THE NATURAL MOVEMENT OF THE POPULATION IN ROMANIA UNDER THE SPECTRUM OF THE SANITARY AND FINANCIAL-ECONOMIC CRISIS

Assoc. prof. Mădălina-Gabriela ANGHEL PhD *(madalinagabriela_anghel@yahoo.com)*
Artifex University of Bucharest
Dana Luiza GRIGORESCU PhD Student *(danaluiza2004@yahoo.com)*
Bucharest University of Economic Studies
Radu STOICA PhD Student
Bucharest University of Economic Studies

Abstract

The analysis and writing of this article were stimulated by the fact that on July 11, World Population Day was celebrated. Thinking about the fact that the population is in fact the possibility of creating labour resources, the labour factor, the active population from which to develop the employed population, employees and not the unemployed, we proceeded to an up-to-date analysis.

In this regard, we stopped at the data recorded at the end of May, which we compared with previous periods in terms of the main demographic indicators namely birth rate, mortality, correlated between the two extremes, marriages, nuptials and divorce.

We also sought to present in detail the situation generated by the natural movement of the population. By the natural movement of the population we understand the evolution of the number of the resident population in Romania as a result of a normal process of family integration, of everything necessary to reach an increase of the population.

The data refer to birth rate, mortality, natural increase, nuptials, divorce and the situation of children under critical age, the state of health of the population and much more.

At the same time, we sought to highlight the effect that the pandemic crisis has, which has spilled over into the economic and financial crisis that is developing very rapidly and that is causing great damage to the population.

One by one, using statistical methodology, ie the use of complex data series, the processing by statistical means of data resulting from coefficients, indicators and evolutionary indices, rates of change, comparative analysis over time to reach the goal we -I proposed, that is, to establish that the population of Romania is in a stage of reduction as a result, first of all, of the

diminishing role that marriage, couples and, last but not least, the birth rate based on fertility play feminine. There are fears that these complex medication programs may have an effect on the younger generation that may further reduce their fertility.

The article is published by the World Population Day, context in which we presented a series of edifying data to show the evolution of the Romanian population over a period sometimes from 2005 to 2020, so 15 years, sometimes by comparative study, reaching to do and anticipations for population growth for the period 2030-2060, noting that it will be declining, with the effects that are always required from this point of view.

Keywords: population, birth rate, mortality, natural increase, marriage, divorce, crises.

JEL classification: J10, J20

Introduction

The purpose of this article I have already stated is to research and study data on the population of Romania, the natural movement in the first five months of 2021, compared to previous years and to prefigure in this way that is the evolution trend of the Romanian population naturally.

I say naturally because there is also the migratory growth of the population, but from our point of view, of Romania, we can specify that over 4 million of this population work abroad, in conditions where fertility and birth rate are quite low, interest and education couples in this regard, negative.

The population, based on natural movement, registers a growing stillbirth, ie births are lower and lower and deaths higher. Looking at the age pyramid, we find that for many years the quotas of the very young population have started to decrease, year by year, there is still an area with more contingents, those aged around 30 and over 30, but which are thinning as we find in parallel a more pronounced degree of population aging.

In this article we have presented through graphs, through series of data in tables, a series of aspects regarding the evolution of the population over time, the structure of the population by ages, by means, by sex and, with a somewhat timid accent, but in future articles we will deepen. this side, on the level of growth, culturalization and education of the educated population in Romania.

I say this because even in 2021, in addition to the difficulties involved in working at the department, which was more online, with major deficiencies in certain environments, and participation in graduating from the baccalaureate exam is quite low compared to previous years.

In reality, we can say that currently anyone who wants to study at university has their places in the private and state environment that exists in

Romania. But if we look at those who graduate from these courses, we find that, in fact, high school graduates, vocational schools or universities, are far from the requirements of the labour market.

And this explains why, whenever labour fairs are organized, there are places available, they still do not fill because the free market tells us that supply must correlate with demand, but in this situation of labour the distance between labour supply and demand is enormous, a context in which, paradoxically, Romania with 4 million people in the unemployed sphere, with unemployment that goes to almost half a million and with great difficulties in creating jobs and employ this surplus of the population resort to the import of labour. We can say, therefore, that Romania has become a kind of Western Europe for countries in Asia.

The article is extensively painted, complete with easy-to-interpret data and graphical presentations that are useful for those interested in penetrating all the content and ideas in this article.

Literature review

The study of the natural movement of the population is very important, especially in the conditions of the pandemic and financial-economic crisis, because this aspect is correlated with the labour force, the employed or unemployed population, or the evolution of the unemployment rate. A number of researchers and specialists in demographic analysis have paid attention to the natural evolution of the population, taking into account that the birth rate, based on female fertility or the philosophy of the role of the family, determines the continuous reduction of the population. living of the population, with immediate effect in the voluntary reduction of the birth rate. Thus, Anghelache, C. and others (2018) publish an article on the natural movement of the population and the effect on labour. Anghel, MG, and others (2018) conducted research on the effect of natural population movement on labor resources in 2017, and Anghel, M G. (2018) and others analysed a number of issues regarding the natural movement of the population and the correlation of these indicators with the evolution of the labour force and the filling of vacancies. Bijak J. et all (2007), Beadey D., Hodge A. (2009) paid attention in their studies to the analysis in multiple aspects of the evolution of the world's population, the role of the population in ensuring labour reserves. Jacob S.V. (2020) and Maestas N, Mullen K., PowellD. (2016) treated in the published papers essential elements related to economic growth and population evolution under the effect of the pandemic and economic-financial crisis, as well as the possibility to use econometric models to analyse the correlation between the two variables. Melo P.C., Graham D.j., Noland

R.B. (2009), Oster E., Shoulson I., Dorsey E. (2013) and Rossi-Hansberg E., Wright M.L.J. (2007) studied in their works aspects related to population, labour force and economic growth. Walker A., Maltby T. (2012) published a study on the strategy for correlating demographic aspects as a resource for the workforce.

Methodology

To facilitate the understanding of the demographic indicators used, we summarized and briefly presented the methodology used by the National Institute of Statistics and Eurostat. Thus, the data regarding the demographic phenomena were obtained by processing the information included in the statistical bulletins of live births, deaths, marriages and divorces prepared by the municipal, city and communal mayoralties, together with the registration of the phenomena in the civil status documents.

Born alive is the product of conception, expelled or completely extracted from the mother's body, regardless of the duration of pregnancy and which, after this separation, shows a sign of life (breathing, heart activity, umbilical cord pulsations or will-dependent muscle contractions). The number of live births includes live births whose mothers had, at the date of birth, their domicile or habitual residence for a period of at least 12 months in Romania.

The deceased is the person whose vital functions have ceased definitively after some time has elapsed since birth. The number of deceased includes persons who, at the date of death, had their domicile or habitual residence for a period of at least 12 months in Romania.

The natural increase (stillbirth) represents the difference between the number of live births and the number of deceased persons in the reference period.

Marriage represents the union between a man and a woman, concluded in accordance with the legislation of the country, in order to establish a family and which results in rights and obligations between the two spouses, as well as their children. The number of marriages includes the marriages of persons who were, at the date of concluding the marriage, domiciled in Romania, as well as the marriages of persons of Romanian citizenship who marry abroad and who are registered at the civil status offices in Romania.

Divorce represents the dissolution of a legally concluded marriage, by a final decision of the court, of the civil status officer or of a notary public. The data refer to divorce proceedings for which the dissolution of the marriage was allowed. The number of divorces includes the divorces of persons whose divorces were concluded with judges, marital status or notaries public, in accordance with Law no. 202/2010, as well as the divorces of Romanian citizens who divorced abroad, transcribed in Romania.

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

Regular residence is the place where a person normally spends his daily rest period, without taking into account temporary absences for recreation, holidays, visits to friends and relatives, business, medical treatments or religious pilgrimage. The habitual residence may be the same as the domicile or it may differ in the case of persons who choose to establish their habitual residence in a locality other than that of domicile in the country or abroad.

The semi-final data on demographic phenomena (births and deaths) registered at the civil status offices, related to the months of year N represent the absolute provisional data related to demographic phenomena (births and deaths) registered at the civil status offices, registered in year N, of which the phenomena (births and deaths) registered at the civil status offices, registered late in year N, but which occurred in year N-1 were excluded and the demographic phenomena (births and deaths) registered at the offices of civil status, registered late in Romania during the first month of year N + 1, but which took place during year N.

Provisional data on demographic phenomena related to the months of year N show the demographic phenomena, registered at the civil status offices in year N, distributed after the date of registration of the phenomenon. Provisional data from year N do not include phenomena produced in year N-1 and recorded late in year N.

The final data on demographic phenomena (births and deaths) registered at the civil status offices, related to the months of year N represent the absolute semi-final data related to demographic phenomena (births and deaths) registered at the civil status offices in year N, redistributed by months after the date of production, to which are added the phenomena registered late in the first 9 months of year N + 1, but which occurred in year N.

Data, results and discussions
• *Analysis of the population of Romania on December 31, 2020 / January 1, 2021 compared to the world's population*

On January 1, 2020, the resident population of Romania was 19328.8 thousand inhabitants. The female population was majority, comprising 9868 thousand people representing 51.1% of the total resident population.

Compared to January 1, 2019, on January 1, 2020, there is a deepening of the phenomenon of demographic aging by reducing the young population (0-14 years) by 10.9 thousand people, its share representing (15.7%) in the total resident population and increasing the share of the elderly (aged 65 and

over) from 18.5% to 18.9% (+65.4 thousand people). The adult population (15-64 years) represents 65.4% of the total, decreasing by 140 thousand people compared to the beginning of 2019. Within the adult population the share of age groups 30-34 years and 50-54 years increased and decreased that of the age groups 15-19 years, 20-24 years, 25-29 years, 35-39 years, 40-44 years, 45-49 years, 55-59 years and 60-64 years.

10456.5 thousand people live in urban areas, representing over half of the country's resident population (54.1%).

On January 1, 2020, the North-East development region (with the counties: Bacău, Botoşani, Iaşi, Neamţ, Suceava, Vaslui) had the largest number of inhabitants, with a share of 16.5% in the country's resident population. At the opposite pole was the West development region (consisting of the counties: Arad, Caraş-Severin, Hunedoara, Timiş) with a share of only 9.2% in the resident population of the country. The Bucharest-Ilfov development region is the most urbanized region, the population living in municipalities and cities representing 88.5% of the total population of the region.

Life expectancy at birth in 2020 reached 76.11 years, up 0.14 years compared to the previous year, with women having a longer average life expectancy of 7.21 years than men. Due to the differentiated level of mortality by areas of residence registered in 2020, the average life expectancy of the population in urban areas was higher than in rural areas, by 3.03 years. For both sexes, the average life expectancy in urban areas was higher than in rural areas, with more pronounced differences for the male population (3.40 years) than the female population (1.94 years).

In 2020, the natural increase of the resident population continued to be negative (-120.3 thousand people), its negative values being registered in territorial profile, in all regions of the country. The largest negative increase was registered in the South-Muntenia region (-26.6 thousand people), and the smallest in the Bucharest-Ilfov region (-6.6 thousand people). Significant negative values of the natural increase were also registered in the South-East (-18.8 thousand persons), North-East (-17.4 thousand persons) and South-West Oltenia (-15.6 thousand persons) regions.

Significant developments in society, such as declining birth rates, maintaining a negative natural increase, international migration, changing the demographic behaviour of married couples are just some of the factors considered responsible for declining fertility and, implicitly, the resident population, as well as changing its structure. age groups.

A constant concern of official statistics is the estimation of the resident population of Romania, as well as the calculation of specific indicators. Thus, it is observed that the average age continued to increase, reaching the level of

42.2 years on January 1, 2020. There is an acceleration of the demographic aging process from year to year, highlighted by maintaining a constant share of people in the group. of age 0-14 years simultaneously with the increase of the share of the elderly population (65 years and over), a phenomenon highlighted by the demographic aging index. It increased from 81.0 (on 1 January 2005) to 120.8 elderly people to 100 young people (on 1 January 2020).

Specific population indicators

Table 1

	1 January 2005	1 January 2010	1 January 2015	1 January 2020
Average age of the population -years-	37,9	40,6	41,3	42,2
The median age of the population -years-	35,5	40,1	41,1	42,8
Demographic aging index	81,0	102,1	109,3	120,8
Demographic dependency ratio	46,3	46,9	48,2	53,0

Source: INS press release

It is expected that the number of young resident population, of preschool and school age, will continue to have a downward trend and will reach 3.12 million people in 2030, and in 2060 only 2.15 million people compared to 3.49 million currently (in the school year 2020/2021).

Preschool and school population aged 0-23 in the school year 2020/2021 and that projected for the years 2030 and 2060

Table 2

People

	Preschool and school population		
	in the school year 2020/2021	designed over the years :	
		2030	2060
Population 0-23 years	3494604	3116840	2149563
0 - 2 ani	34625	30978	21384
3 - 5 ani	460581	410297	285283
6 -10 ani	868115	777991	541804
11-14 ani	749720	654498	450388
15-18 ani	641991	597153	416123
19-23 ani	739572	645923	434581

Source: INS press release

Eurostat estimates that the elderly resident population (65 years and over) of Romania will reach 3.88 million people by 2030 and in 2060 the population aged 65 and over will reach 4.68 million people, compared to 3 , 66 million people on January 1, 2020.

According to the UN Population Division, which records the world's population, on July 1, 2020, the world's population was estimated at 7.8 billion; the countries with the largest population being China (1439 million inhabitants), India (1380 million inhabitants), the United States of America (331 million inhabitants), Indonesia (274 million inhabitants) and Pakistan (221 million inhabitants). The world's population is projected to reach 9.7 billion in 2050 and 10.9 billion in 2100.

The largest population increases between 2020 and 2050 will take place in: India, Nigeria, Pakistan, Congo, Ethiopia, the Republic of Tanzania, Egypt, Indonesia, the United States, Angola, Uganda and Niger. Around 2027, it is estimated that India will surpass China, becoming the most populous country in the world.

The countries with the highest population growth, in absolute numbers, in 2020 compared to 2019, were India, China, Nigeria, Pakistan and Indonesia.

In terms of Eurostat statistics, Romania ranks 6th in the European Union in terms of resident population, on January 1 2020. The country with the largest population in the EU is Germany (83166.7 thousand inhabitants), and the country with the smallest population is Malta (514.6 thousand inhabitants).

Situation in the EU Member States of the resident population

Table 3

EU Member States	Resident population at January 1, 2020	Position	EU Member States	Resident population at January 1, 2020	Position
TOTAL UE28	514,345,458		Austria	8,901,064	14
Germany	83,166,711	1	Bulgaria	6,951,482	15
France	67,320,216	2	Denmark	5,822,763	16
Italy	59,641,488	3	Finland	5,525,292	17
Spain	47,332,614	4	Slovakia	5,457,873	18
Poland	37,958,138	5	Ireland	4,964,440	19
Romania	19,328,838	6	Croatia	4,058,165	20
Netherlands	17,407,585	7	Lithuania	2,794,090	21
Belgium	11,522,440	8	Slovenia	2,095,861	22
Greece	10,718,565	9	Latvia	1,907,675	23
Czech Republic	10,693,939	10	Estonia	1,328,976	24
Sweden	10,327,589	11	Cyprus	888,005	25
Portugal	10,295,909	12	Luxembourg	626,108	26
Hungary	9,769,526	13	Malta	514,564	27

Source: INS press release

• *The population of Romania on May 31, 2021*

In May 2021 the number of registered births decreased compared to May 2020, but increased compared to the previous month (April 2021). The number of deaths increased in May 2021 compared to the same month of the previous year, but decreased compared to April 2021. The number of deaths caused by diseases of the respiratory system was, in May 2021, 2.2 times higher than that recorded. in May 2020.

In May 2021 the number of registered marriages increased 3.8 times compared to May 2020 and 2.2 times compared to April 2021, and the number of registered divorces decreased compared to April 2021, but increased three times compared to from May 2020.

In May 2021, 13524 children were born, with 860 more children than in April 2021.

The number of deaths recorded in May 2021 was 24527 (12864 men and 11663 women), with 4991 deaths (2709 men and 2282 women) less than in April 2021. The number of deaths of children under 1 year, recorded in May 2021, was 60 children, decreasing by 22 compared to April 2021.

Deaths recorded in the reference month, after the date of occurrence
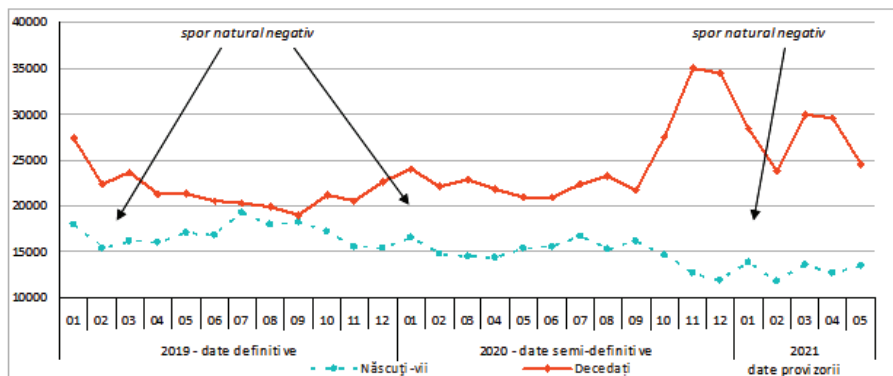
Table 4

Reference month of 2021	Recorded deaths	Of which: deaths caused:		
		in the moon reference	in the month preceding the reference month	two months or more before the reference month
A	1	2	3	4
January	28390	27099	1050	241
February	23720	21722	1998	-
March	29899	27821	1935	143
April	29518	27992	1360	166
May	24527	22954	1392	181

Source: INS communiqué number 177/12 July 2021

As can be seen from the data series, in the chart below, in 2020 the number of deaths increased significantly in October, November and December compared to the same months in 2019, and in January-February 2021 there is a decreasing trend of the number of deaths compared to the last months of 2020, their number remaining higher than that recorded in the same months of the previous year. In the context of the COVID19 pandemic, in March 2021 there was the third largest increase in the number of deaths, after the increases in November and December of 2020, and since April 2021 there is a decreasing trend, which continued in May 2021, but with values still higher than in the corresponding months of the previous year.

Evolution of the number of live-born and deceased, during January 2019 - May 2021
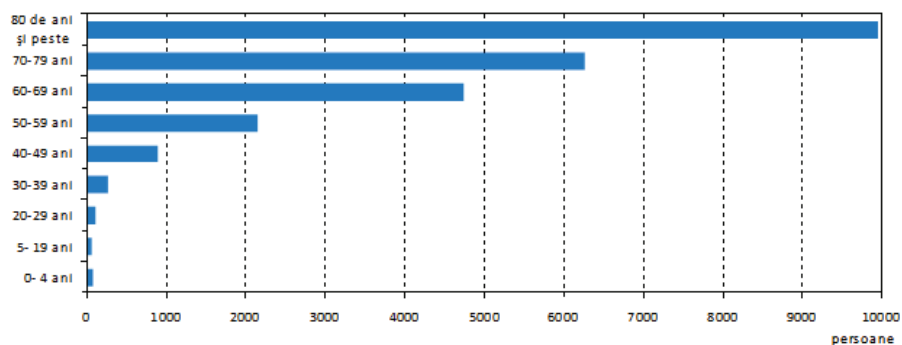
Figure 1

In May 2021, two thirds of the total number of deaths was recorded for people aged at least 70 (9954 deaths, representing 40.6% of the total, were recorded among people aged 80 and over, and 6269 deaths, representing 25.6% of the total, in people aged 70-79) and 4735 deaths (19.3%) in people aged 60-69. Naturally, on the other hand, the fewest deaths were recorded in the age groups 5-19 years (68 deaths), 0-4 years (75 deaths) and 20-29 years (111 deaths).

Deaths recorded in May 2021, by age groups

Figure 2

After the main cause of death, in May 2021 most people died due to circulatory diseases (13080 people, representing 53.3% of deaths in May 2021) and tumours (3875 people, representing 15.8%). After 7 months in which respiratory diseases were the second leading cause of death, in May

2021 it was the third leading cause of death (3776 people, representing 15.4% of all deaths recorded in May 2021).

The natural increase remained negative (-11003) in May 2021, the number of deceased persons being 1.8 times higher than that of live births.

Natural population movement in Romania

Table 5

People

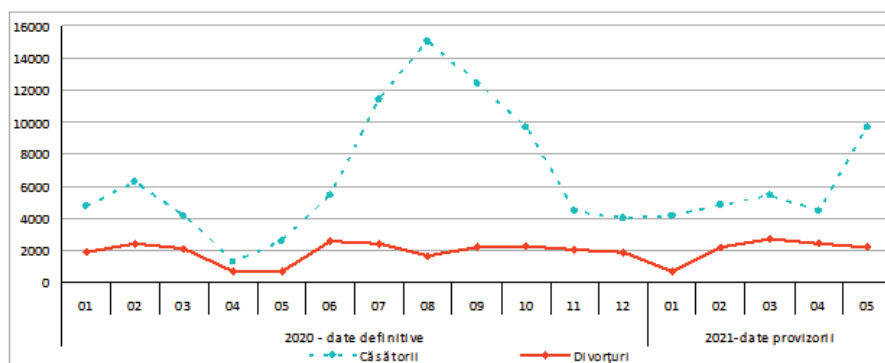| The year Month	Live births	Deceased	Increase natural	Marriage	Divorces	Deceased under 1 year
A	1	2	3	4	5	6
2020						
January	16610	24060	-7450	4724	1893	89
February	14704	22151	-7447	6275	2387	113
March	14556	22845	-8289	4115	2077	82
April	14420	21899	-7479	1274	716	91
May	15379	20971	-5592	2544	702	83
June	15516	21003	-5487	5471	2535	83
July	16702	22406	-5704	11415	2406	101
August	15305	23273	-7968	15014	1683	102
September	16138	21734	-5596	12405	2209	89
October	14653	27554	-12901	9632	2270	101
November	12644	34952	-22308	4452	2032	88
December	11982	34497	-22515	4022	1875	75
2021						
January	13852	28390	-14538	4139	713	86
February	11816	23720	-11904	4859	2214	83
March	13606	29899	-16293	5421	2702	91
April	12664	29518	-16854	4443	2421	82
May	13524	24527	-11003	9652	2176	60

Source: INS communiqué number 177/12 July 2021

In May 2021, 9652 marriages were registered at the civil status offices, 5209 more than in April 2021.

The number of divorces pronounced by final court decisions and according to Law no. 202/2010 was 2176 in May 2021, 245 less than in April 2021.

Evolution of the number of marriages and divorces, in the period January 2020 - May 2021

Figure 3

The number of live births recorded in May 2021 was lower by 1855 compared to the same month in 2020.
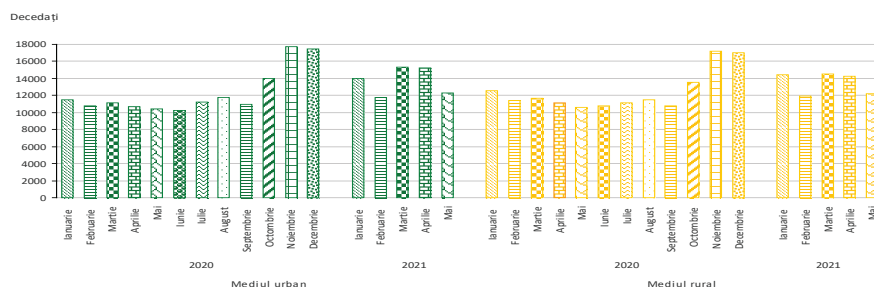
The negative natural increase increased almost twice in May 2021 compared to May 2020 (-11003 people in May 2021, compared to -5592 people in May 2020).

The number of people who died in May 2021 was 3556 higher than in May 2020. After the first three main causes of death, in May 2021, compared to May 2020, there were 1380 more deaths than due to circulatory diseases, 2.2 times more deaths due to respiratory diseases (3776 deaths in May 2021, compared to 1690 deaths recorded in the same month of the previous year), but with 216 fewer deaths with the main cause of tumours.

The number of children under the age of one who died was 23 times lower in May 2021 than in May 2020.

Evolution of the number of deaths by area of residence, during January 2020 - May 2021

Figure 4

In May 2021, in the urban area there was the death of 12275 people (6441 men and 5834 women), and in the rural area the death of 12252 people (6423 men and 5829 women). Compared to the same month in 2020, the number of people who died increased by 1893 people (962 men and 931 women) in urban areas and by 1663 people (807 men and 856 women) in rural areas.

The number of marriages was, in May 2021, 7108 higher than the one registered in the same month of the previous year.

By final court decisions and according to Law no. 202/2010 in May 2021, 1474 more divorces were pronounced than in May 2020.

The effects of the health crisis on demographic phenomena are visible, especially in the case of deaths which, since June 2020, have registered an upward trend compared to the corresponding months of the previous year and in the case of marriages which, since March 2020, have decreased compared to the corresponding months of the previous year for 12 consecutive months, March 2021 being the first month of increase in the number of marriages compared to the same month in 2020. In the case of divorces, in March 2021 the highest number of divorces from January 2020 to May 2021, and the number of births has decreased monthly since January 2020, compared to the corresponding month of the previous year.

Conclusions

From the study based on the stated data, a series of theoretical and practical conclusions can be drawn. First of all, the unemployed population in Romania is in a process of growth, despite the inability to create jobs and absorb this category of population.

It is also found that the population is constantly declining due to declining fertility and birth rates, which, whether we like it or not, we must associate with the existence of fewer and fewer married couples, concerned with raising offspring.

Another conclusion is that the population, in order to be able to work in Romania, to return and bring through the amounts they receive abroad, some values that do not necessarily have to be recorded, are not followers of inaccuracies, but it is more correct to brings the money to the country rather than being forced to make all sorts of statements that cause them to finally say Stop! this activity.

Another conclusion is that the level of health of the population and education must be found a more realistic path, closer to the needs of future generations to come to be healthy, to be educated, to prepare to be then involved in economic activity and so on.

The last conclusion would be that the population is aging and the succeeding generations are also quite small in number, as a structure in the age pyramid.

References
1. Anghelache, C., Avram, D., Burea, D., Olteanu (Petre) A. (2018). *Analiza mişcării naturale a populaţiei şi a evoluţiei forţei de muncă*, Revista Română de Statistică - Supliment, vol.2018, nr.2, pag.106 -114
2. Anghel, M.G., Marinescu, E.T., Burea, D., Olteanu, A., Samson, T.(2018). *Mişcarea naturală a populaţiei - resursă a forţei de muncă în România în anul 2017*, Revista Română de Statistică - Supliment, vol.2018, nr.1, pag.111-121
3. Anghel, M.G., Anghelache, C., Avram, D., Burea, D., Marinescu, A.I. (2018). *Aspecte privind mişcarea naturală a populaţiei, forţa de muncă şi locurile vacante din economie*, Revista Română de Statistică - Supliment, vol.2018, nr.11, pag.48-59
4 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, 1-31
5. Headey, D., Hodge, A. (2009). *The Eff ect of Population Growth on Economic Growth: A Meta-Regression Analysis of the Macroeconomic Literature.* Population and Development Review, 35 (2), 221-248
6. Iacob, SV., Dumbrava, SG., Bîrsan O. (2020). *The natural movement of the population under the eff ect of the sanitary crisis in Romania.* Romanian Statistical Review, Supplement, 6, 178-197
7. Maestas, N., Mullen, K., Powell, D. (2016). *The eff ect of population aging on economic growth, the labor force and productivity.* National Bureau Of Economic Research, Cambridge, Working Paper no. 22452
8. Melo, P.C., Graham, D.J., Noland, R.B. (2009). *A meta-analysis of estimates of urban agglomeration economies.* Regional Science and Urban Economics, 39 (3), 332-342
9. Oster, E., Shoulson, I. and Dorsey, E. (2013). *Limited Life Expectancy, Human Capital and Health Investments.* American Economic Review, 103 (5), 1977-2002
10. Rossi-Hansberg, E., Wright, M.L.J. (2007). *Urban Structure and Growth.* Review Economic Studies, 74, 597–624
11. Walker, A., Maltby, T. (2012). *Active ageing: A strategic polity solution to demographic ageing in European Union.* International Journal of Social Welfare, 21 (s1), s117-s130