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Efficiency of the Funded Elements of the Pension System: International Practices

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ABSTRACT

The author summarizes key science theories of the funded pension system and its development. The **aim** of the article is to review and discuss the studies on the efficiency of the funded elements of the pension system from the perspective of international practices. The research **methods** included generalization; classification and comparative analysis of theoretical and methodological approaches to evaluating the efficiency of a pension system and its elements; abstraction, which allowed us to classify existing pension plans on the basis of the materials presented in the paper; as well as scientific and grouping methods. The theoretical background of the research is based on the scientific studies indexed in Scopus, Web of Science and RSCI (Russian science citation index) for the period 1981–2019. To organize the presented data this period was divided into four stages depending on the role of the funded elements in the public pension system of the reviewed countries. The **results** of the research are the systematization and classification of the studies under consideration. Cross-country analysis according to the selected criteria showed that distributive pension systems generally demonstrate a higher level of sustainability and efficiency, as well as are better at ensuring a decent standard of living for the population. The author **concludes** that in order to increase the efficiency of funded elements it is necessary to reduce their influence on the national economic stability; develop additional regulations for pension investment schemes; implement macroeconomic reforms aimed at the development of funded elements, which require a sustainable national capital market. The **conclusions and results** of the paper can be useful for further development of the Russian funded pension system and analytical work of the public and research organizations.

Keywords: pension system; non-state pension fund; pension security; efficiency; pension savings

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INTRODUCTION

Russia, as many other countries, is going through the next phase of pension reforms. Concerning mainly the pay-as-you-go elements (raising the retirement age, changing the requirements for the minimum insurance period, changing the procedure for indexing pension payments), a number of areas are associated with the funded elements of pension provision. This trend is global as of the end of the last decade, more than 70 countries have undertaken some reform in the pension sector. This circumstance indicates the existence of problems associated with pension provision, the insufficient degree of performance of the functions of the national pension systems, and the need for additional scientific and methodological substantiation of the transformation of various elements of pension insurance.

The aim of this research is to review and discuss the results of studies on assessing the efficiency of the funded elements of the pension system in the context of international practices.

The aim has defined the objectives of the study:

- systematize and divide studies devoted to the efficiency of the funded elements of the pension systems by time periods in the context of international practices;
- review and highlight general criteria for the efficiency of the funded elements of the pension systems;
- highlight the features of various stages of research on the efficiency of the funded elements in the context of international practices;
- identify ways to develop and improve the efficiency of the funded elements of the pension system.

These objectives determined the sequence of the study and its stages.

At the first stage we set the boundaries of the study and selected the practices of countries in the implementation and use of

the funded elements of pension provision, as well as the authors of the review.

The second stage included the systematization and identification of four time periods in the study of the funded elements of the pension insurance based on international experience.

At the third stage of the study, we reviewed the analytical and authors' approaches to assessing the efficiency of the funded elements of the pension provision and identified efficiency criteria that are universal for all countries. We compared the efficiency levels of the pay-as-you-go and funded elements across countries based on the actual date.

Then the features of the stages of research on the efficiency of funded elements in the context of international experience were characterized, universal methods and results of this subject area were generalized, alternative options for the development of the funded elements were identified. The author highlighted the periods of popularization of this area of research among domestic and foreign scientists (both at the national and international levels).

Despite the popularity of research on the funded elements of the pension system among domestic and foreign economists over the past four years (E. Tarando, J. Wang (2019) [1], E. Gurvich, (2019, 2018) [2, 3], M.A. Ivanova (2018) [3], I. Madero-Cabib (2019) [4], I. Reutova (2018) [5], M. Amman, C. Ehman (2017) [6], D. Himik, S. Audousset-Coulier (2016) [7] et al), there is little agreement on the role of the funded elements among researchers, as well as their impact on the stability of the national economy. This is largely determined by various factors of the global and national economy. These differences are best traced in studies of different periods. Within the framework of our research, we distinguish four periods (*Table 1*).

Pension reform has always been on the agenda throughout the entire period of the pension system development [8, 9]. In ad-

dition to fundamental works, many analytical reviews are devoted to the study of the funded elements and their efficiency.¹

METHODOLOGY AND DATA SOURCES

This work is a review of studies on the assessment of the functioning of the funded elements of national pension systems from the point of view of international experience. We were guided by the following criteria when choosing a base study of the article:

- 1) similar research problems setting;
- 2) a description of the funded elements phase-in in different countries or the empirical nature of the study;
- 3) identification of factors and indicators of efficiency directly related to the funded elements of pension provision;
- 4) analysis of the introduction of the funded elements into the pension systems of countries, taking into account the following characteristics:
 - introduction of the funded elements within the compulsory pension insurance;
 - possibility of classifying and grouping according to features that allow assessing the efficiency of the use of the funded elements in the countries (the relative size of the pension provision, the level of coverage of the population with various types of pension programs, the expenditure on pensions as a percent of GDP);
- 5) keywords of the research.

Additionally, we considered the following scientometric indicators when choosing the works of a particular author:

- 1) the h-index of the researcher, as well as the citation index of his works on the

funded elements of pension insurance (both at international and national levels);

- 2) researcher's specialist area on the problems of pension insurance, social security, pension savings investment in various countries.

A new approach has been developed and applied to generalize the results of the analysis of the funded elements, which includes universal efficiency criteria for all countries. This approach helps to predict the development trends of the funded elements in different countries.

Summarizing the global experience of the pension systems functioning, the following types of the funded elements can be distinguished.²

- 1) as an independent level within the multi-level system of compulsory pension insurance;
- 2) as an additional component in the form of a non-state pension system;
- 3) in the form of professional pension systems existing both at the state level and at the level of individual enterprises and industries;
- 4) by privatization of the pension system.

Most of these programs are based on funding principles. However, in some countries (France, Germany, Japan), corporate pension programs are based on pay-as-you-go principles [14, 17–20].³

Regardless of the nature of the elements, they are assigned the following tasks:

- 1) achieving the required level of pension provision for citizens;
- 2) maintaining the financial stability of the pension system.

The choice of a certain type of pension coverage, the relationship between them, and therefore the nature of the elements depends

¹ See, for instance, OECD (2017): Pensions at a Glance 2017: OECD and G20 Indicators, OECD Publishing, 2017, Pension markets in focus. OECD, Private Pension Unit and Pension Statistics Group. November, 2013–2019. URL: https://www.oecd-ilibrary.org/social-issues-migration-health/pensions-at-a-glance-2017_pension_glance-2017-en; <https://www.oecd.org/pensions/private-pensions/pensionmarketsinfocus.htm> (accessed on 13.08.2020).

² Compiled by [1, 3, 18–21].

³ Averting the old-age crisis: Policies to protect the old and promote growth. Washington, DC: The World Bank; 1994. p. 436. URL: <http://documents1.worldbank.org/curated/en/973571468174557899/pdf/multi-page.pdf> (accessed on 25.12.2019).

Table 1

Stages of development and research of the funded elements of the pension insurance

Stages	Period	Stage description
Stage I	Until 1980	Funded elements are private, voluntary
Stage II	1980s – mid 1990s	The emergence and spread of the funded elements in mandatory pension systems. Integration of the funded elements into the mandatory pension system
Stage III	Mid 1990s-2012	Issues with the stability of the funded elements. Search for the optimal ratio of the pay-as-you-go and funded elements within the framework of multilevel models
Stage IV	2013–2020	The present stage, characterized by new development trends of the funded elements of the pension system

Source: compiled by the author.

on the degree of fulfillment of the above tasks. It can be concluded that this is a practical manifestation of the level of **efficiency** of the pension system.

OVERVIEW OF APPROACHES TO ASSESSING THE EFFICIENCY OF THE FUNDED ELEMENTS

In addition to scientific research, practical reviews are also devoted to the efficiency criteria of various elements of the pension system.

The Monash Center for Financial Studies provides an integrated assessment of the efficiency of the funded elements of the pension system. This approach is based on the results of the pension policies implemented in different countries. The global pension index includes three values: adequacy (40% of the final index value), sustainability (35%), integrity (25%).

As a result of assessing the efficiency of pension systems in various countries, the authors of this report come to the conclusion that systems with predominantly pay-as-you-go elements are more efficient (the Netherlands, Denmark, and Australia). The most efficient pension systems with predominantly funded elements are those of Chile and Singapore. Thus, according to the authors, the presence of the funded elements in the structure of the pension system in itself is not an issue or a factor of instability.

We consider other reports and research devoted to the study of the funded elements in world practices to prove or refute this conclusion.

The list of indicators for assessing the efficiency of the funded elements of the world pension systems presented in the OECD reports has been stable over a long

period of time and includes the following indicators:

- 1) total assets of private pension funds;
- 2) the share of the funded elements in the total amount of pension coverage;
- 3) net profitability of pension savings;
- 4) allocation of pension savings across various categories of assets, etc.

Based on the above, it can be concluded that the reports on the efficiency of the funded elements in foreign countries are complex and the results of the development of pension systems can be compared in the context of achieving the specified efficiency indicators.

The **efficiency** of the funded elements of the pension system is considered a controversial topic in scientific studies. According to T.V. Gapeeva [18, p. 19], efficiency of the funded elements of the pension system is determined by as follows:

1. A close relationship between individual contributions and retirement benefits.
2. Increased profitability, since the sum of collected contributions is not immediately used to pay the pension but is invested.
3. Obtaining additional financial resources for the development of the economy through the above investment mechanism.
4. Assessment of contributions in advance, as a set contribution scheme is used.
5. Benefits reflect pension funds accumulated by the time of retirement.

Thus, the author concludes that the efficiency of the funded element of the pension system is determined by the peculiarities of its functioning and its development. In this regard, the importance of comparing international experience in the institutional development of pension systems (including the use of the funded elements in their structure) increases.

The efficiency criteria of the funded pension system are largely based on its **function**. This point of view is supported by V.D. Roik [19].

It can be concluded that the ideas of T.V. Gapeeva and V.D. Roik are similar since

they propose to use the institutional characteristics of the world's pension systems as a basis for assessing efficiency.

A different opinion on the efficiency criteria of the pension system is given by A. Gudkov [20]. In his research, the author shows that the efficiency of the pension system is achieved in the case of "maintaining a balance of interests of contributors and pension recipients". Thus, we can trace the use of quantitative indicators for analyzing the efficiency of the funded elements of the pension system. In our opinion, the universality of this criterion makes it possible to apply this approach to pension systems in different countries.

The approach of D. V. Mel'nik and M.I. Miryakov [11, p. 44–48], who analyzed the funded elements on the example of the country that first introduced them at the mandatory level — Chile. The authors consider the efficiency of the funded elements through the influence on economic development in the country and the economic growth rate.

According to A.V. Pudovkin [21], efficiency indicators of the funded elements include:

1. The balance level of the pension system as a whole.
2. Investment results of pension savings (the author recommends calculating this indicator using the weighted average accumulated return indicator).

The approach presented in the works of foreign authors can also be attributed to a certain criterion of the efficiency of the funded elements of the pension system. [22]. In their opinion, to determine the feasibility of using funded elements, an assessment of the following indicators is required:

1. The ratio of assets of non-state pension funds to GDP.
2. The ratio of accumulated pension reserves to GDP.

As a result of the cross-country analysis according to the first criterion, it was

Table 2

Replacement rate value for countries with different types of pension system (2018)

Countries with mainly pay-as-you-go pension elements	Replacement coefficient value, %	Countries with mainly funded pension elements	Replacement coefficient value, %
United Kingdom	28.4	South Africa	18.5
Japan	36.8	Mexico	28.6
Switzerland	44.3	Lithuania	31.0
Germany	51.9	Poland	35.1
Sweden	53.4	Chile	37.3
Russia	57.0	Estonia	53.1
France	73.6	Indonesia	59.0
Denmark	70.9	China	79.4
The Netherlands	80.2	Hungary	84.3

Source: compiled by the author Pension markets in focus. OECD, Private Pension Unit and Pension Statistics Group. November, 2013–2019. URL: <https://www.oecd.org/pensions/private-pensions/pensionmarketsinfocus.htm> (accessed on 13.08.2020).

found that the highest ratio of assets of private pension funds to GDP is observed in Denmark (199% to GDP), the Netherlands (174%), Iceland (161%).%), Canada (155%), and Switzerland (143%).⁴ Thus, despite the debt crisis in the euro region and the consequences of the global financial crisis, there has been a significant increase in the assets of pension funds.

Another group of foreign authors presents a slightly different view on the indicators of the efficiently functioning funded pension system [23]:

1. The level of contributions to the funded pension system corresponding to the level of the worker's income.

2. The returns on investing in pension savings.

3. The total private pension funds expenditures in comparison with the returns on the investment of funds.

P. Holzmann and P. Hinz (2005) proposed to evaluate the efficiency of the funded elements according to the following qualitative parameters: adequacy, availability, stability, and reliability [25].

An interesting approach to the parameters of the pension system efficiency was proposed by E. T. Gurvich. According to this researcher, "the basic requirements for the parameters and mechanisms of the pension system are usually grouped into four categories:

- 1) if possible, pension rights for the dependent population;

- 2) socially acceptable level of pension benefits;

- 3) adequate economic burden of financing pension benefits;

- 4) financial stability of the pension system [2].

The above approach generally corresponds to foreign ideas about the efficiency

of the pension system, which include criteria such as population coverage, administrative costs, development of financial and other related market segments, the impact of the pension reform on savings, the redistributive effect of the funded elements of the pension system [11].

These requirements can equally apply to both pay-as-you-go and cumulative funding. In our opinion, when analyzing their implementation for the latter, incomplete compliance should be taken into account, especially in the case of those countries that followed the path of privatizing the national pension system.

Based on the indicated requirements, we highlight *research hypotheses*, on the basis of which it will be possible to determine the current level of efficiency of the pay-as-you-go and funded elements of the pension system, respectively:

1. The greatest coverage is observed in countries with pay-as-you-go financing.

2. The replacement rate does not depend on the type of the pension system.

3. The ratio of pension payments to GDP is higher in countries with a pay-as-you-go pension model.

Thus, when considering the first parameter — pension provision — in Chile, it can be found that the coverage of the economically active population with pensions remained at the pre-reform level — 60%.⁵ This circumstance can be explained by the peculiarities of the labor market, as well as trust in the financial market as a whole.

For Bolivia, El Salvador, and Peru, this value is much lower at 10–15% [24]. At the same time, in countries with a dominant pay-as-you-go model, this indicator averages 95%. However, there are exceptions: for example, for Vietnam's pension system,

⁴ OECD (2017): Pensions at a Glance 2017: OECD and G20 Indicators, OECD Publishing, 2017. URL: https://www.oecd-ilibrary.org/social-issues-migration-health/pensions-at-a-glance-2017_pension_glance-2017-en (accessed on 13.08.2020).

⁵ Averting the old-age crisis: Policies to protect the old and promote growth. Washington, DC: The World Bank; 1994. p. 436. URL: <http://documents1.worldbank.org/curated/en/973571468174557899/pdf/multi-page.pdf> (accessed on 25.12.2019).

which is exclusively pay-as-you-go, at the end of 2014 this value is 19.4% [9].

Thus, the first hypothesis is confirmed regarding the greater efficiency of the pay-as-you-go element according to this criterion.

The size of the pension is largely characterized by such a parameter as the replacement rate. We consider the value of this indicator for countries with dominant pay-as-you-go and funded elements, respectively (Table 2).

As you can see from the Table. 2, the highest replacement rate is observed in Hungary, a country with a mainly funded financing model. At the same time, the lowest replacement rate is observed in a country with a mainly funded model (South Africa — 18.5%). A more representative measure of this performance parameter is the average replacement rate. For countries with a dominant pay-as-you-go model, it is 55.17%, and for countries with a predominantly funded model, it is 47.37%, respectively. Based on this, we can conclude that the pay-as-you-go elements are relatively more efficient in this parameter.

Key indicators of the funding burden of pension benefits include the total amount of pension benefits expressed as a percentage of GDP and the effective rate of pension contribution. As a result of our research, we found that currently the countries with the largest share of pension spending in GDP are Italy (16.3%), France (13.8%), Japan (10.2%) (mainly pay-as-you-go elements). The countries with the lowest spending on pensions are Indonesia (0.8% of GDP), India (1.0%), South Africa (2.2%). When considering the value of insurance premiums for pensions, we found that there is no significant relationship between the two parameters mentioned above, since high spending on pensions in relation to GDP does not always correspond to a high insurance burden. Thus, we can conclude that there is no general trend in this parameter for each

of the groups of countries identified in this study.

When considering the share of pension spending in total public spending on social services, we found that countries such as Italy and Greece (mainly pay-as-you-go elements) are the highest (over 50%) and lowest in Ireland, USA, and Canada. (less than 20%) [25], which also confirms the above research hypothesis.

Thus, as a result of the generalization and systematization of scientific approaches to the study of the efficiency of the funded elements of the pension system, we can conclude that the most common criteria of efficiency are the level of costs for maintaining the functioning of the pension systems, the return on pension savings investment, the impact on the level of economic development of the country and the rate of economic growth due to the additional financial resources.

We consider which development factors of the funded elements could have an impact on the efficiency of its functioning at various stages.

RESEARCH STAGES: INTERNATIONAL OVERVIEW

First stage

As I. Tepper (1981) noted, “as a result of significant economic growth in the post-war period, pension plans have become an essential component of the financial structure” [26]. Thus, in our opinion, on the whole, the first period of development of the funded elements can be characterized as dynamic. This assumption can be confirmed by the main works of that time [27–29].

In our opinion, this is largely due to the active development of the methodological conceptual base and the development of pension policy regulation. Basically, the process of investing pension savings was considered within the framework of the concept of “ideal markets” [27]. At the same time, also during this period, there are con-

ceptual works devoted to justifying the need to introduce the funded elements at the state level [30].

A number of works of the first stage are also devoted to the taxation of income received from the investment of pension savings [26, 31]. As shown in the above works, the main sources of tax savings are exemption from personal income tax, the investment income received, on the one hand, and on the other, due to the possibility of taking into account employers' contributions when calculating income tax. A number of authors, for example, M. Miller, show that there are no tax benefits when using corporate pension programs [32].

Another area of research of works of that time is the formation of an optimal investment portfolio of pension savings in terms of distribution between stocks and bonds [26, 32]. It should be noted that this direction has not lost its relevance at subsequent stages, and also has become one of the most important in the regulation of pension savings since the proportions of distribution between financial assets affect the level of efficiency of the funded elements in general.

Thus, the possible reasons for the instability of the funded elements in the first stage are not considered separately.

The beginning of the *second stage* of the study can be considered the moment of introduction of the funded elements of the pension system at the state level — May 1981 in Chile [33]. It should be noted that the first attempt to introduce these elements was undertaken almost a hundred years before that: in 1889 in Germany, but a new type of pension reform showed low efficiency [18]. Thus, the experience of Germany at the end of the nineteenth century demonstrated the ineffectiveness of the existence of a funded system in its pure form, which existed since the founding of German pension insurance.

It can be concluded that in many respects the architecture of the new pension reform

in 1981 was built on the principles of nationalizing the pension system, which was reflected in the Washington Consensus [15]. During this period, the funded element of pension insurance was introduced as a mandatory element in the following countries: Peru, Argentina, and Colombia (1993), Uruguay (1995).

Pension reforms in these countries led not only to a change in the institutional structure of pension provision but also to the development of the financial market and the achievement of certain parameters of economic growth.

Despite the spread of the funded elements within the framework of compulsory pension insurance, a number of authors of that time continued to emphasize the importance of the state in solving the problems of pension protection of the population. In particular, Z. Bodie (1990) notes that "... the government plays a critical role in the retirement income system — as provider, insurer, and regulator. Even in the United States, where the private sector is the major source of retirement income..." [34].

Within the framework of the second stage, works devoted to the study of the funded corporate pension programs and their comparison with similar elements of compulsory pension insurance are of great importance. Thus, the significance of the pension savings market for the national economy is noted [35]. In particular, there is a positive impact on the financial instruments market of those countries where such funded elements are used [34]. At the same time, the authors note that only the elements based on the principles of funding have a positive effect on the national economy: in those countries where the pay-as-you-go principles underlie corporate pension programs, this effect is not observed [14].

It should be noted that predominantly funded pension systems within the framework of compulsory pension insurance are

introduced in Latin America, while corporate pension programs are mainly represented in European countries. At the same time, in the Anglo-Saxon countries, the latter is mainly built on funded principles, and in the Romanesque countries – on pay-as-you-go principles.

We found that the benefits of the funded elements in research at the time included lower tax burdens [36].

We also found that, in contrast to the extremely positive works of the first stage, the factors of the instability of the pension savings market, in particular volatility and tight financial regulation [37], also receive detailed consideration. In the course of research of that time, the authors come to conclusions about the relatively low efficiency of dominant investment in stocks, which is fundamentally different from the conclusion of the work of the previous stage⁶ [38].

There are also studies with other results. For example, Friedman (1983) finds that there is no significant relationship between cost in defined contribution and benefit plans [39]. Z. Bodie (1990) confirms these conclusions [40]. Within the framework of this stage, on investment issues, a line of research is being developed on the relationship between the life cycle of a person and a household and decisions made on pension savings and investments [41].

Despite the fact that in the works of this time, both the issues of investment and the introduction of the funded elements at the mandatory state level were quite actively considered, some issues did not receive proper development. This might further affect both the process of introducing these elements into the pension systems of a number of countries and an increase in their level of vulnerability and sustainability, which would negatively affect their efficiency.

Within the *third stage*, a significant number of works are devoted to the study of the experience of international pension reforms and the analysis of the institutional characteristics of various pension models [42]. The macroeconomic characteristic of this stage can be considered the fact that the world economy of that period was faced with the problem of low growth rates, which actualized research aimed at developing mechanisms to prevent the negative consequences of this recession. One of these levers was retirement savings [21].

Since at this stage quite a few of the world's pension systems were faced with a crisis and have demonstrated the instability of the funded elements, studies devoted to the choice of the optimal forms of pension protection appeared, as well as efficiency criteria of the public and private pension institutions [43–46].

In our opinion, the instability of the funded elements of the pension system also led to works devoted to the regulation of investment mechanisms within the funded elements and comparing funded elements with pay-as-you-go ones [23].

As part of this stage, studies of the results of using funded elements in compulsory pension systems appeared in countries that began privatization-type pension transformations in the early 1980s. Thus, D. Callund (1999) not only conducted a detailed analysis of the institutional and evolutionary characteristics of the Chilean pension model but also identified two problems that subsequently became factors of the instability of this type of pension systems: high costs of managing pension savings, low motivational attitudes of the insured for participation in the funded pension programs [8]. We believe this point of view is reasonable since the world experience of the functioning of pension systems with the funded elements indicates a decrease in the efficiency of such elements due to these factors.

⁶ Greenwich Research Associates. Report on large corporate pension plans. 1988.

During this time, the funded element of pension insurance was introduced as a mandatory element in the following countries: Latvia, Bolivia, Mexico, and El Salvador (1996), Hungary (1998), Kazakhstan (1998), Poland (1999), Russia. (2001), Costa Rica (2001), Dominican Republic, Lithuania (2003), Ecuador, and Nicaragua (2004) [43, 44]. In many respects, the pension reforms of that time, aimed at introducing a funded element, were carried out on the recommendations of the World Bank.

Thus, we can conclude that the experience of the Chilean pension reform in 1981 became a new conceptual model for the formation and organization of the funded elements within the framework of national pension systems. The analysis of this experience is considered in sufficient detail by R. Holzmann (2005) [24]. We note that if, within the framework of the second stage, the funded elements were introduced exclusively in the countries of South America, then within the framework of the third stage, the geography of countries was significantly expanded. In our opinion, this circumstance may be due to the following reasons:

- 1) higher post-retirement living standards that were not always achieved through pay-as-you-go pension systems;
- 2) global thinking – in modern conditions, the international orientation of residents of advanced economies increased;
- 3) achievement of privatization pension reforms of the previous stage in the field of improving the living standards of the population, ensuring economic growth and stability of the national economy;
- 4) the growing relationship between the economies of different countries;
- 5) the reduced role of government intervention in the economy of most countries and the transition from a state-run economy to a market one in a number of them;
- 6) active development of the international capital market.

In turn, these consequences were most clearly manifested at the final, *fourth stage* of the distinguished periodization.

The research on the experience of China on the introduction of the funded elements in the pension system should be considered separately [48].

A number of researchers within this stage determined the efficiency of the funded elements in comparison with pay-as-you-go ones [9]. At the same time, the impact on the macroeconomic situation was highlighted as the main advantage, since with a developed level of the funded elements through the investment of pension savings, the economy received additional financial resources for development. Another group of studies of this period is devoted to the issue of investing pension savings [49].

It should be noted that the work of the fourth stage was rather strongly influenced by the consequences of the global financial crisis, which revealed the financial insolvency and vulnerability of the funded elements in a number of world pension systems. The relevance of research in this area is important in modern conditions of economic instability when pension savings become its guarantee [24, 25].

The negative impact of the crisis on global pension systems is also highlighted in the report “Pension Markets in Focus” by the Organization for Economic Cooperation and Development (OECD). Low profitability, low-interest rates, and low economic growth are highlighted as negative factors. We consider this point of view reasonable since the world experience of the functioning of pension systems with funded elements indicates a decrease in the efficiency of such elements due to these factors.

On the other hand, it also led to the emergence of cross-country studies aimed at finding the best options for investing pension savings [25, 51–65].

The main factor of the instability of pension systems highlighted in these studies is

associated with the aging of the population. Among other factors of the need for pension reforms, the increasing level of fiscal burden is distinguished [61]. However, most of the conclusions indicate the need to improve the pay-as-you-go elements and reduce the dominance of the funded ones.

In our opinion, the factor of low stability of the funded elements at this stage led to the emergence of studies devoted to the choice of the most optimal forms of organizing pension savings. According to the authors of the “Pension Markets in Focus” report, defined contribution systems are more resilient to the dynamics of macroeconomic factors.⁷

These studies focus on assessing the impact of the development of the stock market and the directions of the pension reform, as well as the gender and age structure of the population [61]. The development and direction associated with the assessment of the ongoing reforms in the pension sector at the level of economic growth [65]. Some studies assess the impact of pension transformations on labor productivity [62]. The influence of the institutional structure of pension provision on the labor market and the dynamics of interest rates in the financial market [61], as well as the state of the public debt market [25].

Note that if research at the beginning of this stage is more focused on the development of the funded elements and the search for ways to reduce state participation in the pension provision of the population [25], then later works (2017–2019) will focus on improving the pay-as-you-go elements or the pension system generally [53].

It should be noted that the processes of curtailing and reducing the dominance of the funded pension elements at this stage are more typical for European countries and

Latin America. In several Asian countries, on the contrary, reforms are currently being implemented to introduce these elements into national pension systems [66, 67] — in particular, in China, Indonesia, South Korea, Malaysia, the Philippines, Singapore, and Vietnam. In our opinion, this feature can be explained by the insufficient level of coverage of the population with instruments of pension protection in these countries [19]. For this reason, research topics in these countries often focus on aspects that are more characteristic of the second or third periods we have identified [68, 69].

This document also features an alternative point of view provided at the International Economic Forum (2017),⁸ according to which the main reform of pension systems should affect the funded pension elements since there is a positive impact of the latter on stable economic development [69]. This point of view is also supported by the Organization for Economic Cooperation and Development, which recommends the use of a set of measures to reform the elements of pension provision within the framework of a multilevel model [10].

CONCLUSIONS

The study made it possible to establish that the issues of using funded elements in international pension systems are quite popular in the works of Russian and foreign scientists. At the same time, the popularity of this type of research has increased significantly after the introduction of the funded elements at the national level, as well as during periods of instability of these elements (both nationally and internationally). As a result of the review, it was revealed that the factors of instability at different stages of the functioning of the funded elements differ. It is shown that the main ones, according to foreign researchers, are:

⁷ Pension markets in focus. OECD, Private Pension Unit and Pension Statistics Group. November, 2019. URL: <https://www.oecd.org/pensions/private-pensions/pensionmarketsinfocus.htm> (accessed on 13.08.2020).

⁸ Melbourne Mercer Global Pension Index. URL: <https://info.mercer.com/rs/521-DEV-513/images/MMGPI%202019%20Full%20Report.pdf> (accessed on 24.12.2019).

1) a lack of consideration of the institutional characteristics of the national pension system when introducing this element;

2) a national policy of investing pension savings expressed in the use of restrictions on their allocation in various asset types;

3) an incomplete coverage of the population when this element is introduced into the compulsory pension insurance system;

4) making private changes to the current system of funded pension provision since this is mainly a long-term element;

5) a reduction of pay-as-you-go elements and construction of compulsory pension insurance solely on the basis of funded elements or a significant predominance of the latter.

These conclusions were obtained by the authors based on the study of international experience in the use of the funded elements in pension systems.

Periodization of international studies devoted to the analysis of the efficiency of the funded elements of the pension system has been carried out. The study revealed that the issues of assessing the efficiency of the funded elements of the pension system receive the greatest development at the third or fourth stages, i.e. at moments of the high level of instability of the world economic system. This pattern can be traced in the pension systems of most countries, in which the share of the funded elements is more than 30%.

Various approaches to determining the efficiency of the funded elements of the pension system are shown. Various indicators of the efficiency of the funded elements are presented. Often these indicators are developed and proposed as a result of a study of world experience in the use of the funded elements of pension protection. The author grouped and systematized the

normative and theoretical approaches presented in this study to highlight common elements. Generalized quantitative parameters of efficiency depend on the stage of the economic cycle and are indicators of the stability of both the national pension systems in general and the funded elements in particular. It is shown that the qualitative parameters of efficiency determine the degree of domination of the funded elements in the pension system.

The review showed that the choice in favor of the funded or pay-as-you-go schemes of pension protection for each country should be based on a deep and comprehensive economic analysis both when carrying out structural pension reforms and when improving particular elements.

The conducted cross-country analysis according to the criteria highlighted in the studies showed that pay-as-you-go pension systems, despite the active introduction of the funded elements into the pension systems of a number of foreign countries, generally demonstrate a greater level of stability and efficiency, and also better perform the task associated with a decent level of provision of the population.

As a result of the generalization of foreign experience in the use of funded elements and international studies of the final stage, we have identified the following possible directions for increasing the efficiency of the funded elements:

1) reduction in the dominance of the funded elements, since the latter often become an instability factor of the national economy;

2) development of additional regulations for the pension savings investment;

3) conducting accompanying macroeconomic reforms aimed at the development of the funded elements. This requires an efficient and sustainable national capital market.

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