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## **INCREASING IMPACT OF AGEING POPULATION ON ECONOMIC GROWTH IN EUROPEAN COUNTRIES**

### **ЗРОСТАЮЧИЙ ВПЛИВ СТАРІННЯ НАСЕЛЕННЯ НА ЕКОНОМІЧНЕ ЗРОСТАННЯ КРАЇН ЄВРОПИ**

***Summary.** Introduction. Nowadays, the general trend of demographic development in most countries is the progressive population aging. An increase in the proportion of seniors in the total population and a corresponding decrease in the proportion of children and adolescents characterises this process. The determinants of demographic ageing are a significant decline in mortality and a corresponding increase in life expectancy, a decline in the birth rate, which is primarily caused by a change in the status of women in society, which accumulates the level of economic, social and cultural development, as well as the value orientations of society.*

*The level of population ageing differs between countries due to socioeconomic development. The problem of population ageing is most acute in developed countries. While in less developed countries, the rapid growth in the*

*number of older people is due to high birth rates in the past, in developed countries, the main factor of ageing is the gradual reduction in premature mortality of future generations.*

*Purpose. This working paper analyses the population's ageing and its impact on economic growth.*

*Materials and methods. In the research, based on a systematic approach, we used general scientific methods of cognition to solve specific problems: to characterise demographic ageing as a mass phenomenon, the dialectical method, methods of generalisation, dynamics, structure, and comparison; to statistically assess the development and impact of demographic ageing on socioeconomic development, we used methods of aggregation, grouping, and relative values. The combination of different analysis methods contributed to the summary of the results obtained and the formulation of scientifically sound conclusions on the statistical assessment of the course and consequences of demographic ageing in European countries.*

*The database for this study was the statistical and analytical materials of international organisations, the UN, and the OECD, on population size and population replacement, pension costs, social protection, healthcare, poverty, and employment for 2000-2022.*

*Results. A comparative analysis of European countries and regions shows that population ageing harms economic growth and social development through a reduction in labour supply as a result of shifts in the age population structure, a decrease in the amount of total savings in the economy associated with a relatively lower propensity to save by seniors; a change in consumption patterns and a reduction in consumer spending, which affects the prices of goods and services and inflation; an increase in the cost of pensions, social security, and social protection. Population ageing leads to a deepening of socio-economic inequality and an increase in poverty among people over 65. Based on the typological groupings, a direct correlation between the poverty level of the elderly*

*population and the age of retirement is estimated - the higher the poverty level, the later people retire. Over 2005-2022, the gender gap in the employment rate of the population aged 15-74 years has significantly decreased.*

*Discussion. The majority of demographic research focuses on population ageing in the country. The specifics of this phenomenon in the context of the formation of metropolitan cities and intensified urbanisation processes remain outside the scope of scientific research. Ageing in cities is a new area of study that concerns older people living in cities. But, whether urban environments are an ideal place to age and live in old age compared to rural areas is debatable. In large cities, the share of the elderly population is growing faster than the total population. So, the challenges to be addressed are more complex. On the other hand, cities have more and better resources and offer more opportunities, but cities do not always seem to be the most age-friendly places.*

**Key words:** *ageing, dependency ratio, pension system, gender gap.*

**Анотація.** *Вступ. На сьогодні загальною тенденцією демографічного розвитку у більшості країн світу є прогресуюче старіння населення. Даний процес характеризується збільшенням частки людей похилого віку у загальній чисельності населення та відповідно скороченням часток дітей і підлітків. Детермінантами демографічного старіння є істотне зниження рівня смертності та відповідне зростання середньої очікуваної тривалості життя, зменшення рівня народжуваності, що, насамперед, спричинено зміною статусу жінки у суспільстві, який акумулює в собі рівень економічного, соціального, культурного розвитку, а також ціннісні орієнтири суспільства.*

*Рівень постаріння населення відрізняється між країнами, що зумовлено соціально-економічним розвитком. Проблема старіння населення найбільш гостро проявляється в розвинених країнах. Якщо в менш розвинених країнах швидке зростання чисельності осіб старшого віку*

здебільшого зумовлено високим рівнем народжуваності в минулому, у країнах з високим рівнем економічного розвитку головним фактором старіння є поступове скорочення передчасної смертності наступних поколінь.

*Мета.* Метою дослідження є статистичний аналіз сучасних характеристик демографічного старіння населення в країнах Європи, визначення соціально-економічних наслідків, зумовлених цим процесом.

*Матеріали і методи.* У процесі дослідження, виконаного на засадах системного підходу, для розв'язання конкретних завдань використані загальнонаукові методи пізнання: для характеристики демографічного старіння як масового явища та об'єкта статистичного вивчення застосовано діалектичний метод, методи узагальнення, динаміки, структури та порівняння; для статистичного оцінювання перебігу та впливу демографічного старіння на соціально-економічний розвиток, застосовувалися методи агрегування, групування та відносних величин. Поєднання різних методів аналізу сприяло узагальненню отриманих результатів та формулюванню науково обґрунтованих висновків щодо статистичного оцінювання перебігу та наслідків демографічного старіння в країнах Європи.

Інформаційною базою проведеного дослідження були статистичні та аналітичні матеріали міжнародних організацій, ООН, ОЕСР, про чисельність населення та процеси відтворення, витрати на пенсійне забезпечення, соціальний захист, охорону здоров'я, рівень бідності та зайнятості в умовах демографічного старіння за період 2000-2022 рр..

*Результати.* На основі порівняльного аналізу країн Європи та регіонів, з'ясовано, що старіння населення чинить негативний вплив на економічне зростання та соціальний розвиток країни через скорочення пропозиції праці внаслідок зрушень у віковій структурі населення; зменшення суми загальних заощаджень в економіці, що пов'язано із

порівняно меншою схильністю до заощаджень людей похилого віку; зміна моделі споживання та скорочення споживчих витрат, що впливає на ціни товарів та послуг та темпи інфляції; зростання витрат на пенсійне забезпечення, соціальний захист та охорону здоров'я, що в сукупності зі скороченням бази нарахування страхових внесків створює суттєве навантаження на бюджет країни. Старіння населення зумовлює поглиблення соціально-економічної нерівності та загострення проблеми бідності осіб старше 65 років. На основі типологічних групувань виявлено, що існує пряма залежність між рівнем бідності літнього населення та віком виходу на пенсію, тобто чим вищий рівень бідності, тим пізніше люди виходять на пенсію. За період 2005-2022 рр. значно скоротився гендерний розрив у рівнях зайнятості населення віком 15-74 років.

*Перспективи.* Переважна кількість демографічних досліджень зосереджена на вивченні старіння населення на рівні країн або груп країн чи у світі в цілому, при цьому специфіка даного явища в умовах формування міст-метрополій та активізації урбанізаційних процесів здебільшого залишається поза межами наукових досліджень. Старіння міського населення – це нова сфера дослідження, яка стосується людей похилого віку, що живуть у містах. Питання, чи є міське середовище ідеальним місцем для старіння і життя в похилому віці порівняно з сільською місцевістю, є дискусійним. У великих містах частка населення похилого віку зростає швидше, ніж загальна чисельність населення. Це означає, що виклики, які необхідно подолати, є більш складними, але, з іншого боку, міста мають більше і якісніші ресурси та пропонують більше можливостей, проте міста не завжди здаються найбільш дружніми до людей похилого віку місцями.

**Ключові слова:** демографічне населення, демографічне навантаження, пенсійна система, гендерний розрив.

**Introduction.** The growing share of people aged 65 and over is one of the main driving forces of modern demographic changes that hurt economic growth and social development. Although the extent of ageing and the duration of this process vary from region to region, most countries have been experiencing a progressive ageing trend in recent decades, driven by declining birth rates and increasing life expectancy.

Declining fertility rates are the main factors driving population ageing. Thanks to effective birth control, improved child survival, and the changing role of women in society, the birth rate fell sharply in the 20th century, according to the World Population Prospects 2024 report, by 2050, the total fertility rate is expected to decline to about 2.25 children per woman.

Increased life expectancy is another factor contributing to changes in the gender and age structure of the population. Over the past century, mortality rates have fallen sharply due to improved medical care, hygiene and nutrition, and the invention of effective treatments. The most significant surge in life expectancy has occurred in Asia. For example, today, citizens born in Japan and Singapore can live to be 84 years old on average. The population structure in North America and Europe is relatively older; thus, life expectancy growth rates are the lowest in those regions.

There are several particular challenges in the areas of health, labour supply, and economic growth linked to rapid population ageing:

- Reduction in labour supply due to changes in the age population structure.
- Decrease in total savings in the economy due to the relatively lower propensity to save among the old-age population.
- Changing consumption patterns and reduced consumer spending.
- Increased spending on pensions, social security, and healthcare, coupled with a shrinking base for insurance premiums.

**Literature Reviews.** The theoretical, methodological, and practical components of statistical assessment of demographic ageing and its impact on the



socioeconomic development of countries have been the focus of many foreign and domestic scholars for a long time. Among the national scholars who study the imperatives of demographic ageing, it is worth noting S. Y. Aksenova, B. O. Krymer, E. M. Libanova, S. V. Polyakova, V. S. Steshenko, L. H. Tkachenko, O. M. Gladun [1], Z. O. Palian [2], O. M. Romanukha [3]. The analytical and research works are devoted to the problems of population reproduction, characterisation of the peculiarities of the population ageing process and its prospects, and consideration of challenges for social and economic development caused by demographic ageing. The following foreign researchers have devoted their works to the issue of economic growth in the context of progressive population ageing: S. Harper [4], W. Sanderson, S. Shcherbov [5], C. Nerlich, J. Schroth [6].

It is worth considering that the vast majority of demographic studies focus on population ageing at the country or group of countries level or in the entire world. The specifics of this phenomenon in the context of the formation of metropolitan areas and accelerated urbanisation processes remain largely outside the scope of scientific research. At the same time, among Ukrainian works, it is worth highlighting the work of Kurylo I. O. In the article 'Demographic Ageing in the Capital of Ukraine, Its Features and Current Challenges', the researcher carried out a comprehensive analysis of the current characteristics of the ageing population of Kyiv [7]. The calculation of the indicator of the level of aging by prospective age for Kyiv residents, the urban population of Ukraine as a whole, and the urban population of Kyiv region by gender makes it possible to assess the differences in the course of population aging in Kyiv and the rest of the country's urban population.

Burian J., Zimmermanova J., Masku K. considered the problem of adapting socio-economic policy to the current challenges of demographic ageing, in particular, the issue of urban development for an ageing society [8].

The population reproduction process and the problem of sustainable development in the context of demographic ageing are also the subject of many works by governmental international organisations such as the World Health Organization (WHO), the United Nations (UN), the European Union (EU), etc. Among modern foreign studies, we should highlight a comprehensive work on the problems of demographic ageing in the world's cities, which highlights ageing trends in large cities of developed countries, as well as the role of cities in developing socio-economic policies in response to the challenges of demographic ageing by experts of the Organisation for Economic Co-operation and Development (OECD) [9].

**Purpose.** This working paper analyses the population's ageing and its impact on economic growth.

**Results.** The decline in the share of working-age people affects both production and labour productivity, the propensity to save and invest, etc. The growing costs of pensions, social security, and healthcare put pressure on budget planning. In addition, population ageing is one of the reasons for socio-economic inequality both at the current stage of demographic development and for future generations. Under such conditions, the solidarity pension systems created to meet the basic needs of pensioners and the social protection of every citizen become ineffective.

The dynamics of changes in the proportion of seniors in Europe in 2000-2022 varied, depending on the level of economic development and the existing gender and age structure of the population. In Finland, Slovenia, and the Czech Republic, the growth rate of the demographic dependency ratio in the period 2000-2022 was 126.5%, 132.1%, and 133.3%, respectively, due primarily to an increase in the share of old-age people by 8.4, 7.0, and 6.9 percentage points, respectively. Italy, Finland, Portugal, Greece, and Germany will have the oldest populations among the countries under consideration in 2022, with the proportion



of people aged 65 and older at 24.1%, 23.3%, 22.9%, 22.8%, and 22.4%, respectively.

*Table 1*

**People aged 65 and over in the total population and demographic dependency ratio in European countries in 2000-2022**

Country	People aged 65 and over, %				Dependency ratio, %			
	2000	2022	Growth rate, %	Average for 2000-2022pp, %	2000	2022	Growth rate, %	Average for 2000-2022pp, %
France	16,2	21,7	134,0	1,3	53,5	63,6	118,9	0,8
Finland	14,9	23,3	156,4	2,1	49,4	62,5	126,5	1,1
Sweeden	17,3	20,2	116,8	0,7	55,5	60,9	109,7	0,4
Latvia	15,1	21,9	145,0	1,7	48,7	59,8	122,8	0,9
Estonia	14,9	20,6	138,3	1,5	48,4	58,7	121,3	0,9
Greece	16,9	22,8	134,9	1,4	46,4	57,9	124,8	1,0
Czech Rep.	13,7	20,6	150,4	1,9	43,3	57,7	133,3	1,3
Denmark	14,8	20,5	138,5	1,5	49,9	57,6	115,4	0,7
Italy	18,3	24,1	131,7	1,3	48,3	57,4	118,8	0,8
Germany	16,4	22,4	136,6	1,4	47,1	57,2	121,4	0,9
Belgium	16,8	19,7	117,3	0,7	52,5	56,9	108,4	0,4
Lithuania	14,0	20,8	148,6	1,8	50,9	56,5	111,0	0,5
Slovenia	13,9	20,9	150,4	1,9	42,7	56,4	132,1	1,3
Portugal	16,3	22,9	140,5	1,6	48,4	56,4	116,5	0,7
Netherlands	13,6	20,3	149,3	1,8	47,5	55,6	117,1	0,7
Norway	15,2	18,4	121,1	0,9	54,2	54,1	99,8	0,0
Ukraine	13,9	18,8	135,3	1,4	46	52,1	113,3	0,6
Austria	15,4	19,8	128,6	1,1	48,1	51,9	107,9	0,3
Spain	16,7	20,3	121,6	0,9	45,8	51,7	112,9	0,6
Poland	12,2	18,6	152,5	1,9	45,9	50,8	110,7	0,5
Slovak Rep.	11,3	16,9	149,6	1,8	44,9	48,6	108,2	0,4

*Source:* authors' calculations based on [10]

Due to the rapid growth in the share of seniors in the total population, countries must raise the retirement age and reform their pension systems. According to the OECD, without reforms, the public debt of developed and developing economies will increase by 180% and 130%, respectively, by 2050 [11].

According to OECD terminology, there are two definitions of retirement age: the current retirement age is the age at which individuals can retire without losing their pension rights after completing their career, starting at age 22 (official), and the effective retirement age is the average retirement age for workers aged 40 and older (actual).

In many countries, workers retire earlier or later than the statutory retirement age. This difference can be due to different factors: differences in the age at which they started their careers, earlier retirement or benefits due to the nature of the work and industry, and country policies. Some citizens retire early for personal reasons or because of lack of work, receiving a lower pension. Likewise, some people choose to stay in the workforce beyond retirement age. In Switzerland, Portugal, Estonia, Italy, and Slovenia, the actual retirement age is the same as the de facto retirement age [12].

We will divide European countries into groups using a combination of actual age and the difference between the actual and official retirement ages in 2020 (Table 2).

The first group with relatively low effective retirement ages (less than 62 years) and retirement on average 3 years or more earlier than the official age includes Spain, Belgium, France, Slovakia, and Luxembourg. In general, early retirement is a result of adequate pension provisions and state benefits. In Sweden, Switzerland, Portugal, Latvia, Estonia, Italy, and Slovenia, people retire later than the mandatory retirement age. Countries with an average effective retirement age and retirement on average 3 years or more earlier than the official age are Germany, Poland, Hungary, and Austria.

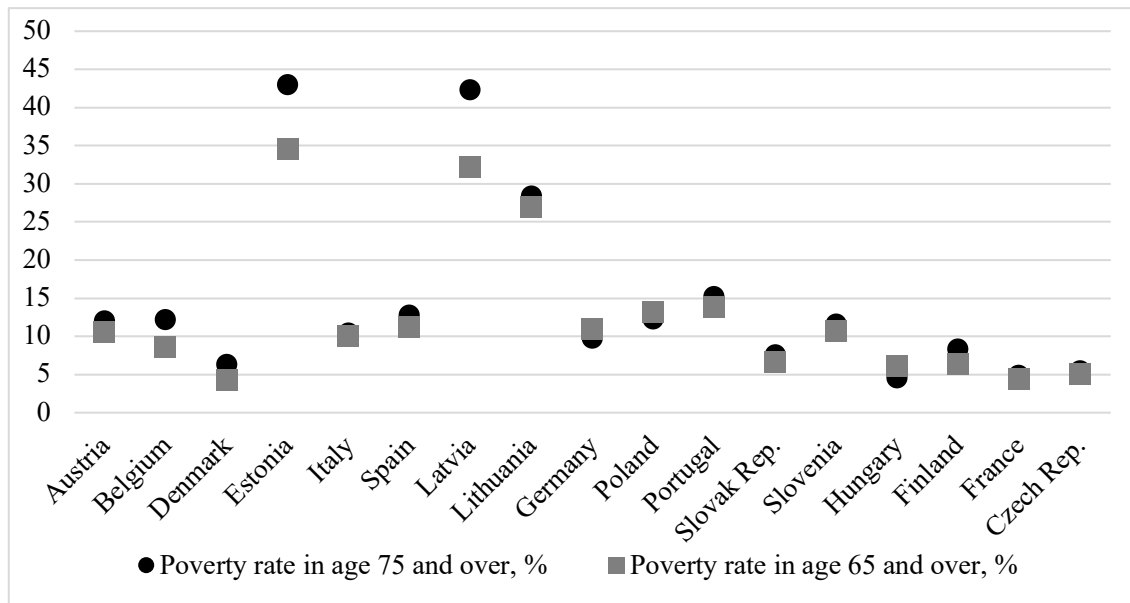
Table 2

**Grouping of European countries by effective (actual) retirement age and the difference between the actual and official retirement age in 2020**

effective (actual) retirement age	difference between the actual and official retirement age			
	Less than -2	[-2; 0)	Equal to 0 or higher	Total
Low (до 62)	5 (Spain, Belgium, France, Slovak Republic, Luxemburg)	1 (Греция)	-	6
Middle (62-65)	4 (Germany, Poland, Hungary, Austria)	7 (Netherlands, Denmark, Great Britain, Ireland, Finland, Lithuania, Czech Republic)	3 (Estonia, Italy, Slovenia)	14
High (65 and older)	-	2 (Norway, Iceland)	4 (Sweden, Switzerland, Portugal, Latvia)	6
Total	9	10	7	26

Source: authors' calculations based on [12]

Population ageing deepens socioeconomic inequalities and exacerbates poverty among people over 65. Among European countries, the risk of poverty for people over 75 is higher than for other age groups (Figure 1). In Latvia, Lithuania, and Estonia, the poverty rate among people aged 75 and over is higher than the average for the population aged 65+, the highest among the countries under consideration. One explanation is that people aged 76 and older have retired with lower pension accruals. Another factor is the gender gap in wages and employment opportunities.



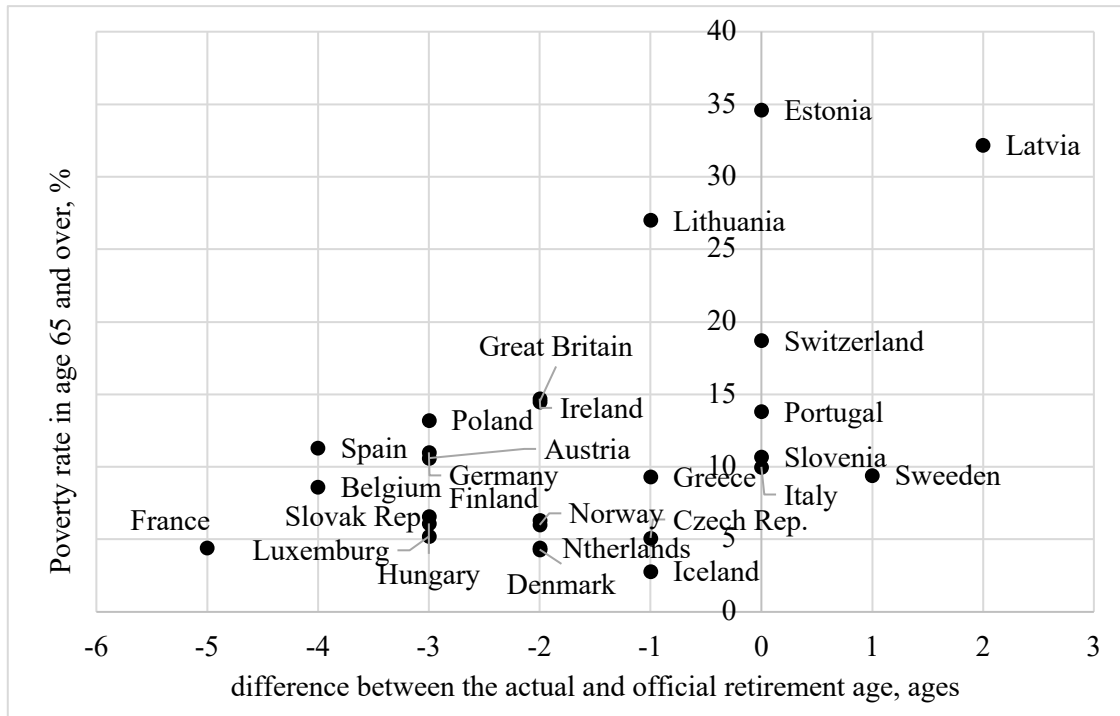
**Fig. 1. Poverty rate in European countries in 2022, %**

*Source:* created by author based on [13]

In Italy, Spain, Slovakia, Hungary, Denmark, France, Finland, and the Czech Republic, the poverty rate among the general population is higher than the poverty rate among the population aged 65 and older. These countries differ by the level of economic development and social security for vulnerable groups, pension systems, etc.

Let us examine the relationship between the poverty rate of the population aged 65 and over and the difference between the official and actual retirement age (Figure 2).

Figure 2 shows the correlation between the poverty rate of the elderly population and the age of retirement: the higher the poverty rate, the later people retire. However, in Denmark, the Netherlands, Iceland, and Norway, poverty rates among people aged 65 and older are low, and the actual retirement age is close to the official age. These countries have a developed savings culture and employment programmes for people of pre-retirement age. In Latvia, Estonia, and Lithuania, people have to work until the official retirement age to provide for themselves, and in some cases, work longer due to the low level of pension provision and the post-socialist past of these countries.



**Fig. 2. Relationship between the poverty rate of the population aged 65 and over and the difference between the official and actual retirement age in European countries in 2022**

*Source: created by author based on [13]*

The growing proportion of old-age people in the total population is driving up healthcare costs. Treatment and life support expenditures incurred in the last years of life. Between 2000 and 2022, public spending on healthcare more than doubled in Latvia, Lithuania, Romania, and the Czech Republic by 126.7%, 115.5%, 115.9%, and 102.8%, respectively. In Denmark, Germany, Austria, and Belgium, healthcare expenditures were more than €5,000 per capita in 2022. Among the EU countries, Germany (12.6%), France (11.9%), and Austria (11.2%) had the highest current healthcare expenditures to GDP in 2022, countries with high social standards that have taken on the additional burden of arrivals from ‘hot spots’ - refugees from Syria and asylum seekers from Ukraine. Public spending on healthcare grew faster than GDP in selected European countries in 2000-2022. One of the reasons for this trend is the ageing of the population. Another factor driving healthcare spending is rising incomes and the growing demand for higher quality healthcare services.

*Table 3*

**Grouping by the gender gap in the employment rate of the population  
aged 15-74 in European countries in 2005 and 2022**

Gender gap in 2005, percentage points	Gender gap in 2022, percentage points			
	Low (less than 9)	Moderate (9-12)	High (12 and greater)	Total
Low (less than 9)	6 (Denmark, Estonia, Finland, Iceland, Norway, Sweden)	-	-	6
Moderate (9-12)	5 (France, Germany, Latvia, Lithuania, Slovenia)	1 (Bulgaria)	-	6
High (12 and greater)	6 (Austria, Belgium, Portugal, Slovak Republic, Luxemburg, Netherlands)	5 (Hungary, Spain, Croatia, Ireland, Switzerland)	3 (Italy, Poland, Czech Republic)	14
Total	17	6	3	26

*Source:* authors' calculations based on [13]

Today, in European countries, the employment rate for women aged 15-74 remains lower than for men. The employment rate increased in all the countries under consideration in this age group over 2005-2022. Over the past decades, the gender gap in employment has been gradually decreasing due to the expansion of opportunities for specialised training and employment, changes in social norms regarding the role of women in society, etc. The growth of women's employment could simultaneously slow down the increase in demographic dependency ratio and reduce poverty among the old-age population.

Let's build a typological grouping by the size of the gender gap in employment rates in 2005 and 2022 (Table 3). The highest difference between the men's and women's employment rates in 2005 and 2022 is in Italy, 23.1 and 17.1 percentage points, respectively. Between 2005-2022, the difference between men and women employment rates in Luxembourg, Belgium, Portugal, and the Netherlands decreased considerably by 69.1%, 50.9%, 49.1%, and 45.0%,



respectively. Over the past 17 years, the gender gap has dramatically narrowed in most countries and has been less than 9 percentage points.

**Conclusions and Recommendations.** The ageing of the population is leading to an increase in demand for social and pension benefits, as well as healthcare and care services. The increased demographic burden due to the relative decline in the share of the working-age population threatens to reduce tax revenues to the state budget. Due to the growing share of the elderly population, the percentage of the working-age population will gradually decline, which will harm the labour supply and the economic situation in general. The growing demand for medical services and the need to increase healthcare costs are also the consequences of gradual structural shifts in the age population structure. Thus, the consequences of demographic ageing require reforming the country's socio-economic system and adapting the economy and society to the needs of the elderly population.

In Europe, as in the rest of the world, the pension scheme should address the following objectives: to ensure fiscal stability and guarantee sufficient pension benefits. According to the International Labour Organization, one of the ways to address the economic challenges of population ageing is to review pension policies, the issue of retirement age, and other restrictive measures related to the employment of older people [14].

The increase in the retirement age raises the urgent need to simultaneously adapt the private sector to the needs of older workers and motivate people of retirement age to extend their employment period. One of the ways to solve this problem is to introduce vocational training programmes for initial vocational training, retraining, or advanced training aimed at using the labour potential of older people, as well as creating a favourable working environment.

Lifelong learning should also become a means of increasing the competitiveness of older people in the labour market, adapting to technological change and social inclusion. Among the best practices of lifelong learning

development are the following: the abolition of age restrictions in the choice of study programmes, organisation of work in groups diversified by age to ensure the exchange of experience and skills, development of professional development programmes as part of the career development of the individual in general, etc.

Financial literacy is another task that arises in the context of progressive demographic ageing. The population is more inclined to individual saving retirement plans in the European Union. Understanding financial concepts and independence in decision-making is essential to ensure a sufficient income in old age.

The impact of population ageing on the stability of the healthcare system depends on whether the increase in average life expectancy is due to the extension of a 'healthy' life expectancy. The idea of a healthy lifestyle should be promoted through specific measures within the healthcare system, marketing campaigns, and other actions outside the medical sphere; for example, by restricting advertising, increasing excise taxes, introducing a strict system of penalties for drunk driving, etc. Reducing smoking, alcohol consumption, and obesity can lead to a reduction in the associated costs of preventing and treating diseases caused by the harmful effects of toxic substances on the human body.

Also, in terms of progressive ageing and innovations in healthcare services, technologies for seniors and the development of healthcare infrastructure are very important.

Thus, the growing fiscal burden, problems of developing an inclusive society, and imbalance of supply and demand in the labour market are negative phenomena associated with changes in the age population structure. The strategy of the state policy to ensure economic growth in the context of progressive ageing may include the following measures: reforming public and private pension provision, developing the infrastructure of medical services, overcoming poverty among seniors, creating favourable conditions for employment and comfortable living for people of pre-retirement and retirement age.

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