

# Systematization of the Socio-Economic Risks Caused by Retirement Age Increase in Russia

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**Abstract**—The research is aimed at studying the possible negative consequences of raising the retirement age in Russia. The study is based on the assessments of the raising the retirement age negative consequences analysis, conducted by domestic and foreign scientists. Using methods of system analysis and general scientific methods the authors systematized, in this article, the possible risks of raising the retirement age in Russia. Economic and social risks were identified on the basis of the areas of their impact, as well as macro-, micro- and individual risk levels were identified on the basis of the main spheres of their influence. Economic risks were also classified into financial and non-financial. The developed classification allows not only to take into account possible negative consequences of this managerial decision, but also to trace the causes of each risk for preventive measures development. The authors proposed directions of the state policy formation for the older employees' labor activity regulation are presented in the conclusion.

**Keywords**—*pension reform, raising the retirement age, possible negative consequences, economic risks, social risks.*

## I. INTRODUCTION

There was an increase in the retirement age in Russia up to 65 years for men and up to 60 years for women. This fact is assessed ambiguously. Most authors estimate the increase in the retirement age as a necessary measure related to the deficit of Russian Pension Fund budget, the aging population and an increase in the burden on the working population, an increase in the life expectancy, a change in the conditions and nature of work (employees' share reduction whose jobs require physical activity).

Thus, according to statistics cited by experts, in less than 10 years, the burden on the working-age population in Russia will increase to 0.5, i.e. for each 1000 employees, there will be 500 pensioners. In joint pension conditions, when the pension to current pensioners is paid from employees' contributions, such a burden is heavy. The ongoing increase in the retirement age will reduce the burden to 0.28 by 2035, i.e. 1.8 times. In addition, the foreign experience and the practice of raising it speaks well for raising the retirement age, showing a higher retirement age border [1].

A number of authors, for example, A. Korovkin, head of the labor resources forecasting laboratory in the Institute of

Economic Forecasting of the Russian Academy of Sciences [2] highlight other positive consequences of raising the retirement age: reducing the labor shortage, which has been one of the economic growth constraints in Russia for some period, and reducing the labor market dependence from foreign labor in the country.

At the same time, possible negative consequences of raising the retirement age are also noted. Thus, it remains unclear how the government overcomes the Russian labor market being unprepared for the battalion people over 55 years old retention, the employers' unwillingness to hire people over 50, and especially 60 years, who reduces competitiveness in the labor market; this can cause a jump in unemployment and the low wages conservation in some sectors. In this situation, it seems appropriate to assess the possible risks and consequences of raising the retirement age based on an analysis of its possible negative impact.

The purpose of this study is to systematize the possible negative consequences (risks) of raising the retirement age in Russia.

## II. LITERATURE REVIEW

This study theoretical basis is the classical theory of determining risk as a directly perceived event that can cause damage or loss [3]. The neoclassical theory approaches that study risk from the uncertainty point of view and the occurrence probability of related deviations from expected results [4], are possible to continue research in this direction.

Risk systematization is well done for an individual company (business), there are also classifications of financial, production risks, environmental risks and others.

For the purposes of the study, the authors will use the risks classification based on areas of impact, among which political, social, environmental, economic (commercial) and professional risks are distinguished. Regarding the decision of the retirement age raising, political, social and economic risks may occur, but in this article the authors systematize only the last two groups of risks, since politics is beyond of their professional interests.

Economic risks include the risks of direct economic losses or lost profit. Among economic risks, financial and non-financial ones will also be highlighted. Social risks are associated with social crises.

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In addition, the authors divided risks according to their main influence: on the economy and society as a whole (macro level), organizations and enterprises (micro level), and individual citizens (individual level).

All risks described in this article are predictable.

Issues related to the risks of the retirement age regulation were considered by R. Sackmann [5], however, in Russia there are specific risks associated, for example, with the active grandparents' participation in raising children, which is not traditional for the European and American countries.

### III. METHODS

The solution of the tasks posed in the study was carried out on the basis of general scientific theoretical research methods application: analysis and synthesis, classification, abstraction. To identify the possible economic and social negative consequences of the retirement age raising in Russia the empirical methods were used, such as studying scientific and statistical information sources, a critical analysis of the information received, as well as methods of comparative and logical analysis.

To systematize the possible negative consequences, classification methods were used, when information was distributed on the basis of comparison and divided into groups based on common features. The method of induction allowed authors to move from isolated cases of consequences to the study of the whole phenomenon, while the method of abstraction allowed escaping from the emotional perception of raising the retirement age fact in order to reveal its objective consequences.

To summarize and present the results of the study, the method of information graphical interpretation has been used.

### IV. RESULTS

The possible negative impact of raising the retirement age analysis was suggested to make separately for economic and social reasons. Possible negative consequences systematization makes it possible to get a more complete picture.

#### A. Possible economic negative consequences (risks).

V.N. Bobkov, O.V. Zabelina, N.V. Loktyukhina consider that raising the retirement age in the Russian Federation can affect the labor market [6]. So, in their opinion, there will be an increase in the general and registered unemployment due to the poor older citizens' competitiveness in the labor market. Poor competitiveness in the labor market is due to the inadequacy of professional competences to the new requirements of the economy, insufficient flexibility and adaptability, poor health, and often the employers' prejudices. If these factors persist, an increase in the retirement age can lead to an increase in unemployment. Many authors emphasize that the persons' competitiveness who have reached retirement age is extremely low in the labor market [7; 8; 9].

According to the Moody's agency estimates, the number of working-age people will increase about 12-13 million people due to older people by 2036 as a result of raising the retirement age. At the same time, the unemployment rate among young people in the modern labor market in Russia is already quite high; the additional appearance of older people in the market, who recently has already retired reaching can

cause the increase of unemployed youth, as their education level is sometimes not satisfactory in combination with having no experience and great ambitions.

As a result of employment problems for older people [10; 11], unemployment benefits may increase significantly, especially since, the companies' need for employees and the number of vacant positions in the economy are falling, according to Rosstat. So, if in 2008 the declared demand was 899 thousand people, then last year it was only 637 thousand people.

Excess labor can trigger the growth of the shadow economy and shadow employment, as employers are not eager to pay for the increasing number of sick leave, holidays, etc. According to the law, the employer cannot dismiss a worker of pre-retirement age, therefore, the number of jobs offers without official employment will increase for them, since this technique minimizes the employer's risks. According to the Federal State Statistics Service, Russians employers did not pay payroll taxes fully or partially to 44% of employees in 2018.

The above-mentioned kinds of salaries without paying payroll taxes can be applied to younger employees for encouraging them to continue working in the company. Employees have become more willing to agree to such a salary, because they do not believe they live to see the pensions and are not motivated to pay taxes on their income. By making a decision to raise the retirement age, the Government has shown that it is relieving itself from some of the social obligations, and this is the moral basis for some citizens not to fulfill their obligations to the state. So, 33 million able-bodied citizens received wages bypassing taxes in 2018, some of them did not conclude agreements with employers.

According to some experts, an increase in the number of older workers (due to the lower efficiency of their work, reduced career desires; worse health status compared to youth) may, lead to a decrease in labor productivity. Another factor of reducing labor productivity is the increase in the number of labor resources. In the conditions of cheap labor surpluses, employers are not interested in the idea of production modernization, the substitution effect in the labor demand will begin to active: it is easier to hire workers who will perform the same amount of work on old equipment or manually than to buy expensive modern equipment. And since labor productivity is inversely proportional to the number of employees, it can neither being without grows, no even decrease, which contradicts the task of creating high-performance jobs. In addition, the absence or delay of production modernization can throw the economy of our country back for many years.

Increasing the retirement age can lead to a gradual increase in unemployment, disability and lower incomes, which will cause an increase in social expenditures of the state budget. The lack of incentives for employers to carry out advanced training for older people can increase the state and regional budgets costs for these purposes. A previous study has showed that the benefits of raising the retirement age are offset by increased spending on unemployment benefits and disability pensions [12]. Moreover, the total additional payments for unemployment will practically coincide with the savings of the Russian Pension Fund due to the increase of the retirement age. Therefore, the problem of the Pension Fund balance will

be solved due to the fact that the costs will be paid from other sources, which, in their turn, will become scarce. [13, p. 1049].

The retirement-age increase heightens the risk of regional and sectoral imbalances, since the older people mobility is reduced, they don't hurry up to a new job, which makes difficult structural building of the economy, saves and aggravates sectoral differentiation of workers' incomes.

According to this paper authors, the described economic risks have their main influence at the state and society, and, therefore, are referred to the macro level of influence.

The authors attributed to the risks acting at the micro-level (at the enterprises and organizations level), firstly, the extra working-time losses' growth. They are caused by more frequent disability periods, the desire to be involved in the nurturing grandchildren. In these conditions, companies need to look for other worker to replace the absent one, which makes the organization of working process difficult.

Secondly, the sales decrease based on a population pay-ability reduction. 2.3 trillion rubles have been spent previously on goods and services, will be saved annually by the Government of the Russian Federation and will not be paid to people aged 55-60 years for women and 60-65 years for men after the retirement age raising. According to experts, they are most likely to start a cost-saving regime, therefore the total business losses level will be approximately the same amount.

Thirdly, due to the financial business losses, first of all, small and medium-sized businesses will suffer, which can cause a new series of bankruptcies. It is the high level of pensions that is the most important incentive for production in small businesses in European countries, as older people are their main consumers.

Fourthly, it is likely that real estate prices and rental prices will decline. The prediction is based on the idea that the pre-retirement age income reduction will demand necessity of compensation by selling property or renting it out at a lower cost, for being competitive. Such manipulations can bring to a significant knock-down of the realty profitability, afterwards the construction industry will face to another crisis.

The authors attributed the incomes and wages decrease and an increase in the households' debt load to the risks, which acts on an individual level, although they are important for the society as a whole.

According to Yu.M. Gorlin, V.Yu. Lyashok, T.M. Maleva [14] and some foreign authors [15], an older employees show the likely decrease in wages. In our opinion, this trend is already observed: according to Rosstat, the wages of 55-59-year-olds and 60-64-year-olds have decreased relatively national average from 100 and 93% in 2005 to 90 and 86% in 2015, respectively. V. Gimpelson and A. Zudina explain the early and rapid wages decline for the older by the low human capital quality [16].

Studies conducted by V.P. Chichkanov also confirmed the possible negative impact of the retirement-age increase on the labor market wages. Thus, according to the calculations, average monthly wages for men will decrease by 85.06 rubles, and for women by 29.52 rubles with an increase in the retirement age by one year for both genders, which is due to the prevailing age-related differentiation in wages [9].

In addition, the labor market mechanism operates independently of state efforts: the greater the labor supply and

the higher competition on a vacancy, the lower the cost (wages). Older workers will be forced to work for lower wages in order to maintain a job, and young workers will accept lower wages in order to any how to be employed.

The increase in received loans can be explained by the fact that the salary level without an additional pension will not be enough for older workers to meet their needs, and banks already offer special products for pre-retirement age people. However, a further increase in the number of issued loans and their amount is dangerous not only for those citizens who received a loan, but also for the economy as a whole. Statistically, the number of borrowers amounted to more than 50 million people in 2018, many people have several loans, and 25 million borrowers spend more than a third of their income on servicing and repaying loans. Such indicators also suggest a decrease in the purchasing population power.

The authors divided all analyzed economic risks into financial (monetary) and non-financial (non-monetary) ones (table 1)

TABLE I. SYSTEMATIZATION OF ECONOMIC RISKS CAUSED BY RETIREMENT AGE INCREASES IN RUSSIA

Financial (monetary) economic risks	Non-financial (non-monetary) economic risks
<ul style="list-style-type: none"> <li>– the collected taxes reduction</li> <li>– payments from social funds growth</li> <li>– unemployment benefits increase</li> <li>– wage-cut</li> <li>– population pay-ability reduction and, as a consequence, a decrease in sales and companies' profits</li> </ul>	<ul style="list-style-type: none"> <li>– the shadow economy and shadow employment growth</li> <li>– labor productivity reduction</li> <li>– general and registered unemployment growth</li> <li>– Growing of economic regional and sectoral imbalances</li> <li>– extra working-time losses increase</li> <li>– small enterprises bankruptcies growth</li> <li>– real estate prices and rental prices decline and, as a result, a crisis in the construction industry</li> <li>– households' debt load increase</li> </ul>

<sup>a</sup> Compiled by the authors.

The analyzed economic risks can offset all the benefits that the government and the pension fund receive from the retirement-age increase. Possible social risks are not less important for the further economy development.

*B. Possible negative social consequences (risks)*

The retirement-age increase has led to the formation of a new category of employees on the labor market - the elderly. According to the classification of the WHO European Regional Office, the elderly includes women 55–74 years old, men 60–74 years old. Elderly age reflects a certain stage of the body aging [17].

As it was noted by many researchers, for example, A.Ya. Dmitrieva it is already difficult for older people to do work, learn new technologies, may have some health problems that affect their ability to work, and because of the low life expectancy, many Russian men will not be able to live up to the age of retirement benefits [18].

E.S. Tomarevskaya confirms the age-related decline in working capacity among most older employees. Studies for assessing the residual performance were conducted. As a result of the study, conclusions were drawn about keeping men' total employability preservation up to 23.6% and women – up to 7% among older people. About 57% of older people need to use ergonomic innovations at their workplaces and life routine to increase physical independence from outside help

and compensate for age-related decline in working capacity [19, p. 138].

Thus, the legislative increase in the older people working life poses risks of decreasing their working capacity. Being forced to work with age-related decline in health leads to the employees' disability [20]. A.K. Soloviev and V.Yu. Popov note the risks of increasing older workers' disability. A high level of disability in Russia with an increase in the retirement age established by the state will cause a significant jump in the number of disability pensions recipients. With an increase in retirement age by 1 year, the number of disability pensioners grows up to 7-9%, as estimated; for 2 years – up to 15-17%; for 3 years – up to 24%, etc. [21, p. 87].

The necessity to continue working despite an objective decrease in working capacity, maintaining or even increasing the work requirements level, illness, disability can lead to mortality increase in older ages [22] and, consequently, to a life expectancy reduction, the growth of which served as one of the grounds for raising the retirement age.

Also, a decrease in the labor force quality can be predicted in the Russian labor market due to an older people appearance on the labor market, as well as the insufficient development of the continuing education system for adults. Since knowledge becomes obsolete quickly in modern conditions, the competencies gained in youth cannot satisfy the modern economy needs. At the same time, older workers are reluctant to take advanced training courses, and employers do not want spending money, because they do not believe that a pre-retirement age worker will work for long, therefore the workforce quality, especially in the information competencies sphere, lower for these workers on average than that for young people; older employees learn these competencies more slowly.

Retirement-age increase for older workers means a loss of pension as an income source [23; 15]. Wage reduction and the poverty risk group existence [24], which consists of low-paid working pensioners who receive both wages and a pension and, therefore, overcoming the poverty line, can increase poverty by these categories. Besides, most people in Russia have their own countryside small territories with gardens ("dacha") where they spent free-time or holidays, mostly retirement years. Whiles the hobby turns into an assistance form of growing organic products both for them and their children's families, since such additional income is not prohibited by law in Russia. Due to the working continuing need and reduce working capacity, such an income source also becomes unavailable.

The above-mentioned social funds payments increase can provoke a deficit in state and regional budgets, which will not allow increasing wages for employees in education, health care and other activity areas financed from budgets. And this, in turn, can cause a slowdown in the wages growth rate for all age category workers.

The risk of increased social imbalances in the regions and society is one more possible negative consequence of the retirement-age increase, since the older population is characterized by high rates of field fixation coefficient and low mobility coefficients, both territorial and professional.

A number of Russian authors, for example, D.D. Bulanova [25], G.A. Parakhonskaya [26], V.I. Sharin, I.A. Kulkova

[27], as well as foreign ones - Hung-Ju Chen [28] note the pre-retirement and retirement age grandparents' big role in helping parents to care for children who do not attend kindergartens because of children' frequent illnesses and even often the inaccessibility of preschool institutions giving an opportunity to parents not to miss the work. In this connection, it is concluded that a retirement age increase will reduce these opportunities, which will lead to a change in the families' reproductive plans. First of all, the retirement age raising will affect the motivation for having the second and third child; the achievement of an expanded or at least simple replacement of the generations depends on the number of second and third children and on their share in the total number of births. There are no other ways to minimize the depopulation process in the country. In addition, grandparents have the function of transferring life experience, cultural traditions, values, generations continuity, which is very important for the children upbringing. Thus, the birth rate decrease and, as a result, a deterioration in the demographic population structure is one of the possible negative consequences of retirement age raising [29].

It can also be predicted that the companies can come up with generation gap risk contradictions between employees of different ages in the will aggravate. There are several reasons for this risk: firstly, staff rotation will slow down, as older employees will occupy managerial or attractive workplaces for an extra five years, it will be difficult for youth to wait for their release. Secondly, the number of conflicts and competition will increase due to a labor excess, and thirdly, young workers will be forced to perform some functions instead of older colleagues related to the production automation, while receiving the same salary or even less.

On the other hand, an increase in the ageism can be assumed. It can be expressed: in the wage reduction for older workers in order to motivate them to quit; increase qualification requirements, especially in information technology or others where young employees have higher competencies; creating difficult working conditions for older employees.

An increase can be also indicated among the population a negative state policy perception, erosion of trust in the Establishment at the individual level, which is observed in the election results, the fall in the United Russia party and the president's ratings, and dissatisfaction with the engaged media. All this can lead to destabilization of the situation in the country.

The analysis of the likely consequences of retirement age increase makes it possible to systematize risks on social and economic grounds and according to the levels of main influence, which is presented in table 2.

The proposed systematization allows attributing new risks when they are identified to one or another group.

TABLE II. SYSTEM OF POSSIBLE SOCIO-ECONOMIC RISKS CAUSED BY RETIREMENT AGE INCREASE

Risk influence level	Economic (commercial) risks	Social risks
Macro-	The shadow economy and shadow employment growth	The life expectancy reduction
	Collected tax amount reduction	Slowdown in wage growth

	The labor productivity decline	Older employees' living standards decrease
	Payments from social funds growth	Older population disability increase
	Increase in total and registered unemployment and unemployment benefits	Fertility decline
	The economic regional and sectoral imbalances growth	The social imbalances between regions and industries growing
Micro-	The extra losses of working-time increase	Workforce quality decrease
	The population pay-ability reduction and, as a result, the sales decrease	Generation gap
	The small enterprises bankruptcies growth	Ageism increase
	Lower prices for real estate and its rent and, as a result, a crisis in the construction industry	
Individual	Salary reduction	Age-related decline in health affecting the performance level
	Households' debt load increase	The state policy negative perceptions growth, erosion of trust in the Establishment

<sup>b</sup> Compiled by the authors

## V. CONCLUSION

Thus, the retirement age increase has significant risks of negative consequences for both the population and the economy. These risks can be conditionally classified as social or economic. The pension issue is closely interlinked with the economic efficiency; the more efficient the economy, the less labor resources it needs.

As A. Soloviev correctly observed, "retirement age is a parametric indicator of the pension system that is tightly linked to other parameters: the insurance premiums rate, insurance coverage of pension rights, the required length of work experience, the post-retirement living period, and others." [30] Change one parameter (age) should be accompanied by an adjustment of others, in addition, adjustments to the tax system and others are necessary. Most authors investigating this problem suggest measures that the state should take to avoid the negative consequences of the retirement-age increase. It is suggested, for example, to abolish employer insurance contributions for retirement-age citizens, since the pension has already been accumulated; give the opportunity for pensioners to choose being employed or retired by the mechanism of canceling pension payments to working pensioners, etc.

In our opinion, it is necessary to formulate a state policy for regulating the older workers' labor activity (as a special category): create an appropriate regulatory framework; use the socially oriented countries' experience of older workers' employment; use "resource-saving" employment technologies related with reducing the workloads intensity (including part-time employment, flexible work schedule) for this category of workers, in order to ensure employment of the elderly; use subsidized jobs, tax incentives for employers.

## REFERENCES

- Y. Zeng, "Effects of Demographic and Retirement-Age Policies on Future Pension Deficits, with an Application to China," *Population and development review*, Vol 37, No. 3, pp. 553-569, 2011. <https://doi.org/10.1111/j.1728-4457.2011.00434.x>
- A. Korovkin, "Consequences of raising the retirement age for the labor market," *Vedomosti newspaper*, May 27, 2015. <https://www.vedomosti.ru/management/blogs/2015/05/27/593847-ugrozi-povisheniya>
- L. A. Chaldaeva and Yu. A. Mitina, "Analyzing foreign practices of setting up the risk management system: Evidence from infrastructure companies," *Financial analytics: science and experience*, No. 11 (293), pp. 12-23, 2016. (in russ.)
- F. H. Knight, *Risk, Uncertainty and Profit*. Chicago: Houghton Mifflin Company, 1921.
- R. Sackmann, "Rewards and risks of regulating retirement age," *Zeitschrift fur gerontologie und geriatric*, Vol. 41, No. 5, pp. 345-351, 2008. <https://doi.org/10.1007/s00391-008-0005-5>
- V. N. Bobkov, O. V. Zabelina, and N. V. Loktyukhina, "Raising the retirement age in the Russian Federation: social and labour consequences," *Population*, No. 4 (70), pp. 93-106, 2015. (in russ.)
- A. E. Bogdanova, "Labor relations involving retirees: care or manipulation?," *Journal of Social Policy Studies*, No. 14 (4), pp. 535-550, 2016. (in russ.)
- A.S. Bashkireva, S.V. Vylegzhanin, E.Yu. Kachan, "Actual problems of social gerontology at the present stage of development of Russia," *Uspekhi Gerontologii*, No. 29 (2), pp. 379-386, 2016. (in russ.)
- V. P. Chichkanov, E. V. Chistova, A. N. Tyrsin, and A. N. Stepanov "Consequences of Raising The Retirement Age for the Labor Market in the Regions of Russia," *Montenegrin journal of economics*, Vol. 15, Issue 1, pp. 31-45, 2019. <https://doi.org/10.14254/1800-5845/2019.15-1.3>
- S. Staubli and J. Zweimueller, "Does raising the early retirement age increase employment of older workers?," *Journal of Public Economics*, Vol. 108, pp. 17-32, 2013. <https://doi.org/10.1016/j.jpubeco.2013.09.003>
- A. A. Pan'kova, "The actual problems of older people' employment," *Human progress*, Vol. 4, No. 11, pp. 5, 2018. (in russ.)
- A. N. Tyrsin, "Can the increase in the retirement age to solve the problems of russian pension system?," *International Research Journal*, No. 10-1 (41), pp. 74-78, 2015. (in russ.) <https://doi.org/10.18454/IRJ.2015.41.078>
- V. P. Chichkanov, E. V. Chistova, A. N. Tyrsin, and A. N. Stepanov, "The impact of increasing the pension age for labour market regions of Russia," *Bulletin of Ural Federal University. Series economics and management*, Vol. 17, No. 6, pp. 1037-1055, 2018. <https://doi.org/10.15826/vestnik.2018.17.6.047>
- Yu. M. Gorlin, V. Yu. Lyashok, and T. M. Maleva, "Pension Age Increase: Positive Effects and the Possible Risks," *Economic policy*, Vol. 13, No. 1, pp. 148-179, 2018. <https://doi.org/10.18288/1994-5124-2018-1-06>
- J. Tanaka, "A note on "raising the mandatory retirement age and its effect on long-run income and Pay As You Go (PAYG) pensions"," *Metroeconomica*, Vol. 70, No. 1, pp. 68-76, 2019. <https://doi.org/10.1111/meca.12227>
- The Russian labor market: trends, institutions, structural changes, V. Gimpelson, R. Kapelyushnikov, S. Roshchina, Eds., Moscow: Higher School of Economics, National Research University, 2017. (in russ.)
- A. I. Melekhin and E. A. Sergienko, "Predictors of subjective age and emotional health in the elderly," *Experimental Psychology (Russia)*, Vol. 8, No. 3, pp. 185-201, 2015. <http://doi.org/10.17759/exppsy.2015080316>
- A. Ya. Dmitrieva, V. S. Dubovik, and G. N. Litvinenko, "The problem of raising the retirement age in Russia. The Near future," in *Modern research and development*, A. I. Vostretsov. Eds. Neftekamsk: Mir Nauki, pp. 259-263, 2017. (in russ.) [International scientific-practical conference: Modern research and development, 2017].
- E. S. Tomarevskaya, "Residual performance of people over 60 years," in *Restructuring of human resources in the Eurasian space: current trends*, V.L. Cheplyaev, O.N. Fomin, V.V. Chernyshev, L.S. Yakovlev, V.M. Kulikov, Eds. Saratov: Povolzhsky Institute of Management named after P.A. Stolypin, 2014, pp. 138-147. (in russ.)
- M. Duggan, P. Singleton, and J. Song, "Aching to retire? The rise in the full retirement age and its impact on the social security disability rolls," *Journal of Public Economics*, Vol. 91, No. 7-8, pp. 1327-1350, 2007. <https://doi.org/10.1016/j.jpubeco.2006.12.007>
- A. K. Soloviev and V. Yu. Popov, "Social and economic consequences of increase of pension age in the Russian Federation," *Bulletin of The Financial University*, No. 3 (87), pp. 79-90, 2015. (in russ.)

- [22] J. Hagen, "The effects of increasing the normal retirement age on health care utilization and mortality," *Journal of Population Economics*, Vol. 31, No. 1, pp. 193-234, 2018. <https://doi.org/10.1007/s00148-017-0664-x>
- [23] J. Cribb and C. Emmerson, "Can't wait to get my pension: the effect of raising the female early retirement age on income, poverty and deprivation," *Journal of Pension Economics & Finance*, Vol. 18, No. 3, pp. 450-472, 2019. <https://doi.org/10.1017/S1474747218000057>
- [24] K. Makarski and J. Tyrowicz, "On welfare effects of increasing retirement age," *Journal of Policy Modeling*, Vol. 41, No. 4, pp. 718-746, 2019. <https://doi.org/10.1016/j.jpolmod.2018.11.002>
- [25] D. D. Bulanova, "The role of the older generation in the upbringing of preschoolers," *Nauchnoe otrazhenie (Scientific reflection)*, No. 4 (8), pp. 9-11, 2017. (in russ.)
- [26] G. A. Parakhonskaya, "An elderly person in the family," *Sotsiologicheskie issledovaniya*, No. 2, pp. 103-110, 2002. (in russ.)
- [27] V. I. Sharin and I. A. Kul'kova, "Impact of the older generation's support on fertility in Russia," *Population*, No 2, pp. 40-51, 2019. (in russ.)
- [28] H.-J. Chen, "Fertility, retirement age, and pay-as-you-go pensions," *Journal of Public Economic Theory*, Vol. 20, No. 6, pp. 944-961, 2018. <https://doi.org/10.1111/jpet.12343>
- [29] E. V. Chistova and V. P. Chichkanov, "Forecasting the Effects of Raising the Retirement Age on Russia's Demographic Structure," *Economic and Social Changes-Facts Trends Forecast*, Vol. 45, No. 3, pp. 121-137, 2016. <https://doi.org/10.15838/esc.2016.3.45.7>
- [30] A. K. Soloviev, "Social consequences of raising the retirement age," *Sotsiologicheskie issledovaniya (Sociological Studies)*, No. 3, pp.23-31, 2019. <https://doi.org/10.31857/S013216250004275-5>