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СТРУКТУРНО-ЦИКЛИЧЕСКАЯ МЕТОДОЛОГИЯ В ПОЛИТИКО-ЭКОНОМИЧЕСКОМ АНАЛИЗЕ

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Аннотация.
Феномен углубления циклической и структурной волатильности экономики, который оказывает негативное влияние на технологическое обновление и экономический рост, сегодня представляет особый интерес для исследователей. Структурно-циклический подход, представленный в статье, раскрывает природу цикличности не только через ее влияние на структурные сдвиги, технологии, инвестиционные потоки, т.е. внутренние факторы, но и через влияние внешних факторов, которые влияют и формируют качественные параметры устойчивости системы национальной экономики. Данный подход позволяет выявить взаимосвязи структурной динамики и циклических колебаний, используя анализ взаимного влияния цикличности и структурных сдвигов, а также оценить обратное влияние структурных диспропорций (устойчивость и нестабильность структурных изменений) на глубину и характер цикла в целом, на индикаторы межфазной и внутрифазной макроэкономической динамики. Это призвано расширить модель взаимодействия цикла со структурой экономики, выявить факторы их переплетения и влияния на развитие технологических платформ и динамику трансформационных процессов. Для преодоления затяжного структурного кризиса и технологического отставания, выхода из долгосрочной рецессии и изменения траектории экономического развития в переходный период необходимо разработать теоретические положения и неоиндустриальные методы реализации антициклической и структурной политики.

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STRUCTURAL-AND-CYCLIC METHODOLOGY IN POLITICAL ECONOMY ANALYSIS

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Abstract.
The phenomenon of deepening cyclical and structural volatility of the economy, which has a negative impact on technological renewal and economic growth, is of particular interest to researchers today. The structural-cyclical approach presented in the article reveals the nature of cyclicity not only through its impact on structural shifts, technologies, investment flows, i.e. internal factors, but also through the influence of external factors, which influence and form qualitative parameters of stability of economic system. Proposed approach makes it possible to establish genetic relationship of structural dynamics and cyclic fluctuations, to detect dialectic of cyclic intervention impact on structural parameters, and also inverse impact of structural correlations (stability and instability) on depth and character of cycle as a whole, on dynamic indices of interphase and intra-phase recurrence. It is obvious that at the same time the object of research is expanded, the model of interaction between the cycle and the structure of economy becomes clearer, which makes it possible to identify algorithms of their interweaving and influence on changes of technological platforms and dynamics of macroeconomic indicators. In order to overcome the protracted structural crisis and technological lag, the existence of long-term recession dynamics and the change of the trajectory of economic devel-

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opment during the transition period, it is necessary to develop theoretical provisions, methods of neo-industrial implementation of the integrated model of countercyclical and structural policies.

1 Introduction / Введение

At present, there is a constant interest in the study of structural and technological shifts. The problem of cyclic dynamics of structural shifts in the development of economy remains not thoroughly developed in the scientific literature. The weakest link in economic research is the lack of an integrated approach to the analysis of cyclical, innovative, technological and structural development of the economy and the specificity of these processes in modern Russian economy.

Meanwhile, the problems of cyclical fluctuations pattern in economy remain debatable, as do the issues of the relationship between cyclical fluctuations of different duration, the interaction of factors determining the nonlinear dynamics of economic development in the national economy. There are no mature concepts of cyclical dynamics of transitive economies that can offer scientifically sound recommendations to minimize the results of cyclical entropy, and there is no generally recognized typological characteristic of opportunistic cycles in the context of systemic transformations. There is also a need to critically rethink the established theoretical directions for analyzing the impact of cyclical dynamics on technological and structural changes in emerging market systems.

We will be guided by the need to adapt theories of economic cycles to the conditions of radical systemic-structural social-and-economic shifts, to identify factors of inter-cyclical and interphase recurrence, to justify overlaps of different cycles with different amplitudes during periods of systemic-transformational crises.

2 Materials and methods / Материалы и методы

As a starting point, we will accept that the dynamics and nature of structural shifts are greatly influenced by cyclical fluctuations in economic situation. Economic dynamics show different kinds of cyclical fluctuations, classified according to their prerequisites, causes, duration, depth and social-and-economic consequences. The impact of economic cycles of different directions has a direct impact on the nature, pace and effectiveness of shifts in the structural development of economic system.

The problems of cycles in economics are analyzed in the works of representatives of various economic schools, having made important contributions to the development of ideas about the role of cyclicity in economic development: K. Marx [1], J.M. Keynes [2], J. Schumpeter [3], L. von Mises [4], F. von Hayek [5], J. Mensch [6], R. Freeman [7], J. Van Dean [8], C. Peres-Perez [9], J. Forrester [10], A. Gruber [11].

Various aspects of cyclical dynamics in economic situation and its impact on the interrelationships of the elements of economic system, changes in their qualities and proportions, have been reflected in the works of foreign and domestic researchers. According to N.D. Kondratieff [12], J. Schumpeter et al., the economic system is in principle non-equilibrium, cyclicity is seen as a pattern and driving force of economic growth. J. Keynes described non-equilibrium of a cycle in the theory of state intervention in economy. The opposite view is held by monetarists, who believe that the economy itself is an equilibrium structure, and that cyclical fluctuations arise as a result of price shocks caused by the actions of financial authorities. The adherents of rational expectation theory support the same idea by various correlations. The works of R. Lucas [13], T. Sargent [14] argue that the state cannot predict rational expectations of market subjects, which provokes the cycle.

In the 1950s the idea that structural and technological changes in economy were largely determined by cyclical processes took root in the economic research of Western countries. The ideas of the complex cyclical nature of the world economic dynamics, including long-term fluctuations, have long gained the right to exist in economic science.

However, it should be noted that a great contribution to the analysis of the role of cyclical economic dynamics of the above-mentioned scholars in economic science does not cover the whole spectrum and the depth of questions about the impact of cyclical dynamics on structural characteristics of economic development. Two main concepts that consider the cycle at micro and macro levels are conceptually close and acceptable for our structural analysis. They were formed in the economic literature during the study of cyclicity (business cycles, industrial cycles, construction, innovative, large Kondratieff cycles).

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In our opinion, from the point of view of systemic conditionality, the phenomenon of structural cycles, large Kondratieff cycles (long waves) affecting structural shifts of the economy are interesting. Long wave interpretation involves many methodological approaches to their material basis.

Cycle theories, which are investigated by various representatives of economic thought, differ in that researchers highlight a certain factor, which is the root cause of the ongoing changes in the economy of a country, and excites economic fluctuations. Against the background of the decline trend, small cycles (lasting less than a year) are clearly observed. They are the basis of structural micro-waves. At the same time, the presence of well-defined cycles of such high frequency is not typical for stable economies. The emergence of the effect of high-frequency transformational cyclicity of production is due to the sharp intensification of processes in the transition economy. Therefore, the Russian transition economy can be characterized as an economy of rapid change, and this significantly distinguishes it from stable economies.

The analysis of the cyclical dynamics of structural shifts in the development of economy plays an important role, as the unfolding technological revolution leads to the changes in economy. In this situation, the tasks of complex structural and technological renewal of the Russian economy are put to the fore, which requires theoretical justification and practical implementation. At the same time, structural changes in the economy should be considered not as a result of cyclical development, but as a condition, as an important factor of steady social development.

The structural development of economy is characterized by non-equilibrium, uneven and cyclical, so it is extremely important to analyze the nature of the relationship between cyclical dynamics and structural shifts. The uneven economic development lies in periods of sharp recovery and periods of deceleration, which alternate in a certain rhythm and represent a cycle.

The representatives of modern theory of the real economic cycle F. Kydland, E. Prescott [15] cited technological shifts, supply shocks as the reasons for cyclic fluctuations. The adepts of the Neo-Austrian school view the economic system as fundamental equilibrium, and the emergence of cycles is attributed to the expansive monetary policy of banks flooding the economy with credit money, which leads to inflation and overheating of economy.

In a market, cyclically developing economy, the frequency of microstructural adaptation changes at different cycle phases varies significantly. They reach maximum intensity in the crisis phase, becoming a large-scale structural adjustment.

Sharing the theoretical validity of the above definitions, we add that cyclic dynamics must be understood as a universal form and pattern of economic development, the essence of which is expressed in the inherent non-linearity of economic development, in stable, repetitive, multiple fluctuations of economic processes and phenomena, in the resolution of contradictions accumulated in it and which have reached a certain critical mass.

Based on the analysis of the authors' works, revealing the process basis of cyclic dynamics of modern economy, the following conclusions can be drawn.

First, structural-transformational processes have an objective cyclic nature characterized by direct and inverse interphase and inter-cyclic recurrent dependencies, which determine the essence and structural filling of modern macroeconomic cycle.

Secondly, the increase in macroeconomic instability has led to an increase and completion of the negative structural shifts taking place in economic systems at various levels. The links between negative structural shifts and macroeconomic instability are most evident in the growth rate decline in real sector of economy, in the negative trends in the development of financial sphere and industry, in the disruption of technological and investment processes, and in the slowdown of economy structural modernization.

Thirdly, modern macroeconomic processes represent a transition phase from industrial to neo-industrial stage of economic development, characterized by universal informatization, structural transformation, innovation, capitalization of labor resources, service generation, knowledge-intensive and techno renewal and transformation of productive forces, introduction of new forms of investment support for economic development, aimed at systemic transformation with objective cyclical nature. As a result, productivity, employment, income and added value reach a qualitatively new level, unattainable in early and classical industrial society.

In the dynamics of the modern Russian economy, investment cycles, their depth and intensity of coverage of structural development levels are a significant factor in influencing the dynamics and nature of structural shifts. A significant measure of their interpenetration with different elements of forming

new structures in economy is the acceleration effect, reflecting the relationships between primary investment and reinvestment. Contrary to the developed countries with a high share of household savings in investment supply, in the domestic model of investment cycle, the increase in household savings is not the source of a constant rate of increase in investment activity, which provides positive structural dynamics. The works of foreign authors – J. Tobin [16], G. Debreu [17], G. Markowitz [18], W. Sharpe et al. [19], D. North [20], G. Becker [21], B. Ohlin [22], etc., emphasize that investment support can be considered as a catalyst of industry, technological and social shifts, as well as a countercyclical factor of stability.

In studying cyclical processes in economy, one of the most important methodological and methodical problems is the question of criteria for referring certain economic processes to cyclical processes, which we can formulate as the following: cyclical is a process which dynamic (or its components) periodically change in a selected time interval. It follows from this definition that fluctuations with unstable period and amplitude can also be classified as cyclic, which is somewhat contrary to conventional cycle understanding. Cyclic dynamics is defined as the shape of the paths of variables manifested through the permanent appearance and the change of cyclic constructs.

In each economic cycle, as the economy develops and its structure is being formed, the initial state transforms into a changed one through the materialization of innovation, which ensures its minimal stability and conservatism, extremely high potential mobility and dynamics, and then leads to an increase in inertia, a decrease in mobility and elasticity, a decrease in the degrees of freedom to choose a further path of development, a decrease in the speed of growth.

In the final phase, when the dynamics of development are almost exhausted, the economy gradually acquires rudimentary features, and structural changes are possible only in subsequent cycles.

In the wave-length lifting stage, they identify two sub-periods. In the first, productivity is increasing, and investment capacity is falling. In the second period, productivity is still increasing, but investment capacity is growing at an even faster rate, which reduces capital returns. At the beginning of the recession phase, the decline in productivity is faster than the decline in investment capacity, resulting in a fall in capital returns. In the crisis phase, changes in productivity are keeping pace with changes in investment capacity, so capital returns are more or less stable. The movement of capital recovery is transformed into the movement of the organic structure of capital and the average rate of return, as long waves show.

Kondratieff long waves are a component of the historical cycle, and the interaction of cycles is carried out in three main forms: resonance (increasing the amplitude of oscillations in the phases of a cycle, deepening the crisis), inertial (reducing the amplitude of oscillations, mitigating crisis phenomena) and deforming (disrupting the structure of a cycle interrupting its normal course). Cycles of different duration are imposed on each other – medium-term, long-term (Kondratiev) and super-long-term (civilizational) cycles. N.D. Kondratieff proved in his works the interaction pattern of economic cycles of different duration for the first time: large cycles of economic conditions are revealed in the same single process of dynamics of economic development and depression. Medium cycles so to say string on the waves of large cycles. Each cycle has a specific economic structure. For example, the long-term technological cycle is characterized by a set of basic (technological core) and applied (transformation of the technical basis of material production, weapons and services) directions.

The industrial approach is at the basis of K. Perez-Perez's study, which classifies industries according to their relation to a key factor and identifies three groups of industries (bearing, driving and perceiving) that define the shape and rhythm of economic growth at the early stages of the life cycle of techno-economic paradigm. To the "bearing" she refers the industries that actively use a key factor, best meet the requirements of this techno-economic paradigm for organization of production, and create investment opportunities, having a significant impact on the rate of economic growth. The group of "driving" industries includes production of "key factor," as well as production directly related to it, which serves to increase its economic advantages. The driving industries provide the conditions for the development of techno-economic paradigm. "Perceiving" industries complement and follow the growth of bearing industries. The conditions for their accelerated development are formed as a result of the implementation of social and institutional innovations that enable the formation of a new technical and economic paradigm.

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The study of economic cycle patterns as the basic feature of macro-dynamics allows analyzing the main trends of the structural and technological revolution in the world economy, as well as the peculiarities of current conditions in the dynamics of transitive economies. The essence of economic systems transformation at the present stage can be characterized as structural and technological shifts, under the conditions of ending the next wave of a large cycle.

The logic of economy structure evolution is indentified in the following way: the basis of economic cycles is a system of structural shifts of different directions and the increase of contradictions in the system by type: "structural crisis – elimination of inefficient structural elements – structural shift." Due to the dynamic nature of economy structure, there are periodic imbalances in economy, which, according to neoclassical views, are resolved through the market-sanitizing mechanism of structural crisis. In turn, the introduction of basic innovations, new effective technologies, the formation of new industries, new forms of organization and regulation contribute to the reduction of structural crises.

However, the practice of developing a market-based management system in transition economies shows that structural self-regulation does not reflect the dynamism of their structure and is characterized by the particular role of structural shifts as factors of cyclical development. As a result, the development cycles of individual sectors of economy are mainly not synchronized due to endogenous factors. The existence of structural shifts as endogenous factors of cyclical development and internal asynchronous cycles is characterized by the fact that individual industries are in different phases of innovation and investment cycles.

Negative structural shifts in the transition economy due to technological degradation are a natural consequence of regenerability of endogenous factors (imbalances in the mining and manufacturing sector, in the efficiency of production factors, deindustrialization, technological ageing and decline in productivity) and the increasing fluctuation, shock and pressure impact on the production structure of exogenous factors (intensively changing standards of consumer preference, acceleration of scientific and technological progress, sanctions, and deglobalisation practices) in presence of restrictive internal institutional factors.

We consider the widely held view in the scientific literature that the inevitable positive consequence of economic crises is the progressive nature of structural shifts in economy to be erroneous. Analysis of the specifics of the first cyclical crisis of the Russian market economy (2008-2012) and its consequences leads to opposite conclusions.

First, the decline in production in manufacturing sector of the Russian economy is not compensated by shifts in the investment structure, and the commodity sector remains the main generator of investment resources and the recipient of investments.

Second, the new investment cycle cannot be initiated within the framework of existing structural policies, and technological degradation is a determining factor for the continuation of de-industrial structural trend.

Third, growth in construction, agriculture, mining is exogenous (mainly due to the favorable world commodity prices), and has no deep link with increased productivity – the main indicator of overcoming the structural crisis and starting a new industrial cycle.

Progressive structural shifts in modern economy are characterized primarily by the development of knowledge-intensive industries, as well as related scientific and innovation sectors. In Russia, intensive structural shifts resulting from market transformations have not led to the creation of an effective competitive innovative structure of economy, but have instead led to the strengthening and consolidation of major structural imbalances. Under the conditions of low-efficient structural policy of the state, the spontaneous structural transformation of Russian economy continues, which is characterized by:

- slowing down the reproduction process with a characteristic low rate of accumulation, an increase in the share of obsolete means of production, a collapse of foreign direct investment;
- reducing the share of industry in GDP as the main indicator of the de-industrial structural trend, along with stagnating productivity [23];
- deformation of the state investment costs in favor of increasing induced investments in the recovery of industrial infrastructure disregarding the low level of autonomous (modernization) investments

3 Results and discussion / Результаты и обсуждение

In our opinion, the content of structural changes is the process of ensuring that changes in the structure of public needs corresponding to changes in the structure of placement of production factors

as the most important part of material and intangible resources. The possibility of such conformity is laid down in the very essence of the category of needs, more precisely, in its material component, reflecting a certain level of development of production factors of society at each historical stage.

The essence of structural shifts is realized through their functions:

– the law of rising needs is being implemented through structural shifts being under the synchronous influence of globalization;

– structural shifts optimize the pattern of consumption (changes in the system of growing demands) and production (the pattern of allocation and distribution of limited resources, especially factors of production);

– structural shifts contribute to the cross-sectorial redistribution of factors of production (capital, labor, etc.), as well as the formation of basic natural and value proportions of reproduction;

– in the form of structural shifts innovation is introduced and spread into the economy, modernization of technological basis and formation of new economy structures are realized;

– structural changes in economy determine the directions of innovative development of society and ways of qualitative improvement of the system of production factors and economic relations.

The analysis of methodological essence and economic nature of evolutionary and hopping features of structural shifts in economy implies their classification by the following characteristics.

1. Historical trend: structural shifts are classified according to historical characteristics (shifts at the stage of formation and development of various social-and-economic systems).

2. Spatial trend: structural shifts are characterized through a spatial view of economy structure. The spatial dispersion of industries and sectors of social production represents a geographical cross-section of economy structure, based on the territorial division of labor, which secures certain industries and spheres of production to certain economic territories.

3. Shifts in structural levels of economic system: macro-, meso-, micro- and nano-shifts. At the same time, macro shifts are an economic aggregate, including structural changes at all levels of economic management: meso-structural shifts – at the level of industries and regions; microstructural shifts – changes at the level of a firm, enterprise, their subdivisions; nano-structural shifts – at the level of households and individuals. Structural shifts in the economy are a category that permeates all levels of economic system.

Thus, based on the analysis of theoretical provisions of structural shift paradigm of economic development presented by representatives of various economic schools, we have justified the ideas of expanding the definition and classification of structural shifts in economy.

Firstly, structural shifts are a form of structural-dynamic processes and are characterized as qualitative changes in the relationships of elements of population, due to uneven dynamics of the ratio of their quantitative characteristics, manifested in the form of changes in the position of components, shares, weights, macroeconomic proportions of the national economy.

Secondly, in contrast to cyclical processes, fluctuations and perturbations, structural shifts are irreversible.

Thirdly, structural shifts are influenced by cyclical dynamics, accompanied by the redistribution of economic resources between industries and economic activities, but structural shifts have genesis autonomy, are not a reflection of cyclical processes, and the economic cycle is the result of a set of structural shifts of different directions.

Fourthly, structural changes act as a platform, basis for determining the nature and dynamics of economic development.

Fifthly, structural changes, on the one hand, are the results of a structural crisis, on the other hand, the process leading to structural adjustment of the country's economy as a whole.

The study of mutual conditions of cyclic dynamics and structural shifts of economy makes it possible to draw the following conclusions.

First, shift is the primary structural determinant that sets the direction and depth of the economic cycle, which in turn results from the integral interaction of different-quality structural shifts.

Second, the nature of structural shift is associated with fundamental changes in macro- and meso-economic proportions under the influence of exogenous (economic – investment, innovation, consumption, saving, etc.) and endogenous (non-economic – scientific and technological progress, politics, demography, cataclysms, etc.).

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Third, the quantitative changes, accumulating during the shift, generate qualitative changes in economy structure; the latter takes on a new quality. For example, the accumulation of significant investment resources by commodity corporations in the formation of appropriate incentives and structural policy institutions can contribute to innovative industry modernization, expand the share of competitive manufacturing sector and transform the economy from resource-oriented to manufacturing-oriented.

At the same time, we call the Russian economic cycle deformed, because the structural crisis does not eliminate the imbalance in economy structure, it is not characterized by the emergence of new technologies and innovation, the expansion of investment flows creating new goods and services.

The regularity of the connection between negative structural shifts and stagnation dynamics in the transitional Russian economy can be presented in the following form. The interweaving of the deformed economic cycle and the technologically inertial, disproportionate economy structure, with the prevalence of negative de-industrial structural shifts, produces a degenerative type of transformation. The real implementation of the Russian market model and its impact on economy structure in the post-reform years have shown the failure of the theoretical views of neoclassicist, who consider the crisis as a natural phase of economic cycle and one of the main forms of resolving the contradictions of the system, contributing to its progressive development.

Our structural-cyclical approach to studying the causes of degeneration of cyclic dynamics in Russia, combined with the pro-raw material structure of its economy with a falling technological multiplier, allows us to identify causal links between the structural shifts and economic cycle.

1. In the context of Russian economic practice, the structural base of development experiences mainly negative dynamic impact of non-linear economic cycles.

2. The depressive state of structural proportions is increased by the destructive effect of the cycle, and unsatisfactory state of the structure gives the economic recession an inertial and protracted character.

3. The cyclical decline in investment is exacerbated by structural degradation processes, which hinders technological modernization and recovery from the structural crisis.

4. In the final phase, when the dynamics of the system are almost exhausted, the economy gradually acquires rudimentary features and structural and technological changes are possible only in subsequent cycles.

The advantage of our approach to the economic cycles analysis is that it reveals the nature of cyclicity not only through the impact (justification of endogenous mechanism) of structural shifts, technologies, innovative flows, i.e. internal factors, but also takes into account the influence of external factors, the role of which has increased in recent decades. At the same time, the proposed structural-cyclical approach is quite consistent with the teaching of J. Schumpeter about the irreversibility and revolutionary nature of economic development, based on the sequence of cycles of innovative waves, technological renewal, and industrial shifts leading to the change of structural models of economy.

Modern structural policy must be understood as primarily industrial policy, because the industrial structure of economy is the most vulnerable to crisis events. The most important instruments of such policies that can achieve sustainable growth are financing the new industries, both through direct public investment and through the stock market; the establishment of the latest experimental laboratories and applied research programs at universities and scientific and technical organizations; technology imports. The formation of new key industries and the deployment of applied research are primarily recommended in such areas as semiconductors and microelectronics, LEDs and FD panels, photovoltaic cells, new type batteries, medicine, pharmaceuticals and biotechnology, which can provide industrial rise.

In order to self-launch the mechanism of structural and technological renewal, a sufficient (critical) mass of systemic factors – institutional, investment and social-and-economic incentives – is needed. The Russian institutional framework, due to its ageing and imitation nature, today plays more of a deterrent, barrier role. Its economic relations are losing their ability to increase national wealth.

4 Conclusion / Заключение

In general, the structural-cyclical approach makes it possible to view social-and-economic systems as organized structures (rather than self-organizing, contrary to neoclassical views), which development is cyclical, more hopping, but also manageable through regulated positive structural shifts. In our opinion, on the basis of this approach it is possible to assess changes in the course of fluctuations in advance, to identify threats, allocations of resources and by this means to minimize structural and technological

system risks, even though it is under conditions of increasing macroeconomic shocks and cyclic pressure.

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