

Theoretical and methodological bases of improving the assessment of the effectiveness and synchronous functioning of a country's socioeconomic system under conditions of transformation

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Abstract:

The processes of transformation of the socioeconomic system are realized through various mechanisms, where the mechanism of structural change is a key one.

A structural change occurs in economic systems at various levels: at the level of a person and household (nanolevel), a company (microlevel), an industry or region (meso-level), the level of the national economy (macrolevel) and global economy (megalevel). Eventually, a structural change stimulates the processes of an appropriate level.

According to the authors' opinion, the issues of efficiency and synchronous functioning emerging in the process of transformation of the socioeconomic system of a country are the most relevant. This article considers the problem of evaluating the results of transformational changes, which is the most important for the development of the theory of economic systems. Also, this problem may determine the direction of reproduction processes in the national economy at the theoretical and applied levels.

Keywords: socioeconomic system, structural changes, transformation process, dynamic model, efficiency.

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1. Introduction

In general terms, a transformation is a change in the form and state, the modification of the essential properties or structure of the object of investigation.

Socioeconomic transformation is the process of a transition of the socioeconomic system as a result of structural transformations to a qualitatively different state. Regarding the quality of transformation processes, the assessment of the effectiveness and sustainability of the functioning of the socioeconomic system is the important point.

There has been a substantial amount of foreign research into the problems of the socioeconomic structure, the mechanisms of its transformation and structural crisis, for instance, Bell [1], Veblen [3], Galbraith [4], Keynes [9], Commons [12], Coase [14], Marx [20], Mitchell [21], Toffler [33], Hansen [34], Schumpeter [36]. Also, this problem was highlighted in the works of Russian scientists, such as Glazyev [5], Krasilnikov [15], Kuzyk [16], Lyubimtseva [19], Nureyev [23], Selischeva [27], Sukharev [31-32].

An important contribution to the theory of the effectiveness of socioeconomic systems was made by Douglas and Cobb [10], Kondratiev [13], Robinson [25], Harrod [35], as well as Nobel Prize laureates in economics Kantorovich [8], V. Leontiev [17-18], North [22], Solow [28-29], and others.

The works of such scientists as Biyakov [2], Dedov and Tonkikh [6], Pogostinskaya and Pogostinskii [24], Saarepera [26], Stojanovic [30], and others are devoted to methods of evaluating the effectiveness and sustainability of the socioeconomic system at the micro-, meso- and macrolevels.

2. Methods

This article uses an approach described in the works by Kolganov and Buzgalin to understand the essence of the socioeconomic system. These scientists believe that "at the basis lies a specific techno-productive structure; at the center – the method of coordination, property relations (mode of appropriation/disposition) and reproduction and a legal and political system is a superstructure. As a result, there is a simplified model of the economic system as a mutually conditioned relationship between certain technological structures (productive forces) and socioeconomic relations (production relations)" (2015) [11].

The transformation of the socioeconomic system is a dynamic process. Accordingly, in the indicator framework, assessing the effectiveness of the socioeconomic system of a country, it is necessary to use indicators reflecting the dynamics of the

transformation process, highlighting the indicators of basic, support, indirect and impedimental (contributing to the degradation of the economic system) processes.

The model of the efficiency and synchronous functioning of the socioeconomic system can be represented as follows:

$$X > Y > Z > W,$$

where X is the speed of development of basic processes of a socioeconomic system functioning; Y is the speed of development of support processes of a socioeconomic system functioning; Z is the speed of development of indirect processes of a socioeconomic system functioning; W is the speed of development of processes that negatively affect the socioeconomic system functioning (Demchenko *et al.*, 2017) [7].

The measures of performance and synchronous functioning of a socioeconomic system were formed by four types of processes, which made it possible to build a complete system of indicators reflecting the reference, effective and synchronous functioning of the socioeconomic system of the country in the process of transformation (Table 1).

Table 1 – Scorecard of indicators for assessing the effectiveness and synchronous functioning of a country's socioeconomic system

Indicator symbols	Indicator
X – Indicators of the main processes of the socioeconomic system functioning	
X1	GDP
X2	The volume of foreign investment in the Russian economy
X3	Export volume
Y – Indicators of support processes of the socioeconomic system functioning	
Y1	Total population
Y2	Economically active population
Y3	Student population
Z – Indicators of indirect processes of the socioeconomic system functioning	
Z1	Subsistence level
Z2	Monetary expenditures and household savings
Z3	Housing provision
W – Indicators of processes that negatively affect the functioning of the socioeconomic system	
W1	Crime rate
W2	Unemployment rate
W3	Child and infant mortality rates

The model of dynamic criterion formation allows reflecting the most important social and economic processes in the country. Using the ranking metrics on the growth rate makes it possible to build an order that can express the requirements for a better mode of action and serve as a reference. This order is called the normative system of indicators. It is a set of indicators arranged in growth rates so that

maintaining this order over a long-time interval ensures the best mode of functioning of the economic system in terms of efficiency and synchronism.

3. Results

The assessment methodology for the effectiveness and synchronous functioning of the socioeconomic system of Russia, which was formed under the influence of transformation processes, was tested based on the source data of statistical indicators of two periods – 1994-2003 and 2004-2013.

The calculation of the average values of the acceleration indicators for each of the four processes in both periods allowed receiving a matrix that helps to determine the weak (least effective) and strong (most effective) indicators of the country's socioeconomic development.

With the help of changed values, it is possible to trace the process of socioeconomic development of the country, taking into account the criteria feature. The level of synchronization of social and economic development is calculated to quantify the process of transformation. It seems appropriate to calculate the level of synchronicity SY relatively to the indicators of the main processes of socioeconomic development (processes of group X) since they determine the development trend of the country. This indicator will reflect the degree of synchronization of other socioeconomic transformation processes relative to the main ones. The range of the indicator varies from -1 to +1, while the upper value is only possible with the absolute synchronization of processes, the lower one is possible with the complete asynchrony of the processes' development.

The level of synchronization in the first period has a positive value (0.03), but it is very close to 0, so it is difficult to talk about the synchronization of Russia's social and economic development in this period (1994-2003). However, the value is positive. Therefore, it is possible to determine the quality of the functioning processes of the socioeconomic system of Russia in this period as synchronous.

The level of synchronism in the second period has a negative value. Consequently, from 2004 to 2013 there is an asynchronous functioning of the socioeconomic system of the country. Therefore, based on the evaluation of the results of the transformation process in Russia for two periods using the adapted methodology, it was found that the efficiency and synchronism of the socioeconomic system functioning in the given period are declining, although the official individual statistical indicators are positive and reflect sustainable growth.

Consider the typology of the actual functioning of the socioeconomic system of Russia in the 1st period (Table 2). Table 6 shows that the ideal mode of functioning

of the socioeconomic system was observed only in 2003. In this year, there was a steady growth of socioeconomic indicators in Russia.

Table 2 – Typology of the actual functioning of the socioeconomic system of Russia in the 1st period (1994-2003)

Processes of socioeconomic development	Acceleration Ranking									
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Basic	2	1	4	1	3	2	1	2	2	1
Support	3	2	2	4	1	1	4	4	1	2
Indirect	4	4	3	2	2	4	2	3	3	3
Impedimental	1	3	1	3	4	3	3	1	4	4

Consider the typology of the actual functioning of the socioeconomic system of Russia in the second period (Table 3).

Table 3 – Typology of the actual functioning of the socioeconomic system of in the second period (2004-2013)

Processes of socioeconomic development	Average value in the block by period									
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Basic	1	1	4	3	2	2	1	3	3	1
Support	2	2	3	4	3	4	4	1	4	2
Indirect	3	3	1	1	4	1	2	4	1	4
Impedimental	4	4	2	2	1	3	3	2	2	3

This article proposed the typology of transformation processes depending on the type of development. It makes possible to assess the trends in the transformation of the socioeconomic system of the country and implement a focused control action (Table 4).

Table 4 – Typology of transformation processes of the socioeconomic system of the country

Typological nomination of the effectiveness of socioeconomic development	Type of development	Dynamic structure
Favorable (ideal)	Stable growth	$X > Y > Z > W$
Favorable	Unstable growth	$X > Y > W > Z$
Depressive I	Unstable growth	$Z > X > Y > W$
Depressive II	Unstable decline	$Z > W > X > Y$
Lagging I	Unstable decline	$W > X > Y > Z$
Lagging II	Stable decline	$W > Z > X > Y$

Using the typology of the transformation processes of a country's socioeconomic system, depending on the type of development of the selected processes in accordance with the dynamic structure, makes it possible to determine the following types of development (Table 4):

- Favorable (ideal), characterized by stable growth under the dynamic structure $X > Y > Z > W$;

- Favorable, characterized by unstable growth under the dynamic structure $X > Y > W > Z$;

- Depressive I, characterized by unstable growth under the dynamic structure $Z > X > Y > W$;

- Depressive II, characterized by an unstable decline under the dynamic structure $Z > W > X > Y$;

- Lagging I, characterized by an unstable decline under the dynamic structure $W > X > Y > Z$;

- Lagging II, characterized by a steady decline under the dynamic structure $W > Z > X > Y$.

This typology reflects the economic content of the transformation process and allows assessing trends in the dynamics of a country's socioeconomic system.

With a favorable (ideal) development of socioeconomic indicators, the growth rate of basic and support processes exceeds the rate of indirect processes. In this case, one can speak about the effective and synchronous functioning of the socioeconomic system of Russia. In all other circumstances, there is an increasing deviation from the standard model of the functioning of the economic system.

The ideal model process indicators are coordinated and synchronized, which allows estimating not only the efficiency but also the synchronous functioning of a country's economic system.

4. Discussion

During the crisis and post-crisis times, the socioeconomic system of Russia was represented in the form of separate, uncoordinated processes. This situation was most typical for the first period, to be more precise, at the time of the government-initiated transformation of the country's socioeconomic system. During this period, there was an increase in the proportion of commodities and financial institutions in the Russian economic system. The second period was characterized by more ordered

transformation processes in the country's economic system, except for the crisis of 2008-2009. In 2013, Russia managed to reach a successful mode of functioning of the country's socioeconomic system, characterized by unstable growth under the dynamic structure $X > Y > W > Z$.

The favorable (ideal) mode of functioning of the socioeconomic system, characterized by stable growth under the dynamic structure $X > Y > Z > W$, was observed in 2003-2005. It is possible to achieve the state most close to the ideal mode of functioning of the Russian economy, using the described model and developing on its basis strategic decisions concerning structural changes in the main elements of the socioeconomic system of the country (technical and production structure, the way of coordination of economic activities, property relations).

It should be noted that this methodology was tested on the statistical data on key indicators of the Russian economic development before the imposition of sanctions and the strengthening of the macroeconomic instability of the country's socioeconomic system. Since 2014, the foreign policy situation, the imposition of economic sanctions has significantly influenced the development trends of the Russian economy, which requires a separate study of the next period of transformation.

5. Conclusion

In the research process, the scientific results of a theoretical, methodical and practical character have been obtained, which together represent the concept of systemic transformation at the macrolevel:

- One should understand the macrolevel transformation of the socioeconomic system as a process of changing economic relations in the course of structural, cyclical, technological, institutional transformations of the content and interconnection of its basic elements under the influence of systemic, cyclical, globalization development processes;

- The dynamic model used for estimating the effectiveness and synchronous functioning of the socioeconomic system under the transformation conditions has many advantages. First of all, it is based on process and systematic approaches; it can include indicators reflecting both economic processes and social conditions for the development, which means it allows assessing the socioeconomic efficiency and synchronous functioning of the economic system. Moreover, it makes possible to compare a number of periods over time, which is convenient for assessing the effectiveness of transformation processes. Integral economic indicators make possible to carry out a comparative analysis of the transformation processes of economic systems of different countries, i.e., apply the model for the megalevel;

- The assessment of the effectiveness of the socioeconomic system of Russia for 20 years (1993-2013) allowed solving the problem of comparability of data and comparing the diverse indicators of the effectiveness of social and economic development regardless of their units of measure, using an acceleration that unlike speed had the property of absoluteness in all inertial reference systems;
- The approbation of the methodology for assessing the effectiveness and synchronous functioning of the socioeconomic system using the system of indicators by four types of separate processes of country development made it possible to conclude that the potential of the socioeconomic system of Russia in the periods under review was not used entirely and that the structural policy of the state needed to be improved.

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