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GEO-DEMOGRAPHIC INDICATORS RELATED TO TERRITORIAL PLANNING IN ALEŞD, BIHOR COUNTY

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Abstract: The analysis of the human component of the city of Aleşd reveals some peculiarities defining the small cities in western Romania. The increasing demographic trend starting from 1966 up to 1992, as well as the sustained economic growth in terms of industrial development, led the local stakeholders to adopt strategies which enabled the urban sprawl. Likewise, the shrinking city after 1992 is pushing the local authorities to find incentives to encourage births or stop the migration due to decreasing economy. The paper shows that the numerical evolution of the population and the other selected indicators - the urban density, birth rate, mortality, mobility and population structure varies in time under the influence of social, political, administrative and environmental factors.

Key words: geo-demographics, territorial planning

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INTRODUCTION

This paper is part of a broader study which investigates planning related problems within the municipality of Aleşd.

Beside natural resources, the local population plays a major role in the economy of Aleşd. Common indicators such as the amount of the total population, population's structure by gender and age are used for a quantitative assessment of the labor force. The most appropriate indicators for a qualitative assessment – meaning the degree of specialization, and standard of living – are population density, level of school graduation, access to medical, social and cultural services. Based on the above assumptions, the paper aims to explore the city's population in terms of several territorial planning related indicators, such as numerical evolution of the population, population density (urban overall density and urban net density), natural movement (birth rate, death rate, infant mortality and the natural balance), territorial mobility of population (migration flows and the main destinations for migration), population structure (structure by age and gender), level of education and illiteracy rate.

NUMERICAL EVOLUTION OF THE POPULATION

The number of inhabitants is the first indicator to be analyzed in order to define the population of Aleşd. The data comes from the 1880 to 2002 census (the last completed in Romania) and applies to the municipality (which consists of the urban nucleus - the city of Aleşd and three rural settlements: Peştiş, Tinăud and Pădurea Neagră).

The analysis of the evolution of the population of Aleşd reveals a mainly increasing trend, with few fluctuations caused by social, economical and political factors. One can observe a general

increase within the municipality until 1930, when the population began to drop. The fact is due to the splitting of Șinteu, which was a hamlet of Peștiș before. The population growth starting with 1956 is also due to administrative decisions – reuniting Pădurea Neagră with Aleșd (after belonging to the village of Cuzap, starting from 1880).

The sustained growth from 1966 to 1992 is due to the economic growth given the exploitation of natural deposits (bauxite, clay, limestone) and their processing within the surrounding industrial. Another two major reasons for the demographic boom are the prohibition of abortion in 1966, and the evolution of Aleșd from a rural into an urban municipality in 1968.

The last phase, showing a descending trend, begins in 1992 and is mainly due to political changes that led to the restructuring of economic activities and to the migration of the young population towards Western Europe after Romania's accession to European structures which guaranteed the free circulation of all European citizens.

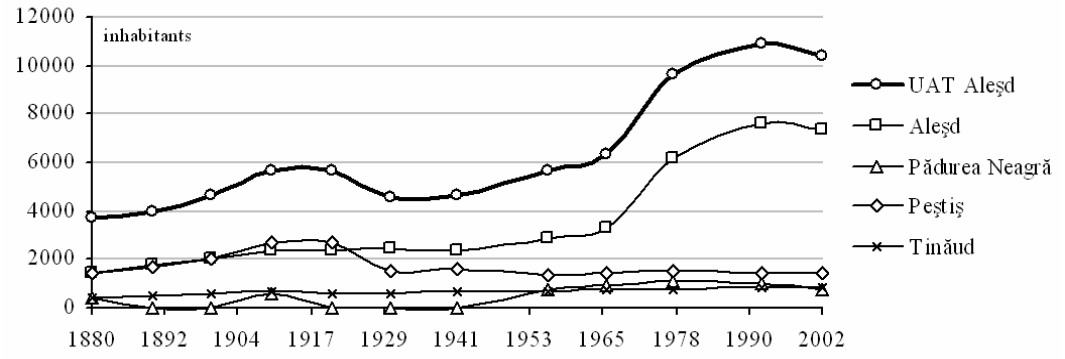

Figure 1. Numerical evolution of the population between 1880 and 2002
(Data source: DJS Bihor)

As one can see on the chart above, the village of Tinăud always faced an ascending trend, mainly due to the fact that it is very close to Alesd and has a privileged position on the main East-West axis (the European 60 road).

POPULATION DENSITY

The second demographic indicator to be analyzed, the population density is important for the determination of developable land and for the assessment of the residents' quality of life. Like the numerical evolution of the population, its distribution in the territory is conditioned by social economical and environmental factors, showing significant differences between southern and northern territories within the municipality. The environmental factors that lead to such differences are the relief, river systems and vegetation (58 % forested areas). The municipality of Aleșd lies upon a 71.95 sq. km territory starting from the Crișul Repede depression up to Plopiș Mountains, which covers about 50 % north of the municipality's territory.

Conditioned by the natural factors, the anthropogenic factors also contributed to the definition of the population of Aleșd in terms of distribution pattern. Among these factors, the emergence and development of mining and manufacturing industry, as well as the forestry activities became in important factor in the inhabitants' distribution within the territory. The two indicators used to illustrate the population density of Aleșd were the overall density, and the net urban density. Expressed throughout the municipal territory, Aleșd's overall density shows an upward trend. With a gross urban density of 2,144.75 inhabitants/sq. km in 2002, Aleșd ranks above the county (79.56) and national (94.4) average. The net urban density, meaning the ratio between the number of inhabitants and the size of the built-up area, which is 1,308.35 inhabitants/sq.km, is placing the city closer to a plain city pattern (Salonta 1,499.9

inhabitants/sq.km, Valea lui Mihai 926.57 inhabitants/sq.km), rather than a hill or depression city pattern (Marghita 2,979 inhabitants/sq.km, Beiuş 3,967 inhabitants/sq.km).

NATURAL MOVEMENT OF THE POPULATION

Another important demographic aspect of a territory is the natural movement of population. It can be expressed through indicators like birth rate, death rate, infant mortality rate and natural increase or decrease, or changes that may occur within a time period.

The birth rate is the essential element in the evolution of a population, depending on population structure and socio-economic conditions (Ilieş and Staşac, 2000). Birth rate is expressed by the general birth index, meaning the ratio between the number of live births and the average number of people multiplied by 1000. In this case one can observe urban - rural differences, and differences related to the level of school graduation, nationality and religion. The indicator is closely related to the involvement of women in social life, the different cultural backgrounds and the national demographic policies. In 2008 birth rate climbed to 14.45 ‰ from 11.89 ‰ in 2004, which means an increase of 2.55 ‰ within four years.

The death rate, the second crucial element in the demographic evolution is illustrated by the general index of mortality calculated as the ratio between the numbers of fatalities in the period analyzed and the average number of inhabitants multiplied by 1000. In 2008 mortality dropped to 8.35 ‰ from 11.33 ‰ in 2004, which means a decrease of 2.98 ‰ within four years.

The difference between the number of live births and deaths is represented by natural demographic balance. It can be positive when the birth rate is higher than the death rate, in this case is called natural growth or natural increase. In the other it is called natural deficiency or natural decrease. In the case of Aleşd, the demographic balance in the year 2008 is represented by a natural increase of 6.1 ‰, compared to the slightly positive value of 0.56 ‰ in 2004.

The infant mortality as the number of deaths in the first year of life per thousand live births is a good revelator of the level of development and social conditions and health. Aleşd recorded a dropping infant mortality from 15.74 ‰ in 2004, to 12.98 ‰ in 2008.

TERRITORIAL MOBILITY OF THE POPULATION

The geographic movement of people with or without change of residence and regardless of the duration of absence from place of origin is the result of socio-economic factors in a given area. The migratory movement involves a change of permanent residence with important implications in the number or structure of the population in a given area. The internal migrations from rural settlements to the cities in the beginning of the 70's turned into a negative migratory flow (-62 in 2004, and -46 in 2008).

The most affected of the component settlements was Pădurea Neagră, mostly because the shutting down of the glass factory which led to massive redeployment of the employees in 1996. The leaving population was especially the young Slovak population who sought for a new job in Slovakia and Hungary (Petrea et al. 2009).

POPULATION STRUCTURE

Differentiation of certain population groups depending on a number of common demographic, cultural or social and economical features helps to highlight important social patterns of a population. Eventually this would help to understand the different social needs of a given population, on a given territory. The occupational structure is relevant both to private and public investments. Analysis of the age structure would help to meet the specific needs of each generation. The analysis of population structure by gender is needed to assess the available labor force for certain sectors (characteristic of men or women). This has a particular importance with significant economic and demographic consequences. It is directly influenced by birth rate and mortality of male and female population, the risks of social and political events (wars or work accidents), migration, etc.

The analysis of the population structure of Aleşd by gender reveals a difference of one percent (250 people) in favor of the female population, due to the higher life expectancy for women in general and of the nature of work performed by men (mining and manufacturing area).

The occupational structure reveals dominating 45.1 % industrial employees, followed by 44.4 % services employees and a low share of 4.3 % agricultural workers. The balance between industry and services occurred only after 1992, until then the largest share of the population was working in the service sector.

Population structure by age groups reflects a community's demographic potential. Any of the three defined categories may be affected by natural movement or migrations. A high share of young population means high development potential, while the high percentage of older population (60 years and over) can have negative consequences, exerting economic pressure on the working age population.

One can call a population young, if it has less than 7% over 60 years old. An aging population is in progress if the percentage of elderly population ranges from 7-12 % and a higher share of 12 % elder people correspond to an "old" population.

As one can observe from the table above, there is a young population decline from 26 % to 21 % compared with the previous census in 2002, and a growing proportion of elderly people from 12 % to 14 %.

Table 1. Population structure by age groups 1992-2002
(Data source: DJS Bihor)

Age groups	0-14	15-59	60 and over	Total
1992	2793	6850	1277	10920
%	26	63	12	100
2002	2181	6768	1466	10415
%	21	65	14	100

THE DEGREE OF EDUCATION

Strictly related to the quality of human resources, education is a crucial element in the development of a society. The level of education is a key indicator of the population of a given territory.

Within the municipality of Aleşd there were 611 persons with higher education, representing 6.79 % of total population according to the 2002 census. Of these, 539 completed long-term studies, and 72 short-term studies. The analysis of the settlement component, Aleşd ranks with 539 inhabitants, followed by Peştiş (36), Tinăud (22) and Pădurea Neagră (14).

Post-highschool and foreman education was followed by 524 people, representing 5.82 % of total population, with 435 in Aleşd, 35 in Peştiş, 32 in Padureă Neagră (former employees of the glass factory) and 22 in Tinăud.

The secondary school courses were followed by 2108 people and the vocational and apprentice courses by 1,531 people. 2,201 people graduated from secondary school courses, representing 24.47 % of the total population.

1,658 persons representing 18.43 % of the total population, with 959 people in Aleşd, 308 in Peştiş, 133 in Pădurea Neagră and 258 in Tinăud graduated from primary school.

Of the 8993 persons representing the population of 10 years and over, a total of 360 people are included under other circumstances, of which 277 illiterate, resulting in an illiteracy rate of 3.08 %.

CONCLUSIONS

With negative phenomena such as economic and financial crisis affecting territorial development, planning should lean more on issues related to demography, social and cultural life, and last but not least on economy. Through basic planning tools such as analysis and forecasting, one can identify or guess vectors that are orchestrating the above components, in order to guide the major stakeholders in the correct direction. This is possible by collecting, processing and handling of the geographical data, and projecting it into the future in order to identify different possible scenarios.

The detailed knowledge of the data on demography, socio-cultural life and infrastructure is a prerequisite for projects of territory, both in the strategic planning process for developing measures and strategies for the development of human settlements, and in the operational planning process (urban and regional planning).

The qualitative and quantitative attributes of the population depend largely on the economy of a territory. Whether it relies on agriculture, industry or services, the economy should benefit from qualified labor force, suitable for the production process. The labor reserve consists of young people who, through education will most likely specialize in the areas represented on the local market, thus providing a basic condition for the concept of endogenous development.

Talking about Aleşd, first of all, one can see a population decrease, a common demographic feature in the western part of Romania. The population density indicates a relatively low anthropogenic pressure on land. Like the overall density, the net urban density reveals a single-family housing urban pattern, and less on collective housing (which is specific to large cities). Even if the local population's natural movement indicates a natural increase, it does not counterbalance the negative migration flows. Dropping infant mortality shows positive growth in terms of an increase in the quality of medical care. Decreasing young population and elderly population growing should come to the attention of local actors. Illiteracy rate of 3.08 % is due to the rroma ethnics, where the educational level is generally low.

All this indicates that the municipality of Aleşd has favorable geo-demographics in order to lead to a balanced development, subject to resolving certain challenges. Some of these challenges related to human component were illustrated in this paper.

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