POPULATION AGING – A GLOBAL CHALLENGE

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Abstract
The world's population is aging — an increase in the proportion of older people in the total number of population is observed in almost all countries.

The process of population aging is becoming one of the most significant social transformations of the twenty-first century. This is reflected in almost all sectors of society. Demographic ageing affects labour and financial markets, the demand for goods and services such as housing, transport and social protection, as well as family structure and relationships between people belonging to different generations. Older persons are increasingly seen as participants in the development process, whose ability to act for themselves and their society must be integrated into policies and programmes at all levels. In the coming decades, many countries will face serious challenges in the areas of public health systems, pensions and social protection.

The inexorable momentum of population aging around the world will likely become the most significant demographic process of the 21st century. Continuing shifts in population age structure will require new social sensitivities and innovative policy responses. Demographic aging has implications for a wide range of human behavior, and researchers increasingly recognize the need for multidisciplinary approaches to the aging process. Since population aging entails many different consequences, it must become the subject of interdisciplinary studies.

Keywords: *Population, aging, demographic indices, developed countries, developing countries.*

JEL Classification: *J10, J11, J14*

I. INTRODUCTION

At the contemporary stage, demographic aging of the population is taking place all over the world. If to date the aging of population has been going on for a century only in developed countries, now this process has started even in the least developed countries. The U.S. Bureau of Population Census estimates that by 2050 the world's population aged 65 and over is expected to reach 1.6 billion people, of which 1.3 billion will come from developing regions today; i.e. 25% of the world's elderly population will live in developed countries and 75% in developing countries. This demographic transformation will have a major impact on population's health, social and economic development of the world.

Population aging on the one hand can be seen as the success of humanity in improving public health, in the development of medicine and economics, in eradicating many diseases that limited life expectancy of people over the centuries. On the other hand, it is a global phenomenon that poses many problems for the national development of countries and the sustainability of families. It undermines the ability of countries' governments to provide socially for aged population. At the same time, the reduction of working-age populations negatively affects income taxes, without which it is impossible to feed the growing number of retirees. Population aging this is a serious threat to the living standards of all age groups.

II. GENERAL ANALYSIS

When does a person get old? There are many terms that describe human aging. These terms are: old people, aged people, elderly people, senior citizens, and more. The U.S. Census Bureau, which annually collects statistics on the world's population, considers the elderly to be 65 years of age and older, and the oldest old to be 80 years of age or older. The aging of the world population has been going on for centuries, although this process has accelerated at a rapid pace in recent decades. i.e. every year, not only the number of elderly people increases, but also the rate of aging itself. In 2019, the world's population aged 65 and over made up about 770 million people; this is 350 million more compared with 2000. In 1990, 26 countries in the world had only 2 million elderly people. It is projected that

by 2030, more than 60 countries around the world will have more than 2 million people aged 65 and over.

Population aging is usually linked to Europe. Compared to the rest of the world, Europe is aging faster than any other region of the world. High life expectancy and a sharp decline in birth rates are causing changes in family structure. In many Western European countries, more than 17 percent of the population is over 65, and in some regions the figure is close to 25 percent. It is expected that population aging will become a very serious problem in the future. This process is already jeopardizing the resilience of European welfare systems and as a whole it can limit the economic potential of Western Europe. Most of the EU countries have pursued policies aimed at curbing the process of population aging.

Today, industrialized countries have the highest percentage of the elderly population. Currently, the number of elderly people in developed countries exceeds the population under the age of 18. By 2050, the number of retirees in the U.S., Western European countries and Japan will be twice as high as the number of young people.

The aging process has begun in developing countries, where the number of elderly people is growing rapidly. Currently, 60% of the world's elderly population lives in developing countries, which is about 450 million people. There is a forecast that by 2030 this figure will increase to 71%. Many developing countries are currently experiencing a significant reduction in the natural increase of the population, which previously occurred in industrialized countries. As natural increase slows down in the future, this process will inevitably change the age structures, and the proportion rate of the elderly population in the entire population will be large.

Population aging is usually determined by the share of the population aged 65 and over in the given population. Sometimes the elderly are considered to be 60 years of age and older. According to 2019 data, Japan has the oldest population (65 years and older) in the world – 28%. After Japan, the world's main "old" countries are: Monaco – 26%, Italy – 23%, Germany, Portugal, Greece, Finland – 22%; Bulgaria, France, Croatia, Malta – 21%; Latvia, Lithuania, Estonia, Slovenia, the Netherlands, Denmark, Spain, Sweden, Hungary, Czech Republic – 20%; Romania, United Kingdom, Serbia, Austria, Belgium, Switzerland – 19%; Poland – 18%; Norway, Ukraine, Bosnia and Herzegovina – 17%; Slovakia – 16%; Georgia, Russian Federation, Belarus, Iceland, Luxembourg, Montenegro – 15%. The US population is relatively "young" by European standards and ranks 38th in the list of "old" countries in the world. The share of the elderly population in the US began to rise after 2010, when the baby boom generation approached the age of 65; it is estimated that their percentage will reach 20% of the total population by 2030.

Europe will remain the world's oldest region for the entire 21st century. Currently, pension expenditures in the EU countries account for about 13% of GDP. In the future, European countries will be forced to further increase their spending on pensions for the elderly. For example, the UK will have to spend another 3% of gross domestic product over the next 40-50 years to increase pension spending. If there are currently 4 retired people per 1 pensioner in European countries, by 2050 this ratio could be 1/2. The growing number of elderly people and the burden of pension and social spending will inevitably reduce economic growth.

In the last two decades, the share of children in EU countries has decreased by 3.8%, while the share of elderly people in the same period has increased by 3.7%. If this current trend does not change, then by 2050 the contingent of Europe's able-bodied population will be reduced by 40 million people. Such a scenario would be a real nightmare for the European economy, which will no longer be able to compete with more "young" and dynamically developing countries.

The current crisis situation in the world economy exacerbates the problem of the aging population in the developed world. Companies which lay of their employees on a mass scale are offered various pension schemes as compensation. Consequently, the number of income taxpayers decreases. Thus, the entire burden of providing pensions to fired people falls on the government. Experts from the rating agency Fitch rightly point out that population aging threatens the developed countries with the further collapse of fiscal systems.

Developing countries are "aging" faster than developed countries. At the same time, their adaptation to the new reality is much more difficult than in the United States and Europe. The economies of developing countries face the task of creating an effective system of social security and health care. They are forced to devote a significant portion of their resources to the modernization of medicine and creation of the universal model of social security. For these countries, a complete transformation of the current pension system is becoming inevitable.

Traditionally, in developing countries, elderly parents are maintained by their children. However, in the near future this may become impossible for the younger generation, as the number of retirees is growing rapidly and the working age population is declining sharply. In addition, the objective reality is that young people in a rapidly changing world are not always ready to provide for their parents during old age. Governments in developing countries may face large-scale social problems in the near future.

Among developing countries, China is the fastest aging country, where the population aged 65 and over will account for a quarter of the country's population by 2050. In developing countries the population over the age of 60 grew by 3% in 65 years (1950-2015), while in China it increased by more than 4% in just 15 years (2000-2015). By

the middle of the current century, the population of the elderly in China will exceed 500 million. Experts have already called the incident a "slow-acting bomb."

In the late 1970s and early 1980s, the Chinese government took measures to help delay marriages and increase the period between births. At the same time, a controversial demographic policy was introduced that did not allow families to have more than one child. The government began the reduction of population in order to modernize the country's economy. These initiatives of the government have had a significant impact on the birth rate in China, where the total birth rate has dropped from 6.0 to 1.6 children. This rate is lower than similar rates in the United States and the United Kingdom.

The current situation jeopardizes China's main competitive advantage, which is reflected in the number of able-bodied contingents, which today number nearly 1 billion people. It is the orientation of the colossal number of Chinese labor resources to export that has given rise to the rapid development of the country's national economy in recent decades. According to the Experts estimation, China's working-age population is currently declining by 1.5% each year, which will inevitably lead to higher wages and higher labor costs in the future.

Business in China is also facing a problem. The contingent of the elderly is increasing and the number of young people is decreasing. The fact is that a person in his 30s has more ideas and aspirations to start an entrepreneurial business than he does in his 50s.

China is aging more rapidly compared to other countries. More than 60% of the countries entered the aging phase when their GDP per capita exceeded 10 thousand dollars, and 30% of the countries "aged" when this figure was 5 thousand dollars. In China, the share of the population aged 65 and over was 10%, while its GDP per capita was up to $ 1,000.

The problem of population aging is acute in Russia as well, where the share of the population aged 60 and over is 20%. In the future, population aging in Russia will acquire a larger scale. According to the official demographic forecast, the share of the population aged 65 and over will exceed 28% by 2030. In the last 10 years, the working-age population in Russia has been declining. In the coming years, the country will lose a significant number of workers, which by 2025 will be 7 million people. According to the UN forecast, by 2050, the share of economically active population in Russia (20-60 years) will become almost half of the total population of the country.

Not only demographers and economists, but also the country's government is aware of the importance of the current problem. Many experts believe that a significant action measure that will change the negative trend for the Russian economy is to increase the retirement age. In their view, the working capacity of the population and the entry into old age should not be constantly fixed, but should be regularly adjusted.

However, it should be said that taking such a painful measure is perceived differently in society. Increasing the retirement age poses great risks for both older citizens and the able-bodied population. In many countries, the labor market for the elderly is weakly developed.

It is also expected that the share of the elderly will double by 2030 in Asia, Latin America and the Caribbean. The aging process will be relatively low in Sub-Saharan Africa region, where relatively high birth rates help maintain the "young" population of the region.

There are several demographic indices of population aging. Important of these are: *the aging index, median age*, and the *social support ratio*. The aging index is an indicator of the age structure of the population, which shows how many people aged 65 and over falls for every 100 children under the age of 15. At the beginning of the 21st century, only a few countries (Italy, Germany, Bulgaria, Japan) had a population of 65 years and older, more than the population under 15 years of age. Since 2009, Spain, Portugal, Slovenia, Austria, Belgium, Switzerland, Hungary, Croatia, Estonia, Latvia, Lithuania, Sweden, Ukraine, Finland and Belarus have been added to their number. The aging index of developed countries will increase even more in the future. Today's aging index is much lower in developing countries than in developed countries, and it is expected that the difference between the aging indexes of developed and developing countries will become even greater in the future.

The median age is an indicator which shows at what age this or that country has a half of its population. The median age varies significantly in different regions and countries of the world, which is due to a number of factors such as birth rates, levels of social and economic development, and average life expectancy.

The lowest median age in the world is the African state of Niger - 15.3 years. It should be noted that in countries where the median age is less than 20 years, most of them are located in Africa. Monaco has the highest median age - 52.4 years. In highly developed countries such as Japan and Germany, the median age was 47 and 46.8 years, respectively. The median age is expected to increase in almost all countries. The median age of the population of developed countries in 2019 was 42.7 years, it is predicted that this figure will reach 47 years by 2050. The median age of developing countries is below 25 years. It is estimated that by 2030, Italy and Japan will have the highest median age in the world. Half of their population will be 52 years of age or older.

Finally, the social support ratio shows the number of people aged 65 and over for every 100 people aged 20-64,

ie. for the working age population. In the coming decades, it is expected that this figure will increase even more in developed countries as the birth rate in the population decreases and life expectancy increases.

In many countries, old population is aging more. The proportion of older people in the total old population is increasing. The share of the oldest-old population (80 years and older) is 20% of the world's elderly population. This figure is higher in developed countries - 25%. More than half of the world's elderly live in six countries: China, the United States, India, Japan, Germany and Russia.

In many countries, the oldest-old population is the fastest growing segment. The growth rate of the world's oldest-old population in the mid-1990s was somewhat lower than that of the world's old population, which was caused by low birth rates in many countries during the First World War. Between 1996 and 1997, the world's oldest-old population grew by only 1.3%. In 2000-2010, the growth rate of the population aged 80 and over was already 3.7%, while the growth rate of the world's old population was equal to 2.3%. Experts predict that the share of the oldest-old population will continue to grow in the coming years.

Aging rates are relatively low in the United States. From 2010 to 2019, the median age increased by only 1 year and hit an all time high of 38. 2 years. In 2019, the share of the elderly population in the United States was 28% of the country's aging population. The fastest growth in the elderly population is expected in Japan, where by 2030 the share of the elderly population in the total aging population will be 40%.

Why is the population aging? When asked this question, most people think that the reason for this is changes in life expectancy. We know that life expectancy is increasing in most countries of the world, so it is logical that the aging of population is the result of long life. Nevertheless, the most well-known historical factor in population aging is declining birth rates. Population aging this is an increase in the share of people aged 65 and over in the total population. When the birth rate decreases, it means that the share of young population decreases in the total number of population, which increases the proportion of the elderly population.

Reduction of birth rates in industrialized countries has reduced the level of replacement fertility of population (2.1 children). In 2019, the total birth rate in developed countries was 1.7 children. Reduction of birth rate in the developing world is a phenomenon of recent years. Although birth rates have been declining in most developing regions over the past 30 years, the total birth rate remains high in Africa (5.0 children), in many countries in the Middle East and Asia. According to the UN forecast, by 2050, three out of every four countries in Asia will have a low rate compared to replacement fertility rate. In general, high birth rates lead to both an increase and a decrease in the share of the elderly population. The process of demographic transition begins when high birth rates and death rates are replaced by low birth rates and death rates, which in turn alters the proportions of the population of different generations.

The rapid increase in life expectancy that began in the mid-nineteenth century was thought to be the result of advances in medicine. In fact, there had not been significant improvement in medicine and sanitation until the end of the 19th century. Innovations in industrial and agricultural production have greatly improved and increased the supply of food, which has been a very important factor in reducing mortality. In 2019, life expectancy in Japan was 84 years, which is the highest rate in the developed world. During the 20th century, life expectancy almost doubled in many parts of the world. For example, at the beginning of this century, life expectancy in Japan and Italy was 43 years, in Austria - 39 years, in Spain - 35 years; the increase in life expectancy was faster in the first half of the century than in the second half. Between 1900 and 1950, life expectancy in the West increased by an average of 20 years. Reliable information and estimates of life expectancy in developed countries are not available until the 1950s, but it is known that changes in the life expectancy of these countries occurred after this period when it increased in all developed regions of the world. It grew the fastest in Asia. Between 2010 and 2019, life expectancy in many Asian countries exceeded 72 years.

A characteristic feature of life expectancy in developed countries in the 20th century was the increase in life expectancy of women. Mortality rates among women were lower than among men at all ages. In 1900, the life expectancy of women in Europe was only 2 years longer than that of men. In 2019, this difference increased to 7 years. (Women's life expectancy was 82 years, and men's – 75 years). This difference is even greater (10 years) in Eastern Europe, where the life expectancy of women is 79 years, and that of men – 69 years. In some republics of the former Soviet Union, the difference is 13 years. In developing countries, the difference in life expectancy between men and women is only 3 years. Cultural factors such as low social status of women in South Asia and the Middle East affect the longevity of women.

The population is aging when the birth rate is declining and the death rate is improving in the older generation. International migration usually does not play a major role in the aging process, but it can be significant where small populations are present. For example, in some Caribbean countries, the emigration of young people in working age and the return migration of former migrants and retirees of older age lead to population aging in these countries. Many experts point out that international migration can play a particularly positive role in "old" countries, where the

population is stable or declining due to low birth rates.

The aging process is taking place at different rates in different regions and countries of the world. In France, for example, the proportion of people aged 65 and over has risen from 7% to 18% in 120 years. And in Japan, the same growth occurred in just 26 years. Rapid population aging is occurring in East and Southeast Asia (especially in China, South Korea, Taiwan, and Thailand) due to a sharp decline in birth rates. In 1965, the total fertility rate in China was 6.0, and in 2019 this figure was 1.7. This decline is due to the introduction of a strict birth control policy by the Chinese government in the late 1970s. Because of this, China is aging faster than most developing countries. It is estimated that the population of China, aged 65 and over, which accounted for 90 million in 2005, 150 million – in 2016, will become 230 million in 2030 and 350 million in 2050. China's central government and local administration are already aware of the impending catastrophic demographic changes and are trying to find alternative forms of pension provision. Some specialists and politicians are demanding mitigation of birth restrictions, which will slow down the aging process.

The global phenomenon of population aging is directly related to the fundamental transformation of health that is taking place at different rates around the world. The transformation of health is also called epidemiological transformation. Health transformation is linked to modernization and urbanization when living standards and education have increased. The achievement of health transformation can be lost if the country's economy and public services suffer from stagnation or regression and that can be caused by social, political or economic shifts.

The transformation of health is linked to the demographic transition that began in developed countries in the 18th and 19th centuries, when high mortality as a result of better health and food was replaced by low mortality. Rapid population growth began when mortality rates fell. In most European countries and the United States, the demographic transition took about a hundred years, and in developing countries it has not yet been ended.

The epidemiological transformation initially went through a three-stage process. An Age of Pestilence and Famine was succeeded by an Age of Pandemic (infectious) disease, and then an Age of Degenerative and Man-Made Diseases. In the last decades, the fourth stage, called the hybrid stage, has been recognized, in which some social and geographical factors affect the health of population's certain groups. Behavior and lifestyle obviously affect health status. Health experts are increasingly concerned about the rise in poor health and mortality, which they sometimes link to social pathology: cirrhosis, obesity, suicide, AIDS and other infectious diseases. Newly acquired infectious diseases are especially dangerous for the elderly population who are more vulnerable to respiratory diseases than young people. Many specialists believe that the combination of genetic factors and lifestyle causes health changes in the upper age groups of the population.

Gender and Aging. Women make up the majority of the elderly population in almost every country, and the majority of them grow with age. Gender imbalance in old age has many consequences for the population, the most important of which is the marital status of individuals. Family members are a major source of spiritual and economic support for the elderly population in developing countries, although some governments take a large share of economic responsibility.

The main reason for the predominance of women in older age groups is that the mortality rate for men in all age groups exceeds the death rate for women, although 105 boys are born per 100 girls at birth, women usually begin to outnumber men between ages 30 and 40. Subsequently the numerical advantage of women increases with age. Why women live longer is determined by the whole complex of biological, social, and behavioral conditions. High mortality in men is due to risk factors such as tobacco and alcohol consumption and professional activities. If this is true, then the difference in the life expectancy of men and women should be reduced as the consumption of tobacco and alcohol by women increases and their participation in the workforce increases. The data of industrialized countries do not yet show any significant changes in this regard. Gender differences are on the rise in Eastern Europe and the former Soviet Union, while they are declining in most other countries. In the United States, for example, life expectancy increased by 4.4 years for men and 2.3 years for women in 1980-2015; the gender difference in life expectancy during this period was reduced from 7.5 to 4 years. But in some countries where overall life expectancy is high (For example Japan, Greece, and Iceland), the growth rate of women's life expectancy exceeds that of men.

In most parts of the world, women outnumber men in older age groups. For example, in Russia's population aged 65 and over there are 46 males for every 100 females. In general, there is a greater difference in the sex ratio of the elderly population in developed countries than in developing countries. The table below shows the sex ratio of people aged 65 and over in developed and developing countries.

It is expected that in the future, there will be changes in the sex ratio of the elderly population in developed and developing countries. In particular, in developed countries the difference in sex ratio will decrease because here the sex differences in life expectancy decreases, while in developing countries the opposite will happen, the difference in sex ratio will increase as here the historical trends in attitudes towards women change. The level of women's education is increasing and their health is improving. In addition, alcohol and tobacco use are on the rise in many

developing countries. All of these tendencies negatively affect more men than women.

Despite these trends, it is expected that women will retain the status of majority in the world's elderly population for the entire 21st century.

Intergenerational Relationships. A large proportion of the elderly population lives alone in developed countries. For example, in Sweden, the UK, Finland and Denmark, 35-40% of them live alone. In some societies, the solitary life of the elderly is seen as their social isolation or abandonment by families. However, studies in developed countries show that the elderly people prefer to live in their homes and community, even if it means living alone. This is facilitated by a combination of various factors such as: greater longevity; increases in benefits and pensions; rising home ownership levels; more elder-friendly housing; greater emphasis on care in the community; increased care and support in the elderly communities.

Multi-generational families are increasingly declining in developed countries, although two- and three-generational families are still the norm in many developing countries. Most studies in developing countries show that old people want to live with or near their children. Studies in Asian countries show that 70-85% of the population aged 60 and over lived with their children. And those who lived alone or with their spouses accounted for 6% or less. Most of the elderly people who were separately, they lived close to their children and had to visit them every day. A study of the four countries (Japan, South Korea, China and Hong Kong) found that despite huge socio-economic changes in the region over the past few decades, significant changes have not yet taken place in the traditional form of family arrangement. In Vietnam, elderly parents mostly live with a married son, than with a married daughter; and in the Philippines and Thailand, the situation is the opposite, where parents prefer to live with their married daughter.

III. CONCLUSION

Today, the demographic aging of population has become a global issue of the world development. The profound changes in age structures prompt many countries' governments to re-examine their strategy and economic thinking about national security. Countries where the population is growing slowly, or not growing at all, are experiencing reduction of young populations. In such countries, the problem of recruitment in the armed forces and the country's defense capabilities is already acute. And in countries with high birth rates, there is an excess of young people. The young population is not only a source of employment, but also a national strength of the country.

Although population aging has many negative consequences, the old generation of population is a valuable and productive resource that contributes greatly to any area of public life. Governments (especially developed countries) need to develop policies that ensure the efficient functioning of national economies in the new demographic situation.

It is expected that steady and sustainable aging of population will be the most important demographic phenomenon in the world in the 21st century. The ongoing changes in the population age structure require the development of new social and innovative policies. Because demographic aging results in multifaceted results, it must be the subject of complex study of many disciplines.

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