Change in the Institutional Environment to Extend the Individual Period of Active Work Life

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Abstract—The article considers the demographic, legal and social problems of the employment of older and elderly people in the professional and business sphere. Based on the example of Germany, Russia, and Ukraine, it is shown that decline of the birth rates that started in the 1960s has led to a significant decrease in the potential replacement rate and the demographic support rate. This fact, in addition to the high mortality rate in the working age, became the main reasons for the reduction in the number of labor resources. Under these conditions, one possible approach to the problem of labor resources is the use of the labor of pensioners. In this regard, problems of pension legislation and labor legislation in relation to the elderly have been revealed. It is shown that there is an urgent need for the formation of a new, positive image of old age in society.

Keywords: demographic aging, labor resources, labor potential, retirement age, older workers, age discrimination, labor legislation

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INTRODUCTION

Population aging is an objective, long-term, and global trend in the development of modern global demographics. At the same time, the population and labor potential are the main components of the national wealth of any state. To determine the multifaceted influence of the population on the processes of economic and social development of the country, one must study in detail its demographic parameters, labor activity, assess health, ability to work, and attitude towards the elderly and old-aged. The latter is most relevant in the current COVID-19 pandemic. As the population category that is the most vulnerable to infectious diseases, the elderly are the main victims of the pandemic. However, this most likely will not lead to significant changes in the demographic situation. The drop in the birth rate, the labor migration of the working-age population, and the supermortality in those of working age, which are typical for post-Soviet countries, have caused an inevitable deformation of the age structure of the population and a decrease in the natural growth of the economically active population. Population aging leads to an increase in the demographic load on its able-bodied part and to certain difficulties in the formation of the potential of labor resources and the provision of the economy with a labor force; it is one of the most alarming symptoms of the deterioration of the demographic conditions for population reproduction. Under these conditions, labor potential is quickly lost. Investments are needed

to modernize the economy and infrastructure. However, investors who want to start production in a country with such demographic conditions face a shortage of workers and specialists. Thus, one of the main risks in the implementation of investment projects is a decrease in the country's labor potential. Labor potential as a concept characterizes the total social ability to work and the potential capacity of society. While the labor force includes only people who are able to work according to certain formal criteria, the concept of "labor potential" covers both those who are just preparing for effective labor activity and those who have already left the sphere of employment. At the same time, this potential tends to grow rapidly in one part of the formally disabled population (student youth) and to decline in another part of the population (people of retirement age). Under the conditions of a decrease in the natural growth in labor potential, it is of great importance to improve its qualitative composition. The qualitative characteristics of the labor potential can be disclosed based on a set of features, including vocational qualifications. There is an opinion that an increase in the retirement age will help qualified specialists to give their knowledge and accumulated experience for the benefit of economic development for a longer time and thereby compensate for the lack of personnel in a number of sectors of the economy [2, 23]. Indeed, despite the functional disorders caused by age-related changes, many older workers maintain their working capacity and professional performance at a fairly high level. However, there are

Fig. 1. Potential replacement coefficient in Ukraine, Russia and Germany in 1960 and 2019.

a number of key problems that, if they remain unsolved, will make it impossible to use effectively the labor resources of the older population. The goal of the study was to examine the fundamental demographic, legal, and social issues related to the employment of older workers under modern demographic and economic conditions.

DEMOGRAPHIC ASPECT

A demographic population aging is observed around the world. According to the data from the United Nations (UN), the number of elderly people in 2018 exceeded the number of children under 5 years of age for the first time [24]. In addition, the UN predicted a population decline of at least 1% for 55 countries in the next 30 years. For example, by 2050, the population will decrease by 16.4% in Ukraine, 7.7% in Russia, and 4% in Germany. A population decrease negatively affects the number of labor resources. The analysis of trends in natural population growth serves the basis for the forecasting of the amount and structure of labor potential in the future. Since the early 1960s, a decrease in birth rates has been observed in almost all economically developed countries. Over this period, the total birth rate (the average number of births for one woman in her entire life) in the world has decreased by half: from 5 to 2.5. As for the European countries, this figure is much lower than the global average. For example, its value in 2019 was 1.6 in Germany, 1.8 in the Russian Federation, and 1.4 in Ukraine, which led to a decrease in the potential replacement ratio (the number of people 0–14 years old per 100 people 15–64 years old, Fig. 1). The coefficient of demographic support also significantly decreased (the ratio of people aged 15–64 to those aged 65 and over, Fig. 2). Thus, the decline in natural reproduction of the population leads to changes in its age structure.

Fig. 2. Coefficient of demographic support in Ukraine, Russia and Germany in 1960 and 2019.

Changes in the age structure also affected the employed population (Fig. 3). For example, while working persons aged 15–29 years accounted for 42.1% of the total number of workers in 1959 in Ukraine, their share in 2019 was only 18.6%. At the same time, the group of 30- to 49-year-olds increased from 42.7 to 55.1%, and the group of 50-year-olds and older people grew from 15.2 to 26.3% [1, 13, 14].

One significant reason for the decline in the number of labor resources is the high mortality rate in the working age. In Ukraine, the risk of death before the age of 60 years is one of the highest in Europe. According to statistics, of 100000 newborns in Ukraine 20000 people will not live to the age of 60 years [12]. According to official data alone, the number of Ukrainians decreased by 272300 over 2019 (the difference between deaths and births). The probability of living to the age of 65 years in Ukraine is 61.5% for men and 84.3% for women; in the Russian Federation, this probability is 60.8% for men and 83.9% for women. As for Germany, this figure is significantly higher for both men (85.4%) and women (92.3%) [7]. Of 100000 newborns in Ukraine, 61755 people live to the age of 70 years old. This proportion is a little lower in Russia, 59818 people, and it is 82217 people in Germany. While the average life expectancy at birth has increased by 10 years in European countries for the last 50 years, it has grown by only 2–3 years in post-Soviet countries. For example, in Germany in 2019, life expectancy at birth (LE) was 81.3 years, while it was slightly more than 72 years in Ukraine and the Russian Federation. From the viewpoint of labor potential, a large role is played by the professional capabilities of the employee in the long-term outlook: age, health, practical experience, business qualities, and motivation level. The life expectancy of Ukrainians and Russians upon reaching the age of 60 is slightly more than 18 years, while it is more than 23 years in Germany. However, the expectancy of a healthy life, i.e., life not limited by disability, is only

Fig. 3. Employment of the working-age population in different years (* $p < 0.05$ compared to 1959).

59 years for men in Ukraine and 67 years for women; in the Russian Federation, this indicator is 57 years for men and 66 years for women (in Germany, this indicator is 70 and 73 years, respectively). Thus, there are grounds for an increase in retirement age with reference to demographic indicators only for women, i.e., equalizing the retirement age for women and men at the level of 60 years. Without an increase in the standard of living, improvement in the mode of life and living conditions, or success in health care and medicine, it is impossible to preserve and strengthen the health of the population and, therefore, to carry out effective reform of the pension system with an increase in the retirement age.

The retirement age may not be the same for all countries. It must have a physiological, biomedical, and social justification. Unfortunately, financial problems, namely, the pension-fund deficit, are primarily associated with the fact that the governments of many countries are increasing the retirement age. Today, the retirement age in most countries of the world is 65 years. In many countries, the retirement age is going to be raised to 70 years in the long-term outlook. Upon reaching the age of 70 years, elderly people in Germany—the first country to establish a pension system—were given the right for a state pension in the 1880s. At the end of the 19th century, only a few people lived to the age of 70 years. In 1916, under the influence of trade unions and social democrats, the retirement age in Germany was lowered to 65 years. At present, it is this retirement age that is most typical for the countries of the European Union (EU).

One of the key recommendations of the European Commission on reforms of the pension system in EU countries is an automatic increase in the retirement age with respect to the life expectancy in a particular country. But what should be done in those countries in which population aging, which leads to a deficit in the pension fund, is observed against a background of low life expectancy? In all likelihood, it is impossible in such countries to focus only on the indicator of life

expectancy at birth. Here, an additional argument must be found in indicators such as life expectancy at reaching a particular age, e.g., 60 years, and the healthy-life expectancy. Europeans live longer and remain healthy longer. In EU countries, 65-year-old men and women expect to live in good health for 13.9 years and 15.2 years, respectively [20]. For these people, paid work is seen as one way to maintain social contacts and participate in the life of society [18, 21, 22].

In Ukraine and the Russian Federation, in comparison with the EU countries, there is little difference between life expectancy and retirement age, with the exception of Latvia and Lithuania. In a cluster analysis based on data on life expectancy and retirement age in the EU, Ukraine, and the Russian Federation, the author obtained a tree diagram (dendrogram), according to which the considered objects can be classified into four clusters (Fig. 4). One cluster included the former socialist countries, e.g., Latvia, Lithuania, Bulgaria, etc. Another cluster was formed by EU countries with high rates of both life expectancy and retirement age: Ireland, Denmark, Finland, Portugal, Belgium, Germany, and others. The third cluster comprised EU countries with high life expectancy rates but lower retirement ages: Slovenia, Greece, Austria, Great Britain, France, and Italy. Ukraine and the Russian Federation form a separate cluster, as can be seen on the dendrogram.

There is an opinion that “there is no direct linear relationship between the economic situation and life expectancy of the population” [5]. At this point, state policy and its focus and effectiveness are of paramount importance. However, according to the results of our analysis, there is a significant linear relationship between life expectancy and the income of people aged 65 or older [10]. Unfortunately, the determination of the age limit to obtain an old-age pension for countries with low life expectancy rates is the result of political decisions based on financial problems with pensions. At the same time, there are many unresolved

Fig. 4. Hierarchical structure of grouping countries by life expectancy and retirement age. Here and in Fig. 5: RU—Russian Federation, UA—Ukraine, LV—Latvia, LT—Lithuania, BG—Bulgaria, HU—Hungary, RO—Romania, PL—Poland, EE—Estonia, SK—Slovakia, CZ—Czech Republic, ES—Spain, IE—Ireland, FL—Finland, DK—Denmark, PT—Portugal, BE—Belgium, DE—Germany, CY—Cyprus, NL—Netherlands, SE—Sweden, SL—Slovenia, EL—Greece, AT—Austria, UK—Great Britain, FR—France, IT—Italy.

problems related to labor protection and legal regulation of the work of older and elderly workers.

POLITICAL AND LEGAL ASPECTS

In connection with the development of the process of demographic aging throughout the world, the role of people of older age groups in society is gradually changing, including their role in the sphere of the formation of labor resources. At the same time, the workplace is an important criterion of discrimination when it comes to achieving equality for people of different cultures, genders, ages, races, etc. A large number of international, regional, and national legal acts concern the problem of guaranteed equality and the prohibition of discrimination in the work sphere. Since the middle of the 20th century, fundamental changes have taken place in the attitude of society towards ensuring equality of people, including equality in the work sphere. New legal acts enshrining the principle of equality of citizens' rights have appeared. The problem of the use of the labor of older people cannot be solved without the creation of appropriate working conditions for them. However, a differentiated approach to participants in the labor process, which requires the development of special standards, cannot justify direct and indirect discrimination in the sphere of work against older persons (ILO Convention No. 111 as of

1958 on Employment and Occupation Discrimination). Convention No. 111 applies not only directly to labor relations but also to all relations governed by labor law: preceding, concomitant, and subsequent labor relations. ILO Recommendation No. 111 of the same name deals with employment, vocational training, career advancement, and worker dismissal. ILO Recommendation No. 162 as of 1980 also concerns the legal regulation of the labor of older workers. It states that older workers must enjoy equality of treatment and opportunities in the work sphere, in particular with regard to access to services of professional orientation and employment; access to work of their choice in both the public and private sectors with consideration of their personal abilities, experience, and qualifications; access to vocational training, professional development, and retraining opportunities; access to paid study leave for vocational training and vocational education; access to promotions and fair distribution of work; employment guarantees with consideration for national legislation and practice on the termination of labor relations; remuneration for equal work; and working conditions, including occupational safety and hygiene of work. Despite this, the fight against age discrimination is not yet a priority in the development of international and national legislation to ensure equality. Unfortunately, ageism has widely spread in recent years and has become the third

most common form of discrimination against people, especially in the workplace, after racism and sexism.

The regulation of labor relations and relations directly associated with them proceeds from generally recognized principles and norms of international law and is carried out in accordance with the Constitution, laws, and other normative legal acts, according to which the state creates the conditions for citizens to exercise the right to work, guarantees equal opportunities in the choice of a profession and type of labor activity, and implements programs of vocational education, training, and retraining of personnel in accordance with social needs. As for older workers, both Ukrainian and Russian legislation, unfortunately, have many gaps regarding their employment [4, 11]. Persons of older age groups are more demanding in terms of working conditions than workers of young or middle age. It is legislation that plays a decisive role in determining the standards for safety and industrial sanitation. At this point, it is necessary to resort to foreign experience. There are many examples from foreign practice. In many countries, labor-protection benefits for older workers have been legally established: a reduction in working hours with partial compensation for losses in wages, transfer to lighter work (in particular, exemption from multishift work), additional vacations, etc. In Denmark, legislation has provided since 1997 for the possibility of allocating subsidies to enterprises that improve the working conditions and organization of work for employees of older age groups. In Belgium, a special foundation has been created under the Ministry of Labor and Employment; its funds are used to finance the improvement of working conditions for persons aged 55 years or older, while employers are provided with a discount on insurance premiums for each employee over the age of 58 [15, 16]. In Sweden, a law that has been in force since 1976 gives persons of pre-retirement age the right to ask for a reduction in working hours to five hours per week. At the same time, they can be compensated for 50% of losses in wages. In Japan, since 1963, a number of special measures have been taken to ensure the employment of people of middle and senior working age; since 1971, Law no. 68 on stabilization of the employment of elderly workers (amended in 1994) has been in effect. This is a genuine code of rights for older workers in the workplace. It provides for numerous measures to ensure the employment of the elderly, to create comfortable conditions for their work, and to assist them in the job search [19]. A continuous-employment system has been introduced; the mandatory retirement system has been canceled (reaching retirement age is not a reason to terminate the contract). Age limits for hiring are not acceptable, i.e., the selection of personnel on the part of entrepreneurs must be based on motivation, capabilities, and suitability, but not on age. All of these measures are meant to ensure that older people can continue to work as long as they are motivated and able. In Germany, the

Equal Treatment Act (*Allgemeines Gleichbehandlungsgesetz*), which entered into force on August 26, 2006, was adopted in order to involve older people with the ability to work in working life [17].

An increase in the pension bar, by itself, does not solve the problems of an aging society. The most important factor is the organizational and financial support for older workers in the modern labor market. In this regard, special attention should be paid to the political and legal aspects of the problem. Political decisions must have a beneficial effect on societal attitudes towards older people and promote "active aging."

Discrimination against older people in the work sphere is strengthened by inhumane attitudes and negative stereotypes towards older people as an unnecessary, useless ballast. This is a serious social problem.

SOCIAL ASPECT

Unfortunately, society has a stereotype in which the older generation is perceived as incapable of fully participating in labor activities. This influences the course and development of social processes. The desire of an employee who has reached retirement age to continue working is often met with reluctance of the employer. In this regard, it is important to note that the use of the labor of pensioners who have retained their ability and desire to work is of no small importance, not only for the elderly person himself but also for the rational use of labor resources. The concept of "labor resources" is broader than the concept of "economically active population," but it is narrower than the concept of "labor potential." While labor resources include only people who are able to work according to certain formal criteria, the concept of "labor potential" covers both those who are preparing for effective labor activity and those who have already left the sphere of employment. Labor potential and the mechanism of its formation are characterized by both quantitative and qualitative factors, i.e., accounting-static and socio-economic categories can be considered (Table 1).

An important indicator characterizing the labor potential of the population is the average life expectancy of the working-age population. This indicator is the number of years of life between the age of entry into working age and the age of exit from it, with allowance for mortality. The duration of the period of labor activity for people employed in the national economy was determined for the first time in 1939 by B. Markus [6]. The average life expectancy of the working-age population is an indicator based on the data from the mortality table. At a retirement age of 60 years, the maximum life expectancy for men and women of working age is 44 years. Mortality tables make it possible to determine the actual life expectancy of men and women in this age range, with allow-

Table 1. Factors forming the labor potential

Quantitative factors	Qualitative factors
Birth rate	Psychophysiological performance
Age and sex structure of the population	Educational level and professional skill
Working-age population	Level of culture
Structure of employment	Moral qualities
The number of working hours worked by the population	Mobility of working-age population
Number of unemployed people	Labor migration and economic activity of the population

Table 2. Average duration of the period of labor activity and average life expectancy upon reaching the lower limit of the age group, years

Age group, years	Period of employment*	Life expectancy	Period of employment*	Life expectancy
	men		women	
15–24	29.1	52.5	27.6	62.2
25–29	26.5	43	25.2	52.4
30–34	22.8	38.4	22.3	47.6
35–39	19.1	34	19	42.8
40–49	15.4	29.9	15.5	38.2
50–59	8.5	22.1	8	29.2
60 and older	2.6	15.3	2.5	20.6

* Author's calculations are based on the mortality tables of the State Statistics Service of Ukraine [12].

ance for losses from mortality. With the approach of Yu.A. Korchak-Chepurkovsky, which is based on data on the number of survivors to the age of 15 and 60 years and the sum of future years of life for all those who survive to the age of 15 and 60 years (the values lx and Tx from the mortality table), it is possible to calculate the average shortening of life at working age, the average number of years of life not survived by those who died at working age, and the average age of those who died at working age [3]. For the population of Ukraine, these indicators in 2016 were equal to 2.4, 12.6, and 47.4 years, respectively (author's calculation). The total number of person-years that will be worked by each age group under the prevailing mortality rate and employment rate at the time of calculation can be determined from the mortality-table indicators lx and Tx and the employment indicators for each age group. By dividing the total number of person-years by the number of employees who have reached the lower limit of the age group, we obtain the average number of years of forthcoming labor activity for this group (Table 2). Such an analysis of the life expectancy of the working-age population is important not only for the

assessment of changes in the lives of people but also for the determination of the retirement age in pension reform and for the problem of labor resources.

One possible strategy to mitigate the socioeconomic consequences in the current demographic situation is the use of the labor of those who have already left the sphere of employment, i.e., pensioners. In order to identify the factors that influence the employment of older people to a greater extent, factor analysis and principal component analysis were carried out, and a scatter plot of the sample in the factor space was constructed (Fig. 5). The sample included the EU countries, Ukraine, and the Russian Federation. The following factors were considered: life expectancy, income of people aged 65 years or older in the EU countries, income of pensioners in Ukraine and Russia, and the share of people aged 65 or over in the structure of the population in the countries under consideration. The employment rates of people aged 65 years or older persons in the EU countries and pensioners in Ukraine and Russia were chosen as a grouping variable. At a selected number of factors equal to 2, the quality of the scatter plot presentation is 86.6%. At

Fig. 5. The graph of the distribution of the sample in the space of the principal components.

the same time, factor 1 strongly correlates with variables such as life expectancy of the population ($r = 0.86$) and income of the elderly ($r = 0.83$). This factor is represented on the horizontal axis. It can be conditionally designated as a socioeconomic factor. This factor describes 59.3% of the total variation in signs. The vertical axis is represented by the so-called aging factor (the proportion of persons aged 65 and over in the population structure, $r = 0.80$), which is responsible for 27.3% of the total variation. The resulting graph shows that Ukraine and the Russian Federation occupy the extreme left position from the center of the first axis in the upper left quadrant of the factor plane, i.e., the decisive role in the employment of pensioners in Ukraine and Russia is played by the low level of well-being of pensioners rather than by the aging factor, which significantly affects the formation of their pension plans. Germany is in the upper right quadrant of the factor plane, i.e., the employment of pensioners in this country is primarily affected by the aging factor.

After all, the share of those aged 65 years or older in Germany is significantly higher than 20%.

Older workers with many years of work experience have a lot to offer to both the employer and other colleagues and should share their acquired knowledge and skills with them. If not subject to social age discrimination, such workers will be able to remain valuable production assets. However, this only becomes possible under the condition of a competent personnel policy of modern managers in relation to older employees. In order to have an idea of the attitude of modern managers to older employees, we interviewed 45 managers of employees of research institutes in Kiev. The collection of information was carried out via interviews according to the developed questionnaire. More than 20% of all working pensioners are employed in the fields of education and science, both in Ukraine and in Russia. The age of the respondents varied from 30 to 80 years. By the category of "older employees," most of the managers (64.4%, i.e., 29 of the 45 respondents) who took part in the study usually

meant people over the age of 60 years; 15 respondents meant people over the age of 70 years; and one respondent meant people over the age of 55 years. As a result of the study, managers were shown to hold two positions in relation to older people: they admit that older employees can work only as an exception for a specific employee (27 managers) or they are forced to be loyal to older employees due to a number of circumstances (18 managers). At the same time, 30 respondents (66.7%) called the age of an employee an important criterion in hiring and in questions about career advancements, and 12 respondents called it important in dismissal. One-third of the respondents noted that their negative attitude towards working with older employees was associated with the widespread social attitudes in society regarding old age and elderly people. Analysis of the results of the performed study showed that age groups in the professional space had different levels of prestige and value for employers. Of course, there is an urgent need for the formation of a new positive image of old age in society.

The labor potential of an employee, like the performance of a person, is constantly changing. It rises with the development and improvement of knowledge and skills, health improvement, and improvement in working and living conditions, and decreases if, for example, the employee's health condition deteriorates. Unfortunately, many Ukrainians, like Russians, do not live up to the age of retirement. Health remains an important barrier to continuing to work. The data in our research at the enterprises of Kiev indicate that working preretirees and retirees include many people who have indicators characterizing the functional state of bodily systems that deviate significantly from the norm [9]. Ultimately, deteriorating health can lead people to exit the labor market. There is one more problem—work below one's qualifications. Not all pensioners are employed in jobs corresponding to their level of education and qualifications. According to our research data, both employees and hourly workers work below their qualifications. This primarily concerns women (44.8% as compared to 20.8% for men). Many of these women work as laborers (69.2%) [8].

CONCLUSIONS

Thus, it is necessary to solve the problem of the employment of elderly people in the professional and business sphere in a comprehensive manner and to take into account the political, legal, and social aspects of this problem. At this point, the physical health of elderly people, their interest in continuing their labor activity, and the interest of the state and society in this regard are of great importance. The state must implement a policy to stimulate the continuation of labor activity after the onset of the retirement age and to destroy the prevailing stereotypes in society about the elderly and old age. The personnel policy of modern society must eliminate discrimination against

the elderly. Both pension legislation and labor legislation in relation to the elderly require development. The issues of training and advanced training for older people remain open, as do the development and implementation of special measures and norms directly in production in order to facilitate the work of older people. All of this will provide stable employment for older workers in accordance with their motivation and capabilities, which will ultimately significantly increase the standard of living of the population.

COMPLIANCE WITH ETHICAL STANDARDS

Conflict of interests. The authors declare that they have no conflicts of interest.

Statement on the welfare of humans or animals. All applicable international, national, and/or institutional guidelines for the care and use of animals were followed.

REFERENCES

1. Labor market, State Statistics Service of Ukraine. <http://www.ukrstat.gov.ua>.
2. Kamyshanchenko, E.N., The main trends in the modern economic and demographic development of the regions of the world, *Reg. Ekon.: Teor. Prakt.*, 2018, vol. 16, no. 11, pp. 2153–2165.
3. Korchak-Chepurkovskii, Yu.A., *Izbrannye demograficheskie issledovaniya* (Selected Demographic Studies), Moscow: Statistika, 1964, pp. 240–279.
4. Leskova, I.V., Mazurina, N.V., Troshina, E.A., et al., Socio-medical aspects of elderly age: obesity and occupational longevity, *Ozhirenie Metab.*, 2017, vol. 14, no. 4, pp. 10–15.
5. Libanova, E.M., Life expectancy of the population of Ukraine: analysis of the past, assessment of the present and forecast of the future, *Demoscope Weekly*, 2010, nos. 405–406. <http://www.demoscope.ru>.
6. Markus, B.L., *Trud v sotsialisticheskom obshchestve* (Labor in Socialistic Society), Moscow: Gospolitizdat, 1939.
7. World atlas of data. <https://knoema.ru/atlas>.
8. Prokopenko, N.A., The problem of professional employment of elderly people (according to the longitudinal study 1999–2010), *Probl. Stareniya Dolgoletiya*, 2012, no. 2, pp. 221–230.
9. Prokopenko, N.O., Physiological and psychophysiological restrictions to continue the effective labor activity of a person at retirement age, *Probl. Stareniya Dolgoletiya*, 2014, no. 4, pp. 401–409.
10. Prokopenko, N.A., Employment of elderly people in the European Union and Ukraine: realities, problems, and prospects, *Usp. Gerontol.*, 2016, vol. 29, no. 1, pp. 182–188.
11. Reprintsev, D.D., Legal regulation of labor of elderly people, *Trudovoe Pravo*, 2005, no. 5, pp. 30–35.
12. *Tablitsi narodzhuvanosti, smertnosti ta ochikuvanoi trivalosti zhittya: Statistichnii byuleten'* (Tables of Fertility,

- Mortality and Life Expectancy: Statistical Bulletin), Kyiv: Derzhstat Ukr., 2017.
13. *Usloviya zhizni i pozhiloi chelovek* (Life Conditions and Old Person), Chebotarev, D.F., Ed., Moscow: Meditsina, 1978.
 14. *Ukrainskaya SSR—1978 god: Kratkii statisticheskii spravochnik* (Ukrainian SSR—1978 Year: Brief Statistical Handbook), Kiev: Tekhnika, 1979.
 15. Shestakova, E.E., Employment of older people: European experience of implementation of active strategies, *Trud Za Rubezhom*, 2005, no. 4, pp. 34–46.
 16. Shestakova, E.E., How to employ the elderly persons? Modern European experience, *Ross. Sovrem. Mir*, 2007, no. 2, pp. 174–183.
 17. Allgemeines Gleichbehandlungsgesetz vom August 14, 2006, Gesetze im Internet. <http://www.gesetze-im-internet.de/agg/index.html>.
 18. Bal, P.M. and Visser, M.S., When are teachers motivated to work beyond retirement age? The importance of support, change of work role, and money, *Educ. Man- age. Admin. Leadership*, 2011, vol. 39, no. 5, pp. 590–602.
 19. Employment measures for older people in Japan, Ministry of Health, Labor and Welfare, Japan. <http://www.mhlw.go.jp>.
 20. Healthy life expectancy based on self-perceived health. <http://www.ec.europa.eu/eurostat>.
 21. Inceoglu, I., Segers, J., and Bartram, D., Age-related differences in work motivation, *Occup. Org. Psychol.*, 2012, vol. 85, no. 2, pp. 300–329.
 22. Main reason for persons who receive a pension to continue working. <http://www.ec.europa.eu/eurostat>.
 23. Wang, M. and Shultz, K.S., Employee retirement: a review and recommendations for future investigation, *Management*, 2010, vol. 36, no. 1, pp. 172–206.
 24. Word Population Prospects, United Nations, 2019. <https://population.un.org/wpp>.

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