“Perspectives of accumulation of funds in the accumulative pension insurance system of Ukraine”

AUTHORS	Svitlana Berezina
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Svitlana Berezina (Ukraine)

PERSPECTIVES OF ACCUMULATION OF FUNDS IN THE ACCUMULATIVE PENSION INSURANCE SYSTEM OF UKRAINE

Abstract

The pension system existing in Ukraine does not correspond to the modern requirements of society and needs radical reforms in which the main focus should be on the introduction of a mandatory accumulative pension system. It is shown that accumulation of funds in accumulative pension system (APS) requires complex calculations. A model for accumulation of funds in the accumulative pension insurance system used in this paper makes it possible to determine a set of interrelated parameters – insurance premium rates, reasonable insurance periods, the desired rates of profitability, the required amount of savings, investment potential of accumulative pension system, etc. The amount of funds in accumulative pension insurance system depends not only on the basis of insurance (number of payers of insurance premiums), the amount of contributions (rate and object) and (primarily) on the term of beginning of payments of insurance premiums, the coefficient of profitability of invested funds and guarantees of their safety at all stages of functioning of the accumulative system. The analysis has shown that it is necessary: to cover all people employed in the economy with accumulative pension insurance; a rate of contributions should be determined not only by wages, but also by income; prior to the introduction of accumulative pension system – to create the necessary infrastructure, to develop a legal framework, to organize the management of accumulative funds, to solve the issues related to the protection of funds from the risks of losses. The beginning of introduction of the accumulative system should be postponed till 2020.

Keywords accumulative pension system, management of pension reform, rate of contribution, insurance period, accumulation, investment potential

JEL Classification G28, H55, H75

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Svitlana Berezina, Ph.D. in Economics, Associate Professor, Department of Insurance and Risk Management, Taras Shevchenko National University of Kyiv, Ukraine.

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INTRODUCTION

The pension system existing in Ukraine requires fundamental changes that would make it adequate to the economic situation of the state and its demographic situation. A permanent deficit of the pension fund of Ukraine, a meager level of pensions that mostly do not correspond to the contributions of citizens and other problems related to pensions, make relevant the issue of a radical reform of the current pension system, the ultimate goal of which is a social provision of pensioners at a decent level and reduction of the financial burden on the state budget. The vast majority of researchers, including this author, believe that corresponding to such requirements may be an introduction of the mandatory accumulative pension system along with the current solidarity payment system and the voluntary accumulative pension insurance system. In this regard, it is necessary to study the mechanism and prospects of accumulation of funds to create a balanced and fairly efficient pension system.

Analysis of recent research and publications. Scientists in Ukraine reasonably defended the need to introduce a three-level pension system (Besedin, Berezina, 2017; Malovanyi, 2016; Penkova, 2012) trying to assess the impact of the introduction of accumulative level of the obligatory state pension insurance system on its financial stability and efficiency (Yakymova, 2013), to disclose financial and socio-economic pre-conditions of its implementation (Hutsalova, 2014) and potential risks of its functioning (Blyzniuk, 2008; Koval, 2012; Tuholukov, 2014).

Some researchers believe that a three-tier pension system model is outdated and justify the necessary structural components for building a multi-level pension system in Ukraine (Tkachenko, 2012). Other researchers pay attention to the modernization of organizational and economic mechanism of the pension system in Ukraine (Noha, 2015) and offer their own conceptual approach to the need to guarantee the preservation of citizens' pension savings after the introduction of the obligatory accumulative pension system (Koval, 2012).

O. Kozmenko and Y. Konoplina emphasize the need to realize a social responsibility of enterprises, to introduce occupational pension schemes and to use a strict regime of state regulation of the pension system to ensure a successful implementation of the pension reform (Kozmenko, Konoplina, 2012).

The experience of the neighboring countries shows that an introduction of the obligatory along with the solidarity tier of the pension system does not always lead to positive effects for the economy and for the well-being of retirees. For example, in Russia, mandatory accumulative pensions were introduced on January 1, 2002. Since then, almost every year amendments were made regarding the peculiarities of their deductions and use. In 2008, a program of the state co-financing of the accumulative part of the labor pension was launched. In 2014, the authorities adopted and, until 2017, continued a moratorium on the transfer of accumulated pensions to private pension funds (PPF). In 2015, the Russian citizens were given a choice of pension provision: of only insurance pensions or both insurance and accumulative pensions. It should be noted that in 2016, the average level of solidarity pension in Russia amounted to about 170 US dollars. In 2017, the employer must pay to the Pension Fund 22% for each employee from the payroll of this employee that does not exceed 755 thousand Rubles (above that amount, deductions of 10% per month are made, but they do not appear on the individual personal accounts of future retirees), including 6% to the accumulative pension and 16% to the insurance pension. In 2017, the citizens of the Russian Federation were able to transfer their retirement savings from the state Pension Fund to authorized private pension funds. Over the last three years of the pension reform, the accumulative pension system has accumulated about 180 billion Rubles. They are distributed to individual pension accounts of 40 million working people. However, in 4 months of 2017, only 0.01% of these people applied for the transfer to private pension funds, which demonstrates the lack of awareness of citizens about the benefits of the system or distrust of it. Analyzing the results of reforms in the pension system of Russia, A. Solovyev rightly notes that these reforms failed to ensure effective development of the accumulative component of the pension system: no guarantees of covering not only of low (below the inflation level), but even of negative yields on the invested pension funds, that is, direct losses of pension rights (Solovyev, 2014).

It is impossible to create an effective pension system only through its reforms in the current economic and demographic conditions. With changes in the external (demographic and macroeconomic) factors, taking into account the requirements of the pension system, any processes of reforming the obligatory pension insurance system for balancing its budget and improving the living standards of pensioners are eventually reduced to primitive manipulation of the size of insurance premium rates or to the reduction in the number of pensioners by increasing their age (Solovyev, 2014).

A pension reform in Kazakhstan started in 1998: all working people had to deduct 10% of their income into the accumulative retirement fund on individual pension accounts. However, despite the differences

from the Russian reform, the problems with the decent level of pensions were similar: low yield of the invested assets, "erosion" of retirement savings by inflation, significant impact of crisis phenomena on the income of private pension funds, difficulties with the inclusion of the so-called self-employed population into the accumulative system, etc. According to the results of 2016, the size of the average pension in Kazakhstan amounted to little more than 160 US dollars. Now the government of this country is developing a package of further reforms of the pension system.

In Georgia, a pension fund does not exist. The expenditures on pensions are annually determined by the state budget. In 2016, the average size of pensions in Georgia was 77.6 US dollars. Since 2017, the Georgian government plans to introduce an accumulative pension system, which envisages the payment by the employed individuals of 20% to the state budget, while the state undertakes to transfer 2% to the savings account of a working person. Parallel to that, a citizen additionally transfers 2% to the pension fund and the employer – an additional 2%. Private financial institutions will manage the accumulative accounts of employees.

Among the countries of the former USSR that joined the EU, the years of reforms of their pension systems made it possible to balance the budgets of pension funds and provide a higher level of average pensions compared with the CIS countries, but much lower than in the "old" EU member states. For example, today the Estonian pension system consists of three components. One of them is a state pension, which is formed from the income of all working population. The size of social tax in Estonia is 20%. The other two components of the system are the obligatory and the additional accumulative pension funds. The sources of their formation are the personal resources of future retirees. While a citizen transfers 2% of his income to the mandatory pension fund, the state adds 4% from its social tax. The size of payments to the supplementary accumulative pension fund is determined by the citizens themselves and these amounts can always be changed. If contributions to the additional ace cumulative pensions are less than 6000 euros a year or make 15% of the gross income, these contributions are exempt from income tax. Persons who have reached retirement age are paid old-age or state pensions. Citizens are eligible for state pensions if they have a seniority of at least 15 years earned in Estonia. State pensions are paid to those people who do not have such seniority. In 2016, the size of the state pension was 158.37 euros. The amount of labor pension of citizens who have a working experience of 15 years is 222.93 euro, of 30 years – 301.61 euro, of 40 years – 354.06 euros, over 44 years – 375.04 euros (Razmer minimalnoi pensii ...). According to the results of 2016, an average pension in the country was 440 US dollars.

But even in the former Soviet Baltic countries (Latvia, Estonia, Lithuania), the approaches to the construction of pension systems vary considerably. According to the research of the Latvian economist Olha Rajevska, poor people in Latvia are the poorest in the Baltic states and the Latvian rich people are the richest. The pensions of people with low wages (50% and 75% of the average wage) are the lowest among the Baltic countries. At the same time, the earners of high wages (125%, 200% and 250% of the average wage) have the highest pensions in the region, but, according to the researcher, pension systems in all three countries are far from adequate provision of older people (Rajevska, 2015).

Although most published works highlight specific issues of building of accumulative pension system in Ukraine, and the experience of the neighboring countries makes it possible to analyze the dynamics of practical effectiveness of a particular approach to its building, today there is a need in further research to identify and analyze the mechanism and prospects of accumulation of funds by the pension system in reforming the pension provision in Ukraine.

The goal of the article. The article's goal is to ananalyze of the current conditions of pensions in Ukraine and to evaluate the prospects of accumulation of funds by the system of obligatory accumulative pension insurance system.

1. PRESENTATION OF THE MAIN MATERIAL

The pension system in Ukraine is based on the principle of solidarity of generations, that is, pension contributions of employees support the current payments to pensioners. If these funds are not sufficient, the difference is covered by redistributing tax revenues. Every year, the share of GDP, which is used to finance pensions, increases: from 9.51% in 1991 to 13.42% in 2015.

There is a steady increase in the share of deficit in total expenditures of the Pension Fund of Ukraine: from 4.9 % in 1996 to 35.4% in 2015 (Zahalnooboviazkove derzhavne sotsialne strakhuvannia ...). This is caused not only by the growing number of pensioners, but also by the number of legislative changes relating to the procedures for determining average and minimum pensions and expanding the number of privileged pensioners who are entitled to the increased sizes of pensions (Malovanyi, 2016). The dynamics in the number of pensioners in Ukraine is shown in Figure 1.

In the years of independence, it became possible to increase the ratio between the average pension and the average wage from 36.1% in 1991 to 38.9% at the beginning of 2016. The data about the size of the average pension and the average wage in Ukraine are given in Table 1. These achievements are caused primarily by the low level of average wages in Ukraine. But in the European countries, the rate of replacement of wages (income), which people earned prior to their retirement, is over 55% (Honcharov, Honcharova, 2007).

Table 1. Average monthly pensions, average monthly wages and the rate of replacement of wages by pensions in Ukraine in 1996–2016

Year	Average size of monthly pensions to pensioners who are registered in the Pension Fund, UAH	Average wage, UAH	The rate of replacement of wages by pensions, %
1996	38.7	126	30.7
1997	51.9	143	36.3
1998	52.2	153	34.1
1999	60.7	178	34.1
2000	68.9	230	30.0
2001	83.7	311	26.9
2002	122.5	376	32.6
2003	136.6	462	29.6
2004	182.2	589	30.9
2005	316.2	806	39.2
2006	406.8	1041	39.1
2007	478.4	1351	35.4
2008	776	1806	43.0
2009	934.3	1906	49.0
2010	1032.6	2239	46.1
2011	1151.9	2633	43.7
2012	1253.3	3026	41.4
2013	1470.7	3265	45.0
2014	1526.1	3480	43.9
2015	1581.5	4195	37.7
2016	1699.5	5183	32.8

Note: data for 2014-2016 with the exception of the temporarily occupied territory of the Autonomous Republic of Crimea, Sevastopol and parts of the zone of the anti-terrorist operation.

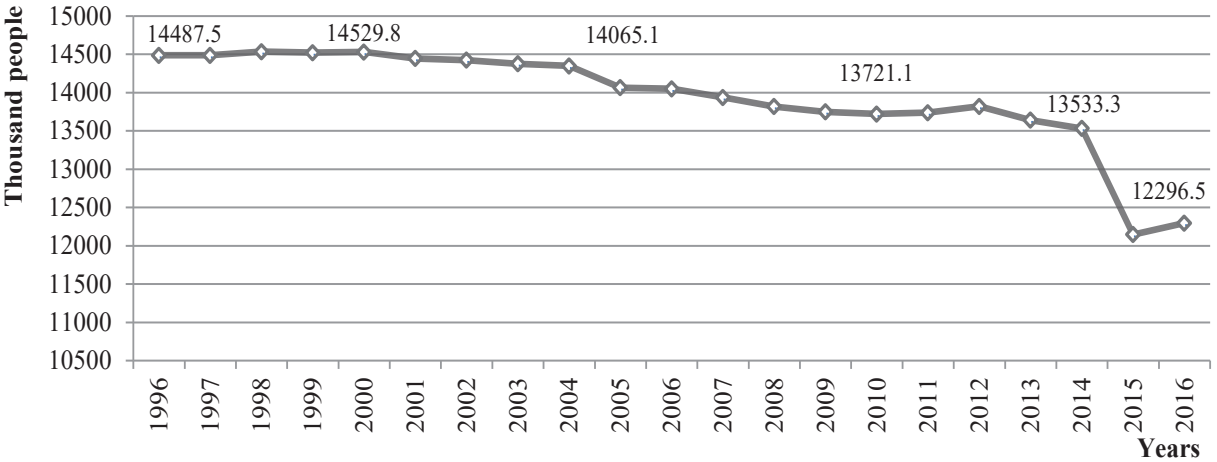

Figure 1. The dynamics in the number of pensioners in Ukraine in 1996–2016, thousand people

The designated problems of the pension system in Ukraine are largely caused by the unfavorable demographic situation. During the period 1959-2001, the ratio of pensioners to the working people in Ukraine increased by almost twenty percent – from 22.7% to 41.1%. According to the Institute of Demography and Social Research, by 2025, this figure will reach 50%, and by 2050 – 76% (Libanova, 2000). A stable financing of the Pension Fund, according to the calculations of scientists, is achieved if for one pensioner, there are more than three payers of insurance premiums.

The current economic crisis has led to a rapid decline in living standards of the general population, having a particularly acute impact on the socio-economic situation of pensioners. The older generation, which during most of their lives, experienced severe conditions, hoped that at least after retirement, they would receive incomes sufficient enough to ensure normal living standards. Contrary to these expectations, due to the inflation and the war, the people lost almost all their savings and were left with pensions, which, in many cases, do not cover the costs of the minimum consumer basket.

It was accompanied by a sharp decline in real incomes of the working population employed in the official sector and, consequently, the reduction in tax revenues for the budgets of different levels. High taxes on wages in most sectors caused an outflow of labor to the informal sector and, accordingly, reduced the number of payers of insurance pension contributions. Therefore, the existing state pension system became unstable and ineffective.

O. Koval believes that a radical solution to the problem of pensions of the elderly people lies outside the pension system. Pension reforms set several goals, one of which is the elimination of the shadow economy (including wages), which is impossible without public support for pension reforms based on the interest of citizens in their retirement savings and effective guarantees of their safety (Koval, 2012).

The international practice of reforming pension systems suggests that this area uses a fairly wide arsenal of measures. Usually, they include: an increase in the retirement age combined with economic incentives for deferred retirement; an increase in the absolute size and the share of insurance premiums; reduction in the number of beneficiaries; development of additional forms of pension provision in the form of professional, corporate and other private pension systems; introduction of a mandatory accumulative system. An optimal combination of these and other measures can solve sensitive issues related to the financing of pensions.

Beginning from 2017, Ukraine plans to introduce an accumulative pension system according to the bill number 4608 "On Amendments to Certain Legislative Acts of Ukraine on introduction of an accumulative system of obligatory state pension insurance and common principles for the calculation of pensions" (Proekt Zakonu "Pro vnesennia zmin ...").

Preparations for the introduction of an accumulative system of obligatory state pension insurance need to define its parameters, to research various versions of its functioning. It is necessary to build a suitable model that would make it possible to study the most important conditions for the functioning of the pension system, to create an algorithm for determining its interrelated parameters and provide an opportunity to study various versions in the functioning of accumulative pension system.

The author offers a model of accumulation of funds by the accumulative pension insurance system with the following exogenous variables: the number of payers of pension contributions on a year-by-year perspective; the period of insurance contributions; the age of retirement of the insured person. What is known is the average wage in the beginning of implementation of the system and the required amount of savings to pay pensions during the lifetime of pensioners after their retirement at a given replacement rate (the ratio of pensions and wages).

The results of the model's interpretation, that is, endogenous variables are: the rate of insurance contributions as a percentage to wage, pensionable service, the required rate of return on ac-

cumulated funds and possible volumes of investments of accumulated funds into the economy of the state.

Figure 2 shows the proposed scheme of accumulation of funds in the accumulative pension insurance system. The horizontal axis shows the years of functioning of the accumulative pension system since its introduction, the vertical axis shows the age of payers of insurance contributions. If we assume that the age of beginning of contributions' payment is 21 and the retirement age is 60 years, then, the possible period of payment of contributions will amount to 40 years. For taxpayers aged 35, the possible contribution period since the introduction of the accumulative pension system will be 25 years, and for those aged 20-40 years. The following year, the persons, who after the year of introduction of the accumulative pension system were 35 years old, would have 24 years for the payment of contributions. At the same time, 20-year-old persons will be transferred into the category of taxpayers with a period of possible contributions within 40 years. On the scheme, the possible period of payment of contributions is limited by lines OF and CE.

The scheme of accumulation of funds by the accumulative pension insurance system is based on the calculations of the annual accumulation of funds from the beginning of contributions' payment till retirement.

To formalize the calculation of accumulation of funds by the accumulative pension system, the author offers to calculate the accumulation of funds for each year of the system's functioning for each age group of payers and, then, determine the total amount of funds accumulated in the system. We will use the following symbols:

- c_{it} – the rate of contribution of payers aged *i-th* in their *t*-year of the system's functioning, % of wages;
- N_{it} – wages, thousand UAH a year;
- v_{it} – contribution of a persons, thousand UAH;
- s_{it} – insurance period, years;
- k_t – the rate of return on the accumulated funds in the *t-th* year of functioning of the accumulative pension system;
- l_{it} – the number of payers of insurance contributions.

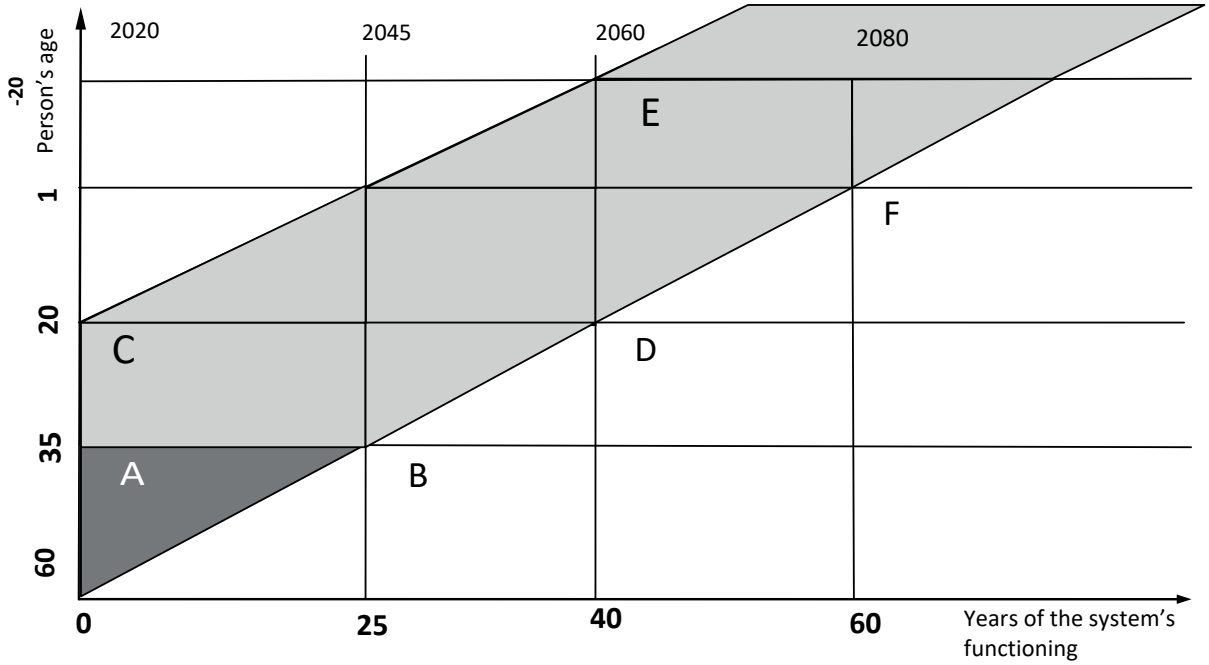

Figure 2. The scheme of accumulation of funds by the accumulative pension insurance system

Accumulation of funds of payers aged *i-th* in the *t-th* year of the system's functioning is:

$$n_{it} = \left(n_{i(t-1)} + v_{it} \right) \cdot k_t \quad (1)$$

where v_{it} – equals:

$$v_{it} = c_{it} \cdot N_{it} \cdot 12. \quad (2)$$

The total amount of funds accumulated by all payers by the *t*-th year of the system's functioning is:

$$H_t = \sum_i n_{it} \cdot N \cdot n_{it}. \quad (3)$$

Based on the number of payers in each year of functioning of the accumulative pension system, the age of the beginning of payments and the age of retirement of the insured persons, etc., this model makes it possible to determine a set of interrelated parameters – appropriate premium rates, insurance period, the desired rate of return, the required amount of savings, investment potential and others.

The proposed approach to the analysis of accumulation of funds in the accumulative pension system makes it possible to consider a multitude of options for building a system with different combinations of parameters depending on the set goals. Table 2 shows characteristics of 6 versions of accumulative pension system, which cover the most exemplary combinations of parameters such as insurance rates, insurance period and the rate of return. The rate of insurance is determined as a percentage of wages. Calculations were made in prices of the current year, the average monthly wage was adopted in the amount of 6 thousand UAH, the number of payers of insurance fees was adopted in the amount of 10 million people. Investment potential refers to the amount of funds accumulated in the accumulative pension system that could potentially be invested in the economy of Ukraine (the calculations do not take into account a multiplier effect of investments and the impact of reduction of the induced consumption). These calculations are enlarged, but they are acceptable for the assessment of the future versions of the system's building.

Table 2. The results of calculations of some versions in the functioning of the accumulative pension system

Variants of parameters of accumulative pension system	Rate of insurance, %	Insurance period, years	Accumulation of funds by 1 person in the years of insurance period, thousand UAH	Accumulation of funds in the pension system in the years of insurance period, bln. UAH	Investment potential of accumulative pension system, bln. UAH		
					Annually over insurance period	Over 20 years	Over 40 years
1. Accumulative pension system covers people aged from 21 to 35 with $k = 1.03$	7	35	313,9	22511	19.5-63.8	6107	30543
2. Accumulative pension system covers people aged from 21 to 60 with $k = 1.03$	7	35	313,9	27096	51.9-96.2	10084	35128
3. Accumulative pension system covers people aged from 21 to 60 with $c_{it} = 6\%$	6	40	336	33688	44.5-86.4	9379	33688
4. Accumulative pension system covers people aged from 21 to 60 with $c_{it} = 10\%$	10	30	353	34909.4	76-138.8	16108	58476
5. Accumulative pension system covers people aged from 21 to 65 with $k = 1.03$	7	30	247	27724	58.4-110.8	12604	47539
6. Accumulative pension system covers people aged from 21 to 60 with $k = 1.05$	7	30	352	29047.8	52.9-149.5	12645	50815

The first two versions are different in regard to the age of persons covered by the accumulative pension insurance system. The first version of insurance covers persons aged no more than 35, and the second one covers all citizens, who are subject to obligatory state pension insurance until their retirement at the age of 60. The difference between these versions in Figure 1 is distinguished separately within the figure O-A-B. It represents a possible accumulation of funds by persons aged 35. It is ignored in the first version, while in the second version (like in all others), it provides for the coverage by accumulative pension insurance of persons aged 21 to their retirement.

From an economic point of view, the comparison of the first two versions favors the second version in which the accumulation of funds in the first year of the system's implementation will be 32 billion UAH more than in the first version. And this is a significant addition to the country's investment potential. Although its annual growth within 25 years will be reduced to zero, during this period, it will amount to about 4.6 trillion UAH of additional savings, which, given the multiplier effect, will greatly exceed this amount. That is, accumulative insurance during the period of the systems' implementations would cover all age groups of people, not just limiting them to those aged 35.

The amount of funds of the accumulative pension insurance system directly depends on the number of payers of insurance contributions and their share among the working population in Ukraine could be better. Now, with 17,3 million working people only 7,9 million pay their contributions indicating the existing opportunities for improvement of the situation. According to the principle of equity, participating in the pension system should be all able-bodied citizens, although, in our case, at least all those employed in the economy.

Another important parameter of the system is a rate of insurance contribution. The results of calculations for the second, third and fourth versions, which vary according to the size of insurance rates, demonstrate a significant increase in their effectiveness. Thus, with an increase in the rate from 7% (the second version) to 10% (the third version), the volumes of accumulation over 20 years will increase by almost 60 percent. Of course, the rate increase is too burdensome for people with low salaries, but in the conditions of stabilization of the economy, this approach can be considered. At the same time, it is necessary to consider the possibility of expanding a tax base adopting income instead of wages for the tax base.

Of course, the accumulation of funds largely depends on the insurance period of the system's participants and on the length of the money's presence in the Accumulative Fund. But, above all, the volumes of the accumulated funds are related to the rate of return and the guarantees of preservation of funds at all stages of the accumulative system's functioning. In this study we consider the returns of 3 and 5% (the sixth version). The higher the return, the bigger the accumulations, which is particularly evident in the last sixth version. However, we should not rely only on high returns, especially over the long term. Here, the impact of different risks and threats (economic and financial crisis, bankruptcy, embezzlement, etc.) is possible. Accordingly, in assessing the prospects of returns on the system's funds, one should focus on the average indicators of yields. According to the author, they constitute 3%.

Analysis of the calculations presented in Table 2 shows that the most effective way to increase the accumulation of funds is an increase in the rates of contributions. Considering the fact that according to official statistics as of 2016, employed in the economy were only 64.2% of the working population, while the rest were mainly engaged in the shadow economy or existed due to the income derived from labor migration to other countries and only 6.4% of the population received incomes lower than a subsistence minimum, the level of poverty among the working population was 18.3% and the average wage in the economy amounted to 192 US dollars, significant difficulties may arise in the period of the system's formation, but under the conditions of a stable economic growth, the level of savings will gradually increase to a value that will enable the system's participants to receive decent pensions. According to calculations, to ensure the replacement rate of 0.6, it is required that per capita

accumulations should be about 600 thousand UAH in prices of 2017. That is, the government would be able to maneuver with the rate of contribution and the rate of replacement for solving specific problems of the pension system depending on the economic situation in the country.

In general, it should be noted that the considered versions quite adequately characterize the mechanism and prospects of accumulation of funds by the accumulative pension system, while the presented model makes it possible to examine the volumes of accumulation with different combinations of parameters of the accumulative pension system.

It should also be noted that the introduction of accumulative pension system, along with economic effects, will also have a great social value. As the size of contributions will determine the amount of the future pensions, the working people will have the necessary incentives to provide their own contributions, because they will be their property and be returned to them with interest. A person will have an account similar to a bank account and be able to control the amount of the accumulated money. This will encourage people to work in the official sector of the economy. If people will make significant contributions during their labor activity and their investments will generate profits (investment income), then, they will have bigger pensions than on the basis of the solidarity pension system.

The state is also interested in the implementation of accumulative pension system. The accumulative pension system accumulates huge amounts of money and if they are invested in the national economy, the problem of attracting investments will be largely resolved by the retirement savings in the accumulative pension system.

At the same time, it should be noted that the accumulative pension system does not have a mechanism to protect savings from depreciation during the periods of significant inflationary fluctuations. With an economic system that does not have an experience with financial markets and with fundamental structural changes, the risk of inflationary losses increases. Without intervention of the state or any other preventive mechanism, which does not pursue profits, the risk of inflation will be fully borne by the participants of accumulative pension system. If contributions will generate a small interest, a person can receive a lower pension than what is needed for a decent life. People can also lose their retirement savings in the event of a failed investment and the lack of state guarantees for private pensions.

Because contributions to the accumulative pension system are fully connected to the pension savings of a particular individual, low-paid categories of employees receive proportionally smaller pensions than the highly paid ones. The accumulative pension system does not have a mechanism for redistributing pensions among the highly-paid and low-paid employees, that is, individual pension accounts do not contain any mechanisms of social solidarity. In addition, disabled employees and women who look after children until they reach a retirement age are unlikely to save an ample amount of money in their retirement accounts to receive an adequate pension.

Although the expediency of implementation of a mandatory accumulative pension system is obvious, there are also some reservations. The by work (Tkachenko, 2012) notes that in addition to the impact of global financial crisis and underdevelopment of the stock market, there are certain peculiarities of the pension system itself: exemption of part of the income from the solidarity system and the need to find compensators to cover its deficit; creation of an institutional environment for the functioning of the second level; a complex and expensive (at least in the first years of its existence) administrative system; a long transition period; a significant number of participants making minimal contributions and who will not have sufficient savings for a lifetime pension.

During the introduction of accumulative pension system, it is necessary to perform considerable preparatory work both for the building of appropriate infrastructure and for the regulation of the system's parameters, its correlation with the solidarity system, at the same time, taking care of social pensions or social assistance to certain vulnerable groups of the population.

CONCLUSION

1. Determination of the volumes of accumulation of funds in the accumulative pension system requires a large number of preliminary calculations due to the scale of the problem, uncertainty of the future parameters of the accumulative system and the need to research various versions of its functioning. The model of accumulation of funds in the accumulative pension system proposed in this paper is based on the number of payers by years, the age of beginning of contributions' payment and the age of retirement of the insured people, makes it possible to define a set of interrelated parameters – premium rates, insurance period, the desired rate of return, the required volume of savings and others.

2. The amount of funds of accumulative pension insurance depends not only on the basis of insurance (number of payers of insurance premiums), the amount of contributions (rate and object)and (primarily) on the term of beginning of payments of insurance premiums, the coefficient of profitability of invested funds and guarantees of their safety at all stages of functioning of the accumulative system. The analysis has shown that it is necessary to cover all people employed in the economy with accumulative pension insurance system; a rate of contributions should be determined not only by wages, but also by income; accumulative insurance during the period of the systems' implementation should cover all age groups of people, not just limiting them to those aged 35. All this will contribute to a speedy recovery of the pension system and elimination of the budget deficit.

3. Prior to the introduction of accumulative pension system, it is important to create the necessary infrastructure to develop and adopt an appropriate legal framework to manage accumulative funds, to solve the issues of protection of the system's funds from inflation, bankruptcy and the risks of their loss. Haste (as is the case now) can only discredit the very idea of accumulative pension insurance. Accordingly, introduction of an accumulative pension system should be postponed till 2020.

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