

DEMOGRAPHIC SECURITY: KEY THREATS AND MEANS OF THEIR REGULATING

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Abstract. The approaches to the interpretation of the concept of “demographic security” have been examined in this article, and it is established that some authors when defining “demographic security” focus on the preservation of quantitative and qualitative parameters of the population, others proceed from security concepts and emphasize protection from internal and external threats, and some others still take into account the impact of social institutions on the level of demographic security. Based on the results of the study, demographic security is proposed to consider as “the state of protection of the people’s gene pool, demoreproductive processes and the formation of demo-structures (gender, age, ethnic) from real and potential threats to strengthen the national security of the state”. Proceeding from this, the object of demographic security, its subjects and goal have been established. It is established that the assessment of the level of demographic security is determined depending on the purpose and depth of the study, and it itself is formed under the influence of various threats, both internal and external. The main threats to demographic security are characterized, among which the aging of the population is the most significant. The existing methods for determining the parameters of population aging are analyzed. The level of demographic aging of the population in Ukraine and in the countries of the European Union is studied. It is established that the main reasons for the population aging are decrease in the birth rate, increase in the average life expectancy of a person and reduce in the mortality rate of children and the elderly. Their level and dynamics and interrelation with the demographic security of the country are analyzed. The results of the study showed that in Ukraine the aging of the population takes place against the background of a significant decrease in birth rates, a partial increase in mortality and a corresponding deepening of the natural population decline. In the European Union, population aging is exacerbated by a slight decline in birth rates, increased mortality and reduced natural population growth. It has been established that the aging of the population entails the emergence of a number of demographic, social, economic, political and other problems. According to the results of the study, a system of measures to address the problems of population aging is proposed.

Keywords: demographic security, population aging, threats, level of demographic security, population ageing parameters, birth rate, fertility, mortality, life expectancy.

JEL Classification: H56, J11, J13, J14

Formulas: 0; **fig.:** 7; **tab.:** 4; **bibl:** 19

Introduction. Among the important components of the country’s national security, the serving demographic security is especially prominent, a kind of reflection of the socio-economic level of the country’s development, the well-being of its citizens, and state domestic policy. Demographic processes also have a significant impact on the formation of the country’s labor potential, the size of its aggregate national income and position in the world community.

Loss of the ability of the state and society to ensure such type of reproduction, which contributes to natural population growth, the formation of optimal gender and age structure of the population, strengthening the health of citizens and increasing their active life duration, establishing rational internal and external migration flows, preserving family values; encourages us to talk about the loss of human capital of the country, the demographic crisis and demographic security of society and the country, as well as actively seek ways out of this situation.

Literature review. The separation of demographic security from the composition of national security took place objectively due to the deepening demographic crisis, which grew into a demographic catastrophe. Demographic security is one of the key ones in the national security system of the state. It is closely linked to social and economic security. Still some authors consider demographic security as a functional component of economic and social security. Demographic security is also closely related to other components of national security, such as political, military, environmental, etc.

All of them are closely connected and interdependent and only in a complex form the national security of the state. Thus, demographic security is possible only if economic, environmental, social, food, cultural and other types of security are achieved. In conditions of demographic danger or crisis, there is a decrease in the birth rate, an increase in morbidity and mortality, and depopulation. As a result, a quantitative and qualitative shortage of labor resources increases, the level of economic development and defense capability of the state decreases, etc.

Scientists consider the essence of demographic security in different ways. Mainly, when defining demographic security, two approaches are distinguished: instrumental and axiological or value-based.

According to the instrumental approach, demographic processes are not considered in themselves, but in terms of their impact on other processes of social life. The axiological approach focuses on demographic processes and the achievement of precisely the demographic interests of the individual, society and the state, which can be considered more objective, based on the name of the term itself. There are interpretations of the demographic security of some authors who try to combine instrumental and axiological approaches (Table 1).

In addition, when defining “demographic security”, some authors focus on the preservation of quantitative and qualitative parameters of the population [11, 12], others proceed precisely from the concepts of security and emphasize protection against internal and external threats [7, 9], and some others take into account the influence of social institutions on the level of demographic security [10].

Taking into account the above interpretations of the concept of “demographic security”, we propose to understand it as “the state of protection of the gene pool of the people, demo-reproduction processes and the formation of demo-structures (gender, age, ethnicity) from real and potential threats to strengthen the national security of the state”.

Table 1. Approaches to the definition of “demographic security”

Author	Definition
<i>Instrumental Approach</i>	
V. Kazushchyk [1]	“An integral part of national security, which is such a state in which, due to compliance with relevant legislation, timely identification and elimination of demographic threats, the demographic development of the country is ensured in accordance with its national interests and the demographic rights of citizens.”
O. Kachan, J. Turchyn [2]	“The state of protection of the individual, society and the state from real and potential demographic threats, in which the development of Ukraine is ensured in accordance with its demographic interests.”
Methods of calculating level of economic security of Ukraine [3]	“Demographic security is such a state of protection of the state, society and the labor market from demographic threats, in which the development of Ukraine is ensured, taking into account the totality of balanced demographic interests of the state, society and the individual in accordance with the constitutional rights of citizens of Ukraine.”
V. Steshenko [4]	“The state of demo-reproduction processes, which does not generate real or potential negative impact on the development of the country.”
S. Tyvodar [5]	“Demographic security” as a phenomenon of political and legal reality is a type of national security, which as a system ensures the vital interests of the individual, society and state and is based on a common strategy (concept), which aims to ensure human security based on its needs and interests, elimination of threats and risks directed against it; security of society as the main condition for the realization of needs and interests and the main way (technology) to prevent threats and risks; the presence of a favorable environment and its preservation as a natural condition of human existence.”
L. Shapotko, L. Anisov [6]	“The state and development of the demographic situation, the socio-economic consequences of which do not worsen the economic and social situation in the country, regardless of other external and internal conditions.”
<i>Axiological Approach</i>	
V. Ananin and others [7]	“Protection of the gene pool of the people from various negative influences and the creation of favorable conditions for its existence, development and self-realization.”
A. Vyshnevskiy [8]	“Demographic security is understood as the protection of the process of the life process and the continuous natural recovery of generations of people, and its strengthening is associated with the prolongation of human life, increasing the efficiency of demographic reproduction.”
O. Grishnova, Y. Kharazishvili [9]	“Demographic security is the state of protection of the main vital demo-restorative processes from real and potential threats.”
O. Ivanisov, H. Agaverdieva, O. Lebedynska [10]	“Category that characterizes the demographic system and its inherent mode of reproduction, gender, age, ethnic structure of the population, as well as the state of social institutions that ensure the socio and cultural aspect of demographic reproduction, which in turn affects the national security of the state.”
O. Perebeinos [11]	“The state of demographic development, which, in terms of volumetric and structural indicators, will contribute to the achievement in the future of population reproduction of an ever higher quality, the creation of a predictable, controlled flow of main demographic processes, ensuring of such a combination of internal and external conditions in the country that would be most favorable for demographic development.”
I. Tsvigun [12]	“Protection of life and processes of natural continuous reproduction of people”.
<i>Combination of Instrumental and Axiological Approaches</i>	
I. Hudzelyak, N. Verchyn [13]	“Demographic security is the protection of the life process and the vital interests of a person and citizen, society and the state, which ensures continuous natural restoration of generations of people, extension of human life, expansion of demographic freedom, sustainable development of society, timely identification, prevention and neutralization of real and potential threats, in accordance with the national interests of the state, related to ensuring the integrity, sovereignty, independence and preservation of geopolitical status.”
N. Mazur, L. Kobylochna [14]	“Such a demographic situation, in which there is a qualitative and quantitative development of the population as a whole and each person individually in accordance with the priorities of national development and security, and which strengthens the national and economic security of the state, which, in turn, contributes to the balanced and safe demographic development of the country.”

Source: compiled by the author's team

Thus, the object of demographic security is the gene pool of the state, and the subjects of its regulation are bodies of the state power.

The aim of demographic security changes in accordance with the needs of demographic reproduction: if depopulation of the population is observed, then measures are taken to increase the birth rate, improve people's health and reduce mortality; with a population explosion, a policy of reducing the birth rate is being pursued. In general, I. A. Tsvigun notes that "the goal of demographic security is to ensure regulation of the country's population while preserving the ethno-proportional structure and genetic health of people" [12].

Aims. The goal of the article is to study the essence of demographic security, the main methods of its assessment and threats, population aging and its causes, as well as ways of regulation.

Methods. Achieving the goal of this study requires the use of general scientific methods, including analysis and synthesis, as well as empirical methods such as historical, statistical observation, averages and relative values, statistical groupings, time series analysis, tabular and graphical method.

Results. The approaches to the interpretation of the concept of "demographic security" have been studied, its object, subjects and goals have been established; it has been found that the assessment of the level of demographic security is determined depending on the purpose and depth of the study; the main threats to demographic security have been characterized, among which the most significant is the aging of the population; the state and causes of population aging in Ukraine and the countries of the European Union have been analyzed; a system of measures is proposed to solve the problems of population aging.

Assessment of the level of demographic safety. At present, there is still no unified methodology for assessing the level of the country's demographic security. The indicator system can vary depending on the purpose and depth of the study.

The system of indicators most often includes indicators of natural population growth, demographic burden, average age and average life expectancy, migration, marriage and divorce, gender and age structure of the population, etc.

The level of demographic security is formed under the influence of various threats, which are phenomena and processes that entail such quantitative and qualitative changes in demographic indicators which have a negative impact on the development of the country.

The biggest internal threats to the country's demographic security should be considered: depopulation of the population (the population of Ukraine tends to decrease due to the excess of mortality over birth rate); population aging (population aging in Ukraine has its own specifics, as it arises as a result of a decrease in the birth rate, while in European countries the population is aging due to the increase in life expectancy); deterioration of physical, reproductive and mental health of the population (has a significant impact on birth rate, mortality and life expectancy); unregulated migration of the population (illegal labor migrants, mostly of working age, remain out of the attention of the state services; outflow of qualified personnel abroad, refugees from disadvantaged places and illegal migrants who change the ethnic and

genetic face of the country); degradation of the institution of the family (strong families, strong kins are formed by strong personalities, good citizens of their country, but in Ukraine families often break up, children are born by single women who cannot always provide their comprehensive upbringing), etc.

External threats to demographic security should be grouped into: socio-economic (declining living standards, rising unemployment, lumpenization of the population, mass impoverishment, a decline in the level of qualifications of the working force, lack of housing, low level of social infrastructure, etc.); social (loss of cultural heritage, departure from traditions, unsatisfactory level of school and extracurricular education, demoralization and criminalization of society, unsatisfactory working conditions and labor safety, quality and timeliness of medical care, quality of roads and road safety, unhealthy lifestyles, alcoholism, tobacco and drug addiction); environmental (state of the external environment, safety of environmental components, overcoming the negative consequences of the Chernobyl accident); food (quality and safety of food) and economic (low level of real wages and social benefits to the population, inflation, insufficient level of economic development of the country, etc.).

The aging of the population is the most significant demographic threat. Population aging is a demographic threat that accumulates almost all other types of threats. This is the most characteristic demographic process of our time, requiring increased urgent attention.

Population aging is one of the important demographic processes, which is especially relevant both for Ukraine and for European countries. In the countries of the European Union, birth and death rates are decreasing, and life expectancy is increasing. According to forecasts of the EU Statistical Office, the population will continue to grow. At the same time, the number of elderly people (65 years and older) will also increase. Thus, by 2050, their share in the total population of the European Union will reach 29.5%. As a result, the demographic burden of older people per 100 people of working age will increase by 15.2% compared to 2018 and will reach 45.7% [15].

The population aging is causing a number of economic and social problems: an increase in the shortage of labor resources, a decrease in the number and growth of the average age of the economically active population, an increase in the demographic burden on people of working age and the economy, stress on the labor market, stress in the tax and financial system, economic growth, decrease in savings, etc. Thus, the employed population is obliged to support an increasing number of persons of retirement age, as well as children, unemployed, disability pensioners and other categories of citizens of working age who are not employed in the national economy.

In this regard, the issue of ensuring an adequate standard of living for citizens arises: living and working conditions, the state of the environment, the level of income and social security, etc.

Population aging is a volatile and changeable phenomenon, therefore it requires constant monitoring and regulation. Thus, the problem of population aging requires close attention to the causes and development of government programs for its regulation and solution of pressing problems.

Population aging is a shift in the distribution of the population according to the age towards older age, or an increase in the proportion of older people in the population structure. In this connection, the question of identifying the age range arises.

According to the UN methodology, the population is considered “old” if the proportion of elderly people (65 years and older) exceeds 7%, if this indicator is less than 4%, then the population is considered young, and if it is within 4-7%, then the population stable and on the verge of old age. At the same time, the Polish demographer Edward Rosset believes that demographic aging of the population begins if the proportion of people aged 60 and over reaches 10% [16] (Fig. 1).

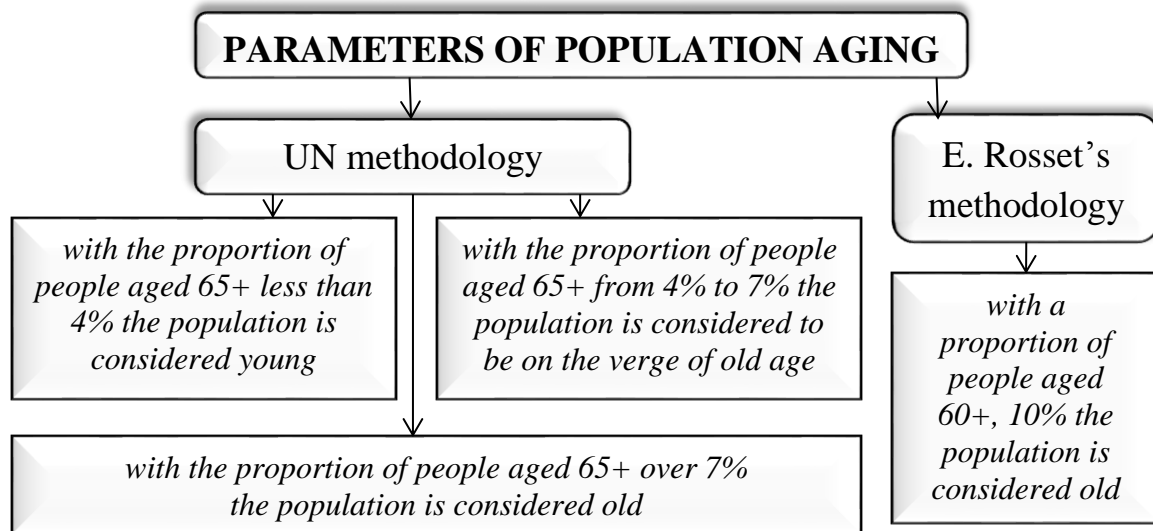


Figure 1. Methods for determining the parameters of population aging

Source: designed by the authors

According to the UN demographic aging scale, in Ukraine as of January 1, 2020, the proportion of people aged 65 and over in the population structure was 17.1%, which indicates a high level of population aging. In addition, the last ten years have confirmed the existence of a steady trend towards a deepening aging of the population. There is also an increase in the number of regions in which the proportion of persons aged 65 exceeds 17%, which is 2.4 times higher than the critical limit of aging (Table 2).

Table 2. Distribution of regions of Ukraine by the level of demographic aging of the population (proportion of people 65+)

Year	elderly population (over 7%)				Average in Ukraine
	7-14%	14-17%	17-20%	20% and more	
2010	5	13	6	0	15,3
2015	5	11	8	0	15,9
2020	3	9	10	2	17,1

Source: calculated by the authors according to the State Statistics Service of Ukraine [17]

A very high level of demographic aging of the population of Ukraine is also confirmed according to E. Rosset’s scale. Only in Zakarpatska region the level of demographic aging is slightly below 18%, and Luhansk region has passed the threshold of demographic old age by 30%.

Significant “aging” of the population is observed in all countries of the European Union, where the average proportion of people aged 65+ in the population structure is much higher than 7%, which, according to in four of them had the proportion of people over the age of 65 years of age below 17%, and in 9 countries this figure exceeded 20% (Table 3).

Table 3. Grouping of EU Member States by Demographic Aging (65+), 2019

<i>Elderly population (above 7%)</i>		
14-17%	17-20%	20% and above
Ireland 14,1	Austria 18,8	Bulgaria 21,3
Cyprus 16,1	Belgium 18,9	Greece 22,0
Luxembourg 14,4	Denmark 19,6	Italy 22,9
Slovakia 16,0	Estonia 19,8	Latvia 20,3
	Spain 19,4	Germany 21,5
	Lithuania 19,8	Portugal 21,8
	Malta 18,7	Finland 21,8
	Netherlands 19,2	France 20,0
	Poland 17,7	Croatia 20,0
	Romania 18,5	
	Slovenia 19,8	
	Hungary 19,3	
	Czech Republic 19,6	
	Sweden 19,9	
EU average 20,2%		

Source: calculated by the authors according to the EU statistical service [15]

At the same time it should be noted that the level of old age of the population in Ukraine in 2020 was slightly lower than in the EU countries (17.1% versus 20.4%).

The aging of the population of European countries is deepening over the years: if in 2011 this indicator averaged 17.8% across the EU countries, in 2019 it was 20.25.

According to the UN, the world’s fastest growing population is in the countries of North Africa, East and Southeast Asia, Latin America and the Caribbean.

According to the UN’s forecasts, the aging process will only deepen:

- in 2045, the number of people over 60 years old will exceed the number of children under 15. In the most developed regions of the world, where aging occurs especially rapidly, such an imbalance was already observed in 1998;

- today the average age on the planet is 28: half of the population is older than this age and half is younger. By the middle of the 21st century, the average age will reach 38 years;

- statistics show that aging affects almost all countries of the world and is accompanied by a decrease in fertility.

Research into the main causes of population aging. The main causes of the population aging should be considered:

1. Decrease in fertility;
2. Increase in the average life expectancy of a person;
3. Reducing the mortality rate of children and the elderly.

According to the results of the study, it should be noted that in Ukraine the aging of population occurs against the background of a significant decrease in birth rates, partial increase in mortality and a corresponding deepening of the natural population decline (Fig. 2).

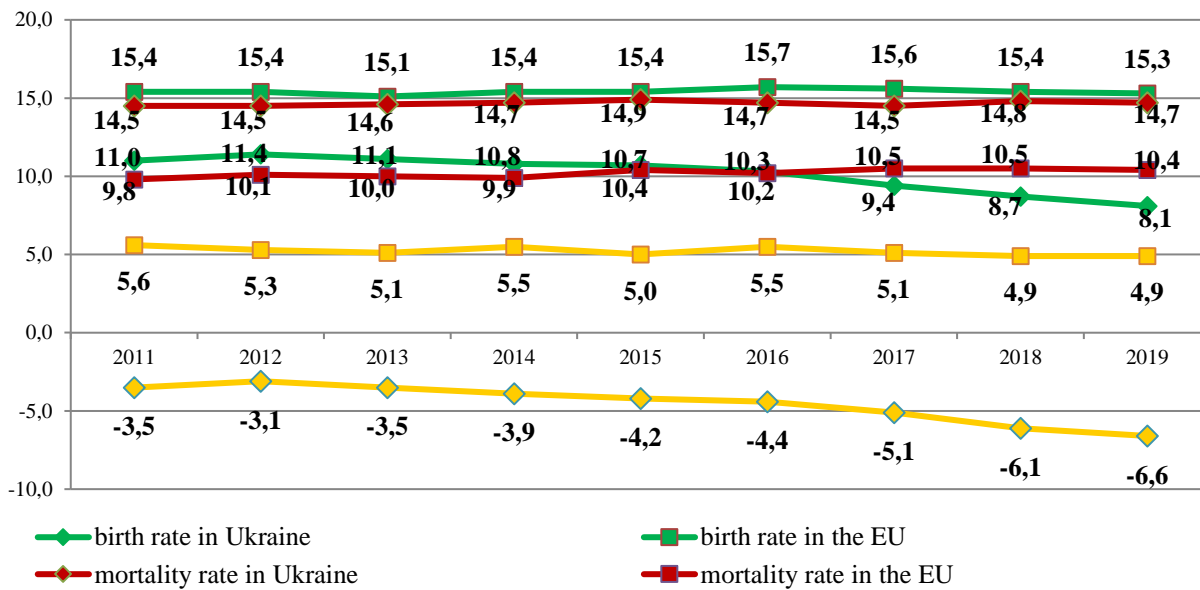


Figure 2. Natural movement of the population in Ukraine and the EU (persons per 1000 population), 2011-2019

Source: calculated and constructed by the authors according to the EU Statistical Service [15] and the State Statistics Service of Ukraine [17]

In the European Union, population aging is deepening as a result of a slight decrease in birth rates, increased mortality and reduced natural population growth (Fig. 2).

The reasons for the decline in the birth rate of the population in Ukraine and around the world, among other things, are the unwillingness of women to give birth, their preference for a career over motherhood; reluctance of young people to start a family; uncertainty about the future; negative socio-economic living conditions of the population; difficult ecological situation, etc.

The mortality rate of the population is growing mainly due to an increase in the level of morbidity: in Ukraine it is, first of all, diseases of the circulatory systems, neoplasms, as well as external causes (suicide, road accidents, murders, drowning, fires, poisoning, military operations, terrorist attacks, natural disasters, etc.). In 2020-2021, the spread of Covid 19 was a significant reason for the increase in mortality worldwide. In addition to these direct causes of mortality, indirect ones can be distinguished, such as an imperfect level of basic medicine and an inadequate standard of living of the population (decrease in real incomes of the population, failure to comply with sanitary conditions and hygiene, poor nutrition, the need for vaccination, etc.).

Another reason of the world's aging population is the increase in life expectancy, which is closely linked to general health and mortality. Also, life expectancy is an indicator of the level of socio-economic development of the country and the quality of life: the higher the quality of human life, the longer he/she lives.

In Ukraine, the average life expectancy of the population is rather low in comparison with the countries of the European Union. At the same time, in all countries it shows a clear growth trend (Fig. 3).

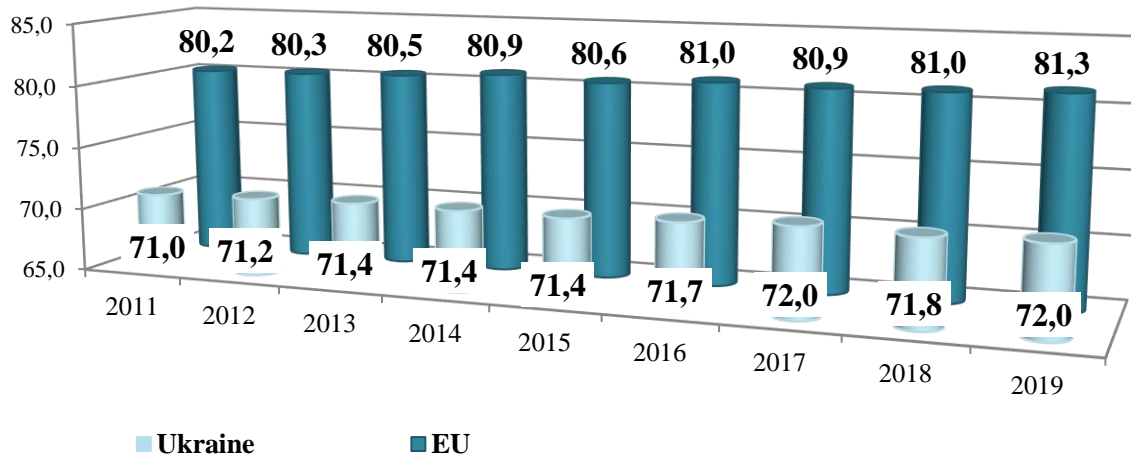


Figure 3. Average Life Expectancy, 2011-2019

Source: calculated and constructed by the authors according to the EU Statistical Service [16] and the State Statistics Service of Ukraine [17]

Changes in these demographic indicators affect both the population size and its gender and age composition. Thus, in Ukraine, as in most European countries, the population is declining at a significant rate. During the period 2011-2019, the population decreased by 3.6 million people or 7.9% (with an average annual decrease of 450.0 thousand people or 1.0%). The decrease in the population was due to a decrease in the number of people of working age (15-64 years) by 3.6 million people or 11.1%, while the number of people under the age of 15 and 65 years and older within the entire analyzed period were approximately at the same level (Fig. 4).

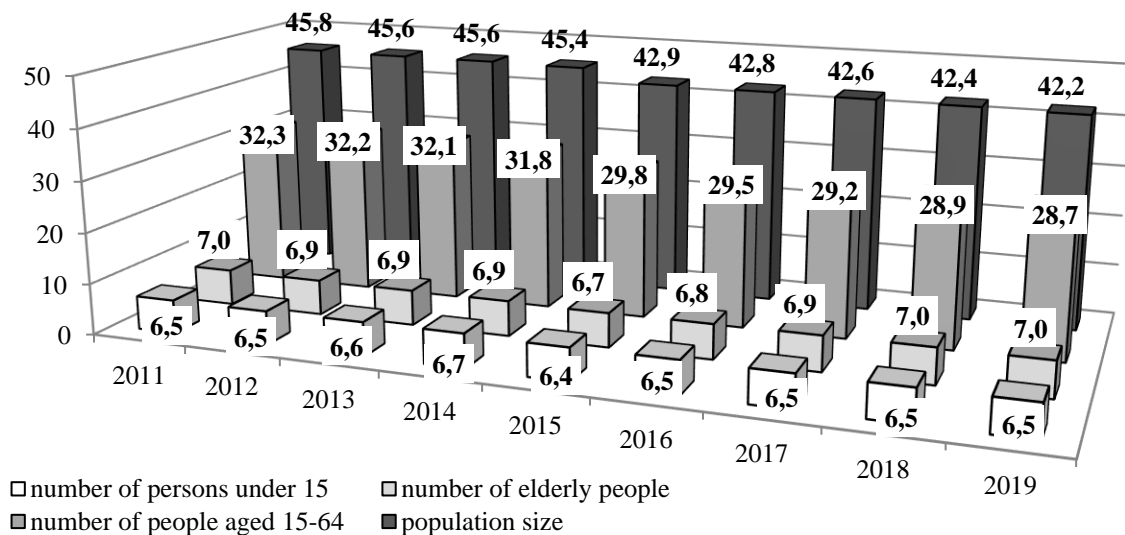


Figure 4. Number and Composition of the Population of Ukraine, million people

Source: calculated and constructed by the authors according to the State Statistics Service of Ukraine [17]

In Europe, the demographic situation is somewhat different: the aging of the population is accompanied by an increase in the population. In general, the number of residents of the countries of the European Union during the analyzed period increased by 6.6 million people or 1.5%, which is on average 825 thousand people or 0.2% per year. At the same time, in eight countries out of twenty-seven, the population in 2011-

2019 decreased: in Latvia – by 9.5%, Lithuania – by 6.7%, Croatia – 4.7%, Bulgaria – 4.1%, Greece – 3.6%, Romania – 3.5%, Portugal – 2, 8%, Poland – 0.3% (tab. 4).

As a result of these changes, the structure of the population is changing, the demographic burden on people of working age is growing, and the demographic basis of population reproduction is narrowing (Fig. 5).

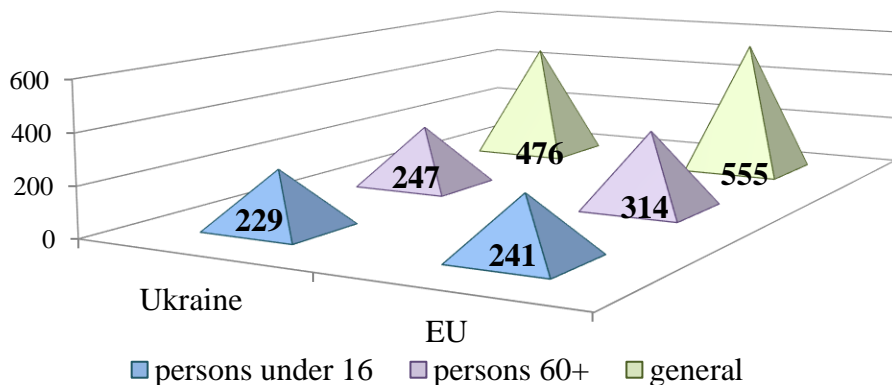


Fig. 5. Demographic Burden (per 1 thousand people of working age) in 2019, million people

Source: calculated and constructed by the authors according to the EU Statistical Service [15] and the State Statistics Service of Ukraine [17]

Table 4. Population of the Countries of the European Union, million people

Country	2011	2019	absolute growth, million people	relative change, %
Total	440,3	446,9	6,6	101,5
Latvia	2,1	1,9	-0,2	90,5
Lithuania	3,0	2,8	-0,2	93,3
Croatia	4,3	4,1	-0,2	95,3
Bulgaria	7,3	7,0	-0,3	95,9
Greece	11,1	10,7	-0,4	96,4
Rumania	20,1	19,4	-0,7	96,5
Portugal	10,6	10,3	-0,3	97,2
Poland	38,1	38,0	-0,1	99,7
Estonia	1,3	1,3	0,0	100,0
Cyprus	0,9	0,9	0,0	100,0
Slovenia	2,1	2,1	0,0	100,0
Hungary	10,0	10,0	0,0	100,0
Italy	59,4	59,7	0,3	100,5
Spain	46,7	47,1	0,4	100,9
Slovakia	5,4	5,5	0,1	101,9
Finland	5,4	5,5	0,1	101,9
Czech Republic	10,5	10,7	0,2	101,9
France	65,1	67,2	2,1	103,2
Germany	80,3	83,1	2,8	103,5
Denmark	5,6	5,8	0,2	103,6
Netherlands	16,7	17,3	0,6	103,6
Belgium	11,0	11,5	0,5	104,5
Austria	8,4	8,9	0,5	106,0
Ireland	4,6	4,9	0,3	106,5
Sweden	9,4	10,3	0,9	109,6
Luxembourg	0,5	0,6	0,1	120,0
Malta	0,4	0,5	0,1	125,0

Source: calculated by the authors according to the EU statistical service [15]

Thus, in 2019, for every 1,000 people of working age in Ukraine, there were 476 persons, including 229 those under the age of 16 (48.1%) and 247 persons aged 60 and over (51.9%). At the same time, in the countries of the European Union these figures are slightly higher: 555 persons per 1,000 people of working age, including 43.4% of young and 56.6% of the elderly (Fig. 5).

It should also be noted that excessive demographic burden, especially by the elderly, leads to changes in the structure of employment, production and consumption, welfare of various segments of the population, and, ultimately, to reduce the efficiency of the national economy. Public consciousness, moral values, the role of older people in society and attitudes towards them are also undergoing changes.

During the analyzed period (2011-2019) in Ukraine and in the EU countries, the demographic burden on people of working age and the elderly had a clear upward trend (Fig. 6). At the same time, in Ukraine this indicator grew slightly slower during this period (13.8%) than in the EU (17.2%).

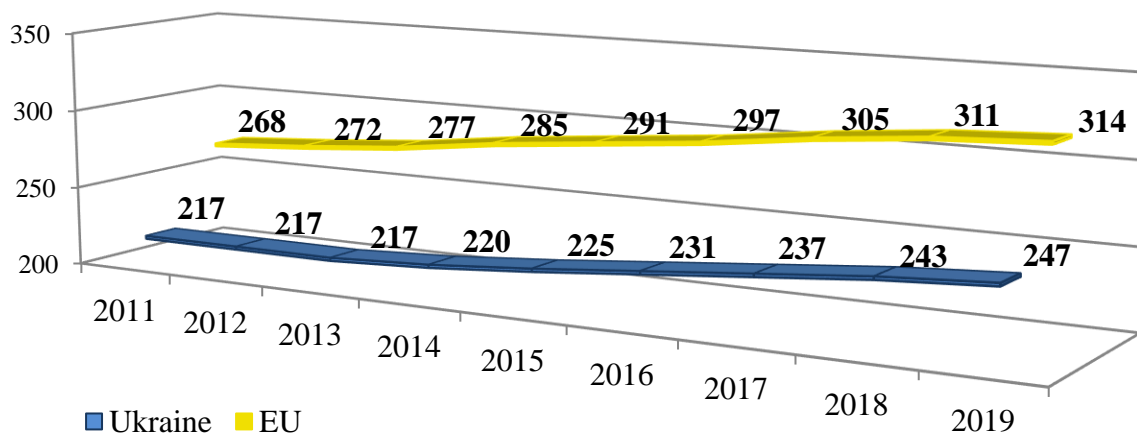


Figure 6. Demographic burden per thousand persons of the working-age population by elderly people, persons

Source: calculated and constructed by the authors according to the EU Statistical Service [15] and the State Statistics Service of Ukraine [17]

In the nearest future, depopulation, migration stagnation, population decline and aging will continue at a rapid pace. These trends determine not very flattering demographic forecast for Ukraine. By 2050, the population will decrease by 5.5 million people. At the same time, the number of people of working age (20-59 years) will decrease by 6.6 million, while the number of people aged 60 and over will increase by 2.6 million, and their proportion in the population (aging level) will increase to 33%. The ratio of the age contingents of working (20–59 years old) and retirement age (60 years and more) will decrease from the current 2.6 to 2 in the early 2030s and to 1.5 at the end of the forecast period [18].

Discussion. The aging of the population brings with it a number of problems. In particular:

– demographic (an increase in the demographic burden and a narrowing of the demographic basis of population reproduction; a decrease in the working-age population);

– economic (reduction in the labor supply and its productivity; slowdown in economic growth; deterioration of the investment climate; decline in the service market, etc.);

– fiscal (decrease in tax revenues; increase in the volume of pension expenditures);

– social (the emergence of the problem of loneliness, poverty and neglect of the elderly; the growth of additional demand for medical care and social protection).

All these problems in Ukraine are exacerbated against the background of low economic activity of the population, significant informal employment and external labor migration of the working-age population, low income and participation in social insurance.

The importance and seriousness of the problems caused by aging of the population requires immediate regulation, development and implementation of measures to address the problems of population aging (Fig. 7).

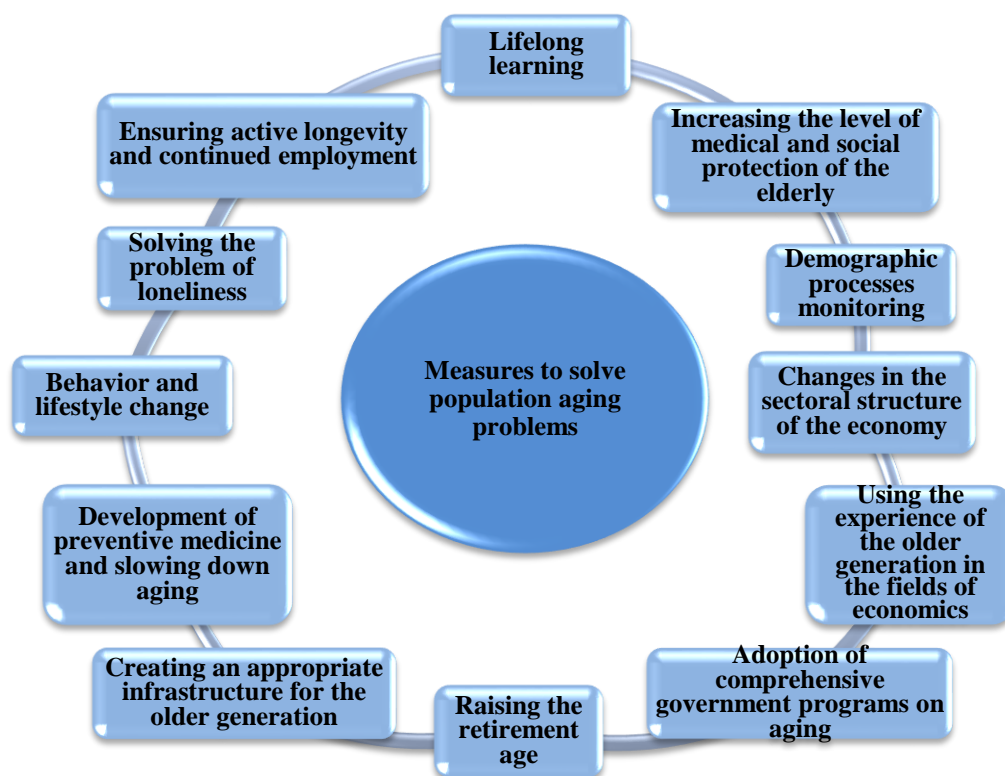


Figure 7. System of measures to solve the problems of population aging

Source: designed by the author's team

Constant monitoring of changes in the demographic processes of Ukraine and Europe will contribute to the timely identification of trends and the development of necessary recommendations for solving urgent economic and social problems. With regard to demographic problems, it is impossible to develop uniform standard measures

to solve them. At each stage of human development, for each country, its region, the causes of demographic problems will be different, and therefore will require specific solutions.

Among other things, it is necessary to pay due attention to the problem of finding means of slowing down aging in the physical sense, i.e. the suspension or postponement of the loss by older people their physical strength, vigor, activity, mental abilities, etc. Ensuring a meaningful life for the elderly, a number of socio-economic problems related to population aging could be solved.

The Madrid International Plan of Action on Aging provides opportunities for older people to continue employment in order to maintain their social status. The key to this process can be lifelong learning to ensure labor mobility of older people.

In tackling the problem of population decline and aging, it is necessary to introduce family assistance and fertility promotion programs. Women refuse to have children not only because of financial problems, but also because of the desire for self-realization, avoiding additional significant household chores, increasing emancipation, and so on. These are some of the reasons that women often refuse to get married.

Since demographic processes are closely related to a number of socio-economic, political and environmental problems, their overcoming requires the development of comprehensive programs taking into account the necessity to help families, single parents; to reform health care system; to improve the environmental situation, to promote a healthy lifestyle; to stabilize the social and political situation in the country, etc.

Taking into account the aggravation of a number of socio-economic problems caused by the aging of the population, it is necessary to create a favorable working environment, introduce methods of age-oriented management, develop specific medical technologies aimed at the elderly, improve their institutional support, develop housing and transport infrastructure in accordance with the needs of the elderly, provide assistance to families caring for the elderly, etc.

Conclusions. In the conditions of deepening demographic crisis and decrease of demographic security of the state it is necessary to carry out more thorough analysis of possible and existing threats in the development of a system of measures of their counteraction.

National health policies need to be developed and actively implemented to help overcome threats to demographic security, and this will be the subject of further research.

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References:

1. Kazushchyk V. (2000). Demographic aspects of demographic security of Belarus. *Reproductive health of the population and demographic security of the republic: Materials of the republican seminar* (pp. 4-7). Minsk: Ministry of Labor of the Republic of Belarus.
2. Kachan O., Turchyn J. (2009). The impact of demographic processes on national security. *Ukrainian national idea: realities and prospects*, 21, 85-91.
3. Methodology for calculating the level of economic security of Ukraine: Order of the Ministry of Economic Development and Trade of Ukraine №1277 dated 29.10.2013. Available at: <https://zakon.rada.gov.ua/rada/show/v1277731-13#Text>

4. Steshenko V. (2007). Features of the demographic situation. *State-building process in Ukraine (1991-2006): Collection of scientific works*, 125-138. Kyiv: Naukova Dumka.
5. Tivodar S.I. (2008). Demographic security of Russia: institutional and legal support of national interests. (PhD) dissertation, Rostov jurid. Inst. of the Ministry of Internal Affairs of Russia.
6. Shakhotko L.P., Anisov L.M. (2000). Existing demographic reality and national security. *Reproductive health of the population and demographic security of the republic: seminar materials*. Minsk, 8-13.
7. *Security of sustainable development of Ukraine: construction in terms of global challenges.*(2009). V.O. Ananin, V.V. Gorlinsky, O.O. Puchkov and others; for general ed .. V.O. Ananin. Kyiv: ISZZI NTUU "KPI".
8. Vishnevsky A.G. (1998). Sickie and ruble. *Conservative modernization in the USSR*. Moscow: OGI.
9. Grishnova O.A., Kharazishvili Y.M. (2019). Demographic security of Ukraine: indicators, level, threats. *Demography and social economy*, 2 (36), 65-80.
10. Ivanisov O.V., Agaverdieva H.F., Lebedynska O.S. (2019). Demographic security of Ukraine: modern challenges and threats. *Economics and finance*, 1, 31.
11. Perebeynos O.M. (2011). Demographic security and threats to demographic development: public administration aspect. *State Construction*, 1. Available at: http://nbuv.gov.ua/UJRN/DeBu_2011_1_46
12. Tsvigun I.A. (2013). Demographic security of Ukraine and directions of its regulation. Kamyanyets-Podilsky: Publisher Zvoleyko D.G.
13. Gudzylyak I., Verchyn N. (2015). Socio-geographical aspects of integrated assessment of demographic security of Ukraine and Lviv region. *Journal of socio-economic geography*, 19 (2), 84-88.
14. Mazur N.O., Kobilochna O.O. (2014). Demographic security: theoretical aspects. *Problems of rational use of socio-economic and natural resource potential of the region: financial policy and investment: coll. science. labor*. Kyiv: SEU; Rivne: NUVGP, XX, 4, 1, 127.
15. Official website of Eurostat. Demography and migration. Available at: <https://ec.europa.eu/eurostat/web/main/home>
16. Rosette Edward (1968). The process of population aging. Moscow: Statistics.
17. State Statistics Service of Ukraine. Available at: <http://www.ukrstat.gov.ua/>
18. Three riders of the demographic apocalypse. The main trends in Ukraine. Available at: https://zn.ua/eng/macrolevel/tri-vershniki-demografichnogo-apokalipsisa-osnovni-trendi-v-ukrayini-259843_.html