FORMATION OF NET RATE IN ADDITIONAL PENSION INSURANCE, FACTORS AFFECTING LIFE EXPANSION

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ABSTRACT:

In this work, protection from accidents that cannot be predicted in advance based on the planning of insurance activities, reduction of the damages of these events, the role of life insurance in the insurance market, the factors affecting it and, in turn, the dependence of these factors on life expectancy, the insured's annuity in the insurance pension program, reaching a certain age the insurance premiums to be paid by him have been studied.

Keywords: Life insurance; risk insurance; long and short term life insurance; rent; actuarial mathematics.

I.INTRODUCTION

Today, in our Republic, measures are being consistently implemented to further develop the financial market, expand the scope of coverage of the population with quality financial services, support the activities of insurance organizations, as well as create favorable conditions for protecting the rights and legal interests of consumers in this area. At the same time, at the current stage of reforms, the active development of financial services aimed at ensuring stable growth of the economy and improving the quality of life of the population requires the strengthening of the role of the insurance market in the republic and the wide use of insurance tools. To further reform the national insurance market and ensure its rapid development, introduce new types of insurance services that are in high demand, In order to increase the confidence of consumers in the insurance market, it is also planned to implement the State Program for the implementation of the Strategy of Actions on the five priority directions of the development of the Republic of Uzbekistan in the "Year of Active Investments and Social Development" in 2017-2021. For this reason, it is important to develop the life insurance market in our country today.

II. MATERIALS AND METHODS

Life insurance is technically the most advanced line of insurance. It is in life insurance that the role of mathematical statistics and the theory of probability is very important, and it is in this direction of insurance that it becomes possible to widely use statistical-probability models based on reliable regularity and obtain almost certain results.

Actuarial mathematics in the traditional sense is a theoretical account book of insurance rates in various insurance contracts, as well as calculation of the insurance reserve that prevents the insurance company from failing with a reliability guarantee, determining the demographic laws characterizing the general insured persons, calculating the company's profit, inflation rate, legal and other aspects. .

The parametric indicators of the selected pension program (the duration of the formation and payment of pension funds, the amount of the pension insurance contribution and its payment period, etc.) are reflected in the contract of the additional pension program (non-state pension program). The procedure for payment of pension insurance contributions and payments mentioned in the notice allows to determine the flow of

payments and its duration in the specified period of time. Depending on the amount of pension insurance contributions and pension payments, pension programs can be divided into the following three types:

- fixed pension contributions;
- defined benefit pensions;
- defined pension contributions and payments.

In order to guarantee the payment of the specified amount of pension payments, the minimum rate of return of the insurance company's assets, taking into account the age of the insured, is calculated based on the rate of return on financial transactions.

Pension payments in pension programs operating on the basis of fixed pension contributions are determined based on the size of the pension contribution fund formed in the account and the income received by the pension fund from the investment activity of these funds. In a defined benefit pension program, an agreed amount of pension benefits is paid after the obligation to pay the pension insurance contributions specified in the contract is fulfilled. Actuarial calculation is performed accordingly in both of the above situations. In this case, it will be possible to form a correct idea of the actual terms of making payments based on the demographic indicators (mortality rate) specific to the country.

In the insurance pension program, an annuity of insurance contributions is valid, which must be paid by the insured until he reaches a certain age. The insurance company that develops this type of programs must clearly indicate the conditions of insurance when forming tariff rates to determine the amount of insurance contributions (premiums) that the insured must pay. The tariff rate allows determining the monetary value of the amount of pension payments based on the size of the insured's pension insurance contributions. In addition, another important aspect of it (tariff rate) is used to determine the financial reserves intended to pay pension payments.

A number of factors affect the value of the pension insurance contract, and it is appropriate to divide them into the following groups: demographic (gender, age of the insured, region of residence, etc.), financial (interest rate or rate of return (rate of return)), contract conditions (order for paying insurance premiums: payment at once or in installments, insurance period, time of payment of pension payments (postnumerand, prenumerand (means payment of pension payments at once or based on a certain period)), validity period of the pension insurance contract (typical for short-term contracts), payment of pension payments delayed deadlines, etc.).

There is also an effect of the interest rate on the value of the annuity. It should be noted that the higher the interest rate, the lower the value of the annuity, and in any case there is an opportunity to provide affordable insurance services for customers.

At this point, it is appropriate to analyze the impact of the insurance period and the insured's age on the annuity. In any case, the longer the policy term, the higher the value of the annuity. The relationship between this situation and the interest rate level is not linear, but inversely proportional. Over a long period of time, the distribution of the value of an annuity based on high rates is almost the same as the value of pension payments over a lifetime.

If we analyze the impact of the insured's age on the annuity, then it is necessary to distinguish between pension insurance based on pension insurance contributions paid at any age after the conclusion of the contract concluded with pension insurance contributions paid at a specified age. In the first case, as the insured's age increases, the pension value increases, and the insurance period decreases, the pension accumulation period also decreases. In the second case, if the payment of pension insurance contributions is delayed by n years, the amount of pension payments will be relatively less due to the older age of the insured person. in addition, this situation is related to the possibility of the insured to live up to a certain age.

Net premium on lump sum payment of insurance premiums.In most personal insurance programs, the procedure for calculating the net premium depends on the amount of insurance payments received: in the pension insurance program, the net rate is multiplied by the amount of the pension. As mentioned above, the determination of the net rate is carried out based on the obligations of the insurer and the insured, based on the relationship between the amount of insurance paid by the insured and the size of the pension payment that the insurer must pay (based on the procedures established at the time of concluding the contract).

If the insurance premiums are to be paid at once at the time of conclusion of the contract, then the amount of the net premium will be equal to the amount of the insurance annuity at the time of conclusion of the contract. If in the contract the payment of pension payments is made in postnumerand form, it (aniiutet rate) is conditionally designated as "ä". If it is in subscript form, then the conditional symbol is "a".

Payment of pension payments in the state pension insurance program is made in subscriber form. When using the supplementary pension program, the procedure for paying pension insurance contributions and pension payments is carried out in accordance with the procedure specified in the contract concluded between the insured and the insurer.

When performing actuarial studies, first of all, the procedure for paying pension insurance contributions in one layer is calculated. After that, based on the results obtained, the terms of payment in installments will be clarified.

In the pension insurance program, the insurer's obligations begin after the insured has fully paid the insurance premiums specified in the contract (except for risky situations). Therefore (taking into account the existence of risky situations), the payment of pension insurance contributions can be made not only in the form of prenumerand (payment in installments), but also in the form of postnumerand (payment at once).

Postnumerand pensions

1) the formulas for calculating the net rates for the payment of pension payments in postnumerable form are as follows:

- quick (early) retirement: $\quad a_x = \dfrac{N_{x+1}}{D_x}$ $\qquad$ (1.1)

- for pensions delayed by k years: $\quad k \,\big|\, a_x = \dfrac{N_{x+k+1}}{D_x}$ $\qquad$ (1.2)

2) for quick (early) postnumerand pension:

-early (early) retirement: $\quad a_{x:\overline{n}} \,| = \dfrac{N_{x+1} - N_{x+n+1}}{D_x}$ $\qquad$ (1.3)

-kfor pensions deferred for a year: $k \,|a_{x:\overline{n}} \,| = \dfrac{N_{x+k+1} - N_{x+k+n+1}}{D_x}$ (1.4)

3) to pay lifetime pensions in postnumerable form m times a year:

-early (early) retirement: $\quad a_x^{(m)} = \dfrac{N_{x+1}}{D_x} + \dfrac{m-1}{2m}$ $\qquad$ (1.5)

-k for pensions deferred for a year:

$$k \,|a_x^{(m)} = \dfrac{N_{x+k+1} + \frac{m-1}{2m}*D_{x+k}}{D_x} \qquad (1.6)$$

When calculating insurance annuities of pension payments paid m times a year, the possibility of the insured's death is fully distributed within a period of one year (the coefficient of adjustment to the payment of pension payments is calculated in the following order: (m-1)/2m).

It is appropriate to apply the coefficient of adjustment to the payment of pension payments when making a different form of distribution.

4) for immediate (early) pensions paid in postnumerand form m times a year

-early (early) retirement:

$$a^{(m)}_{x:\bar{n}} \mid = \frac{N_{x+1}-N_{x+n+1}+\frac{m-1}{2m}*(D_x-D_{x+n})}{D_x} \qquad (1.7)$$

-kfor pensions deferred for a year:

$$k \mid a^{(m)}_{x:\bar{n}} \mid = \frac{N_{x+k+1}-N_{x+k+n+1}+\frac{m-1}{2m}*(D_{x+k}-D_{x+k+n})}{D_x} \qquad (1.8)$$

Subscriber pensions

Usually, pension insurance payments are made at the beginning of the period (beginning of the year, beginning of the quarter, beginning of the month, etc.)

1) the formulas for calculating the net rates for the payment of pension payments in the form of subscription are as follows:

- quick (early) retirement: $\quad \ddot{a}_x = \frac{N_x}{D_x} \qquad (2.1)$

- for pensions delayed by k years: $\quad k \mid \ddot{a}_x = \frac{N_{x+k}}{D_x} \qquad (2.2)$

2) for quick (early) subscriber pension:

-early (early) retirement: $\quad \ddot{a}_{x:\bar{n}} \mid = \frac{N_x-N_{x+n}}{D_x} \qquad (2.3)$

-kfor pensions deferred for a year:$k \mid \ddot{a}_{x:\bar{n}} \mid = \frac{N_{x+k}-N_{x+k+n}}{D_x}(2.4)$

Accordingly, the value of net premiums of pensions paid m times per year is determined.

3) to pay lifetime pensions in subscription form m times a year:

-early (early) retirement: $\quad \ddot{a}^{(m)}_x = \frac{N_x}{D_x} + \frac{m-1}{2m} \qquad (2.5)$

-kfor pensions deferred for a year:

$$k \mid \ddot{a}^{(m)}_x = \frac{N_{x+k}+\frac{m-1}{2m}*D_{x+k}}{D_x}(2.6)$$

4) for quick (early) pensions paid m times a year in the form of subscription

-early (early) retirement:

$$\ddot{a}^{(m)}_{x:\bar{n}} \mid = \frac{N_x-N_{x+n}+\frac{m-1}{2m}*(D_x-D_{x+n})}{D_x} \qquad (2.7)$$

-k for pensions deferred for a year:

$$k \mid \ddot{a}^{(m)}_{x:\bar{n}} \mid = \frac{N_{x+k}-N_{x+k+n}+\frac{m-1}{2m}*(D_{x+k}-D_{x+k+n})}{D_x} \qquad (2.8)$$

III. CONCLUSION

In conclusion, it can be noted that the policyholder may be interested in purchasing insurance annuities valid for a certain period in order to receive an additional pension. After the insurance contract expires, the policyholder plans to provide for his old age through various personal savings (or parents to educate their children). In such cases, the fixed tariff rates for quick pensions become important.

If the insured person reaches retirement age, retires, and wishes to live on pension from his savings while not working, he will be able to receive pension payments in postnumerable form (all at once) at the end of each year. In this case, in contrast to prenumerand (paid in installments) pension payments, the value of the net rates will be lower (due to the preservation of the amount of pension payments).

At this point, it is appropriate to pay attention to the formulas for calculating net rates for pension payments paid at the beginning of the year or at the end of the year.

REFERENCES

1. Muzafarovna, Y. M. (2022). TIBBIY PEDAGOGIK YO 'NALISH TALABALARIDA MILLIY AN'ANALAR ASOSIDA BAG 'RIKENGLIKNI RIVOJLANTIRISHGA OID TARIXIY TAJRIBALAR. IJTIMOIY FANLARDA INNOVASIYA ONLAYN ILMIY JURNALI, 2(12), 80-84.

2. Inoyatovna, M. D. (2022). THE MAIN PEDAGOGICAL PRINCIPLES OF EDUCATION AND DEVELOPMENT OF GIFTED STUDENTS. IJTIMOIY FANLARDA INNOVASIYA ONLAYN ILMIY JURNALI, 2(12), 64-67.

3. Ulug'bek, S. (2022). MAHMUXO 'JA BEHBUDIYNING PUBLISTISTIK HAYOT YO 'LI. IJTIMOIY FANLARDA INNOVASIYA ONLAYN ILMIY JURNALI, 2(12), 76-79.

4. Bobirovich, N. M. (2022). ILK O 'SPIRINLIK DAVRIDA SHAXS SHAKLLANISHINING PSIXOFIZIOLOGIK ASOSLARI VA SHAXSLARARO MUNOSABATLAR. IJTIMOIY FANLARDA INNOVASIYA ONLAYN ILMIY JURNALI, 2(12), 68-71.

5. Ro'zimurodovna, M. G. (2022). METHODS FOR ANALYZING THE TEXT OF A WORK OF ART IN ELEMENTARY GRADES. IJTIMOIY FANLARDA INNOVASIYA ONLAYN ILMIY JURNALI, 2(12), 60-63.

6. Valiyevna, F. M. (2022). CONFLICTS AND THEIR NATURE BECOME THE BASIS OF EXPLANATORY MODELS OF PERSONALITY. IJTIMOIY FANLARDA INNOVASIYA ONLAYN ILMIY JURNALI, 2(12), 55-59.

7. Lochinovna, A. M. (2022). O 'QUVCHILARDA O 'ZBEK MUSIQA FOLKLOR HAQIDAGI TASAVVURLARNI SHAKLLANTIRISHNING VOSITA VA USULLARI. IJTIMOIY FANLARDA INNOVASIYA ONLAYN ILMIY JURNALI, 2(12), 51-54.

8. Холикова, М. К. К. (2021). ВАЖНЫЕ АСПЕКТЫ ЭСТЕТИЧЕСКОГО ВОСПИТАНИЯ ШКОЛЬНИКОВ В ДУХЕ НАЦИОНАЛЬНЫХ ЦЕННОСТЕЙ. European research, (1 (38)), 73-75.

9. Makhmudova, D. I., Isabayeva, D. K., & Holikova, M. K. AESTHETIC EDUCATION OF TALENTED STUDENTS IN THE SPIRIT OF NATIONAL PRIDE.

10. Holikova, M. K. IMPORTANT ASPECTS OF AESTHETIC EDUCATION OF SCHOOLCHILDREN IN THE SPIRIT OF NATIONAL VALUES.

11. Shuhratovna, N. M. (2021). Topic Groups of Microtoponyms of Jondor District. Middle European Scientific Bulletin, 8.

12. Qizi, M. D. I., Komiljonovna, I. D., & Azamatovna, M. S. (2021). The essence of educating talented and creatively minded youth in the spirit of national pride. Asian Journal of Multidimensional Research, 10(5), 383-386.

13. Юлдашева, М. (2020). Розвиток толерантності в історії східної культури. Науковий вісник Ізмаїльського державного гуманітарного університету, (46), С-158.

14. Muzafarovna, Y. M. (2020). DEVELOPMENT OF TOLERANCE IN THE HISTORY OF EASTERN CULTURE. Chief Editor, 5(10).

15. Jobir o'g'li, Y. M., & Roziyabonu, S. (2022). 1-SINF MATEMATIKA DARSLARIDA GEOMETRIK MATERIALLARNI O'RGATISH. THEORY AND ANALYTICAL ASPECTS OF RECENT RESEARCH, 1(9), 132-137.

16. YARASHOV, M. (2022). BOSHLANG 'ICH TA'LIMNING DARS JARAYONLARIGA RAQAMLI TEXNOLOGIYALARNI TADBIQ ETISH VOSITALARI. ЦЕНТР НАУЧНЫХ ПУБЛИКАЦИЙ (buxdu. uz), 15(15).

17. Jobir o'g'li, Y. M., & Maftuna, S. (2022). BOSHLANG 'ICH SINFLARDA TA'LIM MAZMUNINING TAVSIFI. THEORY AND ANALYTICAL ASPECTS OF RECENT RESEARCH, 1(9), 144-147.

18. Raximqulovich, I. S. (2020). METHODS OF WORKING WITH TEXT IN LITERARY READING LESSONS IN ELEMENTARY SCHOOL. EPRA International Journal of Multidisciplinary Research, 1, 345-347.

19. Rakhimkulovich, I. S. (2021). Specific Features of the Text in the Cognitive-Pragmatic Approach. Middle European Scientific Bulletin, 8.

20. Rakhimkulovich, I. S. (2021). READING AND MOTHER TONGUE TEACHING IN PRIMARY SCHOOL DEVELOPMENT THROUGH WORKING ON TEXT.

21. Muzafarovna, Y. M. (2022). TIBBIY PEDAGOGIK YO 'NALISH TALABALARIDA MILLIY AN'ANALAR ASOSIDA BAG 'RIKENGLIKNI RIVOJLANTIRISHGA OID TARIXIY TAJRIBALAR. IJTIMOIY FANLARDA INNOVASIYA ONLAYN ILMIY JURNALI, 2(12), 80-84.

22. YARASHOV, M. (2022). Characteristics of International Integration of Sciences in Primary Schools. ЦЕНТР НАУЧНЫХ ПУБЛИКАЦИЙ (buxdu. uz), 23(23).