

The demographic changes of the last quarter of century in Romania

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Abstract: *The year 1990 has delimited two different demographic periods in Romania: the first, defined as Stage 2 in the Demographic Transition Model (as in Population Education, USA), characterized by low mortality rates due to advances in medical, and high birth rates, resulting rapid population growth; after 1990, Romania moved to Stage 5, having a negative growth rate due to less births than deaths, and a negative net migration rate. Romania is experiencing a falling population with birth rates at 8.3 births per 1,000 persons and death rates at 11.4 per 1,000 persons in 2014. The total fertility rate fell significantly below the replacement level of generations (1.4 live births per woman in 2014), reversing the proportion of elderly in detriment of the youth.*

Key-words: *demographic transition, population, demographic ageing*

1. Introduction

The year 1990 marked for Romania a historical turning-point. Before 1990, Romania was characterized by a centralised coordination of the economy, it was a relatively closed country, with relatively closed borders regarding migration, having a restrictive regime of border control, external migration being controlled in both directions and largely repressed.

The changing of the political system from socialism to democracy and the transition to a market economy had an impact not only on the economy but it had fundamentally changed many aspects of Romanian society. Economic restructuring has generated redefining of the labour market, rising unemployment, increasing the number of emigrants due to the possibilities of free movement, changes in the purchasing power, living standards and thus a different view on family founding time and desired family size.

The economic transformation has been even more noticeable in the early 21st century, with the economic reforms initiated in pre-accession and accession periods to EU enlargement, accomplished by Romania in 2007: fiscal policies became stricter according to the EU accession criteria, privatization processes were

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accelerated and the countries became more open to foreign actors, the amount of foreign direct investment grew considerably. Romania, like other states in Eastern Europe, experienced a step-by-step integration into the common market and the convergence of the political and economic systems, which can be addressed as 'Europeanisation'. (Fassmann et al. 2014, 153).

Also from a demographic point of view, 1990 was the dividing line between two different periods. The decades before 1990 were characterized by high fertility rates and population growth. The high fertility rates were mainly caused by open and sometimes coercive pro-birth policies. This included restrictions on or the prohibition of abortion as well as the installation of pro-birth financial and social incentives (e.g. family allowance, child-care benefits, a 'tax on childlessness' and strict anti-abortion measures after 1967) (Fassmann et al. 2014, 153).

2. Objectives

The paper aims to study the demographic developments subsequent communist period, analyzing the values of various demographic indicators at the beginning and at the end of the proposed interval (1990-2014).

3. Analysis of demographic changes during 1990-2014

Romania's total population significantly decreased after 1990 as a result of negative natural growth and external migration. The numerical decrease of approximately 3.35 million people represents an approximately population loss of 15% compared to 1990, from 23,206,720 people on July 1st, 1990, to 19,861,408 persons on January 1st, 2015. The gender distribution was 49.3% male (11,449,147 men) and 50.7% female (11,757,573 women) in 1990, while in January 2015 they represented 48.9% male (9,720,616 men) and 51.1% female (10,140,792 women). The slight increase of the female proportion in the total population was expected, given the increasing demographic ageing of the country population, older age groups being characterized by higher share of the female population.

During 1990-2014, Romanian population distribution by residential urban/rural area experienced changes, increasing the share of urban population from 49.9 % in 1990 to 54% in 2014, to the detriment of the rural population who declined from 50.1 % to 45.9 % in the mentioned interval. Differentiated on the two sexes, there were not recorded significant changes, roughly maintaining the proportion of women-men in the two areas in the mentioned interval.

Perhaps the most intense alteration of the demographic characteristics of the population of Romania in the last quarter century is registered in the age groups. The most visible way of observing these changes can be made through the population pyramid, which shows the numerical size of each age separately for the two sexes.

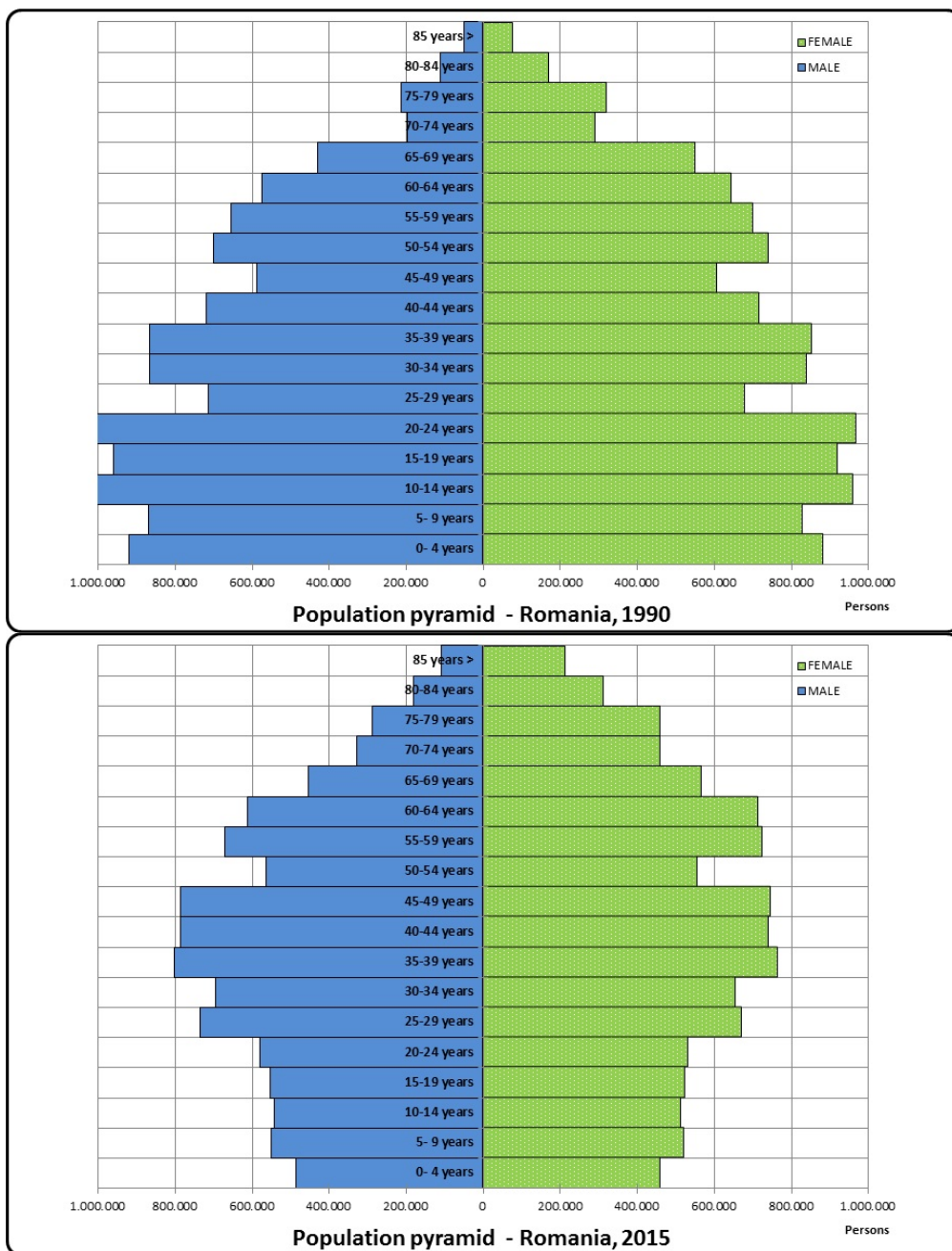


Fig. 1. Population pyramid – Romania, 1990/2015 (Jan. 1st)

Source: own representation using INS data

Structuring the total population on large age groups (under 15 years, 15-64 years and over 65 years) as well as studying the ratios between these categories, allow the assessment of issues related to the labour market, education sector, the pension fund, finance and public budget, health sector, evaluation of the possible future difficulties.

Total-age dependency ratio: measure the potential level of support received by young (aged 0 to 14 years) and old people (aged 65 years and over) from the population of working age (conventionally considered as those aged from 15 to 64), expressed per 100 people. Young-age dependency ratio / old-age dependency ratio measure the potential level of support received by young (aged 0 to 14 years) / old (aged over 65 years) from the population of working age (conventionally considered as those aged from 15 to 64), expressed per 100 people.

Total dependency ratio and youth dependency ratio fell during those 25 years, due to the decreasing young population and the entering on the labor market of the numerous generations born after 1966.

The total age-dependency ratio in Romania in 2014 was 43.2%. This means that there were 43.2 people in the dependent ages (0-14 and 65 years and over) for every 100 people in the working ages, decreasing from 1990 when 100 people in the working ages had to sustain 51.5 young and elderly people.

	1990	2014
Young-age dependency ratio	36.0 %	21.3 %
Old-age dependency ratio	15.5 %	21.9 %
Total age dependency ratio	51.5 %	43.2 %

Table 1. *Young-age, old age and total-age dependency ratio, 1990 and 2014*

Source: Litra 2014; 230.

Dependency ratio of young people decreased from 36 % in 1990 to 21.3 % in 2014, in other words in 1990, one child was for an average of 3 adults of working age, while in 2014 one child was for an average 4 working age adults .

Elderly dependency ratio increased from 15.5 % to 21.9 %, meaning that an elder was for 6 adults of working age in 1990, while in 2014 the ratio was 1 elderly to 4.5 adults.

Population ageing raise policy concern regarding:

- different proportions of the population in the school, employed in work or the retired, generating different medical needs, different consumer preferences, different patterns of leisure;
- pressure on public budgets and fiscal systems;
- strains on pension and social security systems;
- expected labour market shortages as the number of working age persons decreases;

- adjusting the economy and in particular workplaces to an ageing labour force;
- fewer people specialized in the education of children and youth, instead the need for increased numbers of trained healthcare professionals;
- higher demand for healthcare services and long-term (institutionalized) care;
- potential conflict between generations over the distribution of resources. (Litra 2014, 233).

The number of live births in 2014 represents less than 60% of that recorded in 1990 (185,322 live births in 2014 compared to 314,746 in 1990). This decrease is due to different causes: a cohort of mothers numerically lower after 1990, the behaviour of reduced desired number of children and the tendency to postpone the moment of conception of a child within a couple. Another difference compared to 1990 is the increase of the percentage of live-births in urban areas (54% compared to 49.8% in 1990).

Live-birth rates (the yearly number of live births per 1,000 inhabitants) decreased during 1990-2014 from 13.6 to 8.3 live births per 1000 inhabitants (from 12.9 to 8 in urban areas, and from 14.3 to 8.8 in rural areas).

After 1990 have also changed the behaviours related to the decision to have children in connection with socio-demographic characteristics. One of these features is the parents' age at childbirth, which increased for both categories during the analyzed period. In 1990, a quarter of the registered live births belonged to fathers from the age group 20-24 years, unlike only 9% in 2014. The frequency of live births of the father age group of 25-29 years fell from 31% to 25% between 1990-2014, increasing the weights of live births from older paternal age groups : paternal age 30-34 years: from 22.11 % to 29.25 %, paternal age 35-39 years: from 10.1% to 19.4 %, paternal age 40-44 years: from 3.53 % to 6.58 % .

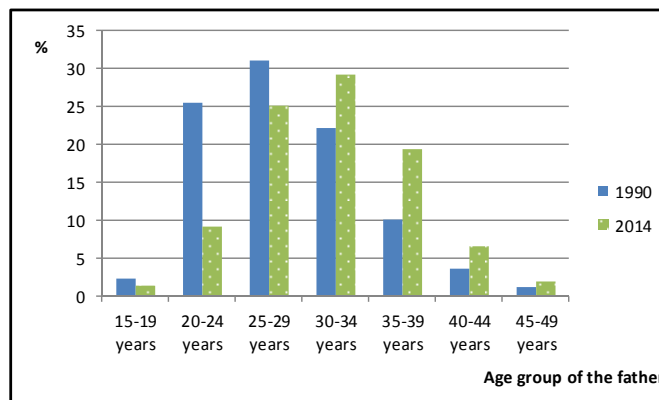


Fig. 2. Frequency of the live births by age group of the father, 1990/2014

Source: own representation using INS data

Significant changes were also recorded in relation to the age group of the mother in the case of live births in the period 1990-2014. The percentage of mothers under 24 years fell by half; from 60% in 1990 to 30% in 2014 (the percentage of mothers in the age range 15-19 has decreased from 15% to below 10% and mothers aged 20- 24 years from 44.66% to 20.25%). The share of live infants from older age groups of mothers increased (from 21.17% to 31.82% for the 25-29 age group, and even doubled their share the live infants of mother aged older than 30 years (from 12.38% to 24.03% for mom 30-34 years, from 5.24 % to 11.62% for mom 35-39 years, from 1.26% to 2.13% for mom 40-44 years).

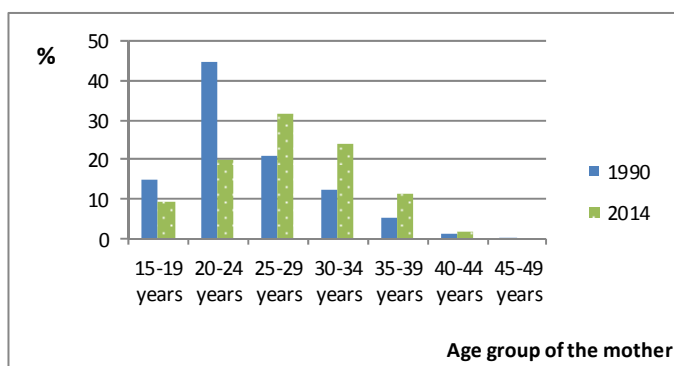


Fig. 3. Frequency of the live births by age group of the mother, 1990/2014
Source: own representation using INS data

The period 1990-2014 also amends the desired family size. Although all infants born live, regardless of rank, have decreased as number during that time, the proportion between them has changed, growing the percentage of births rank 1 and 2, and decreasing the percent of the others (rank 3 or over). Over half of the 2014 live- born children were rank 1, while they constituted only 43.5% of live births in 1990. Over 82% of live births in 2014 are ranked 1 and 2, while in 1990 they totaled 72.5%, the rest had a superior rank.

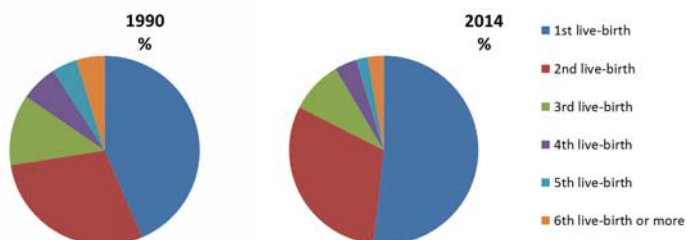


Fig. 4. Live births by rank, 1990/2014
Source: own representation using INS data

The average age of the mother at first birth has increased continuously since 1990, from 22.3 years in 1990 to 26.7 years in 2014. There are differences between urban and rural, in the urban increasing from 23.7 years to 28.3 years, and in rural areas from 21.3 years to 24.2 years during 1990-2014.

The average age of the mother at all births has also increased continuously from 25 years in 1990 to 28.2 years in 2014. There are also differences between urban and rural areas, the average age of the mother at all births in urban increasing from 25.7 years to 29.4 years, and in rural areas from 24.5 years to 26.8 years during 1990-2014.

With access to modern methods of contraception, abortion as a means of birth control greatly reduced. The number of abortions has decreased from 992,265 in 1990 to 77,806 in 2014. If in 1990, 178 women in 1000 made an abortion to control family size, in 2014 only 14 women out of 1,000 have an abortion. Compared to 1000 live births, in 1990 were recorded 3158.4 abortions, compared to 421.4 in 2014.

The main indicator of fertility is the total fertility rate: this is the mean number of children that would be born alive to a woman during her lifetime if she were to pass through her childbearing years conforming to the age-specific fertility rates of a given year. A total fertility rate of around 2.1 live births per woman is considered to be the replacement level in industrialized countries: in other words, the average number of live births per woman required to keep the population size constant in the absence of inward or outward migration. A fertility rate below 1.3 live births per woman is described as 'lowest-low fertility'.

The total fertility rate has changed in Romania from 1.83 live births per woman in 1990 to 1.4 live births per woman in 2014.

Fertility rate (the average number of children to be born by a woman during her fertile lifetime – aged 15-49 years, according to fertility rates of a given year) decreased from 56.2 to 33 live births per 1000 women during her fertile life (with some differences between urban-rural areas: from 46.7 to 30.1 in urban area, and from 69.8 to 37.2 in rural area during 1990-2014).

The number of stillbirths also significantly decreased during 1990-2014, by 65%, from 2231 to 78 cases, but this decrease can be partially attributed to the health improvement and better medical care, considering that the number of births also decreased, the number of live births in the same period diminishing by 41%.

A more accurate analysis of the evolution of born - dead cases is by reporting them to 1000 births (live and dead). The indicator is referred to as stillbirth rate - the yearly number of still-births per 1000 live- and still-births, which dropped from 7 cases in 1990 to 4.2 cases per 1000 births in 2014, more attenuated in urban areas (with an evolution from 7.7 to 3.7 cases) compared to rural areas (from 6.4 to 4.8 during 1990-2014).

The image of proportion of deaths by death cause has not greatly changed even if a quarter century passed. The highest incidence continues to have cardiovascular diseases (about 59 % of total deaths); tumors, which were the cause of death in 13% of cases in 1990 and 20% of cases in 2014; respiratory diseases

(dropped from 9.1% to 5.3% as frequent causes of death); digestive diseases (4.7% of deaths in 1990, 5.7 % in 2014); deaths due to traumatic injuries, poisoning and other consequences of external causes fell from 7.2 % to 3.9 %. In smaller proportions, close to 1 % were infectious and parasitic diseases, endocrine diseases, nervous system diseases, diseases of the genitourinary system as causes of death.

The mortality rate - the yearly number of deaths per 1,000 inhabitants - increased both per total population (from 10.6 deaths per 1000 inhabitants in 1990 to 11.4 deaths in 2014), and on urban/rural areas (from 8.2 deaths to 9.4 deaths per 1000 inhabitants in urban areas, and from 13.4 to 13.9 deaths per 1000 inhabitants in rural areas, the same period). The increase was expected, given the increased degree of population ageing in 2014 compared to 1990, higher rates of the elderly population having influence on mortality rate.

Instead, analyzing mortality rates by age group, absolutely all age groups recorded a decline in its value, both masculine and feminine, in the analyzed period.

Infantile mortality was significantly reduced during 1990-2014, both as the number of deaths (from 8,471 to 1,628 deaths under 1 year old, of which urban evolution was from 3,778 to 651 cases, and in rural from 4,693 to 977), as well as infantile mortality rate, which dropped from 26.9 to 8.8 deaths under one year old per 1,000 live births between 1990-2014 (in urban infantile mortality rate dropping from 24.1 to 6.5 deaths under one year per 1,000 live births, while in rural areas from 29.7 to 11.5 deaths under 1 year per 1000 live births).

Marriages have declined both as the number of marriages, as well as the rate in the period 1990-2014. The number of marriages fell from 192,652 to 118,075 marriages (from 110,382 to 76,833 marriages in urban areas and in the rural from 82,270 to 41,242).

The nuptiality rate has dropped from 8.3 to 5.3 marriages per 1000 inhabitants in total Romania, with urban-rural differences (from 9.1 to 6.1 marriages in urban areas, and from 7.5 to 4.2 marriages in rural areas).

Not only had the frequency of marriages changed in this time, but also had the average age of married persons. The average age of men at marriage increased from 26.9 years to 32.3 years during 1990-2014, and women's from 23.7 years to 29 years. To mention that in urban areas, both men and women married at an average age higher than their rural counterparts (men are about 1 year and half older, while women by about 2 years and half more).

Divorces declined in both number and rate of divorce only on total Romania and in urban areas, increasing the frequency and rate in rural areas. The number of divorces in Romania decreased from 32,966 to 27,188 during 1990-2014, and in urban areas from 25,553 to 18,692. In rural areas increased from 7,413 to 8,496 cases. Divortiality rate decreased in Romania from 1.42 to 1.22 divorces per 1000 inhabitants, while in urban areas declined from 2.1 to 1.49 divorces per 1000 inhabitants. In rural areas the divortiality rate increased from 0.67 to 0.87 divorces per 1000 inhabitants.

The most exposed marriages to end in divorce are those made 5-9 years ago (from the total registered divorces in 1990, 24.7% belong to this category and 26.3% in 2014), but also the longest ones (20 and over) - their percentage in total divorces of that year raised from 12.9% in 1990 to 22% in 2014; those being 10-14 years long (18.4% in 1990, respectively 17% in 2014) and those being 15-19 years long (10.4% in 1990 and 12% in 2014).

Even if the total number of divorces decreased during 1990-2014, the only category that increased the number of divorces is made up of families without children. The number of divorces diminished for families with children, regardless of the number of children.

Natural increase - the difference between the number of live-births and deceased - was negative in all components, both overall and by area of residence. In the total population, population natural increase has gone from 67,660 people in 1990 to -68,472 in 2014 (from 57,619 to -18,214 people in urban areas, and from 10,041 to -50,258 people in rural areas during the same period).

Natural increase rate fell from 3 persons to -3.1 per thousand persons (from 4.7 to -1.4 in urban areas, and from 0.9 to - 5.1 in rural areas), being one of the causes of Romania's population constant decline since 1990.

Average life expectancy has increased during 1990-2014 by nearly six years in both total population (from 69.56 years in 1990 to 75.47 years in 2014), and separately for each of the two sexes. Men live on average 72.04 years at the level of 2014 (compared to 66.56 years in 1990), and women live 78.93 years at the level of 2014 (compared to 72.65 years in 1990). Life span is higher by 2 to 3 years in urban areas compared to rural areas, both for the total population and separately for men and women.

Emigration is also, along with birth and death, a factor of decrease in the size of Romania's population. Even though its intensity has decreased approximately 5 times in 2013 compared to 1990 (from 96,929 persons in 1990 to 19,056 persons in 2013), is a source of demographic ageing because of its selective characteristic, age groups which emigration is the most intense are those of working age (80% in 1990 respectively 78.4% in 2013 of all immigrants in that year belonged to the population of working age 15-64). Inside this group, the most affected age groups are 25-29 years (13.5% and 17.8% of total immigrants in 1990 or 2013); 20-24 years (15.8% and 11.8% of total immigrants in 1990 or 2013); 30-34 years (approximately 11% of total immigrants of 1990 and 2013); 35-39 years and 15-19 years (with weights close to 10%). Children (0-14 years) represent a significant percentage of those who emigrated, 13.4% in 1990 and 20% in 2013. In contrast elderly have a small weight between emigrants, by 6% in 1990 and 2% in 2013.

4. Conclusions

During 1990-2014:

- Romania's population decreased by about 15%;
- slightly increased the population share in urban areas (from 49.9% to 54%);
- age structure deterioration of the country's population: children aged 0-14 years fell as a share from 23.7% to 14.9%; working age population increased from 66% to 69.9% on account of numerous generations born after 1966; the elderly population share has increased from 10.3% to 15.3%;
- fewer births (less than 60% of the 1990 level), born at older ages of both parents; more births of rank 1 and 2; less births of rank 3 or more;
- lowered fertility at 1.4 live births for a woman, far below the replacement level of generations;
- improved stillbirth rates, mortality rates by age group and infant mortality
- the family model has changed, defined by a delay in marriage and at the first childbirth;
- increased the number of divorces in families without children;
- negative natural increase, and more pronounced in rural areas;
- increased the life expectancy by almost 6 years.

5. References

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