

Study of population by domicile and residence. Natural movement and imbalances

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Abstract. *The evolution of the Romanian population is one that has to attract interest, especially from the point of view of the decrease in the birth rate, which will further determine the reduction from year to year of the population, both resident and domiciled in Romania. Against the background of the increase of the death-birth rate, i.e. the ratio of deceased to newborn in favor of the deceased, the age pyramid will be changed in the sense that, at the base, the younger generations will be reduced to the middle and especially towards the peak of the pyramid being net contingents over previous periods. In this context, we can speak with certainty about a phenomenon of aging of the population, i.e., of increasing the number of older people on the background of the decrease of the birth rate. In this article, the authors study the evolution of the population over time, presenting tables and graphs that highlight this aging phenomenon. In summary, we can say that birth rates are decreasing, mortality increases, marriage decreases, divorcement increases, and emigration of a part of the population, especially from younger generations and with more special training. Birthplaces are highlighted, in the context of the couples breaking up or not, in order to have an image that the generation of young children does not have an immediate or long-lasting perspective. There are many births outside marriages, especially in rural areas and less in urban areas. The age at which the marriages are made is advanced, and on this complex background we come to the conclusion of a certain aging process of the Romanian population. At the same time, we also appreciate that the population resident or domiciled in Romania will also gradually decrease. There are predictions that, in 2050, the population of Romania, if this trend of the main demographic indicators is maintained, will reach about 17 million inhabitants.*

Keywords: demographics, natality, migration, age pyramid, natural growth.

JEL Classification: F22, O15, R23.

I. Introduction

In this study, the authors sought to highlight how the population of Romania evolved and evolved. Of course, the focus was not on the resident population or on the population living in Romania, but on the general phenomenon from the natural evolution of the population. In the study are presented a series of aspects regarding the evolution of the population on generations, the age pyramid, rural, urban, gender, male and female, concluding that the population of Romania is characterized or has three trends of which we recall. On the one hand, a process of population aging as a result of reducing female fertility to 1.48 per couple to a woman able to give birth to children. Then there is a reduction in birth rates due to fertility, of course, and the difficulty of joining solid, family couples to ensure the birth, growth, education of children. Within this framework, the authors also emphasized the way in which the first birth takes place, outside the couple or before the formation of the couple, the family, and so on. A distinction was made between females up to 20 years of age and over 20 years of age, with the result that the negative phenomenon (births before marriage, births outside the couple are mainly performed in females up to 20 years old.) In the general context presented In this article, it is very clear that the population of Romania is in an aging process that will have the effect of reducing people who are able to work, the active population, the employed population and why not the labor force. The phenomenon of continuous decrease of the population of Romania is taking place simultaneously with the aging process of the population. The article is rich in graphic presentations and suggestive tables that better outline the aspects that the authors sought to highlight.

II. Literature review

Anghel and Anghelache (2018) conducted a study on the evolution of the number of pensioners in Romania, which is large enough compared to the active labor force. Anghelache and Anghel (2017) analyzed the size and evolution of the population, the total European Union and each Member State, and the extent to which evolution represents a guarantee of labor resources, in which the indicators of the size and structural changes of the population, fertility, death-birth rate, migration. Anghelache, Avram, Burea and Petre (Olteanu) (2018) studied the evolution of the natural movement of the population in Romania and the evolution of the labor force and appreciated that the process of decreasing the population is continuous and somewhat irreversible. Anghelache (2017) conducted a broad analysis of the evolution of the Romanian population as well as of the labor market, emphasizing some aspects regarding the active population, the employed population, and the degree of training. Bloom and Canning (2008) treated the economic effects of global demographic change. Bijak et al. (2007) conducted a series of population and workforce projections for 27 European countries by 2052 focusing on the impact of international migration on the population and on labor force dynamics. Foley and Angjellari-Dajci addressed a number of issues related to the determinants of migration (2015). Gallego (2010) studied the population density of the

European Union according to the environment. Headey and Hodge (2009) studied the effect of population growth on economic growth. Kurmanov et al. (2017) discussed the role of remittances in the life of migrant households. Maestas, Mullen and Powell (2016) analyzed the impact of aging on labor, productivity and growth. A syllable theme is dealt with by Sheiner (2014) who studied the macroeconomic effects of aging. Moreno-Galbisa and Tritah (2016) studied the effects of immigration on labor markets. Oster, Shoulson and Dorsey, (2013) addressed a number of issues regarding life expectancy and health investment. Rossi-Hansberg and Wright (2007) analyzed elements related to urban structure and growth. Walker and Maltby (2012) considered active aging to be a solution for demographic aging in the European Union. Sanderson and Scherbov (2008) proposed rethinking aging and aging.

III. Research methodology, data, results and discussions

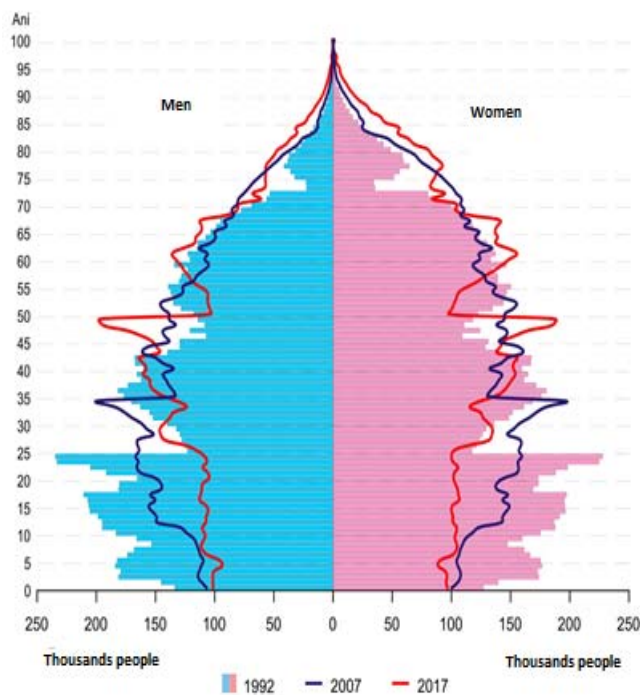
From the study of statistical data published by the National Institute of Statistics and Eurostat, there are several aspects. The first is that we witness a high degree of aging of the country's population. Thus, taking into account the population by residence and the population by residence, we find the same phenomenon, namely the degree of aging of the country's population. The degree of aging of the country's population is based, on the one hand, on the reduction of marriage and the reduction of female fertility. Thus, from 1990 to 2018, we find the permanent reduction of the population both as a home and as a residence. Natality has reached below level 2, i.e., simple reproduction of the population while fertility is at 1.48 / woman, that is, what again shows birth rate reduction. At the same time, we find that the average age of the population in 2017 was 41.7 years in Romania, calculated on the age pyramid, weighted by the number of living people (Figure 1).

Figure 1. *The average age in Romania in 2017 by counties*

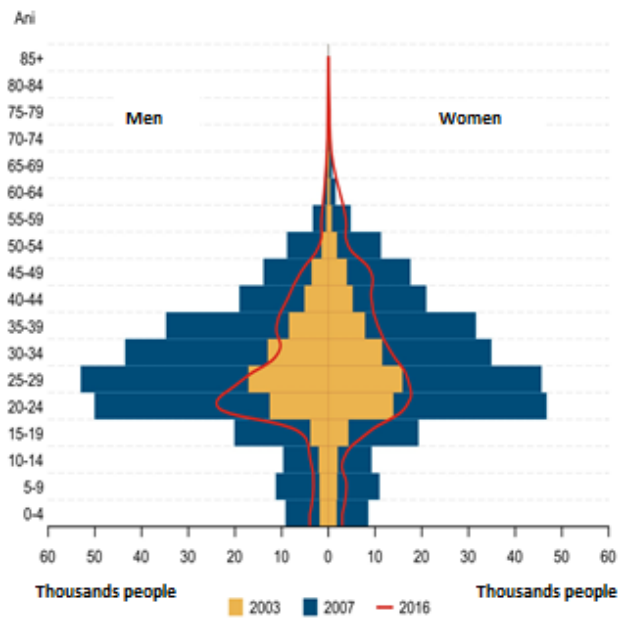


Therefore, compared to previous periods and especially before 1990, we find that at the base of the low age pyramid we have both the weights and the absolute lower population, and the middle of the pyramid is the population around the age of 30 and over at 42, after which it drops again as a result of mortality. In the counties, the population is also divided and there are counties with a higher birth rate and a lower average age, and counties with a much lower birth rate and a higher average age. At the same time, we need to look at the possibility of studying the pyramid of the ages and the pyramid of emigration ages. We find out from the following chart, comparing the year 1992 with 2007-2017, that in the first one at the base of the pyramid we had high contiguous, during this time they reduced and at the top of the pyramid, on the female and male structure we meet the same trend and we also find a smaller number of the population. Now the population is around the ages of 10-15 years up to the age of 30-35 years after it begins to reduce to the top of the pyramid (Figure 2).

Figure 2. *Age pyramid - population*



Considering the age pyramid on emigrants, a very important phenomenon in both female and male is that the very high level of emigration is in the 20-24, 25-29, 30-34 years and 35-39 years after which they will decrease significantly until around the age of 50 when emigrating can be linked rather to the possibility of considering people traveling in the family interest in other states. At the base of the pyramid we have very low contingents, which are children under the age of 19, who accompany the family in case of emigration.

Figure 3. *Pyramid of migrant ages***Figure 4.** *Immigrants per 1000 inhabitants in 2016*

Also, from the pyramid chart of emigrant age, we find that in 2003 it was very limited, in 2007 there was an expansion and a boom of emigration both in female and male, and in 2016 this share of emigration was somewhat reversed. In 2016, the phenomenon of

emigration to 1,000 inhabitants and counties showed differently. Thus counties such as Tulcea, Ialomita, Teleorman, Olt, Dolj, Mehedinți, Caras-Severin had an immigration level of over 11 per thousand. In other counties such as Argeș, Dâmbovița, Brașov, Sibiu, Bacau, Vaslui, Iași, Botoșani, Bistrița-Năsăud, Cluj, Sălaj or even Bihor the number of emigrants per one thousand inhabitants was less than 9 persons. Bucharest and Ilfov represent the counties or development region with the lowest level of emigration.

The share of emigration in counties taking into account the same indicator is different. Thus, in Giurgiu, Ialomita, Covasna, Bistrița-Năsăud, Sălaj we have a low emigration, and also in the same counties where the emigration to 1000 inhabitants was raised, the analysis of the structure of emigrants on these criteria also occurs.

Figure 5. *The share of emigrants in the counties in 2016*



It is important to analyze the distribution of Romanian emigrants by destination countries in 2008 and 2016. In 2008, Spain, Italy, Germany, and then Austria, Belgium and other countries had the largest share. In these countries, 54% emigrated to Italy, 20% to Spain, 16% to Germany, and 3% to Austria. In 2016, the trend of emigration has reversed. The highest emigration was in the United Kingdom, 27% followed by Italy with 20%, Germany with 14%, Spain 13%, Austria and Belgium 6 and 5%, respectively. This highlights the fact that attraction for those looking for a job within the European Union has been reversed and other countries have become priorities.

Figure 6. Distribution of migrants by destination countries in 2008

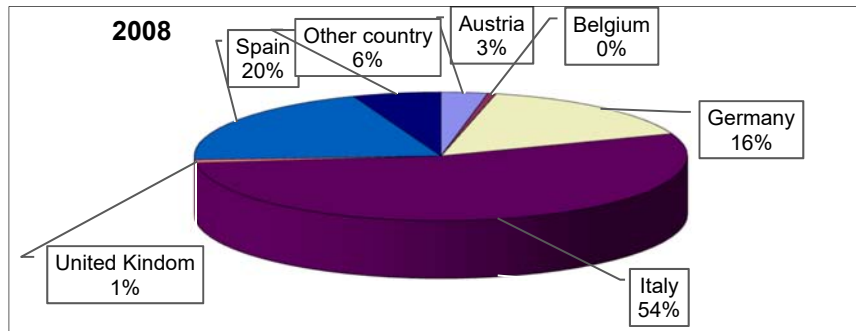
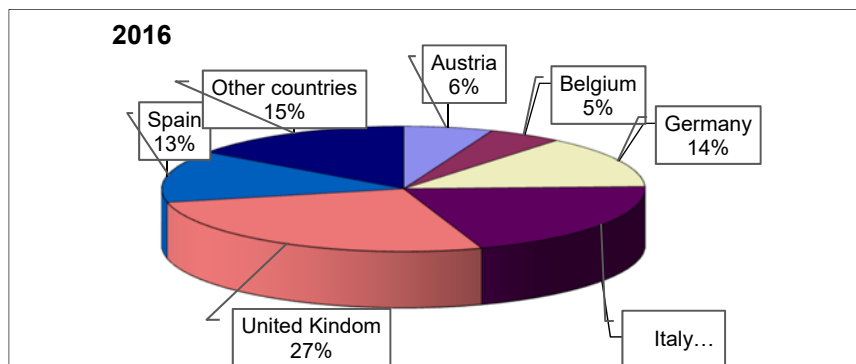
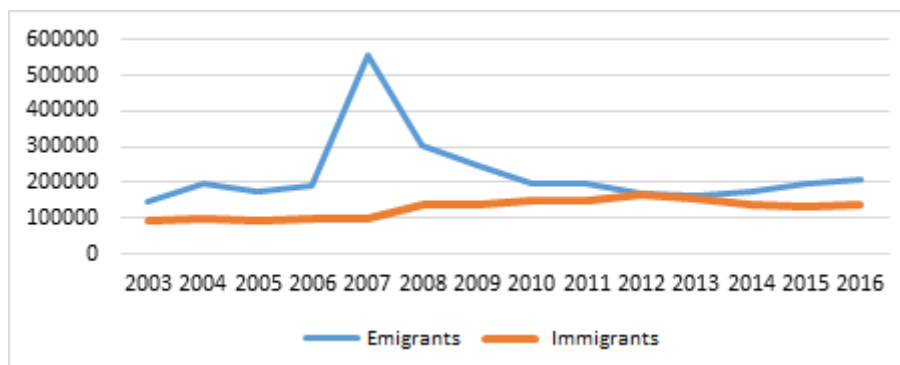


Figure 7. Distribution of migrants by destination countries in 2016



In Italy, we are seeing a process of reducing the share of Romanian emigrants due to national restrictions and restrictions imposed by welcoming countries. Another important study can be made on emigration and negative natural growth. The emigration balance represented in the following chart in the period 2003-2017 shows a boom in emigration in the years 2007, 2008, which is an effect of the crisis and even in 2009 after which it moderated and the flow resumed after 2014, 2015, 2016 and 2017. The increase the natural population was very low in the first years of 2004, 2005, 2006 but regularized after 2010 and beyond.

Figure 8. Annual migration flows



It is important to analyze the migration flow in order to compare emigrations and immigration. The emigration had a boom between 2006-2008, when in 2007 emigrated 550,000 people. Then, the pace of these emigrations narrowed to nearly 100,000 people in 2010-2016. One of the factors influencing the aging of the population is the increase in life expectancy. The evolution of life expectancy in Romania in the years to come has had a somewhat steady trend, but since 2010 it has grown both in women and men. In the graph are presented the figures that reflect this life expectancy in Romania. Of course, increasing the number of old-age population increases and the average age, or in other words, the average life expectancy in Romania. Also, in the following periods, due to the reduction of the young population quotas, we can witness an even more aging population of Romania.

Figure 9. Evolution of life expectancy in Romania (years)

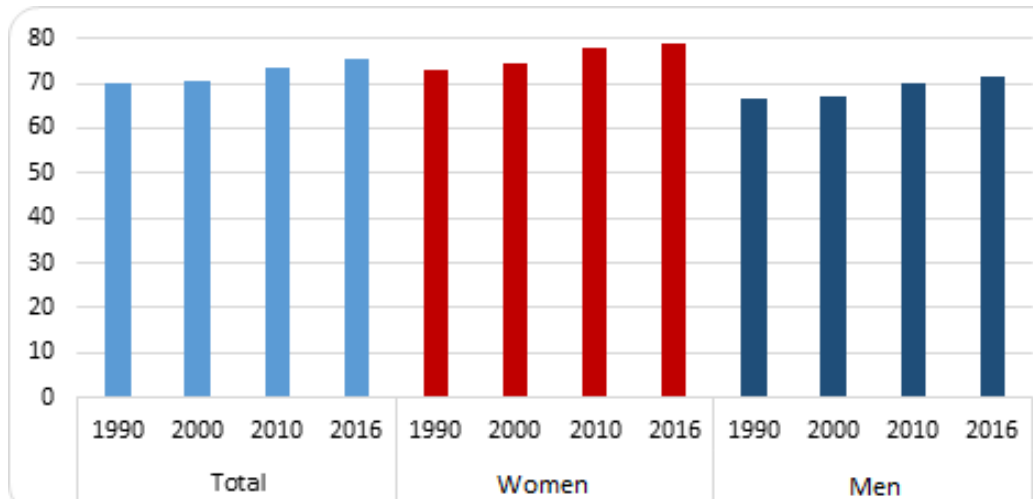
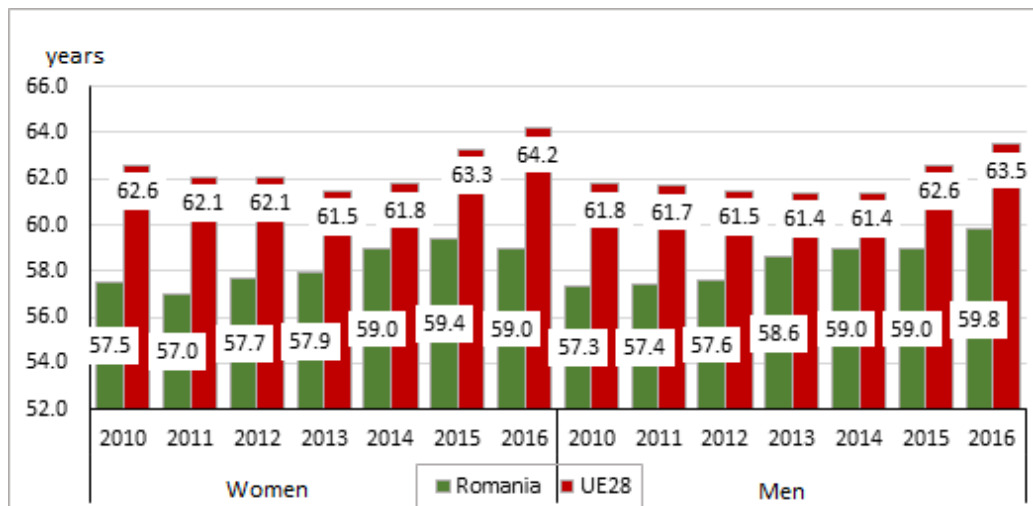


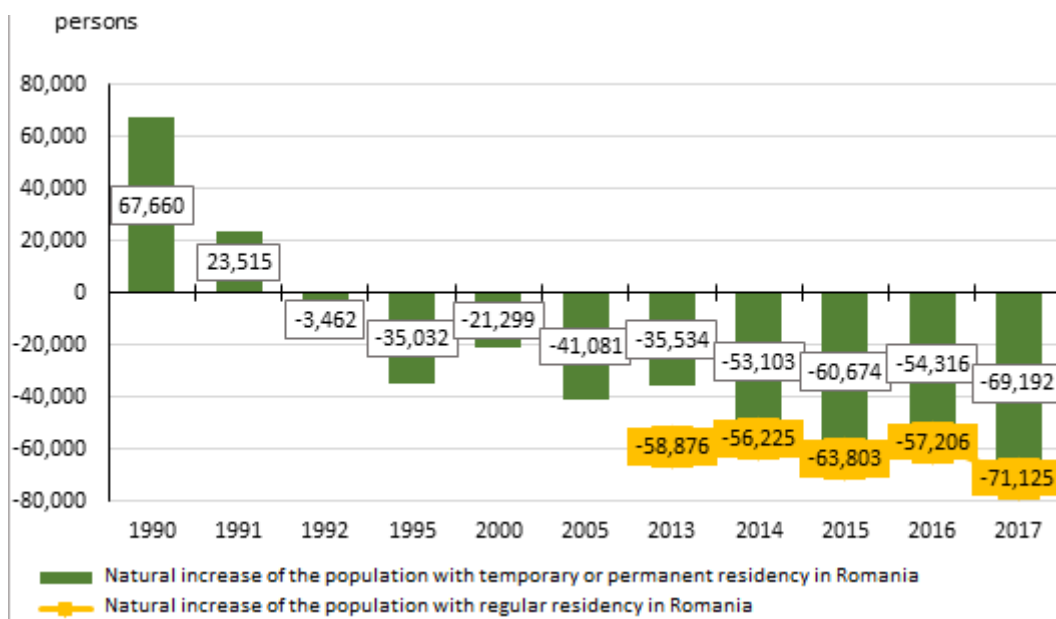
Figure 10. Evolution of healthy life expectancy at birth, in Romania and EU28, by sex



Another indicator to be considered is the evolution of healthy life expectancy, both in Romania and this compared to the European Union, which is presented in ages in women and men. Thus, healthy life expectancy in women has increased from 62.6 years in 2010 to 64.2 years in 2000 in the European Union. In Romania, the healthy life expectancy at birth was 57.5 years in 2010 reaching 59 years in 2016. In men, the ages are somewhat lower, namely 57.3 years in 2010, reaching in 2015 at 59 years. In the European Union, healthy life expectancy was 62.6 years in 2010, reaching 61.4 years in 2014.

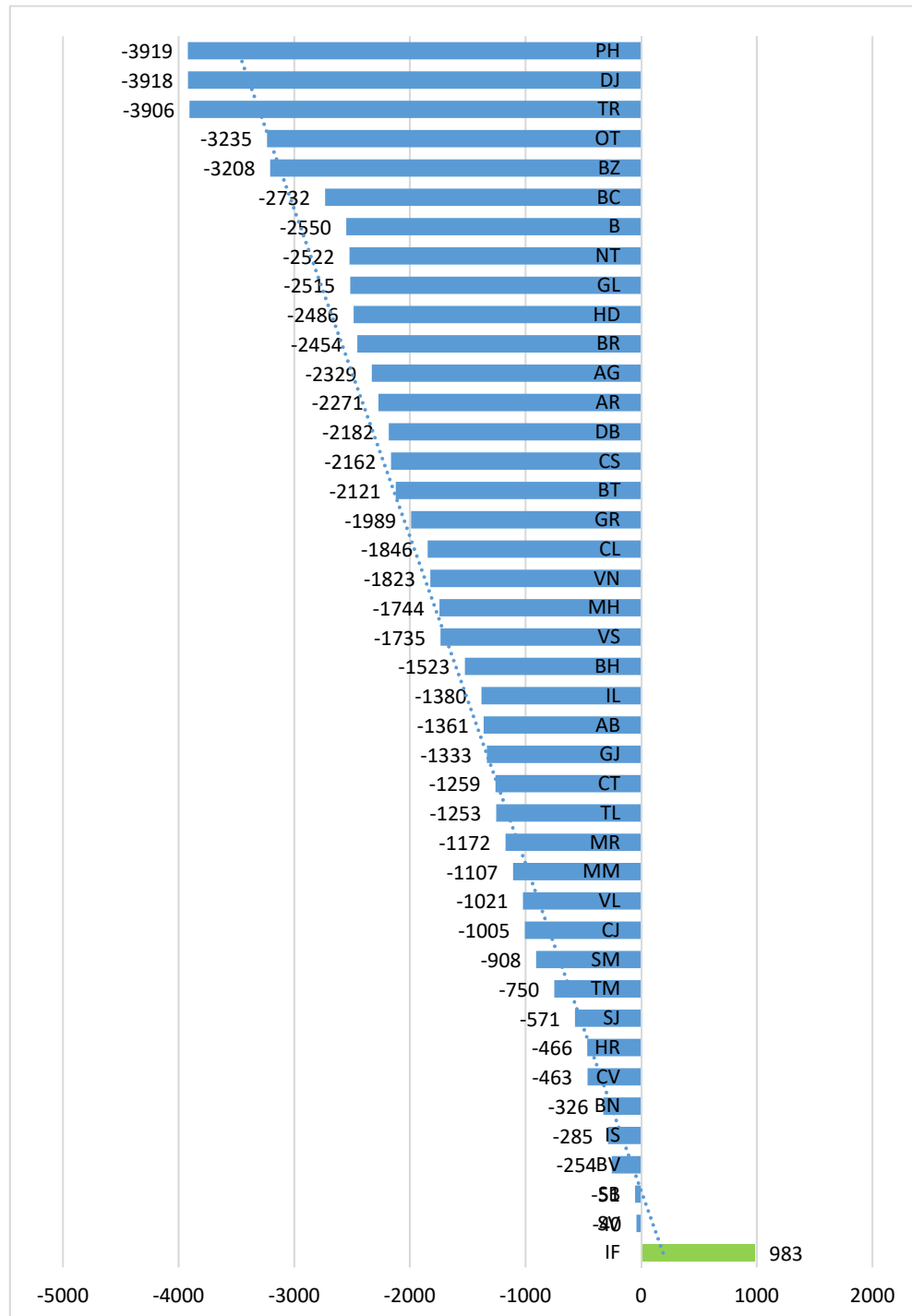
There are some gaps that are encountered in the evolution of the Romanian population. Another factor influencing the aging of the population was the negative natural increase of the population. The following chart shows the natural increase of the population for persons with domicile in Romania compared to the natural increase of the population with habitual residence in Romania. Thus, between 1991 and 2017, we find a reduction in this natural increase, which is negative, and recorded losses from 58,876 people per year to 71,125 people.

Figure 11. *The natural increase of the population in Romania during 1990-2017*



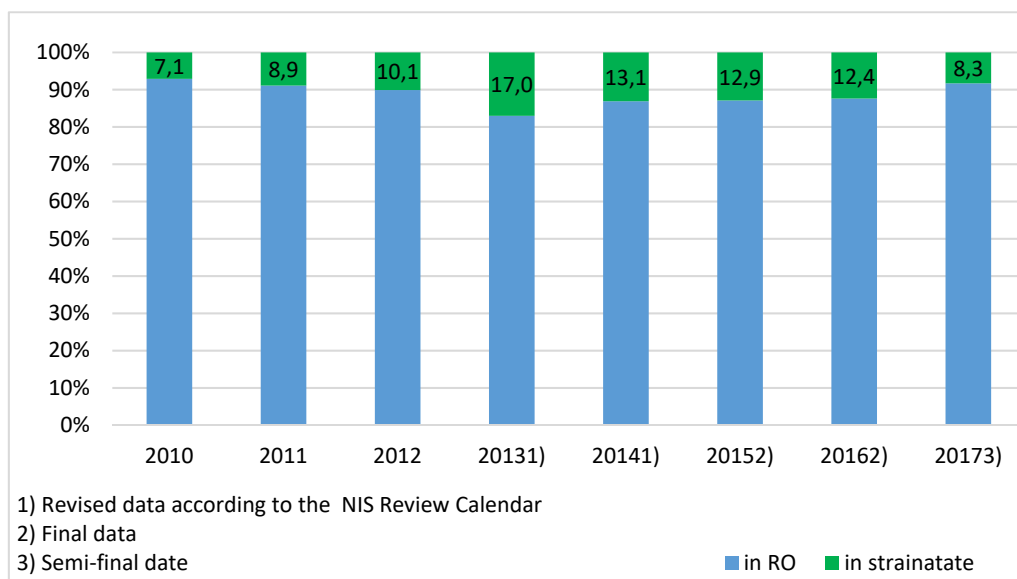
From the point of view of the population with domicile and residence in Romania, the negative loss of the population in 1991 was positive +23515, after which the negative decline started 3,460 in 1992, 35,062 in 1995, 41,081 in 2005, 60,674 in 2015 69.192 in the year 2017. The following diagram is represented by this graph, which shows by county the natural increase of persons with residence in Romania.

Figure 12. The natural increase of persons having their domicile or habitual residence in Romania in 2017



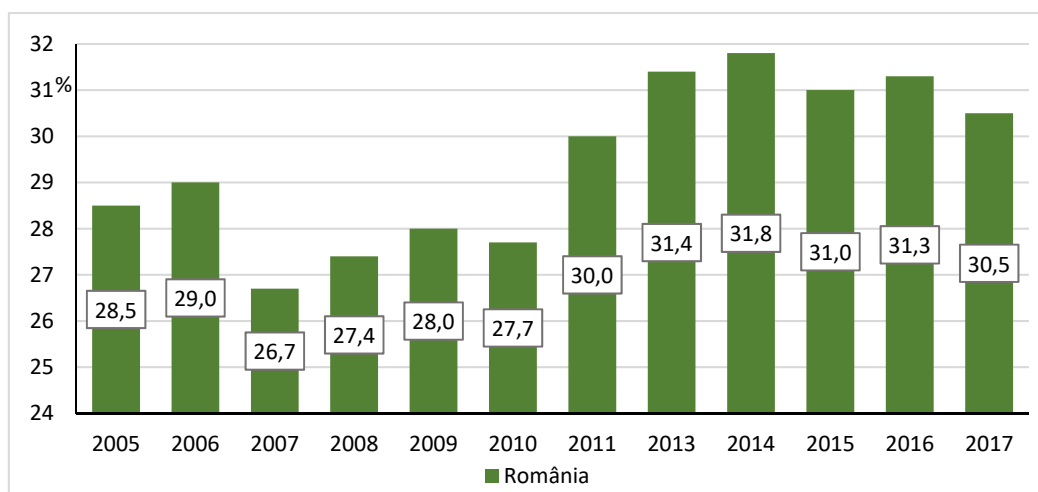
We find that the lowest losses were in the counties of Bucharest, Ilfov, Iasi, Botosani, Covasna, Harghita, Salaj and the highest ones we met in Prahova, -3,919 persons, negative natural increase in 2017, 3918 negative natural increase in 2017 in Dolj, 3906 Teleorman, 3235 Olt, etc. As far as the birth of children abroad is concerned, we find that a high percentage of them has risen between 7.1 in 2010 and 13.1 in 2014.

Figure 13. Born by birth, between 2010 and 2017



Interesting is also the analysis of live offspring, except for the marriage that had a trend of growth between 2005 and 2016. We note that this percentage was primarily due to the fact that some of the population did not have births to meet the growing requirement of the population.

Figure 14. Share of live births outside marriage in total live births, 2005-2016



A brief analysis is based on the phenomenon of the share of the different categories of women who gave birth for the first time in the period 2006-2013 in the total of the two maternal age categories at birth respectively below 20 years and over 20 years. In the following graph we have presented these indicators on the number of births and the birth rate below 20 years and the birth rate over 20 years. And here we referred to the offspring outside the marriage, finding that in the group under 20, 73.7% was the weight of these births outside marriage, while the births under and over 20 was 22.8%. It is also important to see marriages in the marriage of couples, respectively conceived before marriage, and here we find that 68.8% were born before the marriage in the age group and only 23.9% were born in the marriage, conceived before marriage at the age of 20 and over. From the point of view of paternity, we find that the father is recognized as 79.8% in the group of women under 20, and 95.6% in the group of women 20 and over 20 years.

Table 1. *The weight of the different categories of women who first gave birth during the period 2006-2013 in the total of the mother's two mothers at birth (under 20 and 20 and over)*

Category	Under 20 years of age (Share 17.2%)	20 years and over (Share 83.8%)
Born out of marriage	73.7	22.8
Of those born in marriage, conceived before marriage	68.8	23.9
Father acknowledged	79.8	95.6
Rural environment	64.9	31.9
Rom people	6.8	0.6
Occupied	8.4	63.7

The rural area comprises 64% of those births in the 20-year age group, while at the age of over 20 years the Roma have had births of 6.8% under the age of 20 and 0.6% of the group aged 2 years and over. Concerning the occupation of the mother, the share is 8.4% at the age of 20 and the age group over 20 years is 63.7%. Here are some elements that show structurally the change in the share of the population as a result of the negative natural increase, but also as a result of immigration-emigration study.

IV. Conclusion

A series of conclusions is drawn from the study on the evolution of the Romanian population. The first conclusion is that birth rate is decreasing permanently, mortality is registering a higher process and by the phenomenon of high mortality, the Romanian population with domicile in Romania or the resident population will continue to decline. A second conclusion resulting from the interpretation of the demographic indicators is that the population of Romania has reached a high degree of aging and in the following period this phenomenon will deepen in the context in which the indicators on birth rate, mortality, marriage, divorce will continue at the same pace and trend that exists today. Another conclusion is that within the main core of the population the family gets a smaller role in the next period, especially at the first birth, many births before marriage and then many births outside marriages, not to mention of other sufficiently important cases that refer to offspring of married couples who have lesser prospects of evolving in society. Last but not least we have to show that the emigration phenomenon in Romania (currently unconfirmed figures show that approximately 3.5-4 million Romanian citizens have their residence abroad). This is also a phenomenon of population decline. This is done in three ways. On

the one hand, reducing births to people going abroad. Secondly, the definite outward stay of people who are in the economic interest for a job, so that they are no longer included in the population with their domicile or residence in Romania. And last but not least, a part of the country's population, children, offspring also go abroad to reunite families who have gone to work in the European Union or even outside and have settled there. This is the meaning of the study we have undertaken, which refers to the evolution of the population and the causes of the aging of the Romanian population.

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