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SOME ASPECTS OF ASSESSING THE EFFECTIVENESS OF INTERNATIONAL FINANCIAL ASSISTANCE TO THE REPUBLIC OF MOLDOVA

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Abstract: *The problem of assessing the effectiveness of financial assistance by international financial institutions (the International Monetary Fund and the World Bank) to the Republic of Moldova is considered. It is shown that the effectiveness of financial assistance should be determined on the basis of assessing the degree of its impact on the economic stability and economic development of the Republic of Moldova. The author's definition of the economic stability of the economic system is given, as well as the concept of its optimal structure. It is proposed to assess the sustainable economic development of the country using an indicator obtained on the basis of the rank parametric distribution of the economic cenosis. This indicator characterizes the stability and change in the structure of its economy. The parameters and structural changes in the rank parametric distribution of the economic cenosis make it possible to assess economic stability and economic development, as well as to identify problem areas in the country's economy.*

Key words*: International financial institutions, international financial assistance, emerging markets, economic crisis, economic stability, economic cenosis.*

JEL CLASSIFICATION: B26, F35, E22, F65.

INTRODUCTION

Currently, in the conditions of the recession of the world economy after the global financial and economic crisis of 2008 and the consequences of the COVID-19 pandemic, the problem of assessing the effectiveness of international financial assistance used to increase economic stability and economic development of the country is relevant. The demand for solving this problem is especially evident for countries with developing economies, which include the Republic of Moldova. The economies of these countries have been negatively impacted to a greater extent by the impact of the recent financial and economic crises. In this regard, the largest amount of financial assistance for these countries comes from the International Monetary Fund (IMF) and the World Bank Group (WB), which are key organizations of the International Financial Institutions (IFIs). Financial assistance provided by IFIs during times of crisis is generally the only available source of funding for such countries.

Practice shows that financial assistance provided by IFIs to countries with small volumes of economy (such countries include most countries with developing economies, including the Republic of Moldova), has a rather significant impact on their economic system. Such an impact is directly reflected in the key indicators of the economic development of countries. In this regard, the effectiveness of IFI financial assistance should be assessed by the degree of its impact on the

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economic stability and development of such countries. The more significant the increase in the economic stability of the country over a certain period of time after financial assistance from IFIs, the greater its effectiveness. As a rule, for the economic system considered within the framework of the country, this time period is taken equal to one year. Accordingly, in order to determine the effectiveness of IFI financial assistance, it is necessary to carry out a comparative analysis of the assessment of the sustainability of the economic system under consideration before receiving financial assistance and after using it for this period of time.

The assessment of the economic stability and economic development of a country is usually carried out on the basis of a system of indicators characterizing the main (key) parameters of its economy. Obviously, economic development is not feasible without economic sustainability. It should be noted that there is still no generally accepted definition of the concept of "economic sustainability". There are also no uniform methodological developments and methods for measuring and evaluating it. Usually the term "economic sustainability" is used in relation to any economic systems.

In modern economic literature, economic stability is understood as the ability of an economic system to return to its state of equilibrium with the external environment after the action of disturbing factors on it [3–6, 9]. At the same time, some definitions of economic stability also assume that the parameters and indicators of the economic systems under consideration are also preserved within certain limits [1, 7]. It does not specify the composition of these indicators, as well as their quantitative and qualitative characteristics.

In this article, the economic stability of the economic system is understood as the ability, after the influence of disturbing factors on it, to preserve the values of the main (key) economic indicators characterizing economic stability and progressive development due to the achieved economic potential and the realized structure of the economy, as well as the corresponding state regulation.

OPTIMAL STRUCTURE OF ECONOMY

To assess the economic stability of a country, it is necessary to develop an indicator that will characterize the optimal structure of its economy. The optimal structure of the economy is understood as an economic system that functions with maximum economic stability. It is advisable to assess the optimality and change in the structure of the economic system on the basis of the concept of economic cenosis — a model of the economic system within the framework of the concept of evolutionary economics and the evolutionary theory of economic changes [11]. The analysis of structural changes in the economic system based on the cenological theory makes it possible to assess its stability and identify problem areas in its economic development [2, 9].

For the cenological analysis of the stability of the country's economic system, all its organizations, companies and manufacturing enterprises (hereinafter referred to as companies) are considered that develop in a competitive environment for access to resources and markets. As a result of such evolutionary development and self-organization, an open non-equilibrium economic system is formed with predominantly weak, intersectoral ties between enterprises along the corresponding technological chains — an economic cenosis [9]. It should be noted that it is advisable not to study the entire economic system of the country as a whole, which is a rather difficult task, but to consider individual key sectors of its economy and the evolution of their economic cenoses. In the Republic of Moldova, such sectors include agriculture and the banking sector.

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ANALYSIS OF THE STABILITY OF ECONOMIC CENOSES

Analysis of the stability of economic cenoses is carried out on the basis of its rank parametric distributions [2]. These distributions are formed on the basis of empirical data of key economic indicators (revenue, free cash flow, net profit, etc.) of all companies in the economic system under consideration. First, a distribution parameter is selected — one of the main financial and economic indicators of companies for a certain time period (usually for a financial year), and then the companies are numbered in descending order of the value of this indicator (ranking). The first rank corresponds to the company with the highest economic indicator.

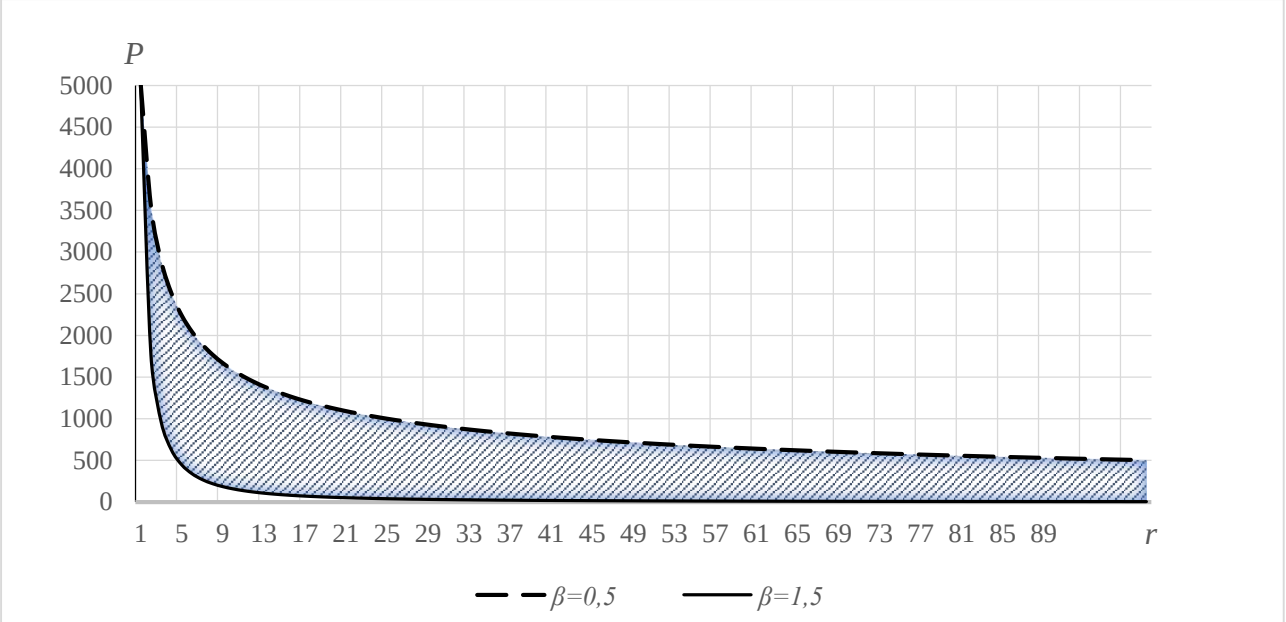
The assessment of the stability of the considered economic system is carried out by comparing the constructed rank parametric distribution and the optimal, so-called classical hyperbolic *H*-distribution [2]:

$$P(r) = P_1 / r^{\beta}, \quad . \tag{1}$$

where: $P(r)$ is the economic indicator of a company with rank r; P_1 is a constant value equal to the maximum value of this indicator (company with rank 1); β is the rank coefficient that determines the degree of steepness of the *H*-distribution hyperbola.

As the long-term practice of statistical observations shows, economic cenoses in the process of their self-organization and evolution in conditions of free market competition over time tend to a stable hyperbolic H-distribution with a rank coefficient $\beta \in [0.5;1.5]$ [2] (Figure 1) .

Figure 1. Stability area for rank parametric distributions of economic cenoses.



Source: *developed by the author based on [2]*

The area between the curves with β=1.5 and β=0.5 is considered stable for the rank parametric distributions of economic cenoses. At the same time, economic cenoses reach the most stable states in the case of the so-called "decile ratio" — the ratio of the sum of the highest economic indicators for 10% of companies to the sum of the lowest economic indicators for 10% of companies does not exceed 10 [2]. The parameters and structure of the constructed rank parametric distributions of the selected economic cenoses of the country and individual economic sectors can serve as an indicator of their structural changes and an assessment of their stability.

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The proximity of the obtained empirical values of the rank parametric distribution of companies to the hyperbolic *H*-distribution function approximating it is determined using well-known approximation methods (for example, the method of least modules and least squares) [10].

For the least squares method, the parameters P_1 and β of the approximating function of the hyperbolic *H*-distributions (1) are determined from the condition:

$$min \sum_{r=1}^{N} [P_f(r) - P_1/r^{\beta}]^2, \quad (2)$$

где P_f — фактические данные экономических показателей компаний за финансовый год. Показатель близости (отклонения) от оптимальной структуры рассматриваемой экономической системы страны определяется из выражения:

where P_f is the actual data on the economic performance of companies for the financial year. The indicator of proximity (deviation) from the optimal structure of the considered economic system of the country is determined from the expression:

$$\Pi = \sum_{r=1}^{N} [P_f(r) - P_1^*/r^{\beta^*}]^2. \quad (3)$$

Здесь P^*_1 и β^* есть решение (2), а P_1^*/r^{β^*} является гиперболическим *H*-распределением с ранговым коэффициентом в интервале $\beta \in [0,5;1,5]$.

Here P^*_1 and β^* is a solution to (2), and P_1^*/r^{β^*} is a hyperbolic *H*-distribution with a rank coefficient in the interval $\beta \in [0.5;1.5]$.

Meanwhile, the assessment of the deviation of the economic cenosis from the optimal structure of the considered economic system (3) is not entirely correct. This estimate is not dimensionless and depends on the absolute values of the selected parameters of the rank parametric distribution, which can vary significantly from year to year. Therefore, the author proposes to introduce a normalized assessment of the deviation of the actual economic cenosis from its optimal structure in the form of a stability indicator [8]:

$$\Pi_n = \sum_{r=1}^{N} [P_f(r) - P_1^*/r^{\beta^*}]^2 / \left(\sum_{r=1}^{N} P_f(r)\right)^2. \quad (4)$$

In formula (4), the denominator is the square of the sum of the actual financial parameter of the considered economic system for the corresponding year.

CONCLUSIONS

Analysis of the impact of financial assistance provided by the International Financial Institutions to the Republic of Moldova showed that its effectiveness should be assessed by the degree of its impact on the economic stability of the country. The more significant the increase in the country's economic stability over a certain period of time after the implementation of financial assistance, the greater its effectiveness. It is proposed to assess the economic stability of the country and its sectors of the economy using the indicator proposed by the author on the basis of the concept of the rank parametric distribution of the economic cenosis — a model of the economic system within the framework of the concept of evolutionary economics.

The developed indicator of economic stability characterizes the deviation of the economic cenosis from its optimal structure and thus allows assessing the stability of the economic system in the process of its evolution. Such an assessment makes it possible to determine the degree of influence of external factors acting at different time periods on the economic stability of individual economic sectors and on the country's economy as a whole. This indicator can serve as an indicator of the economic stability of a country or selected key sectors of its economy. The smaller this indicator, the closer the structure of the cenosis is to the optimal one, that is, to the structure of the economic system

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that has maximum economic stability. At the same time, the analysis of changes in this indicator over a certain time period of international financial assistance to the Republic of Moldova makes it possible to assess the effectiveness of its impact on certain economic sectors and on the country's economy as a whole.

BIBLIOGRAPHY

1. Гапоненко А.Л. Стратегическое планирование социально-экономического развития региона. Пространственная экономика, 2005, № 4, с. 40-53.
2. Кудрин Б. И. Два открытия: явление инвариантности структуры техноценозов и закон информационного отбора, М.: Технетика, 2009, 82 с. ISBN 978-5-902-926177.
3. Кудрин Б. И. Семнадцать лекций по общей и прикладной ценологии. — 3-е изд, Москва: Технетика, 2014, 226 с. ISBN 978-5-902926-29-0.
4. Ланге О. Введение в экономическую кибернетику: пер. с польск, М.: Прогресс, 1968, 208 с.
5. Леонтьев В.В. Экономические эссе. Теории, исследования, факты и политика: пер. с англ, М.: Политиздат, 1990, 415 с. ISBN 5-250-01257-4.
6. Моисеев Н.Н. Универсум. Информация. Общество / Никита Николаевич Моисеев, М.: Устойчивый мир, 2001, 198 с. ISBN 5-93177-016-X.
7. Порохин А.В., Урбан Н.А. Современные научные подходы к определению сущности экономической устойчивости. Фундаментальные исследования, 2015, № 11-3, с. 600-604.
8. Ступачев С.А. Оценка устойчивости экономических систем, описываемых экономическими ценозами, на примере банковского сектора Республики Молдова, Экономические науки, 2019, № 12 (181), с. 418–422.
9. Фуфаев В.В. Экономические ценозы организаций, М.-Абакан: Центр системных исследований, 2006, 86 с. ISBN 5-901271-25-4.
10. Dougherty C. Introduction to Econometrics 4th edition. Oxford: Oxford University Press, 2011, 573 p. ISBN 0-19-504346-4.
11. Richard R. Nelson and Sidney G. Winter. An Evolutionary Theory of Economic Change. Harvard University Press, 1985, 482 p. ISBN 9780674272286.