

## THE IMPACT OF EMIGRATION IN THE AGING OF THE POPULATION OF ALBANIA AFTER 1990

Pal NIKOLLI, Bilal DRAÇI, Bashkim IDRIZI

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### SUMMARY

The paper evaluates the indicators of aging of the population of Albania (percentage of elderly, ratio of elderly dependence, aging index, median age, average age and average life expectancy) for the period 1990 - 2060. These indicators are calculated in terms of existence of migration (Albania is a typical case), where the net migration rate is taken into account, as well as in the assumed conditions of lack of migration.

In addition to declining fertility and mortality, the population structure of Albania after the 1990s has been strongly influenced by the constituent processes of continuous emigration. The paper estimates that the indicators of population aging would have been up to 4% - 5% lower, if the emigration process had been limited and controlled.

From the analysis of statistical indicators, it is noticed that, during the whole period from 2001 until the projection of 2060, the average annual population growth is estimated negative (-0.7%), while the annual population growth over the age of 65 (65+) is estimated positive (+ 0.5%).

In order to slow down the phenomenon of aging of the population of Albania and mitigate the negative consequences of this aging, it is recommended to design and elaborate rigorous and continuous immigration and family policies.

**Key words:** Emigration, Albania, Population, Aging.

### INTRODUCTION - Population aging and migration

Population aging, also known as demographic aging (non-demographic aging; population aging, etc.), is a summary term for shifts or displacements in the age distribution (in the age group structure) of the population towards older ages. The level and pace of population aging vary greatly between regions and within geographic regions (Samuel H., Himes and Eggers, 1989), as well as between socio-economic categories. But almost all Nations are currently experiencing an increase in the number of their elderly

inhabitants. As a direct consequence of the continuing global fertility transition (decline) and declining mortality in older ages, population aging is progressing rapidly in many developed (industrialized and postindustrialized) and developing countries. This pattern is expected to continue over the next few decades, affecting the entire world (Samuel H., Heuveline, and Guillot. 2001).

According to current forecasts, the aging of the population in the first half of this century (XXI), should exceed elderly population of the second half of the twentieth century. For the world as a whole, the number of older people relative to the total population will increase from 6.9% in 2000 to a projected value of 19.3% in 2050. All regions are expected to see an increase, even why softer in some of them, like Africa, where the projected growth is from 3.3% in 2000 to 6.9% in 2050, etc. But in Latin America and the Caribbean, the number of older people is projected to reach 16.9% in 2050 (higher than the current European average) from 5.4% in 2000. The increase is projected to be even more worrying in China: from 6.9% in 2000 to 22.7% in 2050 (Wolfgang, Sanderson and Scherbow, 2001).

Population aging has important socio-economic and health consequences. It poses challenges to public health (concerns about the possible overload and bankruptcy of medicine and related programs), as well as to economic development (shrinkage and aging of the workforce, possible overload and bankruptcy of social security systems, etc.). With the aging of nations, the prevalence of disability, weakness and chronic diseases (Alzheimer's disease, cancer, cardiovascular disease, etc.) is expected to increase dramatically. Some experts raise the concern that humanity could become a "global nursing home" (Eberstadt, 1997).

The rate of population aging can also be modeled on migration. The effects of migration on population aging are usually more pronounced in smaller populations, due to the higher relative weight (percentage) of migrants in such populations.

Emigration has accelerated the phenomenon of population aging in Albania, because immigrants have been young and with many children. On the other hand, the emigration of working-age adults has also accelerated the aging of the population. The aging of the population in Albania has been accelerated by the return of elderly pensioners from other countries and the return of former emigrants who are above the average age of the population.

Emigration will play a more important role in population aging and age group imbalances in the future, in addition to low fertility, mortality and declining population.

## STATISTICAL INDICATORS OF THE AGING POPULATION OF ALBANIA AND THEIR ASSESSMENT

### Theoretical considerations

The study of population aging is also economically motivated by concerns about the aggravation of pension systems. From this point of view, the aging of the population is often measured by the increase in the percentage of elderly retirees and individuals of retirement age as well as by the increase of the dependency index. The retirement age may be different for different countries, but the most typical one is 65 years old. Nowadays a society is considered relatively old, when the number of elderly people aged 65+ exceeds 10% (8-10%) of the total population. By this standard, American society (US) is considered relatively old, as since 2000 the percentage of older people was 12.6% (Kevin and Velkoff. 2001).

An indicator related to the aging of the population is the ratio of dependence of the elderly - "the number of elderlies over 65 years in relation to the number of population in the working age group". For convenience, and laws of working, depends on the countries, the working age can be assumed to start at 15-16, despite the growing number of people pursuing their studies even after this age who remain, meanwhile, financially dependent, either on the state, or increasingly, by their parents or bank managers. The ratio of the elderly population to the economically active (employed) population is also known as the old age dependency ratio, the age dependency ratio, or the burden of aging dependency and is used to assess generational transfers, tax policies, and behavior. to savings.

Another indicator of age structure is the aging index (once referred to as the ratio of the number of elderly to the number of children), defined as the number of older people over 65 per 100 young people under 15 years old. According to research organizations and authors in the field, by 2030 the aging index is projected to exceed 100 in all developed countries and in some European countries and Japan is expected to exceed 200. To date, the aging index is much higher lower in developing countries than in the developed world, but the proportional increase in the aging index in developing countries is expected to be greater than in developed countries.

These indicators of population aging are simply counting ratios, which mean that they simply relate to the number of individuals in the older age categories. These indicators fail to take into account the age distribution within these categories, in particular within the older category. When fertility and mortality trends, responsible for population aging, are fairly regular over time, population growth is positively correlated with age (i.e.,

older age groups are growing faster). This means that if the percentage of the population aged 65+ is increasing, then within this population, the percentage of the subgroups of the population aged 65+ is also increasing significantly. For example, we say that the number of elderly people aged 80+ is also increasing. Just as health, financial status, and consumption patterns vary greatly between 65-year-olds and 80-year-olds, simple relationships hide significant heterogeneity in the elderly population. Attention is increasingly being paid to "older age" (typically 80+ years old). Curiously, the number of centenarians is growing even faster. Estimated at 180,000 worldwide in 2000, it could reach 1 million by 2030 (United Nations, 2001). The number of centenarians is growing even faster. Estimated at 180,000 worldwide in 2000, it could reach 1 million by 2030 (United Nations, 2001). The number of centenarians is growing even faster. Estimated at 180,000 worldwide in 2000, it could reach 1 million by 2030 (United Nations, 2001).

To consider the age distribution within the categories, the second class of population aging indicators or, alternatively, the set of statistical location measures (median, mean and modal age of the population) is used. Median age, the age at which, exactly, half of the population is older and half is younger, is probably the most widely used indicator. To study the dynamics of population aging the most preferred is the average age of the population. Since population aging refers to correlated changes throughout the age distribution, every single indicator is insufficient to measure it. Also, the age distribution of the population is often very irregular and reflects the signs of past events; therefore, this distribution can not be described by a single number / indicator without significant loss of information.

Thus, the most appropriate approach to study population aging is to examine age distribution through:

- (a) the percentage of older people over 65;
- (b) the dependency ratio of the elderly - the ratio of the number of elderly people over 65 to the number of economically active (working) population;
- (c) aging index - the number of older people over 65 per 100 young people under 15;
- (d) Median age;
- (e) Average age;

### **Calculation of aging and correlation of their indicators with migration**

The following data were used for the calculation and analysis of the indicators of Albania aging population:

(a) Number of population by age groups in different years until the forecast of 2060 (tab. 2.2.1);

*Tab. 2.2.1. Population of Albania by age groups (in - thousand inhabitants) (1990 - 2060). For the period 2015 - 2060, the forecasts are calculated according to the middle scenario*

Years	1990	1995	2000	2005	2010	2015	2020
<b>0 - 14 years old</b>	1 073	1 014	945	812	657	538	534
<b>15 - 64</b>	2 028	1 892	1 956	1944	1 948	2,000	1 981
<b>65+</b>	181	200	220	263	314	359	421
<b>Total</b>	3 282	3106	3121	3019	2919	2 897	2 935

Years	2025	2030	2035	2040	2045	2050	2055	2060
<b>0 - 14 years old</b>	568	552	501	442	404	390	386	374
<b>15 - 64</b>	1 891	1 823	1 788	1 765	1 740	1 679	1 562	1 416
<b>65+</b>	501	579	626	648	641	642	687	763
<b>Total</b>	2 960	2 954	2 915	2 855	2 785	2 710	2635	2 554

**Data Source:** United Nations, Population Division, Department of Economic and Social Affairs. INSTAT, 2014

(a) Net migration rate (per 1000 inhabitants) in different years until the forecast of 2060 (tab. 2.2.2)

*Tab. 2.2.2. Net migration rate (per 1000 inhabitants). For the period 2015 - 2060, the forecast is given according to the middle scenario*

variant	1990-1995	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025
Average	-27.8	-11.5	-11.3	-16.9	-6.3	-3.4	-3.4

variant	2025-2030	2030-2035	2035-2040	2040-2045	2045-2050	2050-2055	2055-2060
Average	-3.4	-3.4	-3.5	-3.5	-3.6	-3.6	-3.5

**Data Source:** United Nations, Population Division, Department of Economic and Social Affairs.

From the data processing of tables 2.2.1 and 2.2.2 are calculated the numerical indicators of population aging<sup>1</sup> (tab. 2.2.3), which are also given in the figures / graphs 2.2.1:

*Tab. 2.2.3. Indicators of population aging (1990 - 2060)*

Years	% of the elderly	Elderly dependency ratio (%)	Aging index	Median age		the average age	Average life expectancy
1	2	3	4	5	6	7	8
1990	5.5	8.9	16.9	24.1	No migration	26	71.96
1995	6.4	10.6	19.7	24.7		72.24	
2000	7.0	11.2	23.3	27.1		30.1	74.27
2005	9.1	13.5	32.4	29.3		76.09	
2010	10.9	16.1	47.8	33.1		34.8	77.04
2015	12.4	17.9	66.7	34.3	34.3	37.2	77.90
2020	14.4	21.2	78.8	35.2	34.9	38	78.89
2025	16.9	26.5	88.2	37	36.5	40	79.82
2030	19.3	31.8	104.9	39	38.4	42.5	80.72
2035	21.5	35.0	124.9	41.5	40.6	45	81.61
2040	22.7	36.7	146.6	43.9	42.7	47	82.49
2045	23	36.8	158.7	46.2	44.6	49	83.31
2050	23.6	38.2	164.6	47.6	45.5	50.5	84.07
2055	26.1	44.0	178	48.1	45.3	51	84.79
2060	39.9	53.9	204	48.2	45.9	51.5	85.42

*Processed based on data from the United Nations, Population Division, Department of Economic and Social Affairs.*

<sup>1</sup>For the period 2015 - 2060, the indicators of population aging are calculated based on the forecasts according to the middle scenario (columns 2, 3, 4, 5, 7, 8 of tab. 2.2.3). The median age was also calculated in terms of the absence of migration (column 6 of tab. 2.2.3).

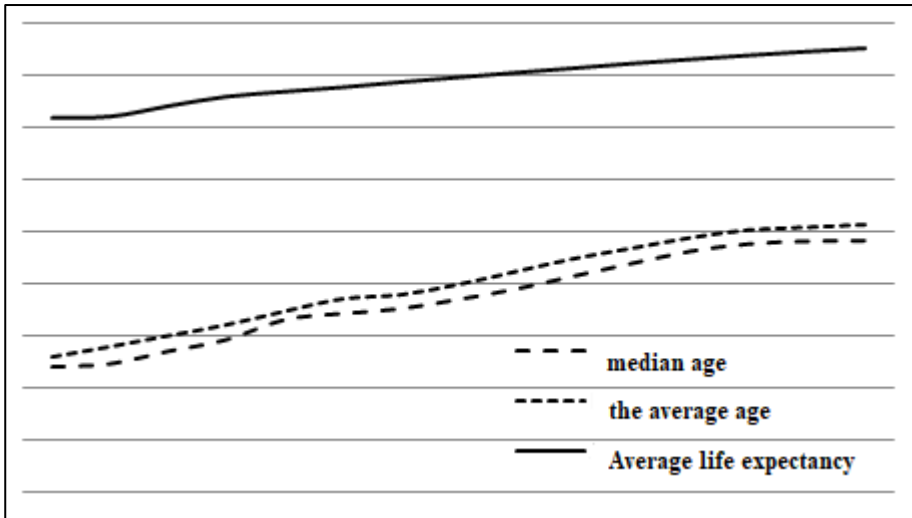


Fig. 2.2.1. Graphic dependence of indicators of aging population of Albania (1990 - 2060)

To see the impact of migration on indicators of population aging (1990 - 2060) the correlation coefficient was calculated<sup>2</sup> ( $r$ ) and the error of this coefficient ( $m_r$ ) between each indicator and the net migration rate (NMN) with the formulas:

<sup>2</sup> The correlation coefficient represents the degree and intensity of connections between phenomena.

$$r = \frac{n \sum_{i=1}^n x_i y_i - \sum_{i=1}^n x_i \sum_{i=1}^n y_i}{\sqrt{[n \sum_{i=1}^n x_i^2 - (\sum_{i=1}^n x_i)^2][n \sum_{i=1}^n y_i^2 - (\sum_{i=1}^n y_i)^2]}}$$

$$m_r = \frac{1 - r^2}{\sqrt{n}}$$

Where:  $x_i$  - values of indicators of population aging,

$y_i$  - Net Migration Rate (NMN) values,

$n$  - number of pairs examined

The results of the calculations are given in table 2.2.4.

Tab. 2.2.4.

Indicators of aging (1990 - 2060)	NMN (1990 - 2060)	Correlation coefficient (r)	Error $m_r$
Percentage of older people	NMN (per 1000 inhabitants)	0.73	0.12
Elderly addiction report	NMN (per 1000 inhabitants)	0.74	0.11
Aging index	NMN (per 1000 inhabitants)	0.77	0.10
Median age	NMN (per 1000 inhabitants)	0.79	0.09
the average age	NMN (per 1000 inhabitants)	0.81	0.08
Average life expectancy	NMN (per 1000 inhabitants)	0.68	0.13



## ANALYSIS OF CORRELATION INDICATORS: SOME CONCLUSIONS AND RECOMMENDATIONS

Population aging is a worrying phenomenon in most parts of the world, especially in developed countries with low fertility.

The declining fertility rate below the replacement level (2.3 children per mother) has raised fears that many countries will not have enough employees to support an increasing number of older people.

The values of the correlation coefficients (tab. 2.2.3) indicate a direct and strong positive link between migration and the aging of the population in Albania. Since, in all cases, the link between the indicators of aging and the rate of emigration is stable.

However, the increase in the indicators of aging of the population of Albania has occurred for several main reasons:

- ❑ Drastic reduction of fertility, as a global trend in the last stages of demographic transition, including Albania. In 2015, the birth rate was 1.67 children / woman. This indicator is below the replacement rate (2.1 children / woman). In 1960, this indicator had a max value (7 children / woman); in 1970, 5 children / wife; in 2001, 2.3 children / women; in 2012, 1.72 children / woman. With these rates of declining fertility, Albania is the third country in the world with the fastest aging population, after Korea and Russia. In France, it took 2 centuries for fertility to fall from 5 children / woman to below the population replacement rate. In Albania this happened in only 34 years.
- ❑ Immigration plays an important role in the aging process of the population, as most of the emigrants are young (average); migratory outflows, affect the population aged 20 - 40 years (0-14 years,  $\approx 14.34\%$  of emigrants, 15 - 64 years,  $\approx 80.66\%$  and 65+ years,  $\approx 5\%$ ); our population has been reduced due to this phenomenon. Emigration accelerates the aging of the population.
- ❑ Increased life expectancy  $\varphi$ on in the aging population.

If the forecast of the dynamics of the main age group of the population for the period 2001 - 2020 is calculated, taking into

account the census data of 2001 and assuming Low Mortality<sup>3</sup> (VU), Low Fertility<sup>4</sup> (LU) and lack of Migration<sup>5</sup> (PaM) (tab. 3.1), we will have the following indicators of population aging in% (in terms of the existence of migration taking into account the number of population measured by INSTAT, and the lack of migration taking into account consider the population number from tab. 3.1) (tab. 3.2):

*Tab. 3.1. Assumed (projected) population by age groups in the absence of migration, calculated on the basis of the 2001 census*

Age group	2001 (Starting population)	2005	2010	2015	2020
<b>0-14</b>	905131	847881	774334	723235	683349
<b>15-64</b>	1930755	2084410	2253343	2389864	2469018
<b>64+</b>	227432	266186	316308	352700	402330
<b>Total population</b>	3063318	3198477	3343985	3465799	3554697

Source: INSTAT

*Tab. 3.2. Indicators of population aging in terms of the existence of migration (measured data) and the absence of migration (projected population values).*

INDICATORS	conditions	2005	2010	2015	2020
<b>Percentage of older people</b>	<b>With emigration</b>	9.1	10.9	12.5	14.4

<sup>3</sup>The lower hypothesis assumes the following annual mortality rate in women: 7% for infants, 5% for children aged 1 to 4 years, 4.3% for ages 5 to 59, and 1% for older age groups. Thus, infant and child mortality will be halved during each of the periods 2011-2021 and 2021-2031, resulting in a final mortality by a quarter of the 2011 level.

<sup>4</sup> The low fertility hypothesis is based on the long-term trend and suggests a continuous convergence towards the European model.

<sup>5</sup>Given the previous two decades of large-scale emigration, widespread throughout Albania, all hypotheses assume a generally declining trend for the next twenty years. Given the emigration levels for both sexes over the last decade, similar future trends are assumed for both men and women.

	<b>No emigration</b>	8.3	9.4	10.2	11.3
<b>Elderly addiction report</b>	<b>With emigration</b>	13.5	16.1	18.3	21.0
	<b>No emigration</b>	12.8	14.1	14.8	16.3
<b>Aging index</b>	<b>With emigration</b>	32.4	47.7	72.2	85
	<b>No emigration</b>	31.4	40.8	48.8	58.9

Refer to the analysis of the table 3.2., can be seen that as a result of the mass emigration of Albanians, the statistical indicators of population aging have increased:

- Percentage of older people, up to 3%
- Elderly dependency ratio, up to 4%
- Aging index, up to 20%

Population aging is inevitable in the future, but increasing the fertility rate and reducing net migration through regulatory policies would significantly slow it down. Therefore, measures should be taken to improve immigration and family policies.

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