World Economics & Finance Bulletin (WEFB)
Available Online at: https://www.scholarexpress.net
Vol. 20, March 2023
ISSN: 2749-3628,

INDICATORS AND MEASURE FOR ASSESSING FINANCIAL STABILITY OF THE PENSION SYSTEM

Davron RUSTAMOV
Tashkent Institute of Finance
Shirin SHEMUKHAMEDOVA
Tashkent Institute of Finance
ORCID: 0000-0003-0304-006X

Article history:

Received: 20th January 2023
Accepted: 20th February 2023
Published: 28th March 2023

Abstract:

This article presents information on criteria and indicators for measuring financial sustainability of pension system in Uzbekistan's national economy; including factors determining the efficacy of pension system. It scrutinizes the priority goals to enable provision of pension funds to all level of nation, which includes amelioration of institutional framework, improvement of legislation in subsidies and optimization procedure in the allocation of pension amounts. Moreover, indicators that are presented in the article are separated in the following groups: senility level indicators, indicators characterizing the level of pension payments, efficiency indicators and financial stability indicators. Every indicator that is used in the measurement is presented with the description, formula as well as its brief explanation

Keywords: Pension system, Insurance premium, GDP, Financial stability, Mandatory pension system

INTRODUCTION

In the aftermath of the global financial and economic crisis, because of socio-economic reforms in the world, there have been significant changes in the pension scheme system. Today, the main goal of pension provision programs followed in all countries is to increase the level of access to pension services and provide retirees with an adequate standard of living. From the perspective of this goal, the ongoing pension reforms in foreign countries requires the accomplishment of the following tasks:

- Changing and enhancing the institutional framework of the pension system in the country: the implementation of internal fundamental changes in the mechanism of payment of old-age retirees' pensions in accordance with their seniority and the separation of state pensions into minimum and proliferated pension payments;
- Improving the legislation on subsidies under state pension funds in order to prevent deficit of pension funds;
- Optimization of procedures for payment of pension insurance premiums, pension payments and indexation of pension amounts.

If we examine the practice of evaluating the effectiveness of pension systems in the world, those factors can be divided into four groups (Picture 1):

- Macroeconomic factors: GDP growth rate, share of wage fund in GDP, wage level (income level of population), consumer price index, inflation, quantitative description of labor market, etc .;
- Demographic factors: birth and death rates, life expectancy, grouping of the population according to age and gender;
- Socio-labor factors: the state of the labor market, the duration of population's employment and breaks in seniority, the subsistence minimum and etc.;
- Individual pension factor: legal normative bases of retirement (pension schemes and pension programs), the order of organization of the pension system, etc.

LITERATURE REVIEW

In today's day, the research work of several foreign and national scholars in reforming and improving the pension system is also worth being noted. Theoretical bases of development of the world pension system, models of implementation and directions of reform have been studied by such foreign economists as V.V.Antropov, N.Barr, A.M.Babich, V.N.Baskakov, A.N.Bolnitskaya, K.G.Voblyy , E.V.Galkina, E.V.Egorov, E.N.Jiltsov, A.N.Ivanov, S.V.Kadomtseva, E.A.Karelov, F.M.Kurshaeva. PK.Lavrenteva, V.I.Levashov, E.N.Lysenko, E.E.Machulskaya, V.D.Roik, Dj.Stiglits, A.S.Sokolov, A.B.Sokolova, A.A.Stepanova, R.Holtsman, D.D. Hampton, analyzed by L.I. Jacobson.

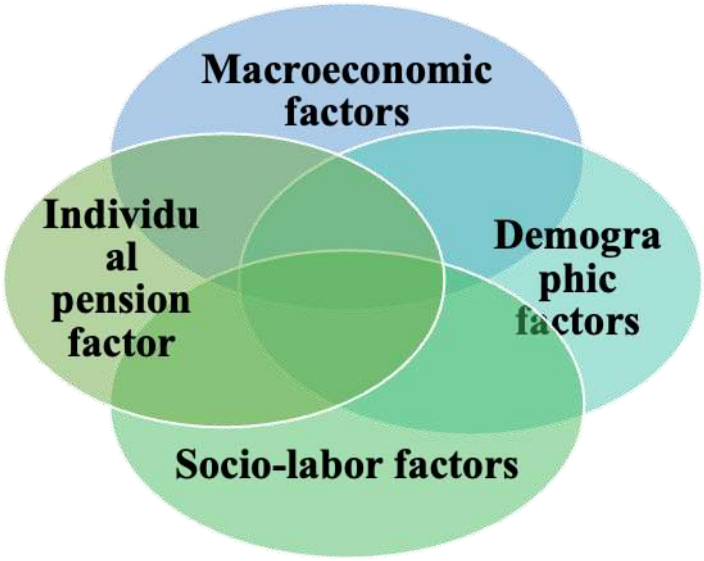
In our country, the condition, structure, development trends and theoretical as well as practical aspects of the reform of the pension system have been

World Economics & Finance Bulletin (WEFB)
Available Online at: https://www.scholarexpress.net
Vol. 20, March 2023
ISSN: 2749-3628,

researched by A.V.Vakhabov, R.T.Dalimov, N.M.Majidov, B.H.Umurzokov, G.K.Saidova, M.A.Khakimova, B.Sh.Khusanov and others.

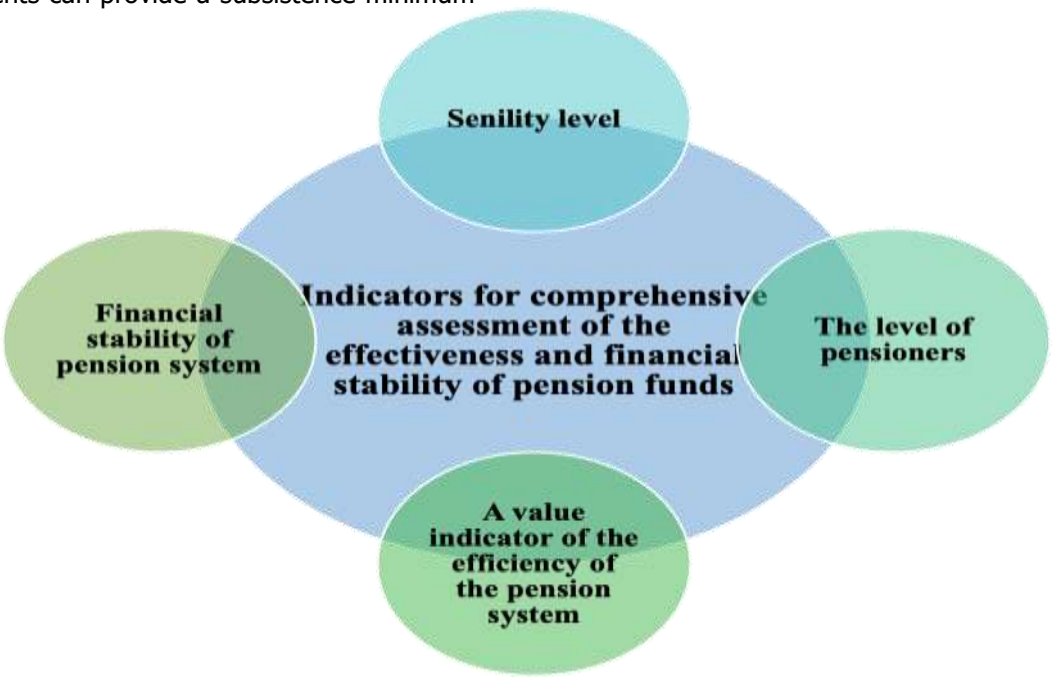
The research of the aforecited scholars is devoted to the analysis of the conceptual, theoretical aspects of the functioning and reform of the pension system, since insufficient attention was paid to the indicators and criteria for assessing its financial stability, we tried to systematize a few tasks to improve the financial stability of the pension fund.

DISCUSSION



Picture 1. Factors determining the effectiveness of the pension system

Along with that, the assessment of the economic efficiency of the state pension system considers the financial stability of pension funds and the period of reimbursement of pension costs, the coefficient of state pension coverage and the extent to which pension payments can provide a subsistence minimum for retirees. In the global practice of evaluating the activities of pension funds, their financial stability and efficiency should be considered in a comprehensive assessment of pension programs organized based on redistribution and accumulation principles (Picture 2).



Picture 2. Indicators for a comprehensive assessment of the effectiveness and financial stability of pension funds based on the principles of redistribution and accumulation

World Economics & Finance Bulletin (WEFB)
Available Online at: https://www.scholarexpress.net
Vol. 20, March 2023
ISSN: 2749-3628,

The first group expresses senility level, which is based on the ratio of the country's elderly population, that is retirees, to the able-bodied population. In other words, it represents the senility burden of the pension system. The indicators of this group are presented in Table 1.

Table 1. Senility level assessment indicators

Indicators	Description of indicator	Formula of indicator	Formula explication
Pension system support coefficient	It is an indicator of the senility burden in the pension system, and the higher the result, the younger is the pension system, or vice versa, the lower the result, the older is the pension system.	$K_p = \frac{C_{PPIP}}{C_{RN}}$	K_P - Pension system support coefficient; C_{PPIP} - the number of payers of pension insurance premiums; C_{RN} - numberofretirees.
Economicdependency coefficient	indicator of the number of retirees per person who pays the pension insurance premium, and the higher is the economic dependency ratio, the older is the pension system	$K_{ED} = \frac{C_{UMSPP}}{C_{PMPIP}}$	K_{ED}- economic dependency coefficient; C_{UMSPP}- the number of retirees using the services of the mandatory state pension program; C_{PMPIP}- the number of payers of mandatory pension insurance premiums.

The second group is the level of pension payments, which assesses the ability of pension payments to provide retirees with an adequate standard of living. In this group of indicators, special attention is paid to the coefficient of reimbursement of pension payments to retirees by state and non-state pension funds, and Table 2 describes the indicators belonging to this group.

Table 2. Indicators characterizing the level of pension payments

Indicators	Description of indicator	Formula of indicator	Formula explication
Welfare ratio of pensioners			
Welfare ratio of pensioners	It is an indicator of the ratio of the average (minimum or maximum) pension amount in the country to the subsistence minimum. The higher the rate, the more directly proportional is the efficiency of the pension system and the welfare of retirees.	$K_{WR} = \frac{P_{MIN}}{SM}$ $K_{WR} = \frac{P_{AVG}}{SM}$ $K_{WR} = \frac{P_{MAX}}{SM}$	K_{WR} - Welfare ratio of pensioners; P_{MIN} - minimum amount of pension; P_{AVG} - average pension amount; P_{MAX} - maximum pension amount; SM- subsistence minimum.

World Economics & Finance Bulletin (WEFB)
Available Online at: https://www.scholarexpress.net
Vol. 20, March 2023
ISSN: 2749-3628,

Coating coefficient			
- calculation of the average pension amount in mandatory pension schemesystem - in the non-state pension system - mixed coating coefficient	Describes the wage coverage rate of pension payments in the mandatory state pension system Voluntary non-state pension provision represents an indicator of income coverage of pension payments Describes income coverage rate of state and non-state pension payments	$K_{MPK} = \frac{P_{AVG}}{AS_{AVG}}$ $P_{AVG} = \frac{AS_{AVG} \cdot t \cdot C_{PIPP}}{C_{NP}}$ which leads to $K_{NSP} = \frac{t \cdot C_{PIPP}}{C_{NP}}$ $K_{NAVG} = \frac{P_{NAVG}}{AS_{AVG}}$ $K_{MC} = \frac{P_{AVG} + P_{NAVG}}{AS_{AVG}}$	K_{MPK} - the coating coefficient of pension payments of the mandatory pension system; AS_{AVG} - average annual salary; P_{AVG} - the average amount of annual pension in mandatory pension system; t- the amount of fixed pension insurance premium; C_{PIPP} - the number of payers of pension insurance premiums; C_{NP} - number of retirees; K_{NSP} - coverage ratio of pension payments of non-state pension funds; K_{NAVG} -the average annual amount of non-state pension payments; K_{MC} - mixed coating coefficient.
Coverage coefficient			
-mandatory pension provision system - non-state pension provision system	Describes the share of the insured in the system of mandatory state pensions relative to the total population An indicator describing the share of insured persons in the voluntary non-state pension funds in relation to the total population	$K_{MPPC} = \frac{C_{NMPIP}}{C_P}$ $K_{NPPSC} = \frac{C_{PIPNFF}}{C_P}$	K_{MPPSC} - the coverage coefficient of mandatory state pension provision system; C_{NMPIP} - the number of payers of mandatory pension insurance premiums; C_P - the number of total population; K_{NPPSC} - the coverage level of the non-state pension provision system; C_{PIPNPF} – the number of payers of voluntary pension insurance premiums to the non-state pension fund
Share of wage fund in GDP			
of wage fund in GDP	An indicator that allows to determine the amount of salary directed to social	$\frac{WF}{GDP}$	WF– wage fund; GDP–gross domestic product.

World Economics & Finance Bulletin (WEFB)
Available Online at: https://www.scholarexpress.net
Vol. 20, March 2023
ISSN: 2749-3628,

	provision services		

The next third group is the value indicator of the efficiency of the pension system. The indicators of this group are described in detail in Table 3, which allows to determine the redistribution of GDP created in the country among the employed population and retirees, as well as indicators of return on assets of pension funds aimed at investing in the economy. Compared to other groups, indicators of this group are more closely related to the fourth group indicators, which represent indicators system of the financial stability of the pension system, that is, they are parallelly related.

Table 3. Efficiency value indicators of the pension system

Indicators	Description of indicator	Formula of indicator	Formula explication
The internal structural value of the pension system	indicator describesthe share of funds attracted to pension funds as a pension insurance premium relative to total income	$K_{SVPS} = \frac{E}{W_{PI}}$	K_{SVPS} - internal structural value of the pension system; E- expenses for financing pension payments of state and non-state pension funds; W_{PI} - funds from wages attracted to state and non-state pension funds as a pensioninsurance premium.
National value of the pension system	indicator that reflects the value of the country's pension system, taking into account GDPused for financing pensions	$NV = K_{PS} \cdot \frac{WF}{GDP} \cdot \frac{W_{PI}}{WF}$	NV - national value of the pension system; K_{PS} -internal structural value of the pension system; WF – wage fund; GDP – gross domestic product; W_{PI} – funds from wages attracted to state and non-state pension funds as a pension insurance premium
Investment profitability of pension funds	An indicator that reflects the investment profitability of pension funds in the state pension provision system	$IP_{PF} = \frac{IPF_1 + IPF}{IPF} \cdot 100\%$	IP_{PF} -profitability level of pension funds directed to investment activities; IPF_1- the upper limit of return on investment activities of pension funds; IPF- the amount of pension funds directed to investment activities

World Economics & Finance Bulletin (WEFB)
Available Online at: https://www.scholarexpress.net
Vol. 20, March 2023
ISSN: 2749-3628,

Investment profitability of pension reserves	An indicator that allows to determine the investment efficiency of pension reserves formed in non-state pension funds	$IP_R = \frac{IPR_1 + IPR}{IPR} \cdot 100\%$	IP_R– theprofitability level of pension reserves directed to investmentactivities; IPR_1 - upper return limit of pension reserves obtained from 100% of investment activity; IPR -pension reserves directed to investment activities

Today, while one of the tasks that needs to be addressed in the first place in the ongoing reforms of the pension systems of countries all over the world is to ensure the financial stability of pension funds, under our consideration, the fourth group, which is the last system of indicators in the practice of complex assessment of the pension system, is called the coefficient of financial stability of the pension system. Thanks to the indicators of this group, it will be possible to assess the financial condition of state and non-state pension system institutions in the country. The purpose of implementing this assessment practice is to ensure the sustainability of the financing of pension payments in the short- and long-term framework. The group of indicators characterizing the financial stability of the pension system and the practice of their calculation are illuminated in Table 4.

Table 4. Financial stability indicators of the pension system

Indicators	Description of indicator	Formula of indicator	Formula explication
The coefficient of financial stability of the pension fund	An indicator that assesses the financial capacity of state pension funds to meet their obligations	$K_{FSPF} = \frac{F_{PF}}{O_{PF}}$	K_{FSPF}- coefficient of financial stability of pension funds; F_{PF}- funds owned by the pension fund (total assets); O_{PF}- obligations of the pension fund (pension expenses that need to be financed)
Financial stability indicator of non-state (private) pension funds	An indicator that assesses the financial capacity of private pension funds to meet their obligations	$K_{FSNPF} = \frac{PR}{P_{AVG.N}} \cdot C_{R.NPF}$	K_{FSNPF}- financial stability indicator of non-state (private) pension funds; PR - the amount of pension reserves in the non-state pension fund; $P_{AVG.N}$ - the average amount of pension payments from non-state pension funds; $C_{R.NPF}$ - the number of retirees receiving a pension from a non-state pension fund.

World Economics & Finance Bulletin (WEFB)
Available Online at: https://www.scholarexpress.net
Vol. 20, March 2023
ISSN: 2749-3628,

Global pension system reforms seek to reduce the impact of demographic factors on pension systems by using mixed or funded pension programs instead of (PAYG) distribution-based pension programs based on the principle of generational solidarity. As a result, in world practice, most countries are moving to a mixed pension program. With this in mind, they seek to minimize the impact of accumulative and recurring factors. And consequence of this is that in world practice, most countries have switched to a mixed pension program. With this in mind, *integral and absolute indicators* (Table 5) have been developed by economists that reflect the financial sustainability of mixed pension programs based on the principles of accumulation and redistribution. In our opinion, it would be expedient to include these indicators in the fourth group of indicators described above, which describes the coefficient of financial stability of the pension system. The aforecited data show that the factors for a comprehensive assessment of the financial stability and efficiency of the pension system are divided into four groups and they provide an opportunity to assess the extent and periodicity to which the population directly using the services of pension programs in the country is using these services. Along with that, overcoming the existing problems in the pension system will provide a basis for forecasting the directions and types of their origin and, in turn, will increase the effectiveness of pension reforms in the countries. This assessment practice is widely used today in developed countries, especially by reputable international organizations.

Table 5. Financial stability indicators of mixed type pension systems

	Description of indicator	Formula of indicator	Formula explication
Integral indicator	An indicator describing the extent to which pension fundestablished based on a mixed type of pension provision program is financially able to meet its obligations	$K_{MPSFS} = \frac{W_{AVG} \cdot t \cdot C_{PIPP} \cdot \Delta PR}{P_{AVG} \cdot C_R \cdot P_{N.AVG} \cdot C_{NR}}$	K_{MPSFS} - integral coefficient of financial stability of the mixed pension system; W_{AVG} - annual average wage; t - the amount of fixed pension insurance premium; C_{PIPP} - the number of payers of mandatory pension insurance premiums; ΔPR - changes in pension reserves during analysisperiod; P_{AVG} - the average annual pension amount in mandatory pension provision system; C_R - the number of retirees using public pension services; $P_{N.AVG}$ - the average annual pension amount in the non-state pension system; $C_{N.R}$ - the number of retirees using non-state pension provision services; D/S – deficit / surplus indicator of the pension system
Absolute indicator	indicator that reflects the negative aspects of the pension fund and shows the extent to which the pension system is dependent on state budget subsidies for the fulfillment of financial obligations. This indicator is also called the pension fund deficit or surplus indicator.	$D/S = (W_{AVG} \cdot t \cdot C_{PIPP} \cdot \Delta PR) - -(P_{AVG} \cdot C_R \cdot П_{N.AVG} \cdot C_{N.R}$	

CONCLUSION

In our opinion, it is expedient to apply the practice of comprehensive assessment of the pension system in our country. It should also be taken into account that the peculiarities of our national pension system should not be overlooked. This, in turn, will allow for more precise and effective reform of the pension system in our country.

REFERENCES

1. Valieva E.N. (2010). *Financial efficiency and productiveness of compulsory pension*

World Economics & Finance Bulletin (WEFB)
Available Online at: https://www.scholarexpress.net
Vol. 20, March 2023
ISSN: 2749-3628,

insurance in the Russian Federation. Bulletin of Samara State University of Economics, № 6(68), 11-16.
2. Rustamov D.R. (2013). *Directions for ensuring the financial stability of the pension system.* Monograph. Tashkent: IQTISOD-MOLIYA, 139.
3. Rustamov D.R. (2018). *Issues of financial stability of the pension system in Uzbekistan.* Monograph. Tashkent: "IQTISOD-MOLIYA", 190.
4. Baskakov V.N., Baskakova M.E. (1998). *On pensions for men and women: social aspects of pension reform.* Moscow: Moscow Philosophical Fund, 200.
5. Dolotov V.A. (2009). *On features of financial stability of the pension system*. Finance. № 7, 51-57.
6. Vakhabov A.V. and others (2018). Foreign experience in the development of the pension system. Textbook. Tashkent: "Iqtisod-Moliya", 400
7. Jumaniyazov, I. T. (2021). The Progressive Foreign Experiments in the Activity of Sovereign Wealth Funds. Annals of the Romanian Society for Cell Biology, 109-116.
8. Jumaniyozov, I. (2018). Impact of Development Finance Institutions on Economic Growth: Implications for Reconstruction and Development Fund of Uzbekistan. International Journal of Management Science and Business Administration, 4(2), 84-88.
9. Jumaniyozov, I. (2020). ISSUES OF ENSURING THE TRANSPARENCY OF SOVEREIGN WEALTH FUNDS. International Finance and Accounting, 2020(5), 1.
10. Jumaniyazov, I. (2020). FOREIGN EXPERIENCE IN THE ACTIVITIES OF SOVEREIGN FUNDS. International Finance and Accounting, 2020(2), 1.
11. Jumaniyazov, I. T. (2021). Transparency Is A Key Indicator Of The Activity Of Sovereign Wealth Funds. The American Journal of Management and Economics Innovations, 3(05), 30-37.
12. Жуманиязов, И. Т. (2016). Основные задачи Фонда реконструкции и развития Республики Узбекистан. Наука, образование и культура, (7 (10)), 27-28.
13. Жуманиязов, И. Т. (2016). Направления использования средств Фонда реконструкции и развития Республики Узбекистан. Economics, (7 (16)), 28-29.
14. Jumaniyazov, I. T. (2022). O'zbekistonda davlat moliya tizimidagi islohotlar va rivojlantirish istiqbollari. Science and Education, 3(5), 1637-1645.
15. Inomjon Turaevich Jumaniyazov, & Bexruz Hazratov (2022). Foreign experience in the development of special economic zones in Uzbekistan. Science and Education, 3 (5), 1628-1636.
16. Jumaniyazov Inomjon Turaevich, & Juraev Maqsud Annaqulovich (2022). Korxonalarda moliyaviy qarorlar qabul qilish va risklarni baholash usullari. Science and Education, 3 (5), 1646-1654.
17. Jumaniyazov, I. T. (2019). The impact of Uzbekistan Reconstruction and development fund's expenditure on GDP growth. Science, research, development № 16. Monografiya pokonferencyjna.
18. Jumaniyazov, I., & Xaydarov, A. (2023). The importance of social insurance in social protection. Science and Education, 4(1), 1033–1043. Retrieved from https://openscience.uz/index.php/sciedu/article/view/4941
19. Inomjon, J. (2023). GENDER BYUDJETLASHTIRISHDA DAVLAT MOLIYAVIY NAZORATINING O'RNI. Новости образования: исследование в XXI веке, 1(6), 1187-1191.
20. Бахронов, Ж., & Жуманиязов, И. (2023). Партисипатор бюджетлаштириш ва уни Ўзбекистонда қўллаш долзарблиги. Science and Education, 4(2), 1486–1493. Retrieved from https://openscience.uz/index.php/sciedu/article/view/5234
21. Davlatboyeva, M. S. qizi, & Jumaniyazov, I. T. (2023). Yashil byudjetlashtirish va uni O'zbekistonda joriy etish istiqbollari. Science and Education, 4(2), 1509–1516. Retrieved from https://openscience.uz/index.php/sciedu/article/view/5237
22. T. Jumaniyazov, & A. Khaydarov. (2023). THE İMPACT OF UZBEKİSTAN'S SOVEREİGN WEALTH FUNDS ON ECONOMİC GROWTH. American Journal of Research in Humanities and Social Sciences, 10, 1–7. Retrieved from https://www.americanjournal.org/index.php/ajrhss/article/view/495