
OANA LUPOIU

ABSTRACT. – Aspects of Population Evolution in the Metropolitan Area of Brașov During the Post-Communist Period 1992-2011. The metropolitan area of Brașov is an important polarizing center in Transylvania. Throughout the years this metropolitan area suffered not only the territorial, industrial, economic, political transformation but also demographic transformation due to the changes in the demographic structure of population. In this order, first of all we focus on demographic structures and population dynamics emphasizing actual social phenomena such as migration and population ageing. Our study reveals the existence of a similar framework at the national level: migration and ageing of population process. Secondly, we analyze the demographic structure of population in the post-communist period between 1992-2011 emphasizing the evolution of population by age and sector of activity. In our approach we will build a theoretical framework by using statistical data to indicate the demographic tendency of the population in the metropolitan area of Brașov. In the third place we consider the possibility to revitalize the studied area by proposing a few necessary measures for development and change in the mentality of the inhabitants.

Keywords: Metropolitan area, Brașov, population dynamics, natural growth of population, migration

1. INTRODUCTION

The urban development has always been a combination of city extension, urban regeneration and structural transformation varying during different decades. Through the years, cities are dynamic, being part of a system known as urban system define by “different urban settlements which established with other settlements relation of economic social and cultural cooperation, landscaping and environmental protection but also a distinctive administrative autonomy” (Beaujeu - Garnier, 1971).

The urban settlements are parts of an urban system in which they have a precise position and function as an urban area, metropolitan area or metropolitan region (Surd, 2003).

Metropolitan areas can be regarded as economic areas comprising various sub-economies with different forms of economic and spatial organization (Kratke, 2000). The metropolitan area is a large urban center consisting of a metropolis and its

1 “Babeș-Bolyai” University of Cluj-Napoca, Faculty of Geography, 400006 Cluj-Napoca, e-mail: oana.lupoiu@yahoo.com
adjacent area of influence. In the area, one or more cities are centers of development for the whole area which are interconnected at the territorial level with municipalities, cities and villages.

The metropolitan region can include large urban conurbations in which are concentrated many added-value services. At European level, the number of metropolitan regions is steadily increasing, being the “engines” of creativity, development and economic growth.

From the metropolitan point of view, Romania recognizes that is important to develop functional territories. For the implementation of the national strategy of polycentric urban development and its connection to the European policy, the Romanian ministerial authorities designated funds from European and national programs to seven national growth poles (PIDU PC Brașov). These national growth poles are formed around 7 large cities as cores of these poles (one in each Development Region, such as: Iași, Constanța, Ploiești, Craiova, Timișoara, Cluj-Napoca, Brașov). The identified national poles correspond to accumulations of dynamic industry where the investments have important effects trained on regional economy. Also these growing poles generate interregional effects modifying not only the social and economic structure of the region in which they are located but also the proportions and the intensity of interregional exchanges, including the territorial repartition of population and economic activities (Borbély, 2011).

![Fig. 1. Metropolitan Area of Brașov. Source: Brașov Metropolitan Agency](image)

In Brașov case, the national condition of growing pole is fulfilled by the Metropolitan Area of Brașov established in compliance with the law (Law 215/2001). The inter-community associations of the metropolitan area are recovering their
historical evolution. Their potential is confirmed as developed poles with diverse influence in the territory regarding their role and their competitive level. The Metropolitan area of Brașov is important for Romania development and for the Development Region 7 Center (counties Alba, Brașov, Covasna, Harghita, Mureș and Sibiu). The metropolitan territory is comprised of 3 cities (Brașov, Săcele, Codlea), 3 towns (Ghimbav, Predeal, Râșnov) and 10 rural communes (Crizbav, Hâlchiu, Bod, Hărman, Prejmer, Sânpetru, Târlungeni, Cristian, Vulcan, Feldioara) which reunite a number of 410,121 inhabitants and covers an area of 141,229 hectares.

At European level, Brașov and its influence area are defined as being a functional urban area, participating as a key actor at the national and regional cohesion policy (Popescu, 2005).

2. MATERIALS AND METHODS

In general, the study on population can be addressed from two main methodological directions: the first one, the induction path, beginning from the cause and proceeding to the effect or the second one, the deductive path when we already know the effect. In our case, the evolution of the population helps to trace the causes and to explain the phenomenon at the end. In a logical way, we can admit the fact that the evolution of a total population has two trajectories: a positive one characterized by a natural growth of the total population and a negative one characterized by a decrease of the total population. The methodological directions and trajectories emphasize the essential use of statistical instruments which ensure the evolution study of the demographic structure of the population.

The methodological framework depends on available statistical information such as demographic indicators: population change, birth rate, mortality rate.

This study presents the main demographic structures within the metropolitan area of Brașov. The research investigates a large number of aspects or tendencies regarding the evolution of population in the metropolitan area of Brașov, which are in turn inter-related.

The first phase of methodological approach was to identify and delimitate the analyzed territory. Before starting the research, a bibliographical study was conducted for a comprehensive list of existing literature, internet platforms and databases on metropolitan areas. The second phase of our research is the desk research consisting in consultation of the specialized scientific sources and cartographic sources. To these sources was added document-research and the field research materialized through the collection of quantitative information from Municipality of Brașov city, the County Direction of Statistics of Brașov. The statistical data collected shows relevant aspects related to the evolution of population in the metropolitan area of Brașov and demographic tendencies. In the third phase we analyze and classify the collected information, interpreting the phenomenon and geographical process using graphics. On the one hand, this research made it possible to reconstruct the evolution of population and the development of the metropolitan area of Brașov constructing a chronological overview for the Brașov County.
The analysis of demographic indicators facilitated the analyses of demographic trends and the demographic structure of population in the metropolitan area of Braşov. The demographic indicators such as population change, birth rate, fertility rate, natural growth of population, and mortality rate set up the positive or negative trend of the total population. The statistical information is indicating the increase, decrease or stagnation of total population from metropolitan area for a long or short period of time. The statistical analysis shows similar aspects at the national level regarding the birth rate, mortality rate and natural growth of total population but also reveals some particularities related to administrative and industrial reorganization of urban and rural settlements.

The information from the field research, bibliographic resources but also the statistical data from the Municipality of Braşov city and the County Direction of Statistics of Braşov contributes essentially to illustrate the demographic characteristics of the studied area.

3. THE DEMOGRAPHIC STRUCTURE ANALYSIS

3.1. The population evolution of the Metropolitan Area of Braşov

The population is one of the most important resources for the development of the metropolitan area of Braşov. This variable holds a central role on the morphology, physiognomy and social unity that binds the demographic reproduction fund and reproduction of the labor force. This fact is an essential requirement for shaping the existing human potential and identifying strategic directions of development (Haupt, 2006).

In the past 20 years the demographic structure of the metropolitan area of Braşov registered modifications through time and space for the values such as natural growth of population, the structure of population by age, territorial mobility which is expressed as a necessity in today's population perceptions. The causes of modifications in demographic structure are attributed to the evolution incurred in political, economic and social sector. In this conditions is manifested an accentuate tendency of decreasing and ageing of population due to increase of mortality and external migration which affects all the aspects of social life.

![Fig. 2. The evolution of population in the Metropolitan Area of Braşov.](image)
In the period 1992-2011 the population of the metropolitan area decreased by 8.71% from 449,257 inhabitants in 1992 to 410,116 inhabitants in 2011. In 1992-2002 the total population of the metropolitan area registered a decrease regarding the number of population by 9.14% (fig. 2). The causes of decreasing number of population are several but we will mention just a few such as the out-migration and decrease of life quality which determine a drastic decrease of the birth rate. Through the years, the industry in the metropolitan area of Brașov decreased its function, with many industrial units in Brașov city being restructured, especially those representing the main factors of attractiveness.

A sensible growth of the population took place in the period 2002-2011, as a result of reflowing economy and state support for young families in order to increase birth rates. In the metropolitan area of Brașov the most significant increase of the total population were recorded in Sânpetru 30.76%, Hărman 23.11% because of the migration and residence changing for a substantial part of the population from Brașov city. The following localities also recorded an increase of total population such as Tărlungeni (21.67%) because of natural growth of Roma population; Cristian (21.55%), Bod (13.43%), Prejmer (11.77%), Săcel (9.31%), Ghimbav (1.91%), Râșnov (0.58%), Codlea (0.42%). At the opposite pole there is a decrease of total population in Predeal by 28.87%, Hâlchiu by 16.40% because of the administrative reorganization. Also a decreasing trend of population is registered in the city of Brașov by 14.46% and in Vulcan by 11.97%.

Between 1992-2002, the town of Predeal experienced the largest decrease of total population. In this order, between 1992-2002 the population decreased by 23.10%. This decreasing tendency continued after 2002 and in 2011 the town of Predeal has reached a decrease by 28.87% of the number of inhabitants compared to 1992 because of the spatial movement. Unlike Predeal, in the rural space, Sânpetru recorded between 1992-2002 a population growth of 4.23% and up to the year 2011 an increase by 30%.

3.2. Population dynamics

3.2.1. The natural growth of population

Declining living standards, economic restructuring, unemployment, low income and freedom to travel beyond country’s borders dominate the population evolution of urban space in Romania.

The natural growth of population means the difference between two demographic indicators: the birth rate and the mortality rate. After 1990, especially 1992-2007 the natural growth registered negative values accentuating the population ageing but also a decrease of active population when compared to the inactive population. For this period the demographic tendency shows that the mortality rate was higher than the birth rate.

In 1992 the natural growth of population in the Metropolitan Area of Brașov reached an average of 1.03‰. According to County Direction of Statistics of Brașov the highest values of natural growth of population were registered in Vulcan (6.84‰), Codlea (4.3‰), Râșnov (2.07‰), Tărlungeni (1.88‰). Negative values have been recorded in Sânpetru (-2.67‰), Hâlchiu (-1.73‰), Hărman (-0.72‰). After the year 1992 the
natural growth of population decreased and until 2002 has reached a value of -1.36‰. The lowest values of natural growth of population were recorded in Sânpetru (-6.43‰), Bod (-3.07‰), Braşov (-2.65‰), Predeal (-1.95‰), Cristian (-1.55‰), Ghimbav (-1.39‰). A positive natural growth was registered in Hălchiu (5.02‰), Codlea (4.9‰), Vulcan (2.5‰). The positive values registered are the results of an early phase of the fragile balance of economic structures. Due to the fact that the population accepts economic and social changes, adapting new objective conditions for restructuring with all its difficulties (fig. 3).

![Fig. 3. The natural growth of population 1992-2011.](image)

In 2007 the Metropolitan Area of Brașov registered a positive value of natural growth of population with 0.3‰, a birth rate of 4.2‰ and a mortality rate of 3.7‰. In 2011 the natural growth of the Metropolitan Area of Brașov increased by 1.14‰. The localities which have a positive high value of natural growth of population in a descending order are: Tărlungeni (7.37‰), Săcele (6.57‰), Vulcan (4.62‰), Codlea (4.50‰). The high values are the result of the presence of an important segment of Roma population for which the birth rates registered high values. On the other side, the constant negative values of natural growth of population are registered in Brașov (-0.21‰), Predeal (-2.50‰), Bod (-2.19‰). At the local level in 2011 the majority of the settlements from the metropolitan area have a positive natural growth from a demographic point of view assuring conditions for the sustainability of the Metropolitan Area.

### 3.2.2. The structure of population by age group

The structure of population by age group is an important demographic indicator from the perspective of demographic and socio-economic planning but also in terms of the volume and structure of consumption. The structure of population by age is considered a social-demographic classification of the total population for the Metropolitan area of Brașov.
For a comprehensive picture of the evolution of population structure by age groups we take into consideration the age group 0-19 years; the age group 20-64 years is representing the category of the working and active population and the age group over 65 years representing the inactive population (children and retired people).

In 1992 the age group 0-19 years gathered a total population of 33%, the age group 20-64 represents 60% of the total population, while the age group over 65 years gathered only a total population of 7%. In 2002 the age group 0-19 years recorded a decrease to 23% mostly represented by children from primary and secondary schools; the age group 20-64 years increased to 66% represented by working people and the age group over 65 years increased slowly with 11%, represented by elderly people with mobility and health problems. Between 2009-2011 the demographic structure of population by age underlines the fact that the age group 0-19 years recorded a constant decrease up to -1% from 18.84% in 2009 to 18.21% in 2010 and 17.73% in 2011 due to the low fertility rate and decrease of young population. The age group 20-64 years known a slight increase from 68.88% in 2009 to 69.36% in 2010 and 69.74% in 2011 related to the existence of a varied sum of local services provided to inhabitants. The age group 20-24 years has a particular important role in the future for the labor force and work resources regarding a medium and short term. The lowest value is registered in the age group over 65 years which has a slightly tendency of increasing from 12.28% in 2009 to 12.43% in 2010 and to 12.53% in 2011. The age group over 65 years has a great social implication of degradation for demographic structure of population by increasing the process of ageing.
The low values of fertility rates and birth rates determine the demographic structure of population by age to continue modifying its composition by reducing the number of young people and increasing the number of elderly people.

The ageing of population is a complex phenomenon which influences the evolution of demographic structure of population by age, increasing the number of elderly people, influencing directly the proportion of active population and the relationship between ageing dependence and demographic sustainability in the Metropolitan Area of Brașov.

The demographic ageing rate (the number of elderly people of 65 years and above) which correspond to 1000 young people (0-19 years) recorded high values of 651.69‰ in 2009, but in 2010- 682.61‰ and 707.04‰ in 2011. In this case, an important role has the dependence ratio of elderly people (65 years and above) to the 100% active population (between 15-64 years) which had an ascending evolution also, from 16.30% in 2009 to 16.56% in 2010 and 16.78% in 2011. The increase of the dependence ratio indicates an increasing pressure over the active population which needs to assure the necessary resources (material, pensions, social and medical services) for people who are preparing to exit or already exited the labor market. In the Metropolitan Area of Brașov the ageing process is gradual with accentuate tendencies in cities (Brașov, Predeal) as a result of internal, external and international migration.

To combat the ageing of population it is mandatory that the local and national governance take measures to create a favorable environment for young families.

### 3.2.3. The structure of population by sector of activity

This structure offers information about the social-economic stage of development in urban settlements. The economic profile of the Metropolitan Area of Brașov has known major changes in the last 20 years with important structural mutations of the labor force. The demographic evolution in the Metropolitan Area of Brașov has a strong effect on the dynamics of the labor force. The decrease of population imposes the necessity to extend the active period of the labor market and also to increase the productivity adapted to the evolution of the labor market. The labor force concentrated in buildings and infrastructure, industry services was elevated during periods of economic growth and on the opposite side disadvantaged the people which work in the industry. Also as a result of the urbanization of the metropolitan area, the share of the population employed in agriculture remained low.

The active population in the Metropolitan Area of Brașov is represented by young and skilled people seeking opportunities for employment or already working to provide supply and goods. In 1992 the total active population of metropolitan area of Brașov was 218,683 inhabitants. During the 2009-2011 the total active population of metropolitan area decreased with 73.31% in 2009 on behalf of economics crisis and a high rate of unemployment then followed with 75.09% in 2010 and 74.70% in 2011.

Fig. 5. The structure of population by economic activity between 1992-2011.

The main cause of active population decreasing is the reduction of the average age of retirement imposing an early retirement. Also we mention an increase of the people that follows a high education and in this way extend their period of inactivity.

In the last years the employed population has followed an ascending trend of active population. During the past few years, the unemployment rate in Brașov has been usually higher than the national average. The social and economic problems of the Brașov area would have become even more severe if part of the unemployed people would not have been absorbed by various activities in service sectors (Marinescu, 2011).

The decrease of employed population was emphasized by the economic crisis existing at the global level. In 1992 the population accounted 213,684 people, in time this number of inhabitants decreased to 144,129 people in 2009, to 128,440 employed people in 2010 and in 2011 there were only 124,558 employed people.

According to the 1992 census, 8,044 people worked in the primary sector (agriculture), 123,917 people in the secondary sector and a high value of 81,723 people was registered in the tertiary sector (services).

From the dispersion of employed people in the metropolitan area, in 2011 the main suppliers of economic activities and jobs are: Brașov with 97,874 people, Sâcele with 5,697 people, Codlea with 3,207 people, Ghimbav with 3,215 people, Cristian with 3,049 people, Predeal with 1,473 people, Rășnov with 1,811 people, Prejmer with 1,367 people, Sânpetru with 1,114 people, Hărman 1,029 people.

The distribution by activity sectors in 2011 indicated higher values of population in agriculture, in the cities and towns: Brașov 872 people, Codlea recorded 380 people, Rășnov reached 115 people, Hâlchiu-109 people, Predeal-71 people and Sâcele-65 people.

The lower values of population in the agriculture activity sector are in the localities Prejmer with 12 people and Cristian with 24 people. In industry the major part of population are concentrated in the city of Brașov 22,392 people, in Cristian 3,207 people,
Săcele 2,771 people, Ghimbav 2,356 people, Codlea 2,237 people, Prejmer 868 people, Sânpetru 638 people, Rășnov 620 people. The service sector reached highest values in the city of Brașov with 74,610 people, 2,598 in Codlea, 2,861 in Săcele, Predeal 1,276, Rășnov 1,076 people, Ghimbav 636, Cristian 581, Prejmer 487, Sânpetru 476, Hărman 437 (fig. 5).

The service sector acquires a significant importance, while the agriculture sector and industry sector recorded a slight decrease trend in parallel with a slight increase in the share of the population employed in services. Despite this, the Metropolitan Area of Brașov holds the polarizing role for the entire region. The center of metropolitan area highlights a diversified economic profile with two strengths: industrial tradition and tourism potential.

3.2.4. The migration

The migration is a significant component of population dynamics with two components such as internal migration and external migration. The migratory balance of the Metropolitan area of Brașov has fluctuated from year to year. The population flows before 1990 were held from rural space to the urban space because of vacant jobs in secondary and service sector. After 1990 these flows of population were reversed to a new phenomenon known as urban-rural re-emigration as a result of economic, social problems determinate by the process of industrial restructuring. The population from urban settlements moved to rural settlements because of the reduction of the economic activities in urban space and in order to access services provided by a municipal infrastructure. Externally, a large part of the population migrated to other developed countries due to the scarcity of some economic functions in the country, better work benefits and higher life standards.

In this context, in 1992 the migration balance had a positive value of 4.50‰ (fig. 6).
The town of Ghimbav registered the highest value of the migration balance of 61.02‰, followed by the municipalities of Prejmer 22.31‰, Codlea 12.36‰, Râșnov 8.16‰ and Brașov 4.27‰. The lowest migratory increase was registered in the city of Brașov (4.18‰) due to the external migration to the Metropolitan area of Brașov.

In the period 2006-2008 the migratory balance had a positive evolution due to a period of economic growth. In 2006 increased values of migratory balance reached a value of -1.03%, in 2007 – 0.10% and in 2008 -0.14% seconded by the aspects of financial crisis. During the period 2008-2011 one can notice a decrease of the resident inhabitants in the metropolitan area and a moderate reduction of departure of residents from this area. The existing economic crisis at the global level affected the population of the metropolitan area so that in 2009 there was a dramatic level of migration of -3.19%. In 2011 the migratory balance known a return of a positive, ascending trend reaching a value of 0.41‰.

In the population dynamics the age of migrants plays an important role. In the last years, a common age of migrants is represented by young people of 25-29 years and 30-34 years reaching 34.60% until 2011. From 2007, after Romania become a part of EU space the migration become more intense for young people migrating abroad.

4. RESULTS AND DISCUSSIONS

In the Metropolitan area of Brașov, the population represents a dynamic and essential element which organizes the geographic space through the potential intervention of the habitats, but also through its settlement systems and their functions considered as agents of transformation of the territory.

The territorial dynamic of the metropolitan area of Brașov is similar at the regional and national level where we point out that the population of Romania has decreased roughly with 10% compared to the total value recorded in 1992. During the period 1992-2011 the total population of Metropolitan Area of Brașov changed by -8.71%. Although the natural growth of the population registered positive values from 1.03‰ in 1992 to 1.14‰ in 2011 this is insufficient to compensate the phenomenon of population ageing.

As a result of the decrease in revenue and elimination of some incentive measures dedicated to young mothers, the birth rates are following a tendency of decrease. The mortality rate follows the same tendency of decrease due to the increase of life expectancy. The migratory balance had a positive trend correlated with periods of growth in 1992 of 4.50‰ but lately we can notice a decrease by 0.14 % due to the negative values recorded being correlated with the global economic crisis. In the last years, the internal migration in the Metropolitan area of Brașov reached an increase from 9.28% to 11.69% of the total population. Despite the other metropolitan areas from Romania, the metropolitan area of Brașov is noted with a high degree of urbanization (almost 90% of the total population lives in cities and towns) generating an urban territorial cohesion.
The demographic structure of population by age shows for the age class >65 years a prominent tendency of ageing population while the young age class 0-19 is characterized by decrease in the birth rates with 46.27% during the post-communist period 1992-2011.

The social-demographic phenomenon of ageing population manifests as reduction of the young people simultaneous with the increase of the elderly people causing negative consequences for the labor force and market in all activity sectors. In the same time, the proportion of the active population in post-communist period 1992-2011 decreased by 24.6% affecting mainly the dependence imbalance in the metropolitan area.

The possibilities for the revitalization and development of the metropolitan area of Braşov are real but this process requires significant investments for demographic revival.

In the metropolitan area of Braşov there can be applied measures to redress the demographic indicators. The case study regarding the metropolitan area of Braşov represents a territorial analysis of major importance in order to pursue an effective policy and a sustainable development. Through its geographic position, Braşov can play an important role in the territorial and economical cohesion, by developing along with other functional urban areas (like Constanţa, Bucharest and Ploieşti) and can became an integrated part of an economical development axis at national level formed by Bucuresti, Ploiești and Brașov. The forecasts regarding the economical, social and territorial cohesion made by EU indicates that by 2020 Braşov can have a major importance in the metropolitan areas of Romania, along with Bucharest and Constanţa (Popescu & Corbos, 2010).

5. CONCLUSIONS

The population is the most important resource for the state and the only one that can generate production and consumption, constituting one of the main subsystems of the national economy. The relation between the population and the production-consumption system is particularly complex because selectively the population influences the production subsystem. This influence of population is taking place by participation of active population which ensures the workforce resources, volume and structure of consumption. The population is shown as a system by its structure and its number and can be considered a resource ensuring by its number the quantity of labor force and by its structure the quality and variety of labor force. Furthermore, these aspects influence the size of the population, the natural increase of the population and the economic growth. In this order, it is necessary to implement policies and measures to combat the causes and the effects of demographic indicators as population change, birth rate, mortality rate. These measures and actions will counter the gradual process of migration and ageing of population preventing degradation of demographic structure of population. The efforts need to be oriented in rehabilitation of infrastructure and creation of jobs, the modernization of communication network, easy access for quick transmission of the characteristics of the urban territory. Also these
efforts are completed by the construction of social facilities at an appropriate level (health care, education and development), investment for development and modernization of technology transfer centers, logistic centers, and business centers of cluster type, creating jobs for attracting the population of middle-aged group or young people.

The other measures required are support policy and diversification of economic activities which assure the development of settlements and increasing quality of life, health and social policies aimed at the protection of the family. We mention also about economic and social policies in order to increase the attractiveness of young population stabilization, and actions for the protection and assistance of the elderly population. This kind of actions for elderly people includes health services at home, new social houses for less mobile elderly people.

In order to attract in the metropolitan area highly qualified people we need measures of stabilization using the scientific potential of University center from city Brașov for the promotion of activities based on high technology and creating the economic environment and adequate physical-spatial environment. We need to enforce the countering measures for the process of depopulation and other demographic negative process which generate imbalances in the living environment by increasing the employment opportunities and entrepreneur initiatives, diversification of economic activities. It is necessary to reinforce the role of the polarizing center by supporting the development and diversification of economic activities, use of the potential of existing restructured industry, creation of IMMs (small and medium-sized companies); improvements to public facilities and services with the territorial role of urban infrastructure and transport. The economic policies are in order to increase the attractiveness for young population by offering job opportunities in the industrial parks of the metropolitan area.

These policies and measures will counteract the out-migration of young people, the increase of elderly people and in the end will reduce the process of depopulation in urban settlements. Following these strategies and measures the Metropolitan area of Brașov will gain a superior level in urban hierarchy of settlements and will become a true economic and social space.

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