THE EFFECT OF THE NATURAL MOVEMENT OF POPULATION IN ROMANIA AND THE POPULATION DEVELOPMENT BY HOUSEHOLD AND RESIDENCE

Prof. Constantin ANGHELACHE PhD *(actincon@yahoo.com)*
Bucharest University of Economic Studies / „Artifex" University of Bucharest
Ec. Ștefan Gabriel DUMBRAVĂ *(stefan.dumbrava@gmail.com)*
Ec. Lucian ENE *(lucian.ene78@yahoo.com)*

Abstract

In the current context, amid the general evolution of natality in Europe, Romania is among the countries with negative natural growth, meaning that fertility is under 2 children, which means that there is no longer a simple breeding that maintains a standard of population .

Several indicators analyzed show that mortality in our country is higher than birth rates for several years, so that the „natural growth" or „dead / birth" indicator is negative. Under these circumstances, the problem of maintaining our country's population is diminishing.

The authors are studying this phenomenon and presenting clear data about the evolution of the natural movement of the population in Romania in the last 12 months and comparatively, in the longer term, with other reference periods.

The number of births is decreasing, the number of deaths of children under one year is decreasing but on a low birth rate and marriage and divorce are in the reverse. For short periods of time, the number of marriages increases, but higher than this is the increase in divorce. Against this background, we appreciate that the family is today on a distant plan to be the nucleus to ensure birth growth and, in this way, the natural positive movement of the population.

Besides the natural decrease of the population, Romania also shows a decrease in the population according to the two criteria: residence and residence. On January 1, 2018, the home-based population was just over 22 million people. Here we have to consider that of these, at least 4-5 million do not have their fiscal and permanent residence in Romania.

In the study, data are presented in relation to the population by residence, a structural analysis then extended by age groups and by average. The study is accompanied by significant graphical representations and convincing series of data.

Introduction

In the study, the authors focused on the natural evolution of the population in parallel with the analysis of the migratory movement of the population. In this context, an analysis is made on the population by residence and the population by residence (tax residence).

From a statistical point of view, Romania's resident population is calculated according to the relationship:

$P_r = P_d - C_{RRS} + C_{SRR}$,
where:
P_r = resident population;
P_d = population by residence;
C_{RRS} = Romanian citizens residing in other states;
C_{SRR} = foreign citizens residing in Romania.

In this context, we come to two indicators, namely the indicator of the population by residence and the indicator of the population by residence where the population indicator by residence is less than 4 million compared to the household by residence.

In this article, the authors focus on analyzing birth rates, deaths, natural growth as a relationship between births and deaths, and then analyzing the stage of family consolidation, comparing marriage and divorce.

It follows that natural growth is steadily decreasing on the one hand due to reduced female fertility and on the other hand due to the role that the family can no longer provide in the concrete conditions of the standard of living in our country.

The study will reveal that in Romania the natural increase of the population and also the temporary or final emigration process is increasing, so for the needs of the economy there are other problems, with another perspective of analysis and evolution.

The article is ample, accompanied by graphical representations and convincing series of data.

Literature review

Anghel, Marinescu, Burea, Olteanu and Samson (2018) studied aspects related to the natural movement of the population in Romania in 2017. Anghelache (2017) made a complex analysis of Romania's macroeconomic developments. Anghelache and Anghel (2017) featured a series of elements

on the EU's strategy to increase the living conditions of the population in the member countries. Anghelache, Anghel and Solomon (2017) studied the implications of migration on the labor force. Anghelache, Avram, Burea and Petre (Olteanu) (2018) investigated the relationship between the natural movement of the population and the labor force. Anghelache and Anghel (2017) analyzed the socio-economic course of Romania in the 10 years since joining the EU. Bijak, J. et al. (2007) made forecasts on the population of EU countries in the mid-century Foley, M. and Angjellari-Dajci, F. (2015) analyzed the causes of migration. Gallego (2010) has made a population density grid of the European Union. Maestas, Mullen and Powell (2016) analyzed the effects of aging on labor and economic growth. A similar theme is addressed by Walker and Maltby (2012). Moreno-Galbis and Tritah (2016) studied the effects of immigration in EU countries. Oster, Shoulson and Dorsey (2013) analyzed the correlation between human capital and health investment.

Methodology, data, results and discussions
• Some methodological considerations

Data on demographic phenomena were obtained by processing the information contained in the statistical bulletins of births, deaths, marriages and divorces drawn up by the municipal, town and city halls, along with the registration of the phenomena in the civil status documents.

Born-in is the product of conception, expelled or completely extracted from the mother's body, independent of the duration of pregnancy, and which, after this separation, presents a sign of life.

Natural growth is the difference between the number of live births and the number of deceased people in the reference period.

Marriage is the union between a man and a woman, concluded in accordance with the law of the country, for the purpose of establishing a family, and from which there are rights and obligations between the two spouses and their children.

Divorce consists in the divorce of a legally concluded marriage through a final decision of the court, the civil status officer or a notary public. The data refer to the divorce actions for which the divorce was admitted.

The domicile of the person is the address at which he declares that he has the main residence, which is entered in the identity card as evidenced by the state administrative bodies.

Habitual residence is the place where a person normally spends their daily rest period, without taking into account temporary absence for recreation, holidays, visits to friends and relatives, business, medical treatment or religious pilgrimage. Habitual residence may be the same as domicile, or

may differ for persons who choose to establish their habitual residence in a locality other than their domicile in the country or abroad.

The number of live births includes live births whose mothers had their usual home or residence for a period of at least 12 months in Romania at the time of their birth.

The number of deaths includes those who, at the time of their death, have their usual domicile or residence for at least 12 months in Romania.

The number of marriages includes the marriages of persons who, at the time of the marriage, have their domicile in Romania, as well as the marriages of Romanian citizens who marry abroad and who are registered at the civil status offices in Romania.

The number of divorces includes divorces of persons whose divorces have been concluded with judges, civil status or public notaries, in accordance with Law no. 202/2010, as well as the divorces of Romanian citizens who divorced abroad, transcribed in Romania.

Population by residence is the number of persons with Romanian citizenship and domiciled in Romania, delimited by administrative-territorial criteria.

The domicile of the person is the address at which he declares that he has the main residence, which is entered in the identity card as evidenced by the state administrative bodies.

In other words, the home-based population is a de jure population that can include migrants as well.

The average age of the population is the average of the ages of a population, by age, meaning that continuous demographic variable that expresses the time elapsed between the birth date of a person and a particular moment of observation. Determine the following formula:

$$\overline{x} = \frac{\sum (x + 0,5) \times P_x}{\sum P_x}$$

where:

x = age in years of fulfillment;

P_x = number of inhabitants x;

0,5 = half-year considered as the average equivalent of the variance of the deviations from the exact date of any age.

Median age is an indicator that divides a country's population into two equal parts, the median age being that middle value.

The population aging index is the number of elderly people (65 and over) who return to 100 young people (under 15).

The resident population is the total number of Romanian citizens, foreigners and non-citizens, who are habitually resident in Romania. That is,

the resident population is the de facto population that excludes emigrants, but includes immigrants. The resident population at a given date was determined according to international methodology and regulations.

Habitual residence is the place where a person normally spends their daily rest period, without taking into account temporary absences for recreation, holidays, visits to friends and relatives, business, medical treatment or religious pilgrimage. Habitual residence in a specific geographical area shall be considered to be the only person who has been living in the habitual residence for an uninterrupted period of at least 12 months before the reference period. Habitual residence may be the same as domicile, or may differ for those who choose to establish their habitual residence in a locality other than their domicile in the country or abroad.

Emigration means the action by which a person who has previously been habitually resident on the territory of Romania ceases to have his habitual residence in the territory of that country for a period which is or is expected to be at least 12 months.

Immigration means the action by which a person establishes his habitual residence on the territory of Romania for a period that is or is expected to be at least 12 months after having previously been habitually resident in another country.

The methodological differences between the two indicators are presented below:

	Resident population	Population by residence
Residence / home criterion	Residence (regular)	Home
Threshold 12 months and over	Yes	No
Criteria of citizenship	No	Yes
Level of detail of available statistical data	Up to county level	Up to the locality level (municipality, town, commune)

The data used to determine the population by residence comes from two types of data sources:

- administrative sources: Directorate for Personnel Records and Database Administration (DEPABD) - National Record of Persons, General Directorate of Passports

- statistical sources - the results of comprehensive statistical surveys on birth rate and mortality, the number of live births and deceased persons in the study period (based, on the other hand, on administrative sources).

The method used to calculate the „home by country" indicator is the component method:

$$P_{t+1} = P_t + N_{t,t+1} - D_{t,t+1} + \Delta M^d_{t,t+1} + C_v$$

where:

P_{t+1} = population with residence in the country at time t + 1;

P_t = population with residence in the country at time t;

$N_{t,t+1}$ = the number of live births during the period t - t + 1, whose mothers were domiciled in Romania at the time of birth;

$D_{t,t+1}$ = the number of persons who died in the period t - t + 1, who were domiciled in Romania at the time of death;

$\Delta M^d_{t,t+1}$ = the balance of international migration with change of residence, during t - t + 1;

C_v = age adjustment factor.

• **Analysis of the natural movement of the population**

The natural movement of the population is important from the point of view of establishing the evolution of the population, after domicile or residence in Romania. In this respect, the main demographic indicators used in the analysis of the natural movement trend of the population are presented below.

In this respect, it appears that in February 2018 the number of births and the number of deaths decreased as compared to January 2018, and the number of marriages and divorces increased over the same period. It is also positive that the number of children under one year's death dropped in February 2018 as against January 2018.

In February 2018, 12691 children were born, with 4437 fewer children than in January 2018.
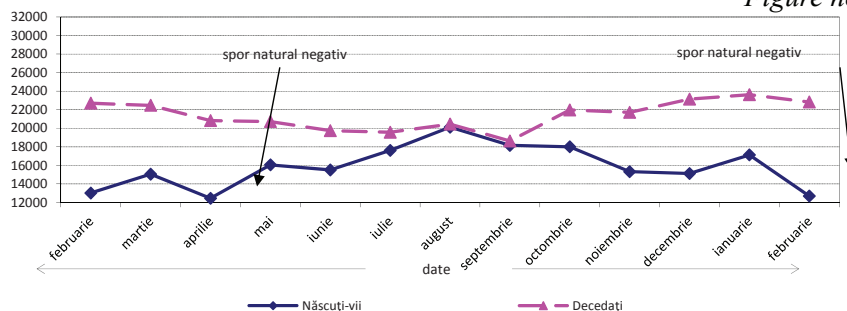
The number of people whose deaths were recorded in February 2018 was 22,828, with 795 less than in January 2018.

Natural growth was negative in February 2018, with deaths over live births of 10,137 people.

The number of deaths of children under 1, registered in February 2018, was 94, down by 16 against January 2018.

Evolution of the number of live births and deceased between February 2017 and February 2018
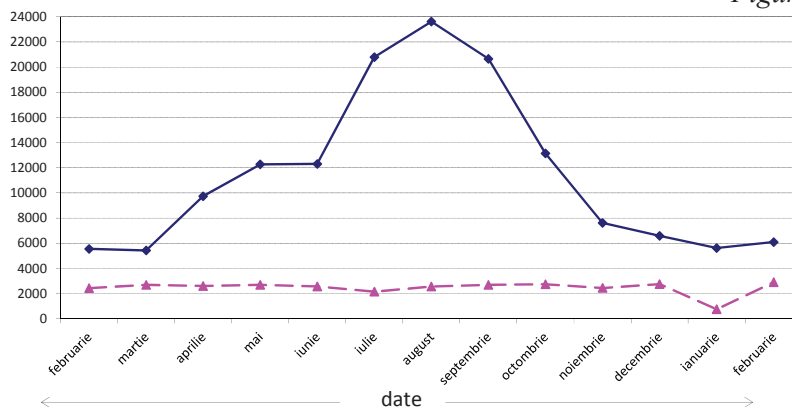
Figure no. 1

National Institute of Statistics, Press release no. 93 / 13.04.2018

In February 2018, civil status offices recorded 6095 marriages, with 479 more than in January 2018. The number of divorces awarded by final judgments and according to Law no.202 / 2010 was 2909, with 2156 more much more than in January 2018.

The evolution of the number of marriages and divorces between February 2017 and February 2018

Figure no. 2

Source: National Institute of Statistics, Press release no. 93 / 13.04.2018

The number of live births was lower by 325 in February 2018 compared to the same month in 2017, and the number of deceased persons was 119 higher than in February 2017. Natural growth was negative in February 2018 (-10137 persons) and in February 2017 (-9693 persons).

The number of children under one year who died was 11 in February 2018 than in February 2017.

The number of marriages was 547 higher in February 2018 than in the same month of the previous year. By final judgments and according to Law no. 202/2010 pronounced 476 more divorces in February 2018 than in February 2017.

The population by residence on 1 January 2018 decreased to 22 194 thousand persons, by 0.2% less than in the corresponding month of 2017. The urban and the feminine population are the majority (56.4% and 51.2%).
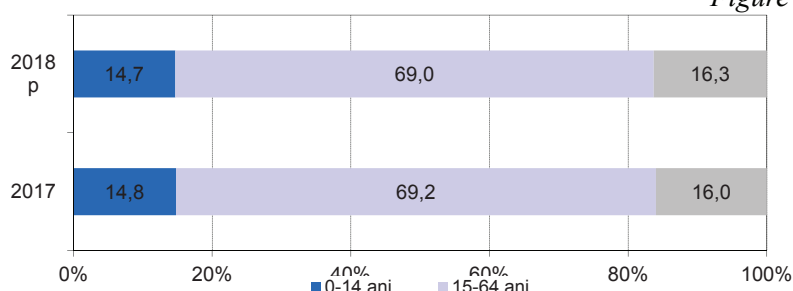
- **Demographic aging of the population**

We find that the phenomenon of demographic aging has increased, with the elderly population aged 65 years and over exceeding by 350 thousand people the young population 0-14 years (3614 thousand versus 3264 thousand persons). On January 1, 2018, the urban population in the urban area was 12,508 thousand, down 0.1% on January 1, 2017.

The female population on January 1, 2018 was 11,358 thousand, down 0.2% from the same date of the previous year.

The demographic aging process worsened, as compared to 1 January 2017, with a slight decrease in the share of young people (0-14 years) and a 0.3 percentage point increase in the share of the elderly (65 years and over).

Structure of the population by residence by large age groups, on 1 January
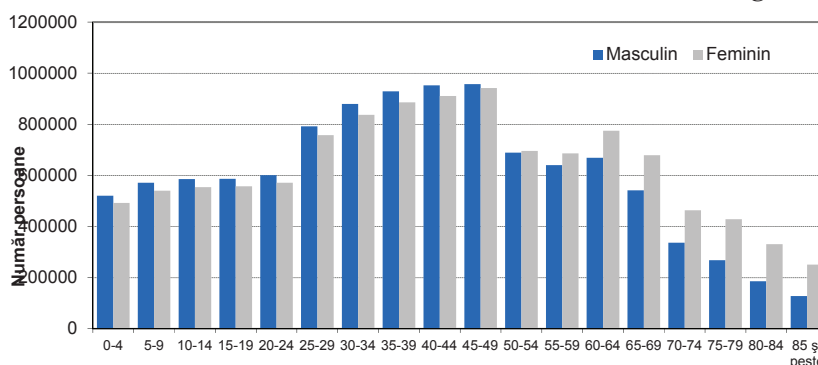
Figure no. 4

Source: National Institute of Statistics, Press release no. 101 / 26.04.2018

The Demographic Aging Index rose from 107.9 (January 1, 2017) to 110.7 elderly per 100 young people (January 1, 2018). The average age of the population was 41.3 years, 0.2 years higher than on 1 January 2017. The median age was 41.2 years, up 0.4 years from January 1, 2017.

Population by residence by age group and sex, on 1 January 2018

Figure no. 4

Source: National Institute of Statistics, Press release no. 101 / 26.04.2018

On 1 January 2018, the largest share in the total population was the 45-49 age group (8.6%). In males, this age group was 8.8% and female at 8.3%. The weight of the 0-4 year group was 4.6%, less than the 5-9 years (5.0%) and 10-14 years (5.1%).

Conclusion

The following conclusions are drawn from the study.

The natural growth rate of the population in Romania is decreasing and there are few possibilities for its recovery. Indicators that characterize the population's demographic evolution are telling: birth rate decreases, marriage remains at most constant, at a low level and divorce is increasing. Against this background, there is the prospect of a more pronounced decrease in the population in our country. There are many researchers who expect a decrease in the population over the next few years, predicting that the decline in the 20-32 years would be 3-4 million inhabitants, referring to the current territorial conditions of Romania.

The second conclusion is that the very low living standard of the population leads to an exodus of emigration for economic reasons, to other countries in the European Union and not only, thanks in particular to the European community, to the Directive on the free movement of the population. Measures aiming at raising the standard of living, ensuring conditions that will reduce the emigration that leads to the decrease of the resident population in our country, are imposed. By comparing the indicator of the population by residence with that of the population by residence, we find a difference of 4-5 million inhabitants, this being determined by the lack of jobs, the precarious level of the income obtained from the salary or other independent activities.

It is also necessary to encourage the family, to encourage young couples to try to keep their birth at a controlled level.

References

1. Anghel, M.G., Marinescu, R.T., Burea, D., Olteanu, A. and Samson, T. (2018). Natural movement of the population – labor force resource in Romania in 2017. *Romanian Statistical Review, Supplement*, 1, 122-131
2. Anghelache, C. (2017). *România 2017. Starea economică la un deceniu de la aderare*, Editura Economică
3. Anghelache, C. and Anghel, M.G. (2017). The European Union's strategy for increasing the living conditions of the population in the member states. *Theoretical and Applied Economics, XXIV* (3) (612), Autumn, 5-18
4. Anghelache, C., Anghel, M.G. and Solomon, A.G. (2017). The Effect of Migration on Labor Resources. *International Journal of Academic Research in Accounting, Finance and Management Sciences, 7* (3), 6-13
5. Anghelache, C., Avram, D., Burea, D. and Petre (Olteanu), A. (2018). Analysis of the Natural Movement of Population and Labor Force Development. *Romanian Statistical Review Supplement*, 2, 115-123
6. Anghelache, C. and Anghel M.G. (2017). *România – membră a Uniunii Europene. Zece ani de la aderare*, Editura Economică, Bucureşti
7. Bijak, J. et al (2007). Population and labour force projections for 27 European countries, 2002-052: impact of international migration on population ageing. *European Journal of Population, (23)* 1, March 2007
8. Foley, M. and Angjellari-Dajci, F. (2015). Net Migration Determinants. *Journal of Regional Analysis and Policy, 45* (1), 30-35
9. Gallego, F.J. (2010). A population density grid of the European Union. *Population and Environment, 31* (6), 460–473
10. Maestas, N., Mullen, K. and Powell, D. (2016). The effect of population aging on economic growth, the labor force and productivity. *National Bureau Of Economic Research*, Cambridge, Working Paper no. 22452
11. Moreno-Galbis, E. and Tritah, A. (2016). The effects of immigration in frictional labor markets: Theory and empirical evidence from EU countries. *European Economic Review*, *84*, pp. 76–98
12. Oster, E., Shoulson, I. and Dorsey, E. (2013). Limited Life Expectancy, Human Capital and Health Investments. *American Economic Review, 103* (5), 1977–2002
13. Walker, A. and Maltby, T. (2012). Active ageing: A strategic polity solution to demographic ageing in European Union. *International Journal of Social Welfare, 21* (s1), s117-s130
14. Institutul Național de Statistică, Comunicatul de presă nr. 93 / 13.04.2018