

STUDY ON POPULATION DYNAMICS IN ESTABLISHING LOCALITIES DEVELOPMENT STRATEGIES

MATEOC-SIRB NICOLETA^{1,2}, NAN ANCA¹, MATEOC TEODOR*¹, MĂNESCU
CAMELIA¹, ADAMOV TABITA¹, SÂRB GH. SEBASTIAN³

¹ *University of Life Sciences, “King Michael I” from Timisoara, Faculty of Management and
Rural Tourism, Romania*

² *Romanian Academy – Timișoara Branch, 24 Mihai Viteazu Blv., 300223, Romania*

³ *University of Oradea, Faculty of Environmental Protection, Romania*

*Corresponding author's e-mail: teodormateoc@usvt.ro

Abstract: *In order to develop less favoured areas, such as most rural areas in Romania, because of the transformations in the economic and social life of the Romanian state in the last three decades, it is very important to acknowledge local communities as specific interests and needs units, apart from the general interests of the nation, with their own identity and well-defined personalities, which should benefit from specific strategies for economic and socio-cultural development. In this paper, the authors present the importance and role of the dynamics of the population in establishing the development strategies of the rural communities. In the context of a continuous European integration and of a stronger and more diversified economic cooperation, the population in the border regions, as is the case of the localities in the rural area of Salonta (the area taken in the study), because of their geographical positioning, will be capable of supporting the right to equal living conditions, freedom of movement, and improved population mobility. Following the study carried out, the authors concluded that, in order to have positive social effects, the development strategies of the localities should rely on specific resources, a situation in which the dynamics of the population and its trend plays an important role in establishing the investment projects to be achieved in each local community.*

Key words: development, rural areas, population dynamics, specific projects

INTRODUCTION

Population is a major landmark from economic, social, cultural, and political points of view, which is why we know information about the level and evolution of the population is of particular importance in making the right decisions. The intensity of the socio-economic processes depends on the size of the population in the studied area [5].

Worldwide, the population of the world has had a rapid growth in the last three decades, which has led to the intensification of interest in knowing demographic developments. According to the data estimated by the United Nations (UN), at the beginning of 2020, the population of the globe was 7.8 billion inhabitants, which represents an increase compared to 2000 by 1.7 billion inhabitants.

At European level, the population estimated by the UN, in 2020, was 747.6 million inhabitants. The 27 states of the European Union (EU) in January 2020 had a total population of 447.3 million people. The evolution of the population in the EU shows that, although its population is increasing, the phenomenon of aging of the population is also increasing. It is also noted that the structure of the population by countries has changed, in the sense that over two thirds of the EU population live in four countries: 18.6% in Germany, 15.0% in France, 13.3% in Italy, and 8.5 % in Poland. Romania has 4.3% of the EU population, and the Netherlands (Holland until 2020) have 3.9% of the EU population.

Resident population registered in Romania, in January 2021, was 22.09 million people. Compared to 2020, the population of Romania has decreased by 103,000 people, which points to an aging population. In 2021, resident rural population registered 9.65 inhabitants/km². At national level, the share of the young population (0-15 years old) had a share of 14.1%.

Statistical data shows that, in Romania, the population is not evenly distributed in the territory. Thus, the municipality of Bucharest concentrates 9.8% of the country's population. The counties with the largest population are: Iași, with 4.4%, and Prahova and Suceava, each with 3.5%. In contrast, the counties of Tulcea and Covasna counties have, each, 1% of the population of Romania, and Sălaj County has 1.1%. Regarding the density of the population in Romania, there is an average of 92.7 inhabitants/km². The county with the lowest density is Tulcea, with 27.3 inhabitants/km², and the highest density of 9,004 inhabitants/km² is registered in Bucharest.

The purpose of this scientific paper is to analyze the phenomenon of aging of the population in the delimited area for research and to emphasize the importance and role of the dynamics of the population in establishing the objectives of the development strategies of the rural communities.

MATERIALS AND METHODS

Bihar County, where we delimited the research area – *the neighbouring area of Salonta* – is located in the west of the North-West Region of Romania. Bihar County and the area delimited for research has, in the west, a border with Hungary, which makes it a shared border area. The city of residence of the county is the municipality of Oradea. The position of the region is a strategic one because, in the north, it borders with Ukraine and, in the west, it borders with Hungary. In order to highlight the number of inhabitants in the analyzed localities, resident population was taken into account, which includes Romanian citizenship people residing in Romania [4]. For the calculus of demographic aging, we used the ratio of old and young people. Thus, where the young age category in a population is less than 1/3 of the total, it is considered that the population has an aging trend. Young population need to share of maximum of 12% of the age category 65+ [1].

To determine the aging state of the population, we used two indicators: the demographic aging index and the ratio of demographic dependence.

The index of demographic aging (Ida) of the population represents the number of elderly (65+) for 100 young people (under 15 years).

$$Ida = P(65+) : P(0-14) \times 100$$

where:

- Ida represents the *index of demographic aging*;
- P (0-14) represents the *population aged 0-14 years*;
- P (65+) represents the *population aged 65+ years*.

The demographic dependence ratio (Rdd) is the ratio between the number of “dependent” age (persons under 15 and 64+) and the old-age population (15-64 years) for 100 people.

$$Rdd = P(0-14) + P(65+) : P(15-64) \times 100$$

where:

- Rdd represents the *demographic dependence ratio*;
- P (0-14) represents the *population aged 0-14 years*;
- P (15-64) represents the *working population aged 15-64 years*;
- P (65+) represents the *population aged 65+ years* [2].

RESEARCH RESULTS

Studies carried out allow to establish the means of increasing the attractiveness and interest of the factors involved in promoting the directions of development of rural communities.

Knowing the number of population as well as its age structure is very important because it allows the forecasting and planning of the labour, the planning of education

activities, health care activities, consumption planning and, in general, the programming of all the activities that local authorities can carry out in each locality and territorial profile. For example, in order to study the structure of the active population from the age category 15-64 years, it is necessary to divide it by age categories: 15-24 years, 25-49 years, and 50-64 years.

In order to establish coordinates of the social and economic development of an area, it is very important to take into account the changes of the population structure by age categories. In order to establish the working population, it is considered that people can start active life at the age of 15. For the analysis of the aging of the population, the categories of the *young population* 0-15 years old and the *old population* 65+ years old have been taken into account,.

The population structure by age and sex categories has a continuous variation as a result of the demographic phenomena that take place at the population level. It is important to know the phenomenon of *aging of the population* that takes place as a result of the trend to reduce the share of the young population and, sometimes, of the adult, in parallel with the growth of the old population.

Decreasing population, demographic aging, and a high dependence rate are important phenomena that affect the labour market, which is why it is very important to know all aspects related to the dynamics of the population in each rural community.

The municipality of Salonta and its neighbouring communes – Avram-Iiancu, Batăr, Cociuba Mare, Ciumeghiu, Mădăras, Olcea, Tinca and Tulca – are located in the south and south-west area of Bihor County. These communes have also been subjected to analysis in this scientific research paper.

Table 1.

Evolution of population in the studied communes, by gender

Commune	Total population		2022 compared to 1992 [No. of people]	2022 compared to 1992 [%]	Males		Females	
	1992	2022			1992	2022	1992	2022
Avram Iancu	3441	3375	-66	-1.92	1704	1686	1737	1689
Batăr	5560	5655	+95	+1.70	2738	2836	2822	2819
Ciumeghiu	4571	4614	+43	+0.94	2264	2327	2307	2287
Cociuba Mare	3673	2776	-897	-24.42	1839	1437	1834	1339
Mădăras	3033	2854	-179	-5.90	1472	1447	1561	1407
Olcea	3007	2708	-299	-9.94	1475	1368	1532	1340
Tinca	7990	8214	+224	+2.80	3999	4167	3991	4047
Tulca	3059	2704	-355	-11.60	1497	1360	1562	134
Municipiul Salonta	21075	18319	-2756	-13.08	10328	8888	10747	9431
Total	55409	51219	-4190	-7.56	27316	25516	28093	25703

Source: own processing after Tempo on-line, resident population, 2023 [6]

Analysis results highlight (Table 1) that only in three communes there is a trend, rather small, of population growth. In Batăr, the growth is 1.70%, in Ciumeghiu, 0.94%, and in Tinca, 2.80%; in the other communes studied, as well as in the municipality of Salonta, in the last thirty years (1992-2022), the population has decreases on average 7.56% at area level. The percentages of significant decrease of the population were registered in the communes of Cociuba Mare, -24.42%, Salonta, -13.08%, Tulca, -11.60%, Olcea, -9.94, or Mădăras, -5.90. Significant population decreases were recorded in the female population, 2,390 at studied area level, against the male population, which registered a loss of 1,800 people.

In this scientific paper, we present the partial results of the analysis regarding demographic aging, respectively of the municipality of Salonta and of the commune of Tinca (Table 2, Figure 2 and Table 3, Figure 3) [6].

Table 2.

Evolution of population in the municipality of Salonta

Age range	1992	2022	2022	2022 [%]
0-4 years	1392	627	2101	11.47
5-9 years	1447	677		
10-14 years	1707	797		
15-19 years	1800	1036	1953	10.66
20-24 years	1953	917		
25-29 years	1094	851		
30-34 years	1491	1296	10846	59.20
35-39 years	1824	1396		
40-44 years	1477	1557		
45-49 years	1167	1753		
50-54 years	1283	1848		
55-59 years	1196	962		
60-64 years	1041	1183		
65-69 years	815	1270		
70-74 years	567	852		
75-79 years	387	552		
80-84 years	322	442	3419	18.67
85+ years	112	303		
Total	21075	18319		

Source: own processing after Tempo on-line, resident population, 2023 [6]

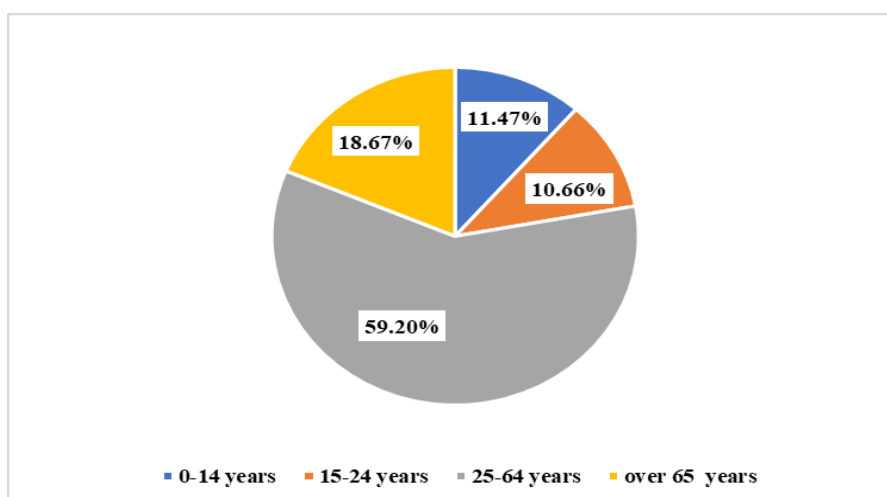


Figure 2. Structure of the population by age category in the municipality of Salonta, 2022

Source: own processing after Tempo on-line, resident population, 2023 [6]

In the municipality of **Salonta**, the calculated demographic aging index (Dai) has a value of **162.77 old people for 100 young people** and the **ratio of demographic dependents (Rdd) for 100 working people is 43.14**.

Table 3.

Evolution of population in the commune of Tinca

Age range	1992	2022	2022	2022 [%]
0-4 years	555	515	1640	19.97
5-9 years	581	518		
10-14 years	612	607		
15-19 years	628	625	1197	14.57
20-24 years	681	572		
25-29 years	369	541	4177	50.85
30-34 years	423	620		
35-39 years	446	563		
40-44 years	485	557		
45-49 years	407	556		
50-54 years	421	584		
55-59 years	519	356		
60-64 years	550	400		
65-69 years	512	377	1200	14.61
70-74 years	398	344		
75-79 years	203	222		
80-84 years	136	147		
85+ years	64	110		
Total	7990	8214	-	-

Source: own processing after Tempo on-line, resident population, 2023 [6]

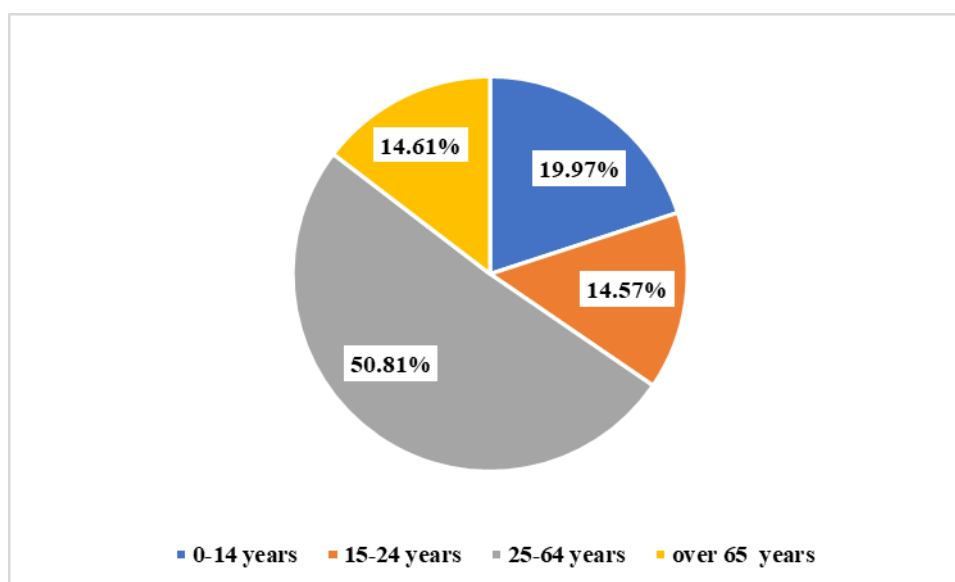


Figure 3 Structure of the population by age categories in the commune of Tinca, 2022

Source: own processing after Tempo on-line, resident population, 2023 [6]

In the commune of Tinca, the index of demographic aging (Ida) calculated has the value of 73.16 persons per 100 young people and the report of demographic dependent (RDD), people dependent on 100 persons aged is 52.86.

Taking into account that, where the young age category in a population is less than 1/3 of the total, it is considered that the population has an aging trend and young population should share a maximum of 12% of the age category for 65+ years old, we see that, **in the municipality of Salonta, the phenomenon of aging population is very accentuated**, because the *population aged 65+ years old* shares **18.67%** and the *population age 0-14 years old* shares **11.47%**. In the commune of Tinca, according to statistical data, see that the *population aged 65+ years old* shares **14.61%** and the

population aged 0-14 years old shares **19.97%**, which shows that **there is still a young population and a labour resource**. This is also the reason why currently calculate Rdd in the commune of Tinca (52.86) is higher than the Rdd of the municipality of Salonta (43.14), because the age group 0-14 years has a share of 19.97% of the total population of the commune.

The dynamics of the population and its trend play an important role in establishing the investment projects to be carried out in each local community in the sense that, in the localities that have sufficient work resources, activities that require a higher number of workers can be developed. In contrast, localities in which the population is aging or has an aging trend need investments with advanced technique and technology, which require a small number of workers.

CONCLUSIONS

Following the study carried out, the authors concluded that, in order to have positive social effects, the development strategies of the localities should rely on specific resources in which the dynamics of the population and its trend play an important role in establishing the investment projects to be performed in each local community.

The study has highlighted a great diversification of the area and a lack of functional homogeneity of economic activities, in which case the specific resources of each locality should be considered as a basis of strategic measures to develop in the area.

The area delimited for research in Bihor County, from the point of view of the agricultural profile of the rural area, is part of the western area, respectively of the Western Plain. The localities have a high percentage of agricultural land (over 60% of the surfaces of the TAUs) that allow the development of agriculture, mixed farms that deal with plant cultivation and animal breeding through extensive methods.

The localities that have sufficient workforce should stipulate, in the development strategies, measures that stimulate the establishment of some processing companies, respectively the processing of agricultural products given that, in Romania, the imports of processed products represent around 69% of the total consumption of processed products. The highest deficit of processed products is recorded in pastry and bakery (9% of the total), drinks (7% of the total), canned fruits and vegetables (6% of the total), sugar and sugar products (6% of the total). All these products can be made in the studied area because it has resources of raw materials.

We suggest support for investments in processing companies (mills for flour, bakeries, dairy products, canned vegetables and fruits, berries, alcoholic and soft drinks factories, etc.) of small capacity so that the local offer of small farmers in the area such as cereals, cow's milk, vegetables and fruits, sorghum for brooms, etc. be capitalised. In this regard, we suggest the association of producers, support in financing investments in collection and storage spaces, facilitating sales through contracts with large stores, firm contracts with the processors.

Promoting the practice of ecological agriculture system in the commune of Tinca that has young workforce is also an important strategic objective with positive effects for small and medium-size farms in the analyzed area.

The localities that have important natural and anthropic objectives (Tinca, Batăr, Mădăraş, Olcea, Ucuriș, etc.) can develop different forms of tourism, such as therapy tourism in Tinca, ecotourism, sports tourism, or agritourism.

The need to promote and extend digitalization in all public institutions, but also to support digitization activities in the sale of production is a solution that should be taken into account in establishing development strategies in particular in the municipality of Salonta where the phenomenon of aging population is accentuated.

We also suggest local authorities to encourage the functioning of traditional fairs and markets in all localities, so that small producers can capitalize on their own production.

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