Census of Population 2011, Book 9, Migrations.

Based on Table 1, one can see that, during the observed period, the share of the indigenous population was decreasing at the expense of an increasing migrant population. The conclusion is that in the last two or three decades, migration processes in the Kolubara District have been quite common. The intensive migration processes in this district are the result of urbanization. Social and economic conditions are often stated as main driving factors of migration in the area (Djukicin *et al.*, 2014; Smiljanic, 2002). The demographic outflow due to migration movements is a major problem throughout Serbia, as the population is moving from smaller communities to larger ones which are much more attractive from a socio-economic perspective. The demographic outflow from small settlements adversely affects regional development.

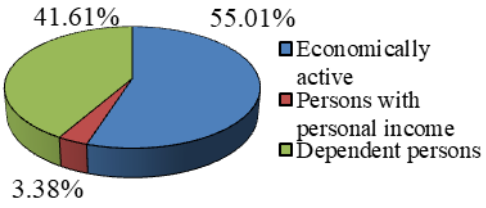
Figures 4, 5 and 6 clearly illustrate that population age in Kolubara District was growing in the respective census years. Figure 4 shows a very high share of population in the age-group 15–19, as well as a high share in the population between 35 and 45 years old. The population aged 50 and over forms the same group in subsequent censuses, so in the next censuses the significant expansion of the age-pyramid peak is due to low natural increase, the basis of the age pyramid increasingly narrowing. In 2011, the average age of inhabitants in the Kolubara District was of 43.4 years old.

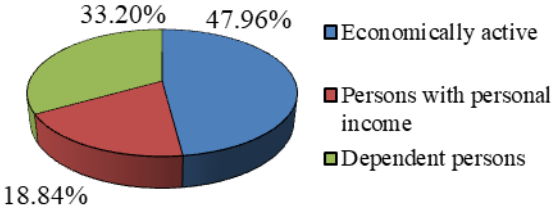
An ageing population makes the development of the area more difficult and, accordingly, planning the development of the area is based on its adaptation to the high share of the elderly population. Demographic aging implies ever more people near retirement or already retired and hence, an economically decreasing active population. This adversely affects the development of the area the need for new jobs being reduced. The following figures also show these changes.




Figures 4, 5. and 6 – Age-structure of the population in Kolubara District according to the 1971, 1991 and 2011 Censuses (left – males; right – females).

*Source*: Statistical Office of the Republic of Serbia, 1974, Census of Population 1971, Sex and age; Statistical Office of the Republic of Serbia, 1994, Census of Population 1991, Book 4, Sex and age; Statistical Office of the Republic of Serbia, 2012, Census of Population 2011, Book 2, Age and sex.




Figures 7 (left) and 8 (right). The population by economic activities in 1971 and 2011.

*Source*: Statistical Office of the Republic of Serbia, 1974, Census of Population, 1971, Agricultural population; Source: Statistical Office of the Republic of Serbia, 1994, Census of Population, 1991, Book 7, Activity and gender; Source: Statistical Office of the Republic of Serbia, 2013, Census of Population, 2011, Book 7, Economic activity.

Analyzing the share of the economically active population in Kolubara District one can notice a decrease in the number of economically active population and an increase in the number of people with a personal income. The share of the economically active population in 1971 was of 55% and only 48% in 2011. This indicates that the overall population in the area is decreasing, but also that the decrease in the share of the economically active population is the consequence of population aging and the increase in the number of persons with personal income (pensioners). This is supported by the fact that the share of population with personal income was 3.4% in 1971 and as high as 18.8% at the 2011 Census. As the share of young population was decreasing, that of dependent persons also decreased, because most people in this group were pupils and students (41.6% in 1971 and 33.2% in 2011 Census data). These trends have a negative effect on the regional development of this area.

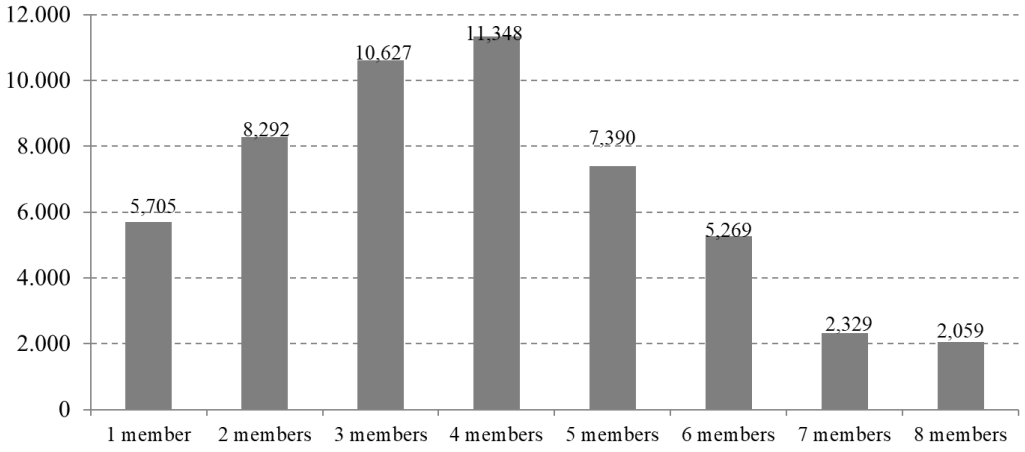



Fig. 9 – The structure of households by number of members in Kolubara District in 1971.

As seen in Figure 9, most households had three and four members in 1971; fewer households had eight or more members. Such a picture is to be expected, taking into account that the natural increase in Kolubara District in the 1970s was higher than it is now, there was a more numerous economically active population and the average population age was lower.

Figure 10 shows that the number of one-member households in 2011 more than doubled compared to 1971 and that two-member households drastically increased as a consequence of the negative natural increase, poor economic indicators and population aging. In the above census year, there was a slight increase in the number of three-member households. All the other categories recorded a decrease.


Fig. 10 – The structure of households by number of members in Kolubara District in 2011.

*Source*: Statistical Office of the Republic of Serbia, 1974, Census of Population, 1971, Ethnicity, Education, Economy and Households by number of members; Statistical Office of the Republic of Serbia, 2013, Census of Population, 2011, Book10, Households by number of members.

Based on these indicators, planning and expecting economic and business development in the study-area is a difficult matter.

Economic characteristics are one of the main drivers of regional development. Most of the inhabitants of Kolubara District are engaged in agriculture, industry and mining.

As shown in Table 2, the share of the population engaged in agriculture in the three census years decreased from 72.7% in 1971 to 53.1% in 1991 and to only 40.1% in 2011. Poor investments in this area and the absence of planned agricultural production are the reasons for this trend. Due to such conditions, regional development that could rely on agriculture cannot be planned. According to the share of domestic and foreign tourists (Table 2), it is clear that the share of population engaged in industry over the last 40 years has significantly increased. That increase is largely the result of the reduction in the share of population occupied in agriculture. Although there is an increase in the share of inhabitants engaged in industry and mining, the situation in these two sectors is not satisfactory. If one takes into account the natural industrial and mining potential of Kolubara District, then the above indicators are poor. In order to improve the situation in industry and mining, it is necessary, in addition to reforms, for people and a population potential which unfortunately is getting ever lower.

*Table 2*

The share of the population engaged in agriculture, industry and mining within the economically active population occupied % in 1971, 1991 and 2011

| | 1971 | 1991 | 2011 |
|---|---|---|---|
| Agricultural population | *72.7* | *53.1* | *40.1* |
| Population engaged in industry and mining | *8.42* | *20.87* | *19.05* |

*Source*: Statistical Office of the Republic of Serbia, 1974, Census of Population, 1971, Agricultural population; Statistical Office of the Republic of Serbia, 1995, Census of Population, 1991, Book 12,Economically active population; Statistical Office of the Republic of Serbia, 2014, Census of Population, 2011, Book 15, Occupation.

As regards tourism, a slight increase is noticed in the share of foreign tourists, which can be a good indicator for the future development of the services sector.

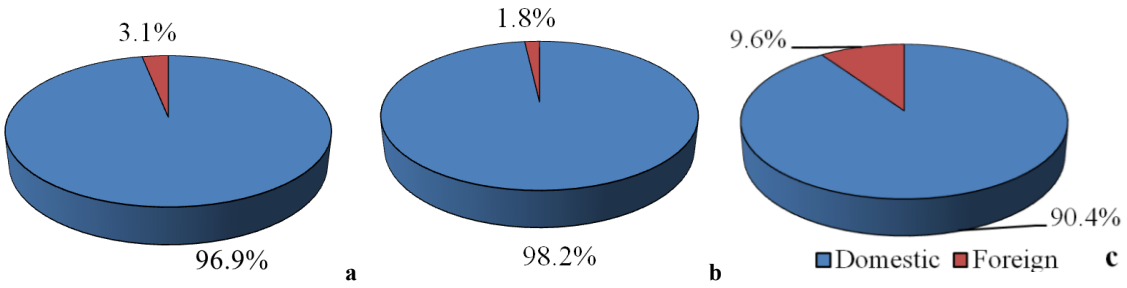



Fig. 11 a, b, c – The share of domestic and foreign tourists in the total number of tourists in Kolubara District 1971, 1991 and 2011.

*Source*: Statistical Office of the Republic of Serbia, 1972, Statistical Yearbook of SFRY; Statistical Office of the Republic of Serbia, 1992, Municipalities in the Republic of Serbia, 1991; Statistical Office of the Republic of Serbia, 2012, Municipalities and regions in the Republic of Serbia, 2012.

As seen in Figure 11 (a, b and c), the number of tourists in this District is dominated by native ones. In the last forty years, very few foreign tourists came here. It is only in 2011 that there was a slightly higher share of foreign tourists (9.6%), which is still insufficient. Infrastructure is one of the factors largely unfavourable for both domestic and foreign tourists. Although significant traffic routes pass through the District and there are many local and regional roads, they are in a poor condition. This contributes to the backwardness of the District, regional development being slowed down to a large extent due to the poor network of roads (Đukičin Vučković *et al.*, 2018). A dense network of 218 settlements is spread out in the territory of Kolubara District. The population decrease reflects both in the network and functions of settlements. As Table 3 shows, according to the 1971 Census, most settlements in Kolubara District had between 501 and 1,000 inhabitants, which was the case of 45.4% of all settlements.

*Table 3*

Classification of settlements by number of inhabitants in 1971 and 2002

| Classification by number of inhabitants | Share in the total number of settlements in % | Share in the total number of settlements in % |
|---|---|---|
| up to 500 | *33.9* | *55.0* |
| 501–1,000 | *45.4* | *33.9* |
| 1,001–2,000 | *17.9* | *7.8* |
| 2,001–3,000 | *0.9* | *0.9* |
| 3,001–5,000 | *1.4* | *1.4* |
| 5,001–10,000 | – | *0.5* |
| 10,001–20,000 | – | – |
| 20,001–50,000 | *0.5* | – |
| from 50,001 | – | *0.5* |
| Total | *100* | *100* |

*Source*: Statistical Office of the Republic of Serbia, 2004, Census of Population, 2002, Book 9, Comparative Overview of the Number of Population, 1948, 1953, 1961, 1971, 1981, 1991 and 2002.

Compared to 1971, the number of settlements with up to 500 inhabitants increased in 2002 and the number of settlements with 501 to 1,000 inhabitants decreased. It can be concluded that the number of settlements with 501 to 1,000 inhabitants decreased in 2002 at the expense of the increase in the number of settlements with up to 500 inhabitants. This is a very bad indicator which, first of all, points out the poor demographic picture and the high demographic outflow from the villages. Such changes in the network of settlements are another bad indicator for regional development.

*Table 4*

Type of settlement by occupational structure in 1971 and 2002.*

| Type of settlement | Census 1971 | | Census 2002 | |
|---|---|---|---|---|
| | Number of settlements | Share / total number of settlements in % | Number of settlements | Share / total number of settlements in % |
| SNA | 6 | *2,8* | 10 | *4.6* |
| N | 6 | *2,8* | 15 | *6.8* |
| M | 6 | *2,8* | 35 | *16.1* |
| A | 200 | *91,7* | 158 | *72.5* |
| Total | 218 | *100,0* | 218 | *100.0* |

*Source*: Statistical Office of the Republic of Serbia, 1974, Census of Population 1971, Agricultural population; Statistical Office of the Republic of Serbia, 2004, Census of Population, 2002, Occupation and gender.

As shown in Table 4, by far the largest number of settlements in Kolubara District is of an agrarian-type. According to the 1971 Census, there were 91.7% of agrarian-type settlements, with only 72.5% in 2002. The most drastic changes occurred in the category of mixed settlements, which increased from 6 to 35 or 16.1% settlements / total number of settlements. Such a big change in the category of mixed settlements is due to the fact that settlements that were agrarian in 1971 turned into mixed by 2002. If the demographic picture of the Kolubara District would not be bad, the changes that occurred in the types of settlements by structure of economic activity could have a positive impact on regional development.

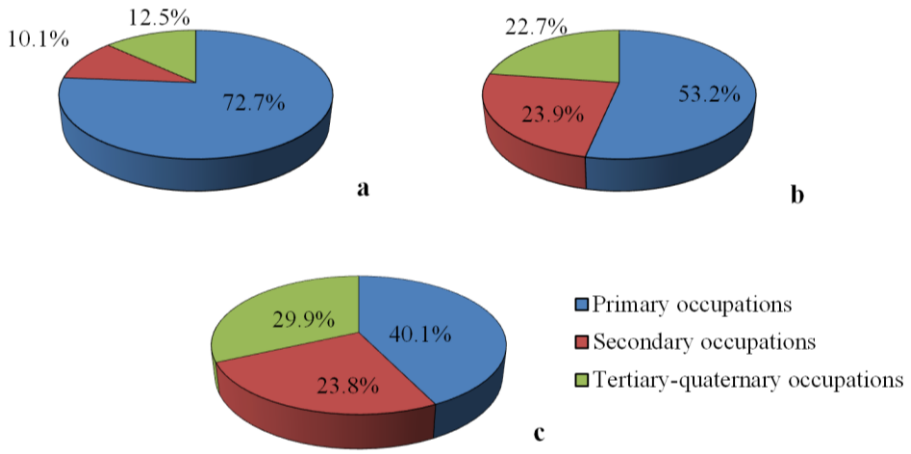



Figure 12 a, b, c – The structure of economic activities in Kolubara District according to the of 1971, 1991 and 2011 Censuses.

*Source*: Statistical Office of the Republic of Serbia, 1974, Census of Population, 1971, Agricultural population; Statistical Office of the Republic of Serbia, 1995, Census of Population 1991, Book 12, Economically active population; Statistical Office of the Republic of Serbia, 2014, Census of Population, 2011, Book 15, Occupation.

According to Figure 12 (a, b and c), the share of population engaged in agriculture was significantly reduced in the study period. The share of agricultural population decreased from 72.7% in 1971 to 40.1% in 2011. This phenomenon resulted in the de-agrarization and relocation of the village population. What also appears as a side effect is the aging of the agricultural population.

The share of secondary occupations from 1991 to 2011 did not change significantly, yet it was to the development of the tertiary-quaternary sector, what had priority over the secondary sector, the share of the former increasing from 12.5% in 1971 to 22.7% in 1991, and to 29.9% in 2011. Such indicators suggest good regional development despite the poor demographic situation.

* Meaning of the abbreviations in the Table: SNA-strictly non-agrarian settlements, N-non-agrarian settlements, M-mixed settlements, A-agrarian settlements.

### 4.2. The local population's perception of the socio-economic changes
### Results of the t-test

The t-test for independent samples is used to compare the mean values of results and determine the statistical significance of their differences. The t-test of independent samples was applied in order to compare the arithmetic means of two population groups: male and female respondents. On that occasion, only the statistically relevant results at the level of $p<0.05$ significance are presented.

*Table 5*

The results of the t-test analysis of the local population's attitudes of both gender

| Statement | Sex | M | σ | t-test | p |
|---|---|---|---|---|---|
| It is necessary to invest more in rural and spa tourism in the district | M | 4.35 | 0,909 | 16.34 | 0.000 |
| | F | 4.64 | 0,606 | 6 | * |
| Poor internal traffic infrastructure in the district is slowing down the development of trade, tourism and catering industry | M | 4.31 | 0,964 | 13.53 | 0.000 |
| | F | 4.66 | 0,670 | 9 | * |

Note: *p<0.05

Respondents expressed their full agreement with statements indicating a considerable difference between the two groups, in terms of $p<0.05$ significance. Such results are likely to be expected, given that attitudinal differences between the two genders are particularly frequent. Some of the previous research papers confirm this (Bhatti, Church, 2000; Kirkpatrick *et al.*, 2012).

The statistically significant difference between male and female respondents can be noticed in two out of eight tested statements. Therefore, this hypothesis is not confirmed.

### 4.3. Results of the one-way analysis of variance, ANOVA

The application of the one-way analysis of variance, ANOVA, was used to investigate if there is a statistically significant relationship between dependent variables and independent variables (social and demographic characteristics of the respondents). Therefore, only the results having a statistical relevance at the $p<0.05$ significance level will be presented. When examining the statements, there is no statistically relevant difference between the respondents of different age. Therefore, this hypothesis is not confirmed.

*Table 6*

Results of the analysis of variance ANOVA of the perception of the local population with a different degree of education

| Statement | Level of education | M | σ | F | p |
|---|---|---|---|---|---|
| The proximity of Belgrade, its expansion and gravitational area have a strong influence on Kolubara Ddistrict | elementary school | 3.54 | 1.253 | 3.237 | 0.042* |
| | secondary school | 2.90 | 1.404 | | |
| | college/ faculty | 3.05 | 1.322 | | |
| Poor internal traffic infrastructure in the district is slowing down the development of trade, tourism and the catering industry | elementary school | 4.18 | 0.823 | 3.831 | 0.024* |
| | secondary school | 4.55 | 0.868 | | |
| | college/ faculty | 4.71 | 0.561 | | |
| If more investments were made in the development of smaller municipalities in the district, the population from the same would not move to Valjevo or outside the district | elementary school | 3.85 | 1.065 | 7.683 | 0.001* |
| | secondary school | 4.49 | 0.880 | | |
| | college/ faculty | 4.48 | 0.680 | | |
| Some city functions need be moved from Valjevo to other municipal centers in order to support their development | elementary school | 3.44 | 1.231 | 3.673 | 0.027* |
| | secondary school | 3.92 | 1.166 | | |
| | college/ faculty | 4.19 | 0.873 | | |
| It is necessary to invest more in rural and spa tourism in the district | elementary school | 4.23 | 0.842 | 3.547 | 0.031* |
| | secondary school | 4.60 | 0.745 | | |
| | college/ faculty | 4.43 | 0.746 | | |

Note: *p<0.05; F≥3.00

For five out of eight statements (Table 6), there is a statistically significant difference between the answers of respondents of different education levels to $p<0.05$ significance. This hypothesis is confirmed.

The level of a population's education has a critical role in explaining the attitudes of local people, an opinion supported by some previous research studies (Pyrovetsi, Daoutopoulo, 1991).

*Table 7*

Results of the analysis of variance ANOVA of the attitudes of local population from different municipalities

| Statement | Municipality | M | σ | F | p |
|---|---|---|---|---|---|
| Poor inner traffic infrastructure in the district slows down the development of trade, tourism and the catering industry (HoReCa) | Valjevo | 4.42 | 0.848 | 2.329 | 0.045* |
| | Lajkovac | 4.88 | 0.342 | | |
| | Ljig | 4.07 | 1.141 | | |
| | Mionica | 4.93 | 0.267 | | |
| | Osecina | 4.50 | 0.674 | | |
| | Ub | 4.47 | 0.973 | | |
| If more money were invested in the development of smaller municipalities in the district, local residents would not move to Valjevo or outside the district | Valjevo | 4.14 | 0.978 | 2.421 | 0.038* |
| | Lajkovac | 4.69 | 0.602 | | |
| | Ljig | 4.29 | 0.914 | | |
| | Mionica | 4.86 | 0.363 | | |
| | Osecina | 4.50 | 0.798 | | |
| | Ub | 4.50 | 1.075 | | |
| Some city functions should be moved from Valjevo to other municipal centers in order to support their development | Valjevo | 3.60 | 1.169 | 2.824 | 0.018* |
| | Lajkovac | 4.31 | 1.014 | | |
| | Ljig | 4.07 | 1.072 | | |
| | Mionica | 4.29 | 1.139 | | |
| | Osecina | 3.42 | 1.379 | | |
| | Ub | 4.20 | 1.031 | | |

For three out of eight statements (Table 7), there is a statistically significant difference between the answers of respondents from different municipalities, $p<0.05$ significance. Therefore, this hypothesis is only partially confirmed. This standpoint is supported by some of the earlier research papers on the attitudes of the local population (Soini *et al.*, 2012).

## 5. CONCLUSIONS

Population and economy are the driving forces of regional development. There is no balanced regional development in the areas that are in transition and adjusting to changes. Demographic, economic, business and social stability, as well as planning of the area, are steadily needed for regional development.

Kolubara District is the true example of an area in which, despite good geographical, natural and traffic opportunities, regional development is slowing down. This slowdown is a consequence of historical and political circumstances, demographic outflow (the lowest rate of natural increase -8 ‰ was in 2010), aging of the population (the average age of inhabitants in 2011 was 43.4 years) and insufficient share of the young population that will be the bearer of economic and regional development.

The results presented in the paper point to the main obstacles in regional development. Even though the investigated area has some good indicators (change in settlement type according to activities (more mixed settlements (16.1%) and non-agrarian settlements (6.8%) and changes in the structure of activities), this is not enough to talk about its regional development. Regional development implies much more, primarily in demographic growth followed by economic growth, greater number of work-places, higher living standard and quality of life.

The findings of a survey conducted for the purpose of this paper has revealed that the local population is aware of the problem it is facing, but that decades-long unfavourable trends requires now

much more time and effort to make progress. Most of Serbia is facing similar problems, because of the poor demographic, economic and social trends present in all smaller communities. It is necessary for the state to adopt a series of measures and reforms which would gradually demographically revive areas, economy and business, move some functions from larger cities to smaller ones, and bring young population back to the villages.

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