

DEMOGRAPHIC TRANSFORMATIONS: THE CASE OF BRAŞOV COUNTY

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Abstract: *In the last decades, population evolutions have materialized in strong transformation in the age structure of the population. The demographic ageing raises issues regarding long term sustainability: different proportions of the population in schools, employed or retired; shortages of the labour market; pressure on public budgets, strains on pension systems; rising medical costs as longevity increases. Even though in the last years Braşov county became one of the counties with good values in natality, fertility rate, low mortality and a positive natural increase, solutions should be found to attenuate the accelerated deterioration in population decline and age ratios, predicted for the future.*

Key words: *sustainable development, demographic ageing, Braşov county*

1. Introduction

Evolution of population and demographic phenomena represents only a component of the transformations produced in Romania after December 1989. The sharp fall in birth rates, the impact of mortality and external migration have reduced Romania's population in absolute size, and have outlined a pronounced process of demographic aging. Moreover, in the decades to come, all projections of demographic development in Romania, either developed at national level (National Institute of Statistics and Demographic Research Centre of the Romanian Academy) or international (EUROSTAT and UN Population Division) predict an increase in the demographic decline, with all the related economic and social consequences.

At the European Commission level, attention is directed to counteracting the consequences of demographic aging, focusing on family, social, health, and long-term care policies.

At national level, the population strategy is a component of the national sustainable development strategy, elaborated in the form of the document The National Strategy for Sustainable Development of Romania - horizon 2030, a document elaborated on the recommendation of the European Commission. The basic feature of this National Strategy is the full alignment of Romania to a new philosophy of development, which is

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agreed by the European Union and widely shared on a global level - that of sustainable development. Structured in 5 parts, NSSD contains in Part II an assessment of the state of human capital in Romania, because, ultimately, even if it is aimed at designing a sustainable development model in all its essential components: economic, social cultural and environmental issues, the national strategy will have to provide a reasonable answer to the question: "With whom and for whom will the sustainable development of Romania be achieved?" and one of the priority directions of action for acquiring and applying the principles of sustainable development during the next period refers to the accelerated modernization of education, training and public health systems, taking into account unfavourable demographic developments and their impact on the labour market.

Also, at the level of Braşov County, with Romania's accession to the European Union on 1 January 2007, alignment with the requirements imposed as an EU Member State was accompanied by actions of the local public administration that concerned the sustainable development of all localities. The Agency for Sustainable Development of Braşov County (ASDBC) started the project "Development Strategy of Braşov County - horizons 2013-2020-2030", which became the working tool of the local administration aimed at solving the current problems in compliance with the principles of sustainable development, in the conditions of rational use of existing resources, as well as a medium and long term planning tool. Within this project, a chapter of analysis was reserved for the present and future evolution of the population of Braşov County.

2. Demographic Evolutions

2.1. Braşov population and its demographic structure

As a total absolute amount, the population of Braşov declined strongly in the period 1990-1992, from the value (on July 1) of 696,441 persons in 1990* to 685,117 in 1991*, to 629,172 in 1992; in the following period fluctuations were more reduced, there was a minimum of 622.8 thousand persons in the period 2002-2004, then a slow but continuous increase was registered to a maximum of 631.8 thousand persons on 1 July 2016.

If, on the whole, Braşov County did not show significant fluctuations in the size of the population with permanent residence during the period 1992-2016, the situation of the localities inside the county was differentiated. Even though the city of Braşov decreased as a population by 9% over the analysed period, the localities with the largest population expansion were Sînpetru (whose population almost doubled), Harman and Cristian (with an increase of 65% and respectively 58%), as well as Ghimbav (36%) and Săcele (20%), which confirms the development of Braşov in the immediate vicinity of the city. Also significant growth experienced the localities of Budila (55%), Măieruş (52%), Bod (46%), Feldioara (39%), Tarlungeni (37%), Buneşti (34% 26%), Teliu and Ticuşu (25% each), Şercaia (20%).

At the opposite end, the largest depopulations were recorded in Fundata (45%), Poiana Mărului and Viştea (40%), Ormeniş (by 30%), Voila (27%), Predeal (by 24%).

The urban area of Braşov County is made up of the four municipalities (Braşov, Codlea, Făgăraş and Săcele) as well as Ghimbav, Predeal, Râşnov, Rupea, Victoria and Zărneşti.

The urbanization percentage of Braşov County, initially recorded in 1990 at 77.4%, remained relatively constant over the period 1992-2004, ranging from 76 to 77%, after 2005 constantly falling, up to the value of 73.2%. In addition, the percentage of the population from the rural area in the total population of Braşov County was constantly placed between 23-24% until 2005, after this year constantly increasing to 26.8%, specific for 2016.

Permanent resident population

Table 1

Urban and rural areas	Gender	1990 (July 1)		2016 (July 1)	
		%	Persons	%	Persons
TOTAL Braşov County	Total	100	696.441	100	631.796
	Male	50,5	351.420	48,5	306.255
	Female	49,5	345.021	51,5	325.541
URBAN	Total	77,4	539.123	73,2	462.782
	Male	50,6	272.797	47,7	220.934
	Female	49,4	266.326	52,3	241.848
RURAL	Total	22,6	157.318	26,8	169.014
	Male	50,0	78.623	50,5	85.321
	Female	50,0	78.695	49,5	83.693

Age and gender criteria help to build a graphical representation of a country's population structure, called the age pyramid. Viewing in parallel the pyramids of Braşov county population at the beginning and the end of period (1990 - Dec. 31, 2016) provides an image of the changes in the population structure during this period. The narrow base of the pyramid at the end of 2016, consisting of generations of children and young people born after the Revolution, is the proof of the birth decline after 1990. The disproportion among generations became visible at the boundary between the two age groups, 20-24 years and 25-29 years, boundary set up by the year 1990 that marked the shift from a demographic behaviour characterized by a high fertility rate to a low fertility rate. Moreover, to the low birth rates since 1990 have been added external migration, amplifying the effect on the size of younger generations.

In the temporal dimension, the transfer of generations can be analysed by observing in parallel the pyramids of 1990 and 2016, each generation being recovered in a 26-year older age group but diminished as a result of mortality and migration (internal and external) produced over the period. The "0-24 years" decree groups in 1990 are found to be broadly extended as a proportion, but numerically reduced in the age groups of 25-50 years of the year 2016. The age group 25-29 years (of the year 1990), relatively poorly represented compared to the other groups, because it did not fall under the decree incidence, but also was not fed by the internal labour migration of the 1970s, being children at the time, we find it reduced proportionally with the other groups in the year 2016. Groups aged 30-44, large by attracting labour force from other counties, are relatively well represented in the pyramid of 2016, but changed in the male/female ratio

(superior for male in 1990, and female in 2016), as a result of male overmortality at older ages.

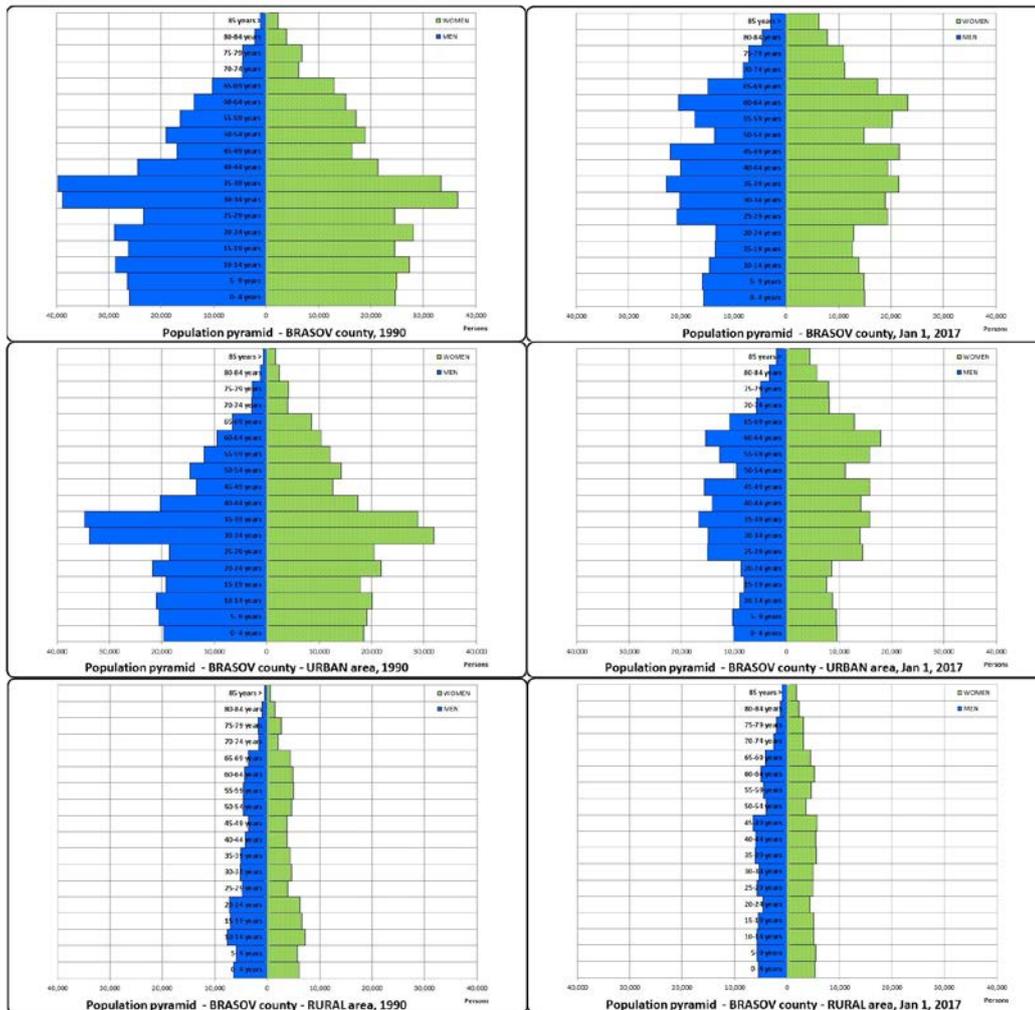


Fig. 1. *Population pyramid – Braşov county, 1990 – 2016 (total/urban/rural)*

The distribution of generations in the future will be under the sign of the narrowed cohorts, made up of today's children, which will be the future working generations. They will have to economically sustain a large mass of retirees born in the period after the application of Decree 770. And also these fewer children will be the ones who will become parents of an even lower generation of children, assuming the current fertility rate, a circular phenomenon from which it will not be able to exit without the intervention of a favourable outside factor (immigration, birth rate incentives, etc.).

2.2. Vital statistics

The tendency registered at the national level regarding the decrease in the number of live births was manifested also in Braşov County. Between 1990 and 1996, the decrease in the number of live births was continuous and accelerated, from approx. 8 thousand to 5.4 thousand; between 1996-2007 there was a fluctuating evolution of the number of live births, the values being between 5,6-6 thousand; during 2008-2016, the highest birth rates were reported since 1992, most of the years accounting for 6.4-6.7 thousand live births.

From the point of view of parents' age groups at childbirth, there is a generalized phenomenon of birth rate frequencies transfer to older age groups of the parents, both for men and women. If in 1990, about 60% of the fathers belonged to the age group of 20-30 years, in 2016 about 66% of the newborns had their father 25-40 years old.

Women also followed the tendency to postpone the birth phenomenon; in 1990 more than half of the mothers were from the age group of 15-25 years, in contrast to 2016, when 70% of the mothers belonged to the age group of 25-40 years. The average age of the mother at birth increased steadily in the analysed rang as from a value of 22.3 years in 1990 it reached 27 years in 2016.

The natality rate, calculated as the number of live births per one thousand inhabitants, was a fluctuating indicator during the period 1990-2016, both as an absolute value recorded annually at the level of Braşov county, and compared to the value recorded at national level each year.

If during the period 1990-2000 the annual gap in the birth rate in Braşov county (less than the national average) was around 1.5 percentage points, after 2000 the birth rate of Braşov county became lower than the one at national level by less than one percentage point, in 2006-2007 the two values became equal, and after 2007 Braşov has constantly registered birth rates higher than those at national level, even by more than 1 percentage point towards the end of the period.

By urban/rural criteria, evolutions are different. The urban area of Braşov County was from the point of view of the birth rate below the national urban average until 2008, after which the values are quite similar.

In rural areas of the county of Braşov, the birth rates were close to the levels recorded by the national average of the rural area in the period 1990-1995, after which the birth rate values in the rural area of Braşov County sharply increased exceeding 2 percentage points in 2001 and most of the years after, by 3 percentage points since 2008, and even 4 percentage points above the national average in the urban area after 2014.

In 1990, Braşov was from the point of view of the birth rate indicator in the queue of county ranking, with the value of 12 live births per one thousand inhabitants, only three other counties being lower in this issue: Bucharest (10,3 ‰), Arad and Teleorman.

In 2016, Braşov (10.2 ‰) registered a good position on the birth rate indicator, being overtaken by only 5 other counties, of which three with values close to its, the highest value being in Ilfov of 12.4 ‰.

In terms of birth intensity, more relevant than birth rate (calculated as number of live births per one thousand inhabitants) is the fertility rate (the total fertility rate is

determined based on the number of live births per 1,000 women of fertile age, 15 - 49 years).

The latter has the advantage of referring only to the population of origin, namely fertile women, while birth rate is the result not only of the intensity of the birth phenomenon but also of the ratio between the sexes and the age structure of the population (for example, the natality rate may be the same if the same number of children is born in two populations of equal size, but in the older population the fertility is higher). Similarly, in two populations of the same size as the same number of children, but in one the number of women is higher than the number of men, the birth rate is the same, while the fertility of women is lower).

In 1990, for women aged 15-49, but also for each age group, women's fertility in Braşov County was lower than the national average. In 2016, per total and per each age group, the fertility recorded in Braşov County was higher than the national values (only the age group 45-49 years made a distinct note of these developments).

Also in terms of fertility, Braşov has reversed its position in the rankings of the counties. If in 1990 Braşov was the county with the lowest fertility rate, only Bucharest and the Ilfov area being below, in 2016 Braşov becomes the 5th county among those with the highest fertility rate. In 1990, in the same situation with Braşov were the counties of Arad, Timiş and Caras-Severin, each of them having the fertility rate below 50 ‰. Most counties recorded rates ranging from 50-70 ‰, only four counties, all in Moldova, skipping this threshold. If in 1990 Braşov made a discordant note in the Transylvanian area, with a fertility rate under the other neighbouring counties, in 2016 it slightly exceeded the value range of the area.

It should be noted that in the year 2016, the national average of the fertility rate (36.3 ‰) was lower than the lowest value recorded at the level of any county in 1990 (39.2 ‰ - Bucharest-Ilfov).

The mortality rate, calculated as the deceased number per 1000 inhabitants, increased during the analysed interval both at the level of Braşov county (from 8.3 ‰ to 9.7 ‰) and in the urban area (from 7 ‰ to 9.5 ‰). In the rural area, the mortality rate has fallen (from 12.6 ‰ to 10.2 ‰).

Regardless of the urban/rural area to which they refer, mortality rates in the county of Braşov have always been below national values, frequently with 2 up to a maximum of 3 percentage points. For example, in 1990 Braşov recorded 8.3 ‰ compared to the national average of 10.6 ‰. In 2016, Braşov recorded 9.7 ‰ compared to the national average of 11.6 ‰.

Compared to other counties, Braşov maintained its second position among the counties with the lowest mortality rate, both in 1990 and in 2016, with a lower rate being only Iasi County.

For the mortality indicator, Braşov improved its position among the other counties. If at the mortality indicator, Braşov registered a higher value than 15 other counties in 1990 (6 births per 1,000 births, compared to the national average of 7 ‰), the value of 2016 has improved both in absolute terms (2 ‰) and relative to the national average (3.6 ‰) and compared to the values recorded by the other counties (only 4 counties had, in 2016, mortality rates lower than that of Braşov).

Better than the national average, but with a weaker position in the county rankings, Braşov has improved the infant mortality in absolute value (from 25.3 deaths under 1 year to 1000 live births in 1990 - the national average of 26, 9 ‰, to 6.8 ‰ in 2016 - national average 6.9 ‰). But in 1990, Braşov followed 14 other counties with better values of infant mortality, while in 2016 there were 18 counties with better performances at this indicator.

As a result of the difference between the number of live births and the number of deaths, natural increase indicates the size of population growth or decline as a result of the natural balance of the population. After 1990, the natural increase of Braşov County was positive but declining until 1992, from 2439 persons to 552 persons, became negative in the period 1993-2004 with a minimum of -769 persons in 1996, and then constantly recorded positive values with a maximum of 876 people in 2009.

In relative terms, per 1000 inhabitants, the rate of natural increase of Braşov County decreased from 3.7 ‰ to 0.8 ‰, becoming negative until 2004 with a minimum of -1.2 ‰ in 1996, and then registering positive values with a maximum of 1.4 ‰ in 2009.

Compared to the national average, in 1990 Braşov registered a value of the natural increase of 3.7 ‰, higher than the national average of 3 ‰, being behind another 13 counties with higher natural increase (the maximum value registered in Iasi of 8.2 ‰), but far from the national minimum of -3.1 ‰.

In 2016, the positive natural increase of 0.5 ‰ gives Braşov the fourth best position among the counties (the national average was -2.5 ‰), the national maximum being registered in Ilfov of 2.6 ‰ and the minimum in Teleorman of -9.8 ‰.

Both for the entire Braşov County and separately on the urban and rural areas, the average life expectancy increased both for the total population and for the male and female separately, the values being constantly higher than the national ones. Overall, the life expectancy increased from 70.68 years in 1990 (national average 69.56 years) to 77.02 years in 2016 (national average 75.56 years).

For men, Braşov recorded a value of the life expectancy in 1990 of 67.34 years (the national average being of 66.56 years), which placed Braşov behind other 13 counties (the maximum being in Vrancea 68.57 years). In 2016, not only the absolute value increases (73.67 years compared to 72.11 years of the national average), but also compared to the other counties, only 3 counties having superior values to the one of Braşov county (maximum 75.41 years in Vâlcea).

For women, Braşov remains in 2016, as in 1990, the third county with the highest life expectancy, with values very close to the national maximum (74.22 years compared to the national average of 72.65 years in 1990, respectively 80,29 years compared to the national average of 79.07 years in 2016).

The nuptiality rate registered in Braşov County both at the beginning of the analysis period and at the end was close to the national average, placing the county in a middle position among the values registered by the other counties. Both men and women in Braşov County had an average age at the first marriage among the largest in the country. In 1990, the men in Braşov first married at 25.6 years on average, only in Bucharest registering a higher value - 26.1 years; in 2016, the average age at first marriage increased to 31.6 years, only in Bucharest and Galaţi being recorded higher values. Women also had

the highest average age at first marriage, 22.8 years in 1990, after Bucharest, while in 2016 with 28.6 years Braşov was surpassed only by Cluj and Bucharest.

With a permanent divorce rate above the national average, Braşov was permanently among the top eight counties with the highest divorce rate.

3. Conclusions

During 1990-2016, Braşov county experienced multiple demographic transformations:

- while the population of Braşov didn't change significantly, the neighboring area of Braşov had an important expansion, in some areas the population raised by 60% or more, or even doubled. Este importanta mentionarea faptului ca **judetul** ca populatie totala s-a mentinut in aprox aceleasi valori, in timp ce numarul de locuitori din zona din vecinatatea **orasului** Braşov a crescut semnificativ.
- a slight decrease of the percentage of county population living in urban areas, complementary to the higher percentage of rural population.
- a strong transformation in the age structure of the population, after 1990 there were born smaller generations of children, reversing the ratio between children, adults and retirees.
- a decrease both in number of live births and in natality and fertility rate; still, Braşov become in 2016 one of the counties with the highest values, contrary to '90s, when Braşov registered one of the smallest values among other counties.
- Braşov maintained its position as the second lowest mortality rate among the counties even the rate increased as value during 1990-2016.
- an improved infantile mortality rate in 2016 compared to 1990, but middle position among the other counties.
- In 2016, the positive natural increase of 0.5 ‰ gives Braşov the fourth best position among the counties of Romania.
- Braşov is the 4th county with the highest life expectancy for men, and the 3rd county with the highest life expectancy for women.

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