УСТОЙЧИВОЕ РАЗВИТИЕ ПРИ САНКЦИЯХ: УПРАВЛЕНИЕ ЭКОНОМИКОЙ РОССИИ

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Аннотация. Целью исследования является оценка устойчивости российской экономики, подвергнутой фронтальным санкциям, с акцентом на демонстрацию «структурной устойчивости».

Методологическую базу исследования представляют макроэкономический и структурный анализ, позволяющие показать отрицательный накопительный эффект по влиянию санкций на динамику ВВП России, а также подтвердить изменения в структурной динамике в год ввода санкций с постепенным возвратом к досанкционному режиму и тем самым сохранением структурной устойчивости. Информационную базу исследования представляет собой статистика Росстата. В качестве базового интервала времени принят период 2003–2022 годов. Однако, дальнейшее противодействие санкциям потребует от России проведения структурной политики, предполагающей снижение структурной устойчивости.

Результаты исследования. Предложен метод оценки структурной устойчивости по доминированию и колебанию вклада компонент ВВП в общий темп его роста. Структура ВВП измеряется по расходам и по секторам (обрабатывающий, трансакционный и сырьевой). Наибольший вклад в динамику ВВП до 2022 года сохраняло валовое потребление и трансакционный сектор, доминирующий в структуре продукта и по доле. Однако в 2022 году при введении фронтальных санкций против России, наибольший вклад в динамику ВВП стали вносить бюджетные расходы и сырьевой сектор. Это подтверждает вынужденную адаптацию к изменяющимся внешним условиям развития российской экономики. При этом монетарная политика провоцировала возврат к прежней досанкционной модели структурной динамики и экономического роста, сохраняя общую неустойчивость динамики, но структурную устойчивость экономики. Таким образом, можно заключить, что адаптация российской экономики к санкциям имела реактивный характер, не противодействуя санкциям согласно имеющемуся у экономики потенциалу развития и структурной модернизации.

Перспективы исследования заключаются в разработке метода оценки различных видов устойчивости экономической динамики с учётом внешних влияний в виде санкций, а также обосновании выбора самого режима или вида устойчивости как общей, так и структурной динамики.

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SUSTAINABLE DEVELOPMENT UNDER SANCTIONS: MANAGING THE RUSSIAN ECONOMY

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Abstract. The purpose of the research is to assess the stability of the Russian economy subjected to frontal sanctions, with an emphasis on demonstrating ‘structural stability’.

The methodological basis of the study is represented by macroeconomic and structural analysis, which allows us to show a negative cumulative effect on the impact of sanctions on the dynamics of Russia’s GDP, as well as to confirm changes in structural dynamics in the year of the introduction of sanctions, with a gradual return to the pre-sanctions regime and thereby maintaining structural stability. The information base of the study is the statistics of Rosstat. The period 2003–2022 was adopted as the base time interval. However, further opposition to sanctions will require Russia to pursue a structural policy involving a reduction in structural stability.

Research result. A method for assessing structural stability based on the dominance and fluctuation of the contribution of GDP components to the overall growth rate is proposed. The structure of GDP is measured by expenditure and by sectors (processing, transactional and raw materials). Gross consumption and the transactional sector, which dominates the product structure and share, maintained the largest contribution to GDP dynamics until 2022. However, in 2022, with the introduction of frontal sanctions against Russia, budget expenditures and the raw materials sector began to make the greatest contribution to the dynamics of GDP. This confirms the forced adaptation to the changing external conditions of the development of the Russian economy. At the same time, monetary policy provoked a return to the previous pre-sanctions model of structural dynamics and economic growth, while maintaining the general instability of dynamics, but the structural stability of the economy. Thus, it can be concluded that the adaptation of the Russian economy to sanctions had a reactive nature, without countering sanctions according to the potential of development and structural modernization available to the economy.

The prospects of the research are to develop a method for assessing various types of stability of economic dynamics, taking into account external influences in the form of sanctions, as well as justifying the choice of the regime itself or the type of stability of both general and structural dynamics.
Introduction. The modern development of the world economy has faced a new phenomenon — sanctions. Studies of their influence on individual parameters of the economy of individual countries, trade, exchange rate, economic growth are quite extensive [6–8; 10–11]. However, aspects of the impact on the sustainability of development and growth, the structure of the economy remain poorly understood. There are estimates of how the threat of sanctions correlates with the real dynamics when sanctions are imposed [6]. The characteristics of sanctions affect economic growth [7], but how exactly, many studies ignore, and the problem of sustainability of growth and development in general fades into the background. There are works [8] in which the impact of sanctions on the Russian economy is noted, which is expressed in a decrease in the cost of exports, and counter-sanctions lead to a decrease in the cost of imports, in particular agricultural products, and to a decrease in the cost of exporting hydrocarbons. In addition, questions are raised about how to make sanctions work and how they affect the exchange rate devaluation of the national currency [10–11]. As we can see, aspects of the structural stability of the economy are not considered due to the complexity of the problem statement, data lag, etc. In this study, we will try to identify a variant of the study of such an impact of sanctions at the empirical level of analysis.

In economics, there are different ideas about the sustainability of economic development. Most often, they are reduced to maintaining certain development parameters with an emphasis on the natural resource component, as well as taking into account demographic changes. However, with regard to economic dynamics, we can talk, on the one hand, about its stability, which can be interpreted as maintaining changes in the dynamics of a relevant parameter (for example, GDP) in a certain range, on the other hand, as an opportunity to return to the value of this indicator with its negative deviation due to various reasons and emerging circumstances. As you can see, there are two types of stability, giving rise to both a question about the range of changes in the dynamics of the relevant indicator, and a question about the time it takes to return to the previous value with a negative deviation. These circumstances determine the problem of choosing the type of stability of dynamics for this economic indicator characterizing the development of the economic system. But the change in the circumstances themselves cannot be fully taken into account, especially when forming a sustainable development policy. Consequently, there will always be a probability of loss of stability with any method of determining it. However, these two ways of determining the sustainability of economic dynamics differ from the stereotypical approaches to sustainable development replicated in reports to the Club of Rome, reducing the sustainability of this development to solving the ‘green problem’, as well as ensuring demographic transition.

If we present a basic relevant parameter that characterizes development in the form of elements (for example, the structure of GDP by expenditure or economic sectors), then the problem arises of ensuring the stability of structural dynamics. It can also be represented in the form of changes in the contribution of elements to the overall dynamics and changes in the shares of elements in the system. Thus, there are several types of stability, and assuming different estimates. It should be noted at once that the well-known mechanical approaches, in particular the Lyapunov stability assessment, or the Zang ‘synergetic economy’ model [2] are not able to give a practically useful picture of the stability of macroeconomic dynamics for the formation of methods or tools to ensure it. To do this, firstly, a new theory of economic policy will be needed, and, secondly, a comprehensive empirical analysis of aggregate dynamics, including structural dynamics, revealing
changes in the elements of the system and their contribution to economic growth, acting as the main target parameter when considering the problem of sustainability of economic development, will be required.

Summing up the above, the purpose of this study is to conduct an analysis of the structural dynamics of the Russian economy, with the clarification of the impact of the sanctions of 2022 on maintaining the stability of the dynamics itself and the structural dynamics of two types. The methodology of the study consists of a macroeconomic and structural, empirical analysis of data series on basic indicators of the Russian economy. To achieve this goal, we will consider the impact of sanctions as a policy tool on the sustainability of economic development, then we will proceed to quantitative estimates of the structural dynamics of the GDP of the Russian economy, with a conclusion about the features and stability of this dynamics.

**Research methodology.** **Sustainable development and sanctions policy.** The sanctions policy is a system of multidimensional and repetitive impacts (in the form of sanctions packages) on the economy of the sanctioned country with the common task of destabilizing its development, lowering its economic potential, damaging and/or removing the political leadership from public administration. The country that initiates sanctions enjoys a relatively high dependence of the sanctioned state on external development centres, foreign currency and reserves filled in its nominal value, joint projects, export-import operations, etc. The initiated violations are designed to undermine sustainable development, which should be understood as the sustained positive dynamics of GDP, investment, real incomes of the population and other social indicators. Large deviations in this dynamics, or its departure from a positive to a negative area (provoking a recession) means a loss of stability of economic growth, hence development as a whole.

From a formal point of view, the Russian economy showed exactly such dynamics — from positive values of the growth rate in 2021, after the introduction of sanctions in 2022, it showed a negative GDP growth of about 2%. It should be noted that despite the sanctions, the Russian economy showed growth in 2014, 2017–2019 and 2021. The growth rate usually did not exceed 2.5%, and the average growth rate over the decade was slightly above 1%. However, convincing evidence that such dynamics arose as a result of sanctions is not provided in modern scientific works. Russia’s economic growth before 2014 was higher in pace, but after the crisis of 2009, this rate was even lower than, say, in 2000–2008, when it was comparable to the growth of the Chinese economy, and exceeded the growth rate of the European and American economies. Thus, it is likely that other factors were the reason for the slowdown in the growth rate of the Russian economy, and how tangible the contribution of sanctions until 2022 is an open question. Moreover, after the introduction of new, frontal sanctions in 2022, and the deprivation of Russia’s reserves in the amount of 300 billion roubles. Nevertheless, country has refuted forecasts for a decline in its GDP, lowering it by only around 2%, and Russia’s retaliatory actions have led to a resumption of growth in 2023 — at a positive pace. Of course, such fluctuations from year to year cannot characterize the sustainability of the development of the Russian economy, but they clearly demonstrate the weakness and ineffectiveness of sanctions on empirical material.

From our point of view, fluctuations in the basic macroeconomic parameters, even in the positive area of dynamics, should mean an increase in instability if the amplitude of such fluctuations increases. If the parameters fluctuate, moving from a negative to a positive area, from year to year, then such a development can hardly be called sustainable.

Thus, unstable development can be assessed by increasing the amplitude of fluctuations in fundamental macroeconomic indicators (GDP, investment, real disposable income, inflation, employment level) of the positive dynamics area, and by moving into the negative area, characterizing the containment of development as such. Prolonged presence in this area also indicates a loss of sustainability of development.

Sustainable development implies economic growth, and fluctuations in the pace should not be significant.

The concept of ‘structural stability’, as well as the stability of dynamics, is hardly appropriate for the real economy to associate, for example, with the possibility of returning to
some values when deviating from them, even if these deviations occur in the negative region, and the return is carried out in the positive region of parameter values. The introduction of very complicated theorems describing structural stability within the framework of the theory of dynamical systems [2] also complicates practically significant estimates too much. It is appropriate to assume that structural stability can be assessed by preserving the existing economic structure, allocated by one method or another for certain elements (sectors, components of GDP by income, expenses, etc.) Since the allocation of the structure is different, then the stability will also be different. It should not be understood as the degree of deviation from the established and functioning structure. The higher the deviations, the lower the stability. Permanent changes in the structure over a limited period of time can also be perceived as low stability. It is another matter if we are talking about a purposeful controlled change in the structure of the economy. But such changes presuppose the removal of the system of their structural equilibrium, which automatically indicates instability. The second type of structural stability is the structure of the contribution of elements of the economy to the rate of economic growth, that is, to the dynamics of GDP. This type of structural stability is less stable, since the continuing structure of the economy due to changes in government policy can provide a variable contribution of each of the structural elements to the growth rate. Thus, the contribution of elements can vary and this type of structural stability can therefore be very low, especially if the contribution varies from positive to negative values or vice versa.

From the point of view of economic management, this representation is very convenient and useful even when conducting an empirical structural analysis of the dynamics of a country’s GDP. In the next paragraph, we will show the variants of the structural dynamics of Russia’s GDP by expenditure and economic sectors. Note that the contribution of the GDP component to expenditures changes, as well as the contribution of sectors to the growth rate of Russia’s GDP in 2022, with the introduction of frontal sanctions, despite the fact that the structural stability of the economy, provided by the contribution of components and sectors, remains almost unchanged. If the policy tools do not allow achieving the goal, therefore, this goal shows insensitivity to these tools. The lack of sensitivity can be caused by various reasons, but such an effect is designated as the cumulative effect of a policy instrument. When the sensitivity decreases or is absent, it is negative, when it increases or is present, respectively, a positive effect [5].

**Russian economy development before and after the introduction of sanctions in 2022.** On average, before the sanctions of 2022, gross consumption (with the exception of certain years) and the transaction sector dominated in terms of contribution. But in the year of the introduction of sanctions, the situation changes structurally. However, the policy pursued by the monetary authorities in 2023 is aimed at returning to the general ideology of macroeconomic policy until 2022 [3]. At the same time, the cumulative, and negative, effect of the sanctions policy is not taken into account, when the target macro-indicators do not depend on sanctions, even taking into account time lags, since the policy of the government of the Russian Federation eliminates such dependence. Thus, the principle of ‘goals-tools’ does not work in the modern policy of sanctions. It often does not work in standard macroeconomic policy, which reveals a negative cumulative effect [5].

In relation to the Russian economy, sanctions are the instruments, and the goal is the loss of sustainability of development and a negative rate of economic growth, which was formally achieved in 2022, but several times smaller than planned by the beneficiaries of the sanctions policy, and in 2023 this goal has not been achieved. This gives reason to consider the target insensitive or weakly sensitive to tools, that is, sanctions do not give progress to the specified goal.

Figures 1–4 clearly reflect the result on the dynamics and structure of the Russian economy.

Figure 1 shows the structure of the Russian economy by elements of GDP by expenditure. Attention is drawn to the growth of gross consumption and the reduction of net exports, as well as the compression of the contribution of components — consumption and gross accumulation after the crisis of 2015 (Figure 2). In 2021, the model of the structure of GDP growth for the period 2003–2008 returned
Fig. 1. Russia’s GDP dynamics and structure by expenditures\(^1\), %

Рис. 1. Динамика и структура ВВП России по расходам, %

Fig. 2. Contribution of the GDP elements by expenditure to the Russian economy growth rate\(^2\), %, 2003–2022

Рис. 2. Вклад элементов ВВП по расходам в темпы роста российской экономики, %, 2003–2022

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\(^1\) Source: calculated by the authors according to Rosstat data. URL: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/accounts/#

\(^2\) Source: calculated by the authors according to Rosstat data. URL: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/accounts/#.
(Figure 2), but in 2022, with the introduction of sanctions, it was changed, although the methods of economic policy provided a return to the previous parameters, in particular, we are talking about monetary policy [3].

The sectoral analysis of the growth of the Russian economy is reflected in Figures 3–4, and it is clear that the sectoral structure by and large does not change, maintaining stability, but the contribution of sectors to the dynamics (Figure 4) changes, including significantly in 2022. Again, it can be seen that in 2021, after the ‘covid’ crisis of 2020, the structural dynamics of the period 2004–2008, 2010–2013 and 2017–2019 returns, but in 2022 it changes to one that has never been in the Russian economy since 2004 (Figure 4), except for the crisis (recessionary) 2015. In 2022, the raw materials sector dominates in terms of its contribution to the dynamics, followed by the manufacturing sector, and the transcription sector makes the main contribution to the

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3 Source: authors’ calculation according to Rosstat data. URL: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/accounts/.

4 Source: authors’ calculation according to Rosstat data. URL: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/accounts/.
decline in GDP. Thus, we can talk about a change in the regime of structural dynamics in the sectoral context and in the aspect of GDP by expenditure (Figure 2). There are two possible options at this point, when the economy will consolidate this model of structural dynamics in 2023, or give up and return to the previous structural dynamics. In the latter case, it will be possible to talk about a return on the second type of structural stability.

Thus, the conducted structural and empirical analysis suggests that the sanctions of 2022 in the same period of their introduction led to a change in the regime of structural dynamics. This ensured instability of the second type, while maintaining the structural stability of the first type. However, the stability of the overall dynamics of the economy was shaken (violated) long before the sanctions were imposed, although the structural stability of the second type was generally maintained, as can be seen from the ratio of contributions to the growth rate of various elements of the Russian GDP structure (Figures 2 and 4).

**Conclusion.** Summing up the analysis, we will formulate some of the most important conclusions arising from it.

Firstly, unlike V.B. Zang, who introduces the idea of structural stability based on the theory of dynamic systems [8], the structural stability of the real economy can be represented in the form of two types: preservation of the structure of the economy according to basic parameters — GDP, preservation of the contribution of structural elements to the rate of economic growth. For Russia, the structural stability of the first type is observed, the second type is not observed when sanctions are imposed, because the characteristics of the influence of structural elements on growth, as well as the reaction of the government, change.

Secondly, it can be argued that the Russian economy has revealed a negative cumulative effect of the sanctions policy on the sustainability of its development and overall dynamics. It means that the target parameters of the dynamics were not sensitive to sanctions, as well as the structural stability of the first type.

Thirdly, two types of sustainability should be considered — dynamics and economic structure. Moreover, the analogy in the interpretation of the stability of economic dynamics, for example, according to A.M. Lyapunov, is hardly suitable for the analysis of the stability of economic dynamics. In addition, in the economy it is not legitimate to talk about returning to the value of the parameter with its dynamics as a variant of the stability of the movement of the economy.

The situation looks more adequate when it comes to the frequency of fluctuations of a dynamically changing parameter, for example, GDP, and the amplitude of these fluctuations, which should not be significant in order to observe the stability of growth and development. It seems that the evaluation of the methods of phase portraits of F. Takens [1] and variables can be considered as an auxiliary method for analyzing the stability of socio-economic dynamics.

Thus, the ideas about ensuring sustainable development require correction, taking into account the new policy of sanctions designed to destabilize development, shaking its stability. Methods of countering such a policy are methods of economic management (the task of ensuring optimal management according to L.S. Pontryagin is difficult to solve in practice here, although the variable speed is of fundamental importance [4]), aimed at maintaining stability.

It is important for the Russian economy, while ensuring the stability of the positive dynamics of relevant macroeconomic parameters, at the same time, to allow a certain level of structural instability due to the need for structural changes in accordance with the goals of national development on the domestic technological and product base.

The perspective is the analysis not only of various types of sustainability and their measurement, but also the selection of methods, instruments of macroeconomic policy, providing a particular dynamics and a particular contribution of the element to the overall dynamics. The specified perspective is possible only if it is possible to build a modern theory of economic policy that takes standard, classical approaches beyond the framework of the well-known principle of ‘goals-tools’ [9], since today it does not take into account the problems of stability of dynamics as such. Since the task of ensuring the highest possible rate of GDP growth is not removed from the agenda in many states, since the task of sustainability of such dynamics also becomes decisive, especially in conditions
of conscious counteraction to development in the form of a sanctions policy aimed solely at slowing growth, that is, giving it an unstable character and the transition of the economy to crisis development.

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