



DEMOGRAPHIC DECLINE IN ROMANIA – AN ANALYSIS USING CENSUS DATA AFTER THE ROMANIAN REVOLUTION OF 1989

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Population decline in demographic terms expresses itself differently from county to county within Romanian territory and throughout the timeline. As it has an intrinsic inertia this phenomenon is necessary to be investigated and the related data since the Revolution of 1989 be placed in a broader context. The research analysis is performed at both national and county level and also by area of residency based on Census definitive data from 1992, 2002 and 2011 as well as preliminary estimates from the 2021 Census. After presenting a brief overview on the dynamics of the population, the main findings are highlighted for the two periods, one between the Second World War and the Romanian Revolution of 1989 and the second period being the time afterwards. The mean age of the Romanian population is on the rise from 35.1 to 40.6 years in average according to the 1992, 2002 and 2011 Censuses. Although the last ten years lead to a stabilisation in the resident population of some counties, demographic decline is still present across counties and by residency area.

Keywords: Romania, census, population decline, demographic phenomena, residency area.

INTRODUCTION

One of the premises of analysing demographic phenomena is that “the population has an inertia – the demographic inertia – much stronger than the inertia of other systems (economic or social)”¹. Therefore, in order to understand the dynamics of the population in Romania after the Revolution from 1989, it is necessary to review the decrease or stability of the population between the Second World War and the Romanian Revolution of 1989, as these changes had an impact also during the transition and post-transition periods.

Recent contributions^{2,3} point out a decline in the population size for some of the European Union countries. In the last decade, Romania, expresses negative increase caused by two components of population change, net negative emigration where more people left compared to the ones arriving in the country, and natural population decrease. The magnitude of the demographic crisis is also presented by Ghețău⁴ which highlights that these changes have a significant impact in the shortage of economically active population.

In the Romanian past, as Vollset *et al.*,⁵ pointed out, the coercive measures of fertility rate consolidation which were taken impacted in the natality rate. With the recent rise and ease of access to effective contraceptive methods mixed with the phenomena of willingness to live in couple before deciding to become parents, a decline in fertility for the young age groups is seen usually before 30 years of age⁶.

In the developed world, due to the gains in education for women alongside with increase in higher professional aspirations is causing delay in marriage and childbearing. According to Beaujouan and Toulemon⁷ this consequence in the delay of the first birth is not observed to be specific for the European countries with low fertility.

Life expectancy at birth, is defined by the mean number of years a new-born child is expected to live if subjected to the current mortality conditions. As mortality conditions are not stable in time and the age-specific death rates are declining, an increase may be seen in the actual expected life span of a generation, given by their age plus their life expectancy at that age. For the year 2019 the life expectancy in the world was 72.6 years in average after an increase with more than 8 years

since 1990². The overall life expectancy is projected to report gains in the absence of disruptive events. Due to differences in maternal mortality rates which improved across generations some of the gaps were closed for the life expectancy at birth which contributed to a slight decrease in disparities between countries. In 2019, the life expectancy at birth recorded in Romania was 75.6 years in average, after a slight increase of almost 2 years compared to the one recorded in 2010.

The aim of this paper is to analyse the population dynamics after the Romanian Revolution of 1989. For the purpose of this paper, Census definitive data from 1992, 2002 and 2011 as well as preliminary estimates from the 2021 Census are used. The analysis is performed at both national as well as county level and by area of residency.

The paper is structured in three sections. A brief overview on the dynamics of the population in Romania between the end of the Second World War and the Romanian Revolution as well as the main social and economic events is performed in the first section. Some aspects of the aftermath of the Romanian Revolution are highlighted. Next, the decline of the resident population between 1992 and 2021 is analysed using census data. Section three points out the consequences of the decline in the resident population. Then, some final considerations are presented.

POPULATION DYNAMICS IN ROMANIA BETWEEN THE END OF THE SECOND WORLD WAR AND THE ROMANIAN REVOLUTION OF 1989 AND ITS AFTERMATH

The demographic transition is the transition from a time period when the birth and mortality rates are high to a period when the birth and mortality rates are low⁸. It is characterised by five processes: mortality decline, natural increase (population growth), fertility decline, urbanization, and population aging⁹. According to Jemna and David¹⁰ Romania reached its final stage of the demographic transition. During this transition, there are several events and aspects worth to be highlighted that occurred before as well as after the revolution.

Between the end of the Second World War and 1955 the birth rate in Romania was approximately 25 per 1000 persons beginning to decline until it reached 14.3 in 1966, thus explaining the harsh

pronatalist measures taken through the Decree 770/1966 namely, banning abortion and contraceptives import¹¹. According to the same source these measures increased birth rates considerably within the first two years of implementation (when the police was also present in the hospital wards) but were rather unsuccessful on the long run due to social and economic factors (increased access to education for women, absorbing women into labour force in industries, poor facilities for child-care).

In 1978, the communist regime began implementing several measures destined to improve women lives' and encouraging them to bear more children (constructing child-care facilities, prioritizing the production of household appliances, ready-made food available)¹². According to the same source these measures had little success as in 1983 the birth rate reached the level of 1966 resulting in even harsher anti-abortion legislation in 1985.

The Law-Decree no.1 of 26 December 1989 terminated the Decree no.770 of 1966 regarding abortion. As consequence, abortion became legal after the Romanian Revolution. Moreover, the free movement over the border became possible, international migration becoming an essential component of the society¹³. Also, after 1989, internal migration flow from rural to urban areas diminished considerably¹⁴. International migration after 1990 affected population fertility mainly because the stock of emigrants comprises of young persons¹⁵.

THE DECLINE OF THE RESIDENT POPULATION BETWEEN 1992 AND 2021

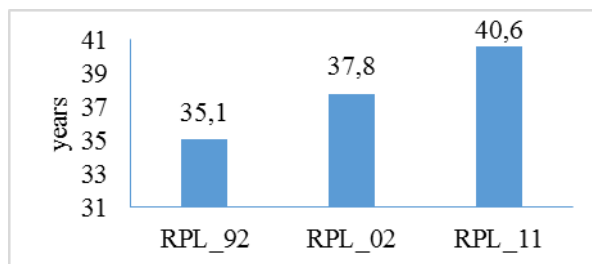
In order to estimate the demographic decline at territorial level in Romania, data from 2002 Census, 2011 Census and preliminary estimates for the 2021 census is used. Table 1 presents the increase rates of the population as follows: population from 2011 census divided by the population of 2002 census; population estimates from the 2021 census divided by the population of the 2011 census and 2002 census respectively. The results show a sharp decrease in the resident population in the last 20 years. The mean average rhythm of decline was -0.69% for the entire country, -0.82% for the urban areas and -0.53 for the rural areas. One possible explanation of the higher decline rhythm in the urban areas is that the deindustrialisation process that occurred after 1989 lead to an increased internal migration from urban to rural areas¹⁴.

Table 1

Increase rates of the resident population in Romania

	2011/2002	E2021/2011	E2021/2002
Urban	-8.8	-6.2	-14.5
Rural	-5.3	-4.5	-9.6
Total	-7.2	-5.5	-12.3

Source: Designed by the authors based on primary data provided by the National Institute of Statistics.



Source: Designed by the authors based on primary data provided by the National Institute of Statistics.

Figure 1. Mean age of the population at the 1992, 2002 and 2011 Censuses.

Table 2

Population distribution by age group (%)

	under 15 years	16-65 years	over 65 years
Romania – 2011 Census **	16.9	67.9	15.1
Romania – 1968 *	26.0	65.7	8.3

* Demographic Yearbook, 2015; ** designed by the authors using data from the 2011 Census.

During the transition period, the mean age of the Romanian population increased from 35.1 years at the 1992 Census to 37.8 years at the 2002 census to 40.6 years at the 2011 census (Figure 1).

When comparing the data on the distribution of the population by age groups (under 15 years, 16–65 years, over 65 years) for the 1968 census with those from 2011, several important changes are observed. The share of the persons under 15 decreased from 26% in 1968 to 16.9% in 2011 while the share of persons over 65 increased from 8.3% in 1968 to 15.1% in 2011. The stable population is approximately equal for the two censuses (Table 2).

Table 3 presents the results of the evaluation of the population dynamic at county level for the entire country as well as for urban and rural areas for the following periods: 2002–2011, 2011–2021 and 2002–2021. Considering the estimates, the counties are grouped in 4 categories: counties where the resident population decreased by at least 20% in the reporting year compared to the base year (blue); counties where the resident population decreased by 10%–20% in the reporting year compared to the based year (yellow); counties where the resident population decreased by at most

10% in the reporting year compared to the base year (green); counties where the resident population increased (light red).

Between 2021 and 2002 only 3 counties may register an increase in the resident population: Ilfov (by 75%), Timiș (by 4.5%) and Cluj (by 1.1%). The increase in Cluj and Timiș is due to the increase of the resident population in the rural area: in Cluj the resident population increased by 11.2% in rural areas while it decreased by 3.9% in urban areas; in Timis, the resident population increased by 25% in rural areas, while it decreased by 7.6% in urban areas. In Ilfov the resident population in urban areas increased by 96% and the resident population in rural increased by 75%.

The last ten years lead to a stabilisation or even a relative increase in the resident population of some counties. The resident population is estimated to increase in 7 counties at the 2021 Census compared to 2011: Ilfov, Constanța, Iași, Brașov, Sibiu, Cluj and Timiș. In Iași and Ilfov the increase is due to the positive population rhythm in urban areas, while in the other counties it is due exclusively to the increase of the resident population in rural areas.

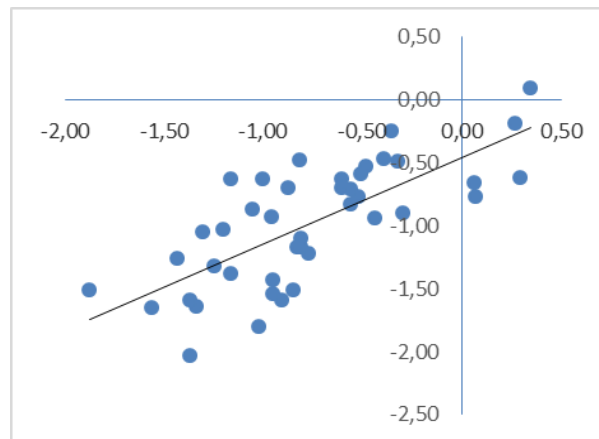
For each county, two indicators were computed: the increase rate of the resident population at the 2011 census compared to the resident population at the 2002 census ($y_i, i = 1, \dots, 41$); the increase rate of the resident population at the 2021 census compared to the resident population at the 2011 census (x_i). Figure 2 shows a linear relationship between the two data series.

$$y_i = b + a \cdot x_i + \varepsilon_i; i = 1, \dots, 41$$

After estimating parameters, the following results are obtained:

$$y_i = 0.873 \cdot x_i; i = 1, \dots, 41$$

This shows that the consistent reduction of the resident population occurring between 2002–2011 continued in 2011–2021.



Source: Designed by the authors based on primary data provided by the National Institute of Statistics.

Figure 2. Linear relationship between the increase rates of the resident population at county level in 2011–2002 and 2021–2011.

Table 3a

Increase rate of the resident population at county level, by area of residence

		Urban			Rural			Total		
		2021 Census (estimates)/2002 Census	2021 Census (estimates)/2011 Census	2011 Census/2002 Census	2021 Census (estimates)/2002 Census	2021 Census (estimates)/2011 Census	2011 Census/2002 Census	2021 Census (estimates)/2002 Census	2021 Census (estimates)/2011 Census	2011 Census/2002 Census
1	Alba	-15.46	-6.31	-9.77	-19.46	-9.02	-11.47	-17.15	-7.44	-10.49
2	Arad	-13.99	-6.29	-8.21	-8.22	-3.53	-4.86	-11.46	-5.06	-6.75
3	Argeş	-16.88	-8.68	-8.98	-11.44	-8.12	-3.62	-14.02	-8.38	-6.16
4	Bacău	-25.71	-9.25	-18.13	-14.97	-7.35	-8.22	-19.93	-8.17	-12.80
5	Bihor	-10.84	-5.72	-5.42	-4.79	-1.98	-2.86	-7.80	-3.82	-4.14
6	Bistriţa-Năsăud	-4.82	2.39	-7.04	-16.25	-8.17	-8.80	-12.11	-4.30	-8.16
7	Botoşani	-21.01	-11.23	-11.01	-17.99	-11.48	-7.36	-19.25	-11.38	-8.88
8	Braşov	-13.12	-3.45	-10.02	14.86	11.56	2.96	-6.10	0.71	-6.76
9	Brăila	-29.61	-16.17	-16.04	-20.86	-11.92	-10.16	-26.47	-14.57	-13.92
10	Buzău	-24.86	-13.37	-13.27	-17.15	-11.62	-6.26	-20.27	-12.29	-9.10
11	Caraş-Severin	-25.16	-14.71	-12.24	-17.60	-8.30	-10.14	-21.75	-11.79	-11.30
12	Călăraşi	-18.89	-12.23	-7.59	-14.26	-10.41	-4.31	-15.98	-11.07	-5.52
13	Cluj	-3.90	-0.91	-3.02	11.21	9.96	1.13	1.05	2.75	-1.66
14	Constanţa	-11.95	-5.15	-7.17	3.87	1.29	2.55	-7.35	-3.14	-4.34
15	Covasna	-17.74	-8.62	-9.99	-4.26	-3.31	-0.98	-11.05	-5.85	-5.52
16	Dâmboviţa	-19.90	-11.12	-9.88	-8.19	-6.55	-1.75	-11.79	-7.87	-4.25
17	Dolj	-19.19	-9.29	-10.91	-14.71	-6.20	-9.07	-17.06	-7.81	-10.04
18	Galaţi	-24.63	-9.61	-16.62	-16.21	-7.62	-9.29	-21.00	-8.71	-13.46
19	Giurgiu	-16.93	-10.53	-7.15	-13.56	-9.17	-4.83	-14.56	-9.57	-5.52
20	Gorj	-24.18	-12.07	-13.77	-19.28	-10.20	-10.11	-21.55	-11.05	-11.80
21	Harghita	-14.32	-6.78	-8.10	-5.13	-3.17	-2.03	-9.19	-4.71	-4.71

Source: Designed by the authors based on primary data provided by the National Institute of Statistics.

Table 3b

Increase rate of the resident population at county level, by area of residence

		Urban			Rural			Total		
		2021 Census (estimates)/ 2002 Census	2021 Census (estimates)/ 2011 Census	2011 Census / 2002 Census	2021 Census (estimates)/ 2002 Census	2021 Census (estimates) / 2011 Census	2011 Census / 2002 Census	2021 Census (estimates)/ 2002 Census	2021 Census (estimates)/ 2011 Census	2011 Census / 2002 Census
22	Hunedoara	-26.82	-14.03	-14.88	-17.89	-8.25	-10.51	-24.67	-12.58	-13.82
23	Ialomița	-17.12	-8.94	-8.98	-16.69	-10.97	-6.42	-16.88	-10.08	-7.56
24	Iași	-6.98	4.13	-10.67	1.47	1.99	-0.51	-2.64	2.98	-5.45
25	Ilfov	95.98	42.91	37.14	60.82	29.35	24.33	75.09	35.18	29.53
26	Maramureș	-14.50	-7.38	-7.68	-7.68	-3.80	-4.04	-11.67	-5.86	-6.17
27	Mehedinți	-27.52	-17.18	-12.49	-22.11	-9.08	-14.33	-24.61	-12.87	-13.48
28	Mureș	-17.81	-8.20	-10.46	-0.81	-1.66	0.86	-9.86	-4.95	-5.17
29	Neamț	-29.77	-12.29	-19.94	-19.44	-8.33	-12.12	-23.39	-9.76	-15.10
30	Olt	-22.83	-12.84	-11.47	-22.81	-13.87	-10.38	-22.82	-13.47	-10.81
31	Prahova	-20.76	-11.10	-10.87	-12.20	-7.36	-5.22	-16.53	-9.20	-8.08
32	Satu Mare	-18.73	-9.31	-10.38	-4.66	-2.26	-2.46	-11.37	-5.47	-6.24
33	Sălaj	-17.13	-7.69	-10.22	-16.28	-7.93	-9.07	-16.62	-7.84	-9.53
34	Sibiu	-10.55	-2.19	-8.55	6.39	6.26	0.12	-5.16	0.67	-5.79
35	Suceava	-17.80	-5.43	-13.09	-4.73	-1.11	-3.66	-10.46	-2.89	-7.79
36	Teleorman	-27.79	-17.88	-12.07	-27.92	-16.98	-13.18	-27.88	-17.27	-12.82
37	Timiș	-7.58	-5.53	-2.17	25.45	18.26	6.08	4.42	3.56	0.83
38	Tulcea	-30.09	-14.00	-18.72	-25.35	-11.89	-15.28	-27.62	-12.87	-16.92
39	Vaslui	-21.30	-12.89	-9.64	-20.62	-3.16	-18.03	-21.02	-9.13	-13.09
40	Vâlcea	-16.76	-7.58	-9.93	-17.61	-8.30	-10.15	-17.23	-7.98	-10.05
41	Vrancea	-24.26	-8.84	-16.92	-17.68	-9.24	-9.29	-20.19	-9.10	-12.21
42	București	-5.60	-3.45	-2.23				-5.60	-3.45	-2.23

Source: Designed by the authors based on primary data provided by the National Institute of Statistics.

CONSEQUENCES OF THE RESIDENT POPULATION REDUCTION

Demographic changes that occurred after 1989 had economic and demographic effects in the short run as well as in the long run. From a demographic point of view, a reduction of the resident population as well as major disequilibrium of population distribution by age groups occurred. “The reduction of the population is not the biggest harm. The biggest harm is that it occurred through the reduction of birth rates, that affected the population distribution by age groups. A decrease in the young population and an increase in the elderly one has catastrophic economic repercussions.”¹⁶. This trend is common throughout all the European countries, where the share of persons over 60 years may rise up to 35% in 2050¹⁷. Moreover, demographic projections performed by national or international institution show an even sharper decline in Romania that will lead to further disequilibrium. For example, the United Nations estimates as per medium variant that the population of Romania will be approximately 18.3 million persons in 2030, 16.26 million persons in

2050 and 14.1 million persons in 2070; moreover, the median age of the population will increase from 41 years in 2015 to almost 47 years in 2050¹⁸.

From an economic point of view, population decline leads to a decrease in the labour force, increased age-related public spending and increased burden on public pension systems¹⁹. In the short run, low fertility leads to an increase income per capital due to the decrease of the dependency ratio, while on the long run leads to a deficit in the labour supply due to the increase of dependency ratio²⁰.

CONCLUSIONS

Data from 1992, 2002 and 2011 Censuses in Romania reveal consistent reduction of the resident population occurring between 2002–2011 followed by 2011–2021. Although the last ten years lead to a stabilisation in the resident population of some counties, demographic decline is mandatory to be addressed. Mitigating the structural effects in population due to the deindustrialisation process that occurred after 1989 which increased internal

migration from urban to rural areas, require the support of a more judicious distribution of opportunities across counties. Not leaving any county behind in terms of minimizing population decline should consist an area of focus.

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