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INNOVATIVE STRATEGIES FOR THE FORMATION OF SOCIAL RESPONSIBILITY AND MOTIVATION OF PARTICIPANTS THE PENSION SYSTEM OF THE REPUBLIC OF KAZAKHSTAN IN THE CONTEXT OF DIGITALIZATION

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Abstract. The article examines the problems of formation of social responsibility and motivation of the population to participate in the pension system of the Republic of Kazakhstan in the context of digitalization and demographic aging. The relevance of the study is due to the increasing structural risks of pension provision associated with an increase in the proportion of the elderly population, the prevalence of informal employment, low levels of financial and pension literacy, as well as the limited trust of citizens in the institutions of the pension system. The methodological basis of the research consists of systematic and structural-functional approaches, methods of theoretical analysis and generalization, comparative analysis of domestic and foreign pension provision experience, as well as statistical processing of official socio-economic data. The key hypothesis is that the integrated implementation of innovative and digital strategies, including personalized pension services, financial education tools, economic and tax incentive mechanisms, as well as flexible investment models for pension savings management, contributes to the

formation of a sustainable model of social responsibility for citizens and increases their motivation for long-term participation in pension programs. The results of the study confirm that the use of these tools makes it possible to increase the transparency of pension savings, expand public participation in voluntary pension programs, and strengthen the institutional stability of the national pension system. The scientific novelty of the study is to substantiate an integrated approach to the development of the pension system, combining digital technologies, motivational mechanisms and socially responsible practices adapted to the socio-economic conditions of the Republic of Kazakhstan. The practical significance of the work is determined by the possibility of using the conclusions and recommendations obtained in the formation and adjustment of state policy in the field of pension provision, the development of digitalization and financial education programs for the population, as well as in making managerial decisions in the activities of public and private pension funds.

Keywords: pension provision, motivation of participants, financial mechanisms, organizational structure, social responsibility, sustainable financing, innovative tools, efficiency of the pension system

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ҚАТЫСУШЫЛАРДЫҢ ӘЛЕУМЕТТІК ЖАУАПКЕРШІЛІГІ МЕН УӘЖДЕМЕСІН ҚАЛЫПТАСТЫРУДЫҢ ИННОВАЦИЯЛЫҚ СТРАТЕГИЯЛАРЫ ЦИФРАНДЫРУ ЖАҒДАЙЫНДА ҚАЗАҚСТАН РЕСПУБЛИКАСЫНЫҢ ЗЕЙНЕТАҚЫ ЖҮЙЕСІ

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Аннотация. Мақалада цифрландыру және демографиялық картаю жағдайында халықтың әлеуметтік жауапкершілігін қалыптастыру және Қазақстан Республикасының зейнетақы жүйесіне қатысуға ынталандыру мәселелері зерттеледі. Зерттеудің өзектілігі – егде жастағы халықтың үлесінің ұлғаюына, бейресми жұмыспен қамтудың таралуына, қаржылық және зейнетақы сауаттылығының төмен деңгейіне, сондай-ақ азаматтардың зейнетақы жүйесі институттарына сенімінің шектелуіне байланысты зейнетақымен қамсыздандырудың құрылымдық тәуекелдерінің артуына байланысты. Зерттеудің әдіснамалық негізі жүйелік және құрылымдық-функционалдық тәсілдер, теориялық талдау және жалпылау әдістері, зейнетақымен қамсыздандырудың отандық және шетелдік тәжірибесін салыстырмалы талдау, сондай-ақ ресми әлеуметтік-экономикалық деректерді статистикалық өңдеу болып табылады. Негізгі гипотеза ретінде дербестендірілген зейнетақы сервистерін, қаржылық білім беру құралдарын, экономикалық және салықтық ынталандыру тетіктерін, сондай-ақ зейнетақы жинақтарын басқарудың икемді инвестициялық модельдерін қоса алғанда, инновациялық және цифрлық стратегияларды кешенді енгізу азаматтардың әлеуметтік жауапкершілігінің тұрақты моделін қалыптастыруға және олардың зейнетақы бағдарламаларына ұзақ мерзімді қатысуға уәждемесін арттыруға ықпал ететіні туралы ереже алға тартылады. Зерттеу нәтижелері аталған құралдарды қолдану зейнетақы жинақтарының ашықтығын арттыруға, халықтың ерікті зейнетақы бағдарламаларына қатысуын кеңейтуге және Ұлттық зейнетақы жүйесінің институционалдық тұрақтылығын нығайтуға мүмкіндік беретінін растайды. Зерттеудің ғылыми жаңалығы Қазақстан Республикасының әлеуметтік-экономикалық жағдайларына бейімделген цифрлық технологияларды, мотивациялық тетіктерді және әлеуметтік-жауапты тәжірибелерді біріктіретін зейнетақы жүйесін дамытуға интеграцияланған тәсілді негіздеуде жатыр. Жұмыстың практикалық маңыздылығы зейнетақымен қамсыздандыру саласындағы мемлекеттік саясатты қалыптастыру және түзету, халықты цифрландыру және қаржылық ағарту бағдарламаларын әзірлеу кезінде, сондай-ақ мемлекеттік және жеке зейнетақы қорларының қызметінде басқарушылық шешімдер қабылдау кезінде алынған қорытындылар мен ұсынымдарды пайдалану мүмкіндігімен анықталады.

Түйін сөздер: зейнетақымен қамсыздандыру, қатысушыларды ынталандыру, қаржылық тетіктер, Ұйымдық құрылым, әлеуметтік жауапкершілік, тұрақты қаржыландыру, инновациялық құралдар, зейнетақы жүйесінің тиімділігі

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ИННОВАЦИОННЫЕ СТРАТЕГИИ ДЛЯ ФОРМИРОВАНИЯ СОЦИАЛЬНОЙ ОТВЕТСТВЕННОСТИ И МОТИВАЦИИ УЧАСТНИКОВ ПЕНСИОННОЙ СИСТЕМЫ РК В УСЛОВИЯХ ЦИФРОВИЗАЦИИ

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Аннотация. В статье исследуются проблемы формирования социальной ответственности и мотивации населения к участию в пенсионной системе Республики Казахстан в условиях цифровизации и демографического старения. Актуальность исследования обусловлена нарастанием структурных рисков пенсионного обеспечения, связанных с увеличением доли пожилого населения, распространённостью неформальной занятости, низким уровнем финансовой и пенсионной грамотности, а также ограниченным доверием граждан к институтам пенсионной системы. Методологическую основу исследования составляют системный и структурно-функциональный подходы, методы теоретического анализа и обобщения, сравнительный анализ отечественного и зарубежного опыта пенсионного обеспечения, а также статистическая обработка официальных социально-экономических данных. В качестве ключевой гипотезы выдвигается положение о том, что комплексное внедрение инновационных и цифровых стратегий, включая персонализированные пенсионные сервисы, инструменты финансового образования, механизмы экономического и налогового стимулирования, а также гибкие инвестиционные модели управления пенсионными накоплениями, способствует формированию устойчивой модели социальной ответственности граждан и повышению их мотивации к долгосрочному участию в пенсионных программах. Результаты исследования подтверждают, что применение указанных инструментов позволяет повысить прозрачность пенсионных накоплений, расширить участие населения в добровольных

пенсионных программах и укрепить институциональную устойчивость национальной пенсионной системы. Научная новизна исследования заключается в обосновании интегрированного подхода к развитию пенсионной системы, сочетающего цифровые технологии, мотивационные механизмы и социально-ответственные практики, адаптированные к социально-экономическим условиям Республики Казахстан. Практическая значимость работы определяется возможностью использования полученных выводов и рекомендаций при формировании и корректировке государственной политики в сфере пенсионного обеспечения, разработке программ цифровизации и финансового просвещения населения, а также при принятии управленческих решений в деятельности государственных и частных пенсионных фондов.

Ключевые слова: пенсионное обеспечение, мотивация участников, финансовые механизмы, организационная структура, социальная ответственность, устойчивое финансирование, инновационные инструменты, эффективность пенсионной системы

Introduction. The choice of the research topic is due to the increasing need to update approaches to the development of the pension system in the context of modern socio-economic and technological changes. In recent years, the practice of pension institutions has demonstrated that traditional pension provision mechanisms are increasingly facing limitations related to both demographic processes and changing expectations and behavior of citizens. The problem of insufficient involvement of the population in the formation of pension rights is particularly evident, which indicates a lack of social responsibility and long-term motivation in this area.

The relevance of the study is determined by the key role of the pension system in ensuring social stability and the quality of life of the population. The aging of society, the increase in life expectancy and the increased burden on state social obligations require the search for new, more flexible and effective solutions. The digitalization of the economy and the social sphere creates additional opportunities for modernizing pension provision, simplifying citizens' interaction with pension institutions, and increasing transparency in decision-making. At the same time, accumulated experience shows that the introduction of digital technologies alone does not guarantee an increase in the trust and interest of citizens if it is not accompanied by well-thought-out motivational and socially oriented strategies. As a result, a problematic situation is formed related to the discrepancy between the potential of innovative solutions and the actual level of their perception and use by the population.

The purpose of this study is to analyze and substantiate innovative strategies aimed at creating social responsibility and increasing the motivation of citizens in the pension system in the context of digitalization. Achieving this goal involves identifying key problems of modern pension provision, as well as identifying promising areas for the use of innovative and digital tools that help strengthen the sustainability of the pension system and increase its social significance.

Literary review. Many researchers agree that digitalization helps to improve the interaction between pension funds and citizens, increases the availability of information and reduces transaction costs. For example, A. Kolesnik notes that the creation of digital platforms for pension savings management helps automate processes and improve customer interaction, which, in turn, increases confidence in the pension system (Kolesnik, 2022). Similar conclusions have been drawn in domestic studies. Thus, G. Duisen and D. Aitzhanova emphasize that the creation of online platforms for managing retirement accounts in Kazakhstan has significantly increased the level of transparency and trust in the system, providing citizens with direct access to information about their savings (Duisen and Aitzhanova, 2018).

However, at the international level, the digitalization of pension systems is not always perceived in the same way. In Western countries such as the United States and the United Kingdom, the use of digital platforms and mobile applications has long been the norm. In particular, the work of Jae-Yoon Kim and Dongwoo Lee highlights the role of educational programs and financial literacy in building trust in pension funds (Kim and Lee, 2024), which confirms the need not only to introduce technology, but also to integrate it into the social responsibility of funds. In turn, in emerging markets, the digitalization of pension systems faces a number of challenges, such as insufficient digital literacy among citizens and problems with Internet access, which may limit the effectiveness of these technologies.

One of the key aspects of introducing innovations into pension systems is to increase the motivation of citizens to actively participate in pension programs. The use of tools such as loyalty programs, gamification, and personalized offers is actively discussed in foreign literature. For example, S. Achkasova, Y. Malyshko (Achkasova and Malyshko, 2021). They point out the importance of involving citizens in the decision-making process through personalized pension plans, which makes it possible to increase the satisfaction of participants and their motivation to save more actively for retirement. This is confirmed by the research of domestic authors such as G. Dzhunusbekova and M. Zhaumitova (Junusbekova and Zhaumitova, 2020), who emphasize that the introduction of loyalty programs and the participation of citizens in the decision-making process contribute to increasing their involvement and satisfaction with participation in pension programs in Kazakhstan.

Foreign authors also point to the potential of gamification as a tool for attracting young people. S. Canta, M.-L. (Canta and Leroux, 2024). Leroux emphasize that the use of gamification in educational programs can significantly increase the interest of the youth audience in retirement savings. In this context, Kees de Koning notes that the use of gamification and digital tools in education contributes to improving pension literacy and citizen engagement in managing their retirement savings (Kis de Koning, 2024).

The social responsibility of pension funds in the context of digitalization is also actively discussed in the world and domestic scientific literature. Foreign researchers such as R. Holzmann emphasize that innovative strategies based on

the use of big data and analytics can not only improve management efficiency (Holzmann, 2013), but also contribute to a more active involvement of citizens in processes related to their financial future. In turn, A. Kuvshinova's research also examines the importance of social initiatives of pension funds (Kuvshinova YU.A., 2023), such as financial education and support for vulnerable groups. He emphasizes that such socially responsible practices help to increase trust in pension systems and strengthen their reputation among citizens.

The social responsibility of organizations in the context of the pension system includes not only obligations to ensure pension payments, but also active participation in the development of social infrastructure. For example, J. Rutecka-Góra (Rutecka-Góra, 2021), in their research, consider pension funds as important institutions that can influence the sustainable development of society through investments in social projects and programs aimed at supporting financial education. In this context, the work of Russian authors such as G. Junusbakova, M. Zhaumitova reflects similar ideas, arguing that pension funds should be more actively involved in supporting social infrastructure (Junusbekova and Zhaumitova, 2020), especially through financial education programs that can significantly increase the level of trust and social responsibility.

Materials and methods. The empirical base of the study is based on official socio-economic and demographic data from the Bureau of National Statistics of the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan, data from the Ministry of Labor and Social Protection of the Population of the Republic of Kazakhstan, as well as reporting materials from the Unified Accumulative Pension Fund (UAPF). The analysis covers the period 2013-2024, which makes it possible to identify long-term trends and structural changes in the pension system in the context of demographic aging and digitalization.

Statistical data were used to analyze demographic and institutional changes in the pension system, including annual observations for the period 2013-2024 in the following areas: demographic dynamics of the population, employment indicators and labor market structure, parameters of pension savings formation and investment activity of pension institutions. The choice of these data is determined by their regularity, official status, and methodological comparability over the entire time interval under consideration, which ensures reproducibility of the results obtained.

The following key analytical indicators of the study were used: the age structure of the population, demographic load coefficients, the coefficient of natural population growth (calculated as the difference between the birth and death rates per 1,000 people), the proportion of people over working age in the total population, the level of employment, the proportion of informally employed, coverage of the population with mandatory and voluntary pension contributions, the volume of mandatory and voluntary pension savings in nominal terms, as well as the dynamics of investment income of pension assets. The indicators were applied in accordance with their official statistical definitions. The formed analytical indicators are presented in the form of relative and aggregated values calculated according to uniform methodological principles.

The calculation procedures included the construction of dynamic series, the calculation of basic and chain growth rates, the determination of structural shifts in the distribution of pension savings and insurance premiums, as well as the analysis of percentages between individual segments of the pension system. Structural changes were assessed based on changes in the specific weights of indicators in the total volumes for the period under review. The use of these procedures makes it possible to trace the stability of the identified trends and correctly interpret long-term structural shifts.

The methodological tools of the research include methods of descriptive statistics, dynamic and structural analysis, as well as correlation analysis aimed at identifying stable relationships between demographic and socio-economic factors and parameters of the functioning of the pension system. The analysis is primarily descriptive and analytical in nature and does not involve strict econometric identification of cause-and-effect effects.

The interpretation of the results was carried out taking into account the long-term nature of the identified trends and the institutional features of the functioning of the pension system of the Republic of Kazakhstan. The analysis is focused on identifying stable relationships and structural patterns in the development of the pension system without using strict econometric models of cause-and-effect identification. The transition from descriptive observations to interpretative conclusions was carried out taking into account these methodological limitations, which excludes quasi-causal interpretations of the results.

The comprehensive use of these data sources and analysis methods ensured the validity of the study's conclusions, made it possible to identify key patterns and risks of the pension system's functioning, as well as to formulate recommendations aimed at improving its sustainability and effectiveness in the face of digitalization and demographic changes.

Results. The pension system of the Republic of Kazakhstan is the result of interaction between the state, employers and the population and is formed under the influence of economic, political and social factors (Amanbaev, 2019). An analysis of these factors is necessary for an objective assessment of the sustainability of pension provision.

Demographic aging of the population is one of the key challenges. As of 2023, the proportion of people over 60 years of age is 11,9%, and over 65 years of age is 7,8% of the total population (Dannye Byuro, 2025). Kazakhstan has already entered the demographic aging phase, with a further increase in the proportion of the elderly population projected by 2050. These changes will have a long-term impact on the labor market, economic development and the pension system, which requires early government action.

According to current legislation, the working-age population includes men under 63 years of age and women under 60,5 years of age. The reduction in the number of able-bodied citizens against the background of an increase in the number of

pensioners poses risks to the financial stability of the pension system. Maintaining a balance between the working population and those of retirement age is a critical condition for its stable functioning, which is directly related to the indicators of natural population growth (Figure 1).

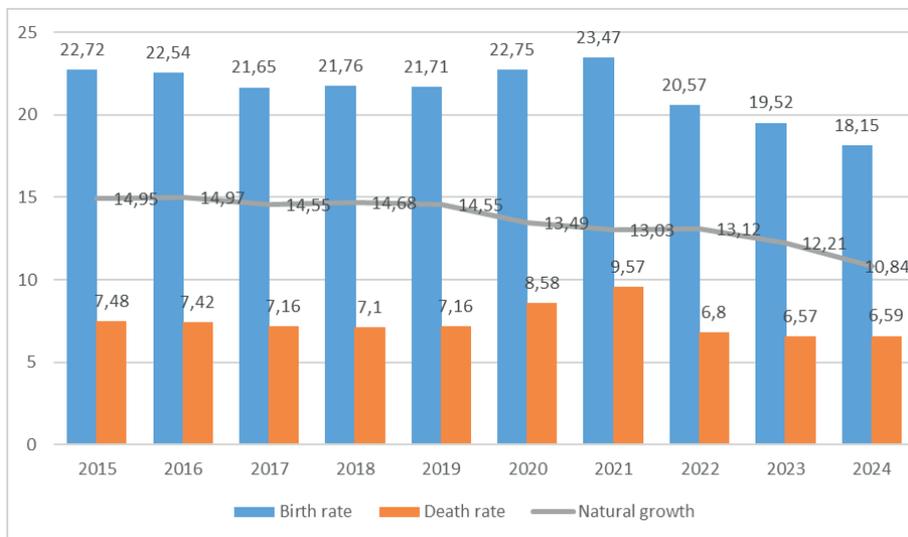


Figure 1 – Natural population growth per 1,000 people per year
 Note – compiled by the authors based on the source (Danye Byuro, 2025)

In 2015-2024, there is a steady downward trend in natural population growth in the Republic of Kazakhstan: from 14,95% in 2015 to 10,84% in 2024. The main factor in this trend was the reduction in the birth rate from 22,72% to 18,15% during the period under review. The temporary increase in the birth rate in 2021 (23,47%) was due to the effect of delayed births and social support measures in the post-pandemic period.

At the same time, in 2020-2021, a sharp increase in mortality related to the COVID-19 pandemic was recorded: the mortality rate increased from 7,16% in 2019 to 8,58% in 2020 and 9,57% in 2021, which led to a reduction in natural growth. In 2022-2024, a further decline in the birth rate was caused by socio-economic uncertainty, urbanization, and changes in the reproductive behavior of the population. In general, demographic dynamics indicates the formation of a long-term trend of slowing population reproduction, which is structural in nature.

The identified demographic changes are essential for assessing the sustainability of the pension system. A decrease in the rate of natural growth in the long term leads to a reduction in the number of economically active population and a narrowing of the base for pension contributions. If current trends continue, the risk of an increased imbalance between payers and recipients of pension payments increases, which negatively affects the financial stability of pension provision.

In this regard, demographic processes should be considered as a key factor determining the need to transform pension policy. Support for fertility and the institution of the family is becoming strategically important, as it forms the future labor and financial potential of the pension system. Consideration of demographic factors in the development of socio-economic and pension strategies is a prerequisite for minimizing long-term risks.

Along with demographic factors, political factors and government policy have a significant impact on the development of the pension system. It is at the level of government decisions that the pension provision model is formed, the directions of reforms and mechanisms for adapting the system to structural challenges are determined. In this context, the pension system is the result of a consistent government strategy focused on long-term sustainability.

As part of the Strategy 2050 policy, a Concept for modernizing the pension system until 2030 was developed, providing for the introduction of a funded component and improving the financial stability of the system («Strategy «Kazakhstan-2050», 2024). The state retains a key role in ensuring the safety of pension savings, transparency of management and protection of citizens from poverty in old age.

Economic factors also have a significant impact on the pension system. One of the priority areas is the diversification of the pension fund's investment portfolio in order to reduce risks and increase the real profitability of savings. An optimal investment strategy should take into account macroeconomic conditions, inflation, and the stability of the financial sector and ensure a balance between profitability and asset reliability.

An additional limitation to the stability of the pension system remains the high proportion of informal employment and irregular payment of pension contributions. The self-employed population is characterized by low involvement in the pension system and low labor productivity, which narrows the base of pension income. Despite the relatively high level of employment (Figure 2), the priority remains to improve the quality of employment and labor productivity as key conditions for the long-term sustainability of pension provision.



Figure 2 – Employment rate in Kazakhstan

Note – compiled by the author based on the data (Dannye Byuro, 2025)

The data in Figure 2 reflect the dynamics of the employment rate of the population of Kazakhstan in 2015-2024, which is generally characterized by moderate fluctuations. In 2015, the employment rate was about 62,5%, after which it decreased to 60,5% in 2016-2017 due to a slowdown in economic growth and a reduction in investment activity. In 2018-2019, the indicator stabilized at the level of 60,6–60,7%, which indicates the adaptation of the labor market to structural changes in the economy.

In 2020-2021, the employment rate remained within 61,3–61,5%, despite pandemic restrictions. In 2022, there was a repeated decrease to 60,5%, due to the growth of informal employment and business restructuring processes. Employment recovery began in 2023, and in 2024 the indicator reached 65,0%, reflecting increased economic activity, expansion of the service sector and the implementation of infrastructure projects. In general, the dynamics indicate the relative stability of the labor market, while continuing to depend on the macroeconomic environment.

The state of employment is of key importance for the functioning of the pension system, since it is the employed population that forms the basis of pension contributions and accumulation of pension rights. Consequently, the stability of the labor market is one of the determining factors for the long-term stability of pension provision.

However, quantitative employment indicators do not fully reflect the effectiveness of the pension system. The quality of the institutional environment and the level of involvement of the population in the formation of pension savings play an essential role. In the context of the digital transformation of the economy, the importance of digital tools is increasing, increasing the transparency of pension processes, accessibility of services and financial literacy of citizens.

The development of digital solutions in the pension sector is seen as a logical continuation of employment and social protection policies. Digitalization makes it possible to expand the coverage of the pension system, including the self-employed and workers with non-standard forms of employment, and also helps to increase the sustainability of pension provision. International experience, in particular the reform of pension systems in China and the Philippines, confirms the effectiveness of implementing digital and institutional innovations in this area (table 1).

Table 1 – Comparative characteristics of voluntary pension programs

		People's Republic of China (2022)	Philippines (2022)	Kazakhstan
1	Type of program	Individual retirement accounts	Accumulation Fund	Retirement Annuity
2	Coverage	Employees covered by the State pension program (social insurance)	Participants are individuals who contribute to the social insurance system, including citizens working abroad and the self-employed	Citizens of Kazakhstan:

3	Contributions	Participants can contribute up to \$1,680 per year without a minimum threshold.	Participants pay a minimum of \$8,82 without a maximum limit	50 years old for men, 52 years old for women; having sufficient pension savings to purchase an annuity
4	Information about payments	Withdrawal of the total amount is possible in a lump sum or monthly payments upon reaching retirement age, disability and migration	The total account balance (principal + interest) is paid tax-free when the participant receives social security pension payments. The balance can also be withdrawn in full after five years of participation without penalties.	The participant must transfer the entire amount of savings (or a part exceeding the established minimum) from the UAPF to the insurance company.
Note – compiled by the authors				

According to the information provided, there is a growing trend in voluntary pension programs for investing in alternative market financial instruments in various countries. This is how pension annuity insurance operates in Kazakhstan, which has not been popular among depositors of the pension system for a long time. However, by the end of 2024, the volume of pension annuity insurance premiums increased by 337,6% and reached 457,1 billion tenge (Figure 3).

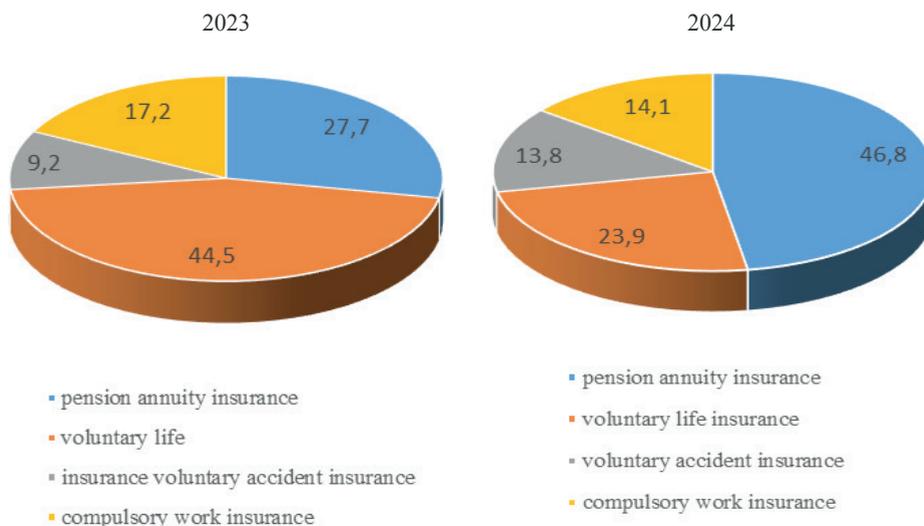


Figure 3 – Pension annuity insurance of the Republic of Kazakhstan for 2023-2024 (%)
 Note – compiled by the author based on the data (Dannye Byuro, 2025)

An analysis of the structure of insurance premiums by type of life and health insurance in the Republic of Kazakhstan for 2023-2024 revealed significant changes in the distribution of market segments. In 2023, voluntary life insurance occupied

the dominant position (44,5%), while the share of pension annuity insurance was 27,7%. In 2024, there was a pronounced structural shift: the share of pension annuities increased to 46,8%, which allowed them to take a leading position, while the share of voluntary life insurance decreased to 23,9%. Thus, the increase in the share of pension annuity insurance amounted to 19,1 percentage points, which indicates the transformation of priorities in the life and health insurance market.

The increasing role of pension annuities is due to the combined impact of demographic, institutional, and behavioral factors. An increase in the average life expectancy of the population to 75,9 years and an increase in the number of citizens of pre-retirement age contribute to an increase in demand for annuity products. Digitalization of the insurance sector is also essential, which has simplified the procedures for concluding contracts and transferring pension savings from a Single accumulative pension Fund to insurance companies, which has increased the availability of these tools for the population.

An additional growth factor is a change in the financial behavior of citizens, which is reflected in an increase in financial literacy and a more informed approach to long-term pension planning. The formation of a steady demand for pension annuities helps to reduce the burden on the state pension system and increases the role of individual responsibility for financial security in old age.

At the same time, the results of sociological research show that the level of financial literacy of the population remains insufficient. Despite the active use of banking services, only about 19% of the respondents have a systematic knowledge of the financial system and pension provision. This indicates the need to strengthen government policy in the field of financial education.

The key areas of improving financial literacy are the introduction of educational programs in the school and higher education system, information campaigns, as well as the use of digital platforms and mobile applications to provide accessible information about pension products. The development of these tools helps to increase confidence in the pension system and the involvement of citizens in the savings process.

The success of Chile's pension system largely depends on the active participation of citizens. The high level of coverage of the system indicates that the majority of citizens participate in saving for retirement. However, many have not reached the required level of contributions, which indicates a low sustainability of contributions or a low "density" of participation.

Chile has traditionally had a social protection system for citizens who have not accumulated sufficient funds, but access to these benefits has been limited by the requirement of 20 years of work experience. However, many were unable to achieve this due to the imbalance between work experience and income.

In response to the problems, reforms have been implemented, including the introduction of a basic social pension and an additional pension, mandatory participation of the self-employed in the system, and improved tax incentives for

voluntary savings. These changes are aimed at expanding coverage and a more equitable distribution of social benefits. The reform has led to great success in ensuring wider access to pension benefits (Abikenova et al., 2021; Behrman et al., 2011).

Kazakhstan should consider a combined approach, adapting the best practices of other countries. The Belgian model with a tax credit of 30% of pension contributions can be effective in stimulating public participation in the savings system (Rutetskaya-Gura, 2021). However, it is important to take into account that such a mechanism will require significant budget expenditures, which may be difficult in the current economic conditions.

At the same time, the Italian model of tax-free investment is also of interest. Tax exemption of income from pension fund investments provided that funds are held for a certain period (for example, five years) will increase the attractiveness of long-term savings and will contribute to the development of the financial market (Bitkina, 2021). This is especially important for Kazakhstan, where the level of trust in investment instruments remains low.

The most rational solution would be to combine the elements of both models. It is possible to introduce a progressive system of tax deductions depending on the income level and the amount of pension contributions, as well as exempt investment income from taxes if funds are stored for a long time. Additionally, it is worth considering tax benefits for employers who make additional pension contributions for employees, which will expand the coverage of the system. Such an approach will create a balance between supporting citizens, attracting investments and the sustainability of the state budget.

In our country, it is advisable to focus on stimulating interest in voluntary pension contributions. As mentioned earlier, the share of pension savings generated through voluntary contributions remains low. Although it could be assumed that this situation is due to the limited solvency of the population and the lack of excess funds, in fact, the main reasons lie in other factors. In particular, there is a significant distrust of citizens towards the national pension system, as well as a preference for investing in bank deposits, which are tax-free upon withdrawal, unlike funds accumulated in the Unified Accumulative Pension Fund (UAPF), where tax fees are levied. In addition, the population considers investing in bank deposits as more profitable, since the fixed rate of return for 2024 reaches 14,9%, while the profitability of the pension fund is significantly lower than this level.

An additional problem remains the high proportion of informal employment and the underestimation of official incomes, which leads to minimal pension contributions and the formation of low pension rights. Increasing the financial responsibility of citizens, legalizing income and increasing the quality of employment are necessary conditions for the long-term sustainability of the pension system. The employment structure of the population by place of residence is shown in Figure 4.

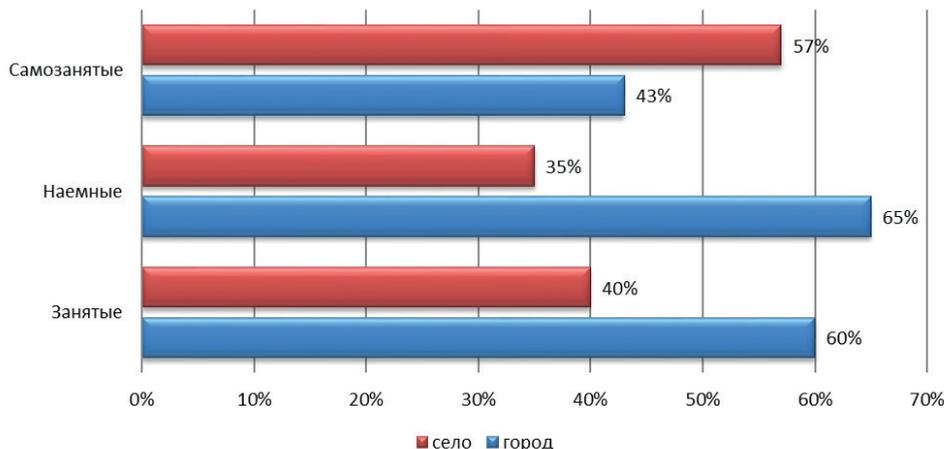


Figure 4 – Employment structure for 2024
 Note – compiled by the author based on the data (*Damnye Byuro, 2025*)

The employment structure of Kazakhstan's population in 2024 is characterized by marked differences between urban and rural areas. Self-employment prevails in rural areas, while wage labor dominates in urban areas. This differentiation reflects the varying degree of involvement of the population in the formal sector of the economy and, consequently, in the pension system, which forms a heterogeneous base of pension contributions.

The identified features indicate the need to use differentiated tools to stimulate public participation in the pension system. In the context of demographic aging, the digitalization of the economy and the growth of financial literacy, the development of innovative approaches to citizen engagement is becoming key to increasing confidence in the pension system and ensuring its long-term sustainability. The proposed measures are aimed at a comprehensive solution to the identified structural problems and are presented in table 2.

Table 2- Types of innovative strategies for improving the efficiency of the pension system in Kazakhstan

№	Type of strategy	Description	Mechanism	Expected effect
1	Introduction of personalized digital retirement accounts	Development of a «unified digital profile» with the right to choose a personal investment portfolio; information on pension savings, projected payments and possible retirement scenarios.	1. Citizens get access to an online pension calculator, taking into account various parameters (additional contributions, length of service, retirement age). 2. A section with personal recommendations for improving retirement savings.	1. Raising awareness of citizens about their future pensions. 2. Encouraging voluntary contributions to the funded part. 3. Increasing confidence in the pension system.

2	Introduction of a system of «Pension bonuses» for employers and employees	Development of a «reward system» for employers and employees making additional pension contributions.	<ol style="list-style-type: none"> 1. Employers receive tax benefits for co-financing employees' retirement savings. 2. Employees receive «pension bonuses» (additional payments from the state or the employer upon accumulation of a certain amount). 	<ol style="list-style-type: none"> 1. The growing number of participants in voluntary pension programs. 2. Increasing employers' responsibility for the social protection of employees. 3. Reducing the burden on the state pension system
3	Introduction of educational programs on pension literacy	Development of financial education programs in schools, universities and for the working population aimed at realizing the importance of retirement savings	<ol style="list-style-type: none"> 1. Introduction of online courses and mobile applications on financial planning. 2. Conducting seminars for young people on the importance of early retirement savings. 3. Developing programs for the self-employed and entrepreneurs. 	<ol style="list-style-type: none"> 1. Citizens' awareness of the need for long-term financial planning. 2. Increased confidence in the pension system and an increase in the number of voluntary contributions.
4	Development of flexible pension plans with investment opportunities	To allow citizens to independently choose a strategy for investing their retirement savings	<ol style="list-style-type: none"> 1. The possibility of distributing savings between different instruments (deposits, stocks, bonds, funds). 2. Development of «moderate» and «aggressive» investment strategies. 3. Provision of guarantees for the preservation of the principal amount of savings. 	<ol style="list-style-type: none"> 1. Increasing the motivation of the population to form retirement savings. 2. Diversification of pension assets.
5	Using blockchain technology for transparency of retirement savings	The introduction of «blockchain technologies» to account for pension savings and protect citizens' data	<ol style="list-style-type: none"> 1. Full transparency of all pension account transactions, reducing the risks of corruption and errors in calculating pensions. 2. Automated «smart contracts» for pension payments. 	<ol style="list-style-type: none"> 1. Increasing confidence in the pension system. 2. Reducing bureaucratic errors 3. Reducing fraud risks
Note – compiled by the authors				

In order to increase the applied significance and validity of the proposed innovative strategies, it is advisable to consider their implementation within the framework of a comprehensive framework for implementation and effectiveness assessment. The implementation of digital and institutional solutions in the pension

system presupposes the existence of stable institutional prerequisites, including the development of digital infrastructure, regulatory and legal support from the state, coordination of actions by regulators, pension institutions and employers, as well as accessible channels of information interaction with the population.

The implementation of these measures should take into account existing regulatory and budgetary constraints related to the need to adapt tax and pension legislation, finance digital platforms, educational programs, and government co-financing mechanisms. The potential risks of digital inequality are significant due to differences in the level of digital skills, access to Internet resources and financial literacy of individual socio-demographic groups, primarily self-employed and informally employed citizens.

The assessment of the effectiveness of the implementation of strategic decisions can be based on a system of measurable indicators reflecting both institutional and behavioral changes in the pension system. It is advisable to include among such indicators: the dynamics of the share of voluntary pension contributions in the total amount of pension savings; the degree of coverage of self-employed and informally employed groups by participation in the pension system; the results of monitoring the level of pension and financial literacy of the population; indicators of citizens' trust in pension institutions; as well as the risk-adjusted return on investment instruments of pension assets. The use of these indicators makes it possible to carry out a step-by-step assessment of the effectiveness of implemented measures and adjust the directions of pension policy in the context of digitalization and demographic changes.

Discussion. For an objective assessment of the prospects for the implementation of pension strategies, it is necessary to analyze them in a long-term retrospective, since the level of pension provision is formed under the influence of decisions made throughout the entire life cycle.

The development of Kazakhstan's pension system is characterized by institutional instability caused by insufficient consistency of reforms and frequent changes in the regulatory framework. This reduces public confidence in the system and increases uncertainty about future pension payments. Insufficient involvement of citizens in the pension system increases the risks of social insecurity in old age and increases the burden on the state budget, which in the long term may lead to an increase in poverty among pensioners.

One of the key factors for the sustainability of the pension system remains the legalization of income and the reduction of informal employment practices. To solve this problem, it is advisable to strengthen interdepartmental data exchange between tax authorities, pension funds and financial institutions, expand the use of digital platforms and non-cash payments, as well as increase the responsibility of employers for violations of labor and tax laws.

Additional incentive measures may include tax deductions for officially employed citizens, temporary tax amnesty mechanisms when businesses switch to

the legal field, as well as encouraging bona fide employers through reducing the tax burden or access to preferential financing.

To increase the attractiveness of pension savings, it is important to develop state co-financing mechanisms and hybrid pension models that ensure a balance between guaranteed returns and investment returns. The possibility of targeted partial use of savings, as well as the mechanism of their inheritance, increase public confidence in the pension system and make it competitive compared to alternative forms of savings.

Conclusions. The conducted research shows that the pension system of the Republic of Kazakhstan operates in the context of increasing demographic and socio-economic challenges, including the aging of the population, a decrease in natural growth and the maintenance of a high proportion of informal employment. These factors combine to increase the risks of financial imbalance in the pension system and require a comprehensive approach to its further development.

An important condition for increasing the sustainability of pension provision is the increased involvement of the population in the formation of pension savings. A significant limitation in this area remains the insufficient level of financial literacy and the continued distrust of citizens towards the pension system. In this regard, the implementation of systematic educational and information programs aimed at forming an understanding of pension provision mechanisms and responsibility for their own financial future is of priority importance.

At the same time, it is necessary to strengthen measures to legalize labor income and reduce the practice of paying wages "in envelopes." The expansion of the use of digital control tools, the development of non-cash payments and the coordination of actions by tax authorities and pension institutions can increase the transparency of labor relations and expand the base of pension contributions.

The development of voluntary pension provision and the introduction of tax incentive mechanisms can become effective tools to increase the motivation of both citizens and employers to participate in the pension system. Of additional importance is the creation of conditions for corporate pension programs that contribute to an increase in the density of contributions and reduce the future burden on the state budget.

An equally important area remains the improvement of the pension fund's investment policy. The diversification of the investment portfolio, taking into account macroeconomic conditions and inflationary risks, will increase the real profitability of pension savings and strengthen public confidence in the pension system.

In general, the implementation of these measures together will improve the long-term sustainability of the pension system, reduce social risks and create conditions for ensuring a decent standard of living for citizens in old age.

It should be noted that the conclusions are based primarily on the analysis of structural and dynamic statistical data and reflect the identified trends and stable

relationships. The results of the study do not claim to be a strict cause-and-effect interpretation, but consider digital and institutional factors as conditions that potentially influence the formation of social responsibility and motivation of participants in the pension system.

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