

NATURAL DYNAMICS OF THE DEMOGRAPHIC COMPONENT IN THE APUSENI MOUNTAINS AT THE END OF THE 20th CENTURY AND THE BEGINNING OF THE 21st CENTURY (1981-2018)

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Abstract: *The study aims to analyse the natural dynamics of the demographic component in the Apuseni Mountains. The period considered is 1981-2018. The study will include demographic indicators such as birth rates, mortality, natural growth, nuptiality and divorce. Some of the necessary statistical data were obtained from the National Institute of Statistics website, and another part from the specialized bibliography. After statistical processing, rates of those indicators were obtained, and several factors were identified underlying their evolution. The conclusions show that the Apuseni Mountains are in a visible demographic decline. Mortality is higher than birth rates, the natural growth being negative. In a similar situation are nuptiality and divorce. Basically, natural dynamics is and has been influenced by social, economic, political factors. Unfortunately, some of these factors had negative influences on the Apuseni Mountains, giving the opportunity to develop risk phenomena such as: ageing population, depopulation.*

Key-words: natural dynamics, demographic component, Apuseni Mountains.

1. Introduction

Population dynamics have been established as a subject of study for many categories of researchers, from various fields of activity (geography, history, sociology). The purpose of this study is to carry out an analysis on the natural dynamics of the population of the Apuseni Mountains, between 1981 and 2018. Basically, the period studied is 37 years, of which the period between 1981 and 1989 overlaps with the communist regime, followed by the capitalist period. The study will include analysing demographic indicators such as: birth rate, mortality, natural growth, nuptiality and divorce. The research of these indicators on the territory of the Apuseni Mountains is all the more interesting, as the evolution of indicators has been influenced by a variety of factors. Among the most influential factors we can mention: the social factor, the economic factor, the political factor. These factors caused malfunctions in the Apuseni Mountains, thus risk demographic phenomena (demographic ageing, depopulation) occurred.

The Apuseni Mountains have been studied in various aspects, but there are several studies that analyze the demographic component geographically. Surd et al. (2017) have conducted perhaps one of the newest and most relevant studies on the population and settlements of the Apuseni Mountains, in which they treated, among other things, demographic indicators similar to our study. Studies on the population of Apuseni area were undertaken by Lung and Gligor (2018), in which they analyzed the population of the cities. Lung (2018) also conducted a study in which he analyzed the natural dynamics of the rural population of Apuseni area at the 2011 census. Another research analyzed demographic changes in the Apuseni Mountains between 1850 and 2011 (Lung, 2019). Other research on this mountain space or areas within it was carried out by Boțan (2010), Constantin (2011), David (2010), Drăgan (2011).

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2. Methodology

In order to carry out this study, it was necessary to obtain statistical data from the National Institute of Statistics website for the period 1992-2018. For the communist period (1981-1988), statistical data were taken from Plăiaș (1994). The data was entered and processed with the Microsoft Excel 2013 software. In this way rates of the analyzed demographic indicators were calculated. Several tables have also been generated for each indicator, where each indicator time developments can be observed.

To delimit the studied area, we took into account the limits proposed by Drăgan (2011). As a result, the Apuseni Mountains comprise 153 administrative units: 13 cities and 140 communes. They belong to six counties; therefore, the study refers to different sectors of the Apuseni Mountains: Apusenii Albei, Apusenii Aradului, Apusenii Bihorului, Apusenii Clujului, Apusenii Hunedoarei și Apusenii Sălajului.

3. Results and discussions

The oscillating dynamics of the anthropogenic component in the Apuseni Mountains in the last two decades of the 20th century and the first two decades of the 21st century was influenced by birthrate, whose regional values were below national values (Table 1). Higher birth rates during the socialist regime can be noted, reaching in 1988 at a maximum for the entire period analyzed, of 14.3 ‰, at the level of the Apuseni area. The birth rate, both at the national and at the Apuseni level, fell below the 10 ‰, in the period immediately following the end of communism. The decrease, started with the transition period from communism to capitalism, remained continuously, while at national level an increase in birth rate in 2018 can be observed. During communism, legislative factors correlated with socio-economic ones influenced the birth rate through the induced changes in the demographic-family behaviour, couples having to change their habits constantly. Young couples in Apuseni, especially those ranked hipsometrically at over 800-900 m

altitude, were somehow constrained by the regime through constant actions of deteriorating spiritual-religious life and living conditions, to reduce the number of children. This policy would bring major influences on the dynamics of birth rate in the period following the communist regime. Legislative and socio-economic factors negatively influenced demographic factors, leading to the departure of the female population from the region. Totalizing all these factors that acted during communism, it resulted in the intensification of the depopulation phenomenon, and then of the demographic ageing of the Apuseni people. The share of newborns in the Apuseni Mountains from the total number of newborns at national level was relatively constant, with a noticeable peak in 1992, after which the share will decrease continuously. In 1992, the highest birth rate in the Apuseni Mountains was recorded in the area of the Apusenii Albei, in the Gârda de Sus commune (22.5 ‰). At the opposite end was the commune of Ignești (4.7 ‰) from Apusenii Aradului. At the beginning of the 21st century, in 2002, the highest birth rate was 21.4 ‰ in Valcău de Jos from Apusenii Sălajului, and the minimum rate was recorded in the Apusenii Albei where the commune of Ocoliș registered only 2.4 ‰. In 2011, Lugașu de Jos commune from Apusenii Bihorului had the highest birth rate, of 18.5 ‰, and the same Ocoliș commune, from Apusenii Albei, recorded the minimum rate, of 1.5 ‰. In 2018, the highest rate was 14 ‰, in Budureasa commune in Apusenii Bihorului. This year, it is for the first time since the beginning of the capitalist period when, in two administrative-territorial units in the Apuseni Mountains, there was no birth. The Apuseni area is continuously depopulated, slightly more intense the rural area of the Apusenii Albei, where the two communes with no birth in 2018, Ceru-Băcăinți and Râmeț, are positioned.

Table 1. Evolution of birth rates between 1981 and 2018
(Source: own processing based on Plăiaș, 1994; National Institute of Statistics, 2020)

Year	Total number of births in the country		Total live births in the Apuseni Mountains		% live born in the Apuseni Mountains compared to total born in the country
	Absolute value	Per 1.000 inhabitants	Absolute value	Per 1.000 inhabitants	
1981	381,101	17.1	6,012	13.9	1.58
1985	358,797	15.8	5,649	13.5	1.57
1988	380,043	16.5	5,846	14.3	1.54
1990	314,746	13.6	4,916	12.3	1.56
1992	260,393	11.2	6,252	12.4	2.40
2002	210,529	9.2	3,996	8.6	1.90
2011	196,242	8.7	3,338	7.7	1.70
2018	206,575	9.3	3,129	7.6	1.51

The general mortality at the regional level registered values above those at the national level for the entire analyzed period (Table 2). The highest mortality rate was 15.6 ‰, recorded in 2002, and the lowest value was 12.9 ‰, in 1981. The increases of mortality in the Apuseni Mountains above the values registered at national level suggest the aggravation of the ageing phenomenon of the anthropogenic component. As a result, the elderly occupy an increasing share in the pyramidal structure of ages.

The changes in mortality in the transition phase consist in the continuous increase in life expectancy at birth, as a consequence of lifestyle changes. It also increases the gender mortality, and these changes generally affect the two demographic structures, by sex and age, favoring the emergence and spatial extension of the ageing phenomenon of the population (van de Kaa, 1987).

However, in addition to this demographic risk phenomenon, the population of the Apuseni area faces a poor level of living preceded by adverse climatic conditions, affecting the health status, especially among the elderly population. Also, the health status of the demographic component in Apuseni is directly influenced by the precariousness or lack of sanitary infrastructure. Poor condition or lack of sanitary facilities equipped with necessary logistics, forces the population to cover longer distances. This implies increasing the vulnerability in an

emergency, which can be completed with the death of the person concerned. Unfortunately, we can see that the three largest values of general mortality in Apuseni were recorded after the fall of socialism. Basically, the decision makers did not establish a number of measures to reduce the ageing population, to invest in increasing people's living standards, and to implement, diversify and facilitate the access of the population from Apuseni to medical services.

At the beginning of the transition period in Romania, the general mortality rates in the Apuseni Mountains were high. Thus, the highest rate was 33 ‰, recorded in Șilindia commune from Apusenii Aradului. This rate shall be positioned both above the rate recorded at regional level and above the rate registered at national level. The lowest mortality rate was in city of Ștei from Apusenii Bihorului, of 5.5 ‰. This time the value of the rate is below the regional and national ones. 39.4% of the territorial administrative units in the Apuseni area were in 1992 below the general mortality rate at the regional level, and 15.1% below the national level. In 2002, mortality in Apuseni worsened, the highest rate being 46.3 ‰, in Bulzeștii de Sus commune from Apusenii Hunedoarei. The increase in mortality is also demonstrated by the increase in the minimum rate recorded, compared to 1992. In 2002, the minimum rate of general mortality in Apuseni was 6.9 ‰, in the city of Abrud in *The Land of the Moți*. This means an increase of 1.4

percentage points compared to the minimum rate in 1992. As regards the share of administrative units that had a rate below the regional one, it decreased by 3.3 percentage points compared to 1992, to 36.1 %. Only 11.8 % of the Apuseni administrative units had a rate below the national one. Thus, their number has decreased compared to 1992, which means that the overall mortality rates are increasing. In 2011, the highest general mortality rate in Apuseni was 29.7 %, in Pleșcuța commune, from Apusenii Aradului, and the

minimum rate was 5.3 % in Ribița commune, in Apusenii Hunedoarei. Of the total administrative units, 42.2 % had a rate below that recorded at the regional level, and 13.7 % were below the national rate value. In 2018, the commune of Balșa from Apusenii Hunedoarei had the highest general mortality rate, this being 34.4 %, and the commune of Bocsig from Apusenii Aradului had the lowest rate, being 6.8 %. 41.1 % of mortality rates are below the regional rate, and 15 % of the Apuseni area is below the country-wide rate.

Table 2. Evolution of general mortality between 1981 and 2018
(Source: own processing based on Plăiaș, 1994; National Institute of Statistics, 2020)

Year	Total number of deaths in the country		Total number of deaths in the Apuseni Mountains		% deaths in the Apuseni Mountains compared to total deaths in the country
	Absolute value	Per 1.000 inhabitants	Absolute value	Per 1.000 inhabitants	
1981	224,635	10.0	5,597	12.9	2.49
1985	246,670	10.6	5,831	14.0	2.36
1988	253,370	10.7	5,967	14.6	2.36
1990	247,086	10.6	5,754	14.4	2.33
1992	263,855	11.4	7,579	15.0	2.87
2002	269,666	11.8	7,281	15.6	2.70
2011	251,439	11.2	6,288	14.5	2.50
2018	264,317	11.9	6,145	14.9	2.32

The evolution of the natural growth rates shown in table 3 certifies the increase in the depopulation of the Apuseni Mountains, especially starting with the capitalist period, being registered negative regional rates, considerably higher than national rates. The systematic destructuring of mountain villages pursued by the socialist authorities has contributed substantially to the emergence and amplify of risk demographic phenomena (migration of young people, demographic ageing, depopulation). The subsequent effects mainly resulting from the migration of the young population and demographic ageing have been highlighted by negative rates of natural growth since socialism. Unfortunately, these negative rates have increased since the beginning of the democratic period. Moreover, natural growth has experienced a negative trend at national level as well. The discrepancy between birth and mortality can be observed mainly since the 21st

century. In 2002 the natural increase rate in the Apuseni Mountains was -7 %, following a slight decrease in 2011 to -6.8 %, and then an increase to a maximum level of -7.3 % in 2018.

Table 3. Evolution of natural growth between 1981 and 2018
(Source: own processing based on Plăiaș, 1994; National Institute of Statistics, 2020)

Year	Natural growth per 1.000 inhabitants	
	At country level	At the level of the Apuseni Mountains
1981	7.0	0.9
1985	4.9	-0.4
1988	5.5	-0.3
1990	3.0	-2.1
1992	-0.2	-2.6
2002	-2.6	-7
2011	-2.5	-6.8
2018	-2.6	-7.3

Table 4 shows the evolution of nuptiality rates, from which it can be found that from 1981 to 2018, the proportion of marriages at the level of the Apuseni Mountains was continuously below the proportion of marriages at the national level. The nuptiality in the Apuseni area was relatively constant during the 37 years, with a maximum immediately after the end of the communist era, in 1992, when the rate was 7 ‰. From 1981 to 1992, we can see that there was a homogeneity in terms of nuptiality, with very low fluctuations in rates. From the beginning of capitalism until 2002, this indicator has been in a noticeable decline, and from 2011 it will grow again, amid improvements in the socio-economic framework, generally in urban areas.

The nuptial phenomenon of the immediate post-socialist period was largely directly influenced by a succession of factors. Thus, the decrease in nuptiality was determined by the deterioration of the standard of living, the uncertainty of tomorrow, the increase in unemployment and the crisis of new dwellings with which the population during the communist period was familiar (Ghețău, 1997).

In 1992, 42.1 % of the Apuseni administrative units had the rate higher than that recorded in the region, with 11 administrative units having a rate above 10 ‰ (Bistra, Buceș, Lupșa, Măguri-Răcățău, Moneasa, Nucet, Plopiș, Scărișoara, Șilindia, Șuncuiuș). The largest was in Șinteu commune in Apusenii Bihorului, of 21.5 ‰. At the opposite pole was the commune of Burjuc, from Apusenii Hunedoarei, with a rate of only 0.9 ‰. Starting with the 21st century, the phenomenon of demographic ageing in conjunction with the migration of the young population, especially that of the age at which marriage is made, has increasingly influenced the marriages in the Apuseni Mountains. Thus, between 2002-2018, in the western Carpathian area, a single rate of nuptiality greater than 10 ‰ was recorded (Vălișoara 11.4 ‰ in 2018). In 2002, 41.4 % of administrative units had a nuptiality rate higher than the regional rate. The continuity and constant territorial spread of the two demographic phenomena substantially altered the nuptiality

framework of the Apuseni, so that in 2011 no marriage was registered in eight administrative units (Bocsig, Bulzeștii de Sus, Dieci, Hărău, Întregalde, Râmeț, Ribița, Vărădia de Mureș). This critical situation was a consequence of the ageing of the demographic component and migration of the young population. To this the socio-economic factor was added, through the economic crisis, which induced a state of insecurity among those who were age appropriate to marriage. After the significant improvement of the socio-economic factor, in 2018, there were six administrative units in which no marriage was recorded (Blăjeni, Buceș, Bulzeștii de Sus, Ceru-Băcăiți, Întregalde, Râmeț). Unfortunately, we can see that the two communes in the territory of the Apusenii Albei (Întregalde, Râmeț) face the biggest dysfunctions in terms of nuptiality. We can also notice the increase in the national rate, as well as in the regional rate in 2018, compared to 2011, as a result of a slightly more stable economy, which has favoured the formation of new families.

Sandu (1996) found that nuptiality is a more complex model based on several terms of interaction (region-age; time-age). Thus, taking into account these interactions, the Apuseni Mountains can be integrated into five *cultural areas*. Apusenii Albei and Hunedoarei are a mountainous area with a majority demographic component of Romanian ethnicity, representing cultural-historical contact points between Transylvania and Wallachia. Apusenii Bihorului and Apusenii Clujului represent a mixed area of Romanian-Hungarian ethnic interaction, with high levels of demographic-cultural modernity. Apusenii Aradului are a cultural area with Germanic influences, presenting a high level of social modernity, of demographic-cultural modernity, with low levels of social dysfunctions. Apusenii Sălajului are positioned as a northern area of cultural contact, but with a low level of social modernity and with an average degree of social problems.

Table 4. Evolution of nuptiality between 1981 and 2018 (Source: own processing based on Plăiaș, 1994; National Institute of Statistics, 2020)

Year	Proportion of marriages per 1.000 inhabitants in the country	Proportion of marriages per 1.000 inhabitants at the level of the Apuseni Mountains
1981	8.2	6.5
1985	7.1	6.2
1988	7.5	6.6
1990	8.3	6.7
1992	7.5	7.0
2002	5.6	5.2
2011	4.7	4.3
2018	6.4	5.5

From table 5 we can see that the amount of divorce in the Apuseni Mountains is below the national value for the entire period studied.

It should also be noted that Romania is positioned among the countries with low or very low divorces, because in most countries, this demographic indicator exceeds 1.8 ‰. The low divorce rates in Apuseni are based on the peasant cultural model characterized by two fundamental traits: attachment to the family and the prompt attitude of condemning divorce. The social psychology of the inhabitants of Apuseni has two important coordinates that represent the essence of demographic behavior: cooperation and hospitality, which are joined by tolerance and generosity. This *peasant patriarchal* hypothesis is also supported by Draganov (1978) for the Bulgarian mountain space. He considers that these coordinates are translated into customs, rules acting on the family, implicitly on divorce (Ghețău, 1990; Bădescu, 1981).

36.1% of administrative-territorial units have divorce rate in 1992 above the rate recorded at the level of the Apuseni region. The highest rate was 2.80 ‰, in Burjuc commune from Apusenii Hunedoarei. The share of administrative units that had a higher divorce rate than the regional rate in 2002 is 35.5 %, practically similar to that of 1992, although the regional rate increased from 0.85 ‰ to 1.04 ‰. Also, the maximum rate recorded at the level of administrative unit

was increasing, being 8.24 ‰ in the commune of Ceru-Băcăinți from Apusenii Albei. In 2011, there was a slight increase in the share (35.9 %) of administrative units that had a higher rate than the rate in the region, compared to 2002. The highest divorce rate was recorded in the rural area of Apusenii Albei, in Mogoș commune (4.38 ‰). We note that the phenomenon of divorce is spreading and increasing at the beginning of the 21st century in the territory of the Apusenii Albei, where the highest divorce rates were registered both in 2002 and in 2011. Divorce has intensified mainly in economically deficient periods, and, after the passage or reduction of the disturbance, the rates will stagnate. From 2011 to 2018, the distribution of rates exceeding the regional rate stagnates, at the same value as in 2011, 35.9%. In 2018, the maximum divorce rate in the Apuseni Mountains was recorded, at least since 1989. This was recorded in Apusenii Aradului, where the commune of Șilindia had, in 2018, a divorce rate of 10.31 ‰. However, this rate cannot be attributed to a very large number of divorces, but mainly on account of reporting per 1.000 inhabitants, given the low population of the commune (873 inhabitants).

Table 5. Evolution of divorce between 1981 and 2018 (Source: own processing based on Plăiaș, 1994; National Institute of Statistics, 2020)

Year	Proportion of divorces per 1.000 inhabitants in the country	Proportion of divorces per 1.000 inhabitants at the level of the Apuseni Mountains
1981	1.50	0.83
1985	1.43	0.83
1988	1.60	0.93
1990	1.42	0.90
1992	1.26	0.85
2002	1.39	1.04
2011	1.59	1.39
2018	1.38	1.33

4. Conclusions

By conducting this study we found that the natural dynamics in the Apuseni Mountains between 1981 and 2018 has changed constantly. All the analyzed indicators registered periods of increase and decrease. We also found that the evolution of indicators was closely linked to a number of factors that have been passed on to them. Unfortunately, mortality has higher values than the birth rate, which induces a negative natural growth. The number of marriages and divorces was influenced mainly by the economic factor, but also by the political factor during the communist period. The negative values of these demographic indicators have made possible the emergence of risk phenomena, such as demographic ageing and depopulation. In the absence of measures from decision-makers, the Apuseni Mountains are at risk of depopulation, which is intensifying.

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