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## Study of priority directions of economic recovery of Ukraine based on scenario modelling

■ **Abstract.** Determining the strategy of Ukraine's economic recovery in the post-war period is relevant, as it affects its sustainable development, attracting international aid and ensuring long-term economic growth. The purpose of the article was to identify the key factors that could determine the intensity of economic recovery, as well as the construction and evaluation of possible scenarios for the development of Ukraine after the end of the "hot" phase of the war. Non-parametric regression tools (spline functions) were used to study the peculiarities of the development of the economy of Ukraine. It was established that the development of the economy of Ukraine took place with a slowdown. The expediency of using scenario modelling in conditions of high uncertainty of Ukraine's development prospects was substantiated. Based on the SWOT analysis, the strengths and weaknesses of Ukraine's economy were determined as prerequisites for

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its renewal in the post-war period, and the key factors were highlighted, namely the level of international support for Ukraine (possibility of its reproduction); institutional environment (efficiency of economic reproduction). Four scenarios for the recovery of Ukraine's economy in the post-war period were constructed. The probability of their implementation was estimated. It was determined that the "Slow development" scenario is the most likely, which involved the formation of a "stimulating" institutional environment with a decrease in international support. Such an institutional environment should contribute to the reindustrialisation of the economy, increasing its competitiveness, eliminating current structural imbalances, developing institutions for financing scientific research, investment, and innovation activities, as well as increasing domestic demand. The development of industry should be based on the need to transition to the sixth technological system, which involved significant investments in the intellectual capital in the development and implementation of innovative technologies. The results of the conducted research could be used by state authorities when developing priority directions for the economic recovery in Ukraine

■ **Keywords:** post-war period; strategy; development; key factors; strengths and weaknesses

## ■ INTRODUCTION

The scientific community faced the need to solve the problem of assessing the socio-economic consequences of the war, which began in the centre of Europe in February 2022 with the full-scale invasion of the Russian Federation into Ukraine. Experts of the World Bank, J.-D. Guénette *et al.* (2022), noted that the war, in addition to the large humanitarian crisis in the region, the devastation of Ukraine's economy, caused "global ripple effects" that covered commodity markets, trade, and global financial flows, as a result of which uncertainty and geopolitical tensions are growing. This war also led to a slowdown in the world economy and an increase in global inflation. In addition, it led to increased food prices, disruption of supply chains. Experts such as N. Legrand (2023) expressed concern that the prolongation of the war could lead to a global food crisis and become an obstacle to the achievement of certain sustainable development goals. Therefore, ending the war and restoring the economy is an urgent problem for Ukraine, not only as a separate state but also as a component of the world economy. The problem of determining strategic directions for the recovery of Ukraine's economy after the end of the "hot" phase of the war needs to be solved now, since the renewal process is successful only if it is scientifically based and carried out systematically and purposefully.

The Ukrainian economic recovery is not an easy process, since, even before the start of the war in 2014, the Ukrainian economy needed structural restructuring in order to harmoniously integrate into the world economy. Thus, L. Malyarets *et al.* (2024) noted that Ukraine has a low level of structural dynamics of stable development. The military actions in the East and South of Ukraine led to the significant destruction of the old industrial regions, as a result of which it was impossible to focus on them as centres of recovery of the economy and the country as a whole. Economic recovery occurs in conditions of increased uncertainty. That is determined by various factors, the main ones of which are the following: the timing of the end of the "hot" phase of the war, the line of demarcation with the Russian Federation, the localisation and extent of the destruction of industrial infrastructure, the amount of available financial resources, etc.

The study of the problem of economic recovery was in the centre of attention of leading Ukrainian scientists since the beginning of the Russian military aggression against Ukraine in 2022. Thus, I. Pidorycheva (2022) analysed the experience of recovery of European countries after the

Second World War and noted that the economic recovery should begin with structural transformation and include a transition to an industrial and innovative type. At the same time, Ukraine as a state should take the initiative in creating a high-tech digital Industry 4.0 and defend national interests. Investments, and especially innovations, could become a source of economic growth in the post-war period and stimulate the creation of new jobs, increase the productivity and competitiveness of Ukrainian industrial enterprises. This contributes to the development of related sectors of the national economy, as highlighted by M. Berdar *et al.* (2024). At the same time, Ukraine has significant systemic problems with the attraction of foreign capital, approaches to the solution of which should be determined even before the end of the war.

Particular attention was also paid to the definition of financing mechanisms for the economic recovery in Ukraine. Thus, M. Kocherov *et al.* (2023) noted that international financial assistance and foreign investment contributes to a rapid and sustainable economic recovery. Researchers emphasised that the success of the country's post-war recovery depends on the efficiency of the economic system and its ability to attract investments. At the same time, the war has a negative impact not only on the Ukrainian economy but also on global economic growth, which, according to I. Irtyshcheva *et al.* (2022), leads to a decrease in the possibility of attracting foreign investments for the reconstruction of Ukraine after the end of hostilities. N. Prykaziuk *et al.* (2023) pointed out that the national financial sector is characterised by significant macro-financial and macroeconomic disparities, which can negatively affect the development of the financial sector in the post-war period and the possibility of economic recovery as a whole. However, the problem of determining strategic directions for the reconstruction of Ukraine's economy, determining the factors that affected its effectiveness, remains unsolved. Therefore, the purpose of the conducted research was to determine the key factors (key uncertainties, KUs) that determined the intensity of economic recovery, as well as the construction and evaluation of possible scenarios for the development of Ukraine after the end of the "hot" phase of the war.

## ■ MATERIALS AND METHODS

The determination of the strategic directions of the post-war recovery of Ukraine's economy was based on the study of the peculiarities of its development. The use of spline

functions allowed to ensure high accuracy of approximation without increasing the degree of the polynomial used to describe the dynamics of the process and to have the possibility of a meaningful interpretation of the obtained results. Splines allowed avoiding the occurrence of “waves” and “false cyclicity” in the case of polynomial approximation, which do not exist in the dynamics of a real economic process. Mathematical splines were “segments” of power polynomials of low orders that described the dynamics of the process between nodal points. At the same time, the splines converged at the nodal points (nodes of the “lattice” function).

Then the function  $F(t)$  defined and continuous on the segment  $[T_1, T_2]$  was a polynomial spline of order  $m$  with nodes  $t_j \in (T_1 \leq t_0 < t_1 < \dots < t_n \leq T_2)$ , if on each of the segments  $[t_{j-1}, t_j]$ ,  $F(t)$  was an algebraic polynomial of degree not exceeding  $m$ , and at each of the points  $t_j$  the derivative  $F^{(v)}(t)$  could have a discontinuity. The parameters of the algebraic polynomials of the spline function had to have a meaningful interpretation, so their order did not exceed 2 ( $m=2$ ). That allowed to analyse the speed and/or acceleration (deceleration) of changes in the investigated process. Before calculating the spline function, it was necessary to eliminate the influence of random factors on the dynamics of product output. This led to the feasibility of pre-processing the data using exponential smoothing, which allowed for a smoothed series that reflected major trends and patterns while reducing noise (Liu & Wu, 2020). Exponential smoothing involved updating the smoothed value based on the weighted average value of the current observation and the previous smoothed value according to the recurrent formula:

$$S_t = \alpha y_t + \beta S_{t-1}, \quad (1)$$

where  $S_t$  is the value of the exponential average at time  $t$ ;  $y_t$  is the actual value of the indicator at time  $t$ ;  $\alpha$  is the smoothing parameter,  $\alpha = const, 0 < \alpha < 1; \beta = 1 - \alpha$ . The smoothing parameter  $\alpha$  showed how much weight was given to the most recent observation. The choice of the parameter  $\alpha$  was problematic, since to increase the weight of more re-

cent observations,  $\alpha$  should be increased, but to smooth out random fluctuations, the value of  $\alpha$  should be decreased. These two requirements were in conflict, so the problem of the compromise value of the smoothing parameter  $\alpha$  was a problem of model optimisation. In this study,  $\alpha$  was taken at the level of 0.3, which allowed to consider the inertia of the development of the economy of Ukraine and reduce the influence of random factors. At the same time,  $S_0 = y_0$ .

To study product output dynamics using a spline function for the period 2000-2021, the years 2000, 2007, 2009, 2013, 2016 and 2021 were defined as nodes (Minfin archive..., n.d.; State Statistics Service of Ukraine, n.d.). The study did not use data for the year 2022, because in that year there was a sharp decrease in product output due to the full-scale military aggression of the Russian Federation against Ukraine. Scenario modelling as a method of future research involved the comprehensive use of research methods. To determine the factors that determined the effectiveness of the Ukrainian economy recovery and its strategic directions, an analysis of the external and internal environments was conducted. For that, a SWOT analysis was used, which allowed for the identification of a set of factors that determined the dynamics of the researched process. Determination of KUs as a basis for developing scenarios for the Ukrainian economy recovery, a theoretical generalisation of empirical information was used. The development of scenarios, which served as a description of the results of the impact of the KUs, was carried out by combining their positive and negative alternatives. For each scenario, the probability of their implementation was assessed, as well as the possibility of Ukrainian economic recovery. This allowed identifying priority directions of recovery to ensure its effectiveness in conditions of high unpredictability.

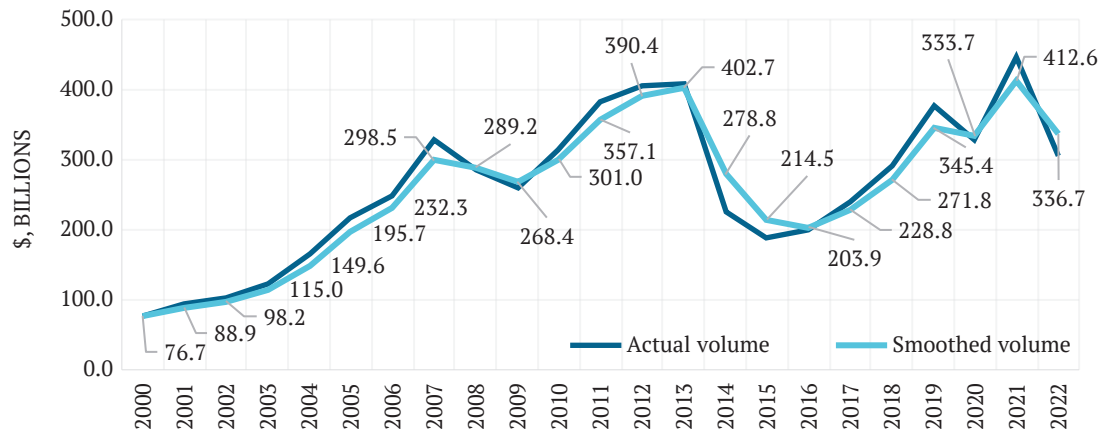
## ■ RESULTS AND DISCUSSION

As could be seen from Figure 1, during the years 2000-2022, product output in Ukraine was uneven. Its description is described by the following spline function:

$$F(t) = \begin{cases} F^1(t) = -4,422.0t^2 + 8,881.9t + 84,085.0, \text{ for } t \in [2000, 2007), \\ F^2(t) = -5,708.5t^2 + 7,789.0t + 296,459.0, \text{ for } t \in [2007, 2009), \\ F^3(t) = -4,523.9t^2 + 62,923.0t + 204,907.0, \text{ for } t \in [2009, 2013), \\ F^4(t) = 28,318.0t^2 - 207,640.0t + 581,675.0, \text{ for } t \in [2013, 2016), \\ F^5(t) = 910.9t^2 + 34,520.0t + 164,722.0, \text{ for } t \in [2016, 2021], \end{cases} \quad (2)$$

where  $F^1(t), F^2(t), F^3(t), F^4(t), F^5(t)$  are polynomials of the second order that describe the dynamics of production in Ukraine by separate segments. For the defined components of the spline function, the coefficient of determination ranged from 0.9465 to 0.9999, which confirmed its statistical reliability. The coefficients of polynomial splines of low degrees had a meaningful interpretation. Thus, the coefficient at  $t$  characterises the rate of change of the indicator or process, and at  $t^2$  – the acceleration (deceleration) of these changes. Thus, during 2000-2021, even in the “prosperous” periods of the development of

the economy of Ukraine (2000-2007, 2009-2013), growth occurred with a slowdown, and in the period 2013-2016, the decrease occurred with acceleration. The situation improved in the period 2016-2021, during which growth accelerated. That indicated the low efficiency of management of the development of the Ukrainian economy. Maintaining such a trend does not allow the economy to be effectively restored after the end of the “hot” phase of the war. That allowed determining the strengths and weaknesses of the Ukrainian economy as a prerequisite for its recovery after the war (Table 1).



**Figure 1.** Change in product output at market prices in Ukraine, 2020-2022, USD

**Source:** created by the authors based on Minfin archive of exchange rates (n.d.), State Statistics Service of Ukraine (n.d.)

**Table 1.** SWOT analysis of prospects for economic recovery in Ukraine

Strengths	Weaknesses
<ol style="list-style-type: none"> <li>1. Advantageous geographical location.</li> <li>2. High resource potential.</li> <li>3. Developed transport infrastructure.</li> <li>4. Close cooperation with international institutions.</li> <li>5. Relatively high quality of secondary technical and higher education.</li> <li>6. Highly motivated people.</li> </ol>	<ol style="list-style-type: none"> <li>1. Military actions and occupation of more than 25% of the territory.</li> <li>2. Technological backwardness of the main industries.</li> <li>3. Ruined economy and large-scale destruction of infrastructure.</li> <li>4. High dependence on imports.</li> <li>5. Low competitiveness of the main sectors of the economy.</li> <li>6. Lack of balanced state policy and effective regulation in the field of innovative activity.</li> <li>7. Outflow of qualified personnel.</li> </ol>
Opportunities	Threats
<ol style="list-style-type: none"> <li>1. Strengthening cooperation with the EU and integration into the European market.</li> <li>2. Growth of investment attractiveness.</li> <li>3. High innovation potential.</li> <li>4. Potential capacity for cooperation of research and production sectors.</li> <li>5. Availability of information about NTP achievements.</li> <li>6. Development of a “green” economy and transition to renewable energy sources.</li> <li>7. Implementation of digital technologies.</li> <li>8. Sufficiently high capacity of the domestic market.</li> </ol>	<ol style="list-style-type: none"> <li>1. Prolongation of the “hot” phase of the war in Ukraine and/or its spread to the territory of other European countries.</li> <li>2. Uncertainty of developed countries regarding the degree of aid to Ukraine.</li> <li>3. Deepening of global crisis phenomena.</li> <li>4. Impact of hybrid threats.</li> <li>5. High competition on the world market and significant entry barriers for Ukrainian businesses from transnational corporations.</li> <li>6. Climatic changes.</li> <li>7. Political and social instability in the country.</li> </ol>

**Source:** created by the authors based on G. Mazhara et al. (2023), D. Melnychuk et al. (2023), Prokhorova et al. (2024)

However, it is worth mentioning that strengthening cooperation with the EU, attracting international investments, realising innovative potential, implementing digital technologies, and developing a “green” economy can create potential opportunities for economic recovery. The realisation of these opportunities can be negatively affected by both the prolongation of the “hot” phase of the war in Ukraine and the associated political and social instability and the deepening of crisis phenomena in the world economy, as well as the emergence of new threats, in particular hybrid ones. On the basis of the results of the SWOT analysis, two complex KUs were identified, which determined the prospects for the recovery of the Ukrainian economy in the post-war period. KU1: the level of international support (political, economic, and financial) of the Ukrainian economy, which shaped the possibilities of its recovery. KU2: the country’s institutional environment, which determined the

efficiency of economic recovery. For each KU, two implementation alternatives were defined. As a positive alternative for KU1, the preservation or growth of international support, primarily financial; as a negative alternative – a decrease in international support.

Special attention was paid to the analysis of KU2, since Ukraine as a state is most interested in economic recovery, ensuring its competitiveness, and improving the quality of life of the population. As a positive alternative for KU2, the creation of such an institutional environment in Ukraine that would stimulate the reduction of the impact of inertial trends in the economy and the growth of the impact of acceleration factors was considered. That involved not only positive economic dynamics of reproduction but also ensuring a high level of economic security and reducing the riskiness of activities, in particular investment and innovation. At the same time, attention should be paid

to the prevention and reduction of hybrid threats, which became key aspects of the security policy discourse in developed countries after 2014 (Bajarunas, 2020). Hybrid operations are of particular threat because they are usually well-prepared and can wreak havoc with artificial intelligence. The effect could be even more devastating if a coordinated hybrid operation, in addition to the financial and banking sectors, also affected critical infrastructure and supply chains.

The negative alternative of KU2 involves the preservation of the existing institutional environment, which can

result in high transaction costs, which is a brake on the growth of economic activity in the country, a decrease in the level of economic security, and a deterioration of the adaptive capacity of the national economy. This contributes to the preservation of inertial trends in the economy and, as a result, the further growth of structural imbalances and the “collapse” of economic activity. In the Table 2 scenarios for the recovery of Ukraine’s economy are given. The scenarios were developed by researching combinations of positive and negative alternatives of the identified key alternatives.

**Table 2.** Scenarios for the recovery of Ukraine’s economy in the post-war period

		KU1 – Level of international support	
		Positive alternative – the preservation or growth of international support	Negative alternative – the reduction in international support
KU2 – Institutional environment in Ukraine	Positive alternative – the creation of a “stimulating” institutional environment	<p>Scenario 1 “Intensive development”</p> <p>This scenario is considered as an optimistic option, since when it is implemented, it becomes possible to structurally restructure the economy of Ukraine at the expense of funds from international financial institutions due to the improvement of the investment climate and the introduction of innovative technologies.</p>	<p>Scenario 2 “Slow development”</p> <p>When this scenario is implemented, there could be a slow recovery of Ukraine’s economy, since its own financial resources could not be enough to ensure rapid economic growth, significant research and development, and high investment and innovation activity. Also, the consequence of the implementation of such a scenario is the further ageing of the population, a very slow increase in the standard of living, and the preservation of a high level of emigration to developed countries.</p>
	Negative alternative – the preservation of the established institutional environment	<p>Scenario 3 “Lost opportunities”</p> <p>This scenario should be considered as a negative option for the development of Ukraine after the end of the “hot” phase of the war. Due to the imperfection of the institutional environment and the high level of corruption, opportunities for structural restructuring of the Ukrainian economy and its integration into the world economy could be lost. It could also negatively affect the standard of living of the population, which will lead to the emigration of the economically active and most educated population.</p>	<p>Scenario 4 “Economy ‘liquidation’”</p> <p>This scenario is the worst option for the development of Ukraine after the end of the war. When it is implemented, there can be a rapid degradation of the economy of Ukraine, its social sphere, and, as a result, a significant emigration of the population.</p>

**Source:** created by the authors

Evaluating the probability of realisation of the developed scenarios of economic recovery in Ukraine, it should be noted that the “Intensive development” scenario has a low probability of realisation, because then Ukraine will become a competitor on the world market. This is undesirable even for countries that are allies (blocking of Ukrainian borders by Polish farmers, for example (Shubravskaya *et al.*, 2024)). It is also estimated that the probability of the realisation of the scenario “Lost opportunities” due to crisis phenomena in the economies of the world’s leading countries and the world economy as a whole is not high. I. Liadze *et al.* (2023) noted that in 2022, due to the war in Ukraine, global inflation increased by 2%, and in 2023 – by 1%. Germany, France, and Italy suffered the greatest economic losses, and GDP in “Developing Europe” shrank by 30%. This directly affected their ability to provide financial support to Ukraine. Even now, in the conditions of military operations, which might expand to the territory of other European countries, there are statements about a decrease in financial support for Ukraine.

The implementation of the scenario “Economy ‘liquidation’” was assessed as more likely. At the same time, a complete lack of international support for Ukraine’s economy, primarily financial, is unlikely; most likely it might

be insufficient. However, maintaining an institutional environment with high transaction costs will not allow obtaining high efficiency from the use of international aid. The most likely scenario is the “Slow development” scenario, which involves the formation of a “stimulating” institutional environment with a decrease in international support. Such an “improvement” of the institutional environment is supposed to be forced, dictated by the need for Ukraine’s survival as a state.

As shown by I. Pidorycheva (2022) and N. Struk (2024), Ukraine as a state and its citizens are interested in the effective recovery of the economy, which is quite understandable. Therefore, attention should be focused on internal transformations, namely, the institutional environment on a stimulating one through the creation of effective institutions for the reindustrialisation of the economy, increasing its competitiveness, the development of institutions for financing investment and innovation activities, and the development of domestic demand for Ukrainian products, which is also supported by O. Herus (2024). It was determined that in order to prevent the realisation of negative scenarios of the economic recovery of Ukraine, the main emphasis should be placed on the elimination of structural disparities, the development of industry

considering the specifics of different regions of Ukraine, and the creation of new jobs.

When elaborating a strategy for the development of industry, it is necessary to base it on the need to transition to the sixth technological system, which involved the use of non-traditional sources and thermonuclear energy; development of biotechnologies, nanotechnologies, photonics, optoelectronics, artificial intelligence, micromechanics, quantum technologies, genetic engineering, space technologies; promotion of virtual enterprises and automatic factories, as well as strengthening of state regulation of socio-economic processes to ensure uniform development of all regions of the country. This could create a competitive economy. However, such a transition is impossible without the development of intellectual capital. Its most important component is highly qualified human resources, motivated by the results of work and able to adapt to changes in the external and internal environment. Such adaptation is possible only under the condition of constant accumulation and updating of knowledge, improvement of professional skills, which involved a wider implementation of the concept of continuous education throughout life.

The structural restructuring of Ukraine's economy, its innovative development, as well as the reconstruction of the destroyed social and economic infrastructure are impossible without significant investments. However, even under the most favourable conditions, there is a shortage of financial resources. To ensure the effective use of available resources, there should be strict state control over the directions of the use of these funds. It does not have a positive effect without the implementation of anti-corruption measures, which would provide for the real punishment of corrupt officials. In addition, a strategy to support scientific research aimed at the development and implementation of innovative technologies should be implemented.

In general, agreeing with the opinion of M. Różycki (2019), it is worth mentioning that in conditions of rapid and essential changes in the internal and external environment of the economic system, the manifestations of its inertia also undergo significant changes. The growth of uncertainty in the institutional environment increases the unpredictability of the manifestation of inertia in the economic system, which reduces the ability to assess the effectiveness of its recovery after partial or complete destruction. V. Navickas & V. Bačiulienė (2021) noted that inertia in economic processes manifests itself in changes in the efficiency of investments, the volume of innovations, labour productivity, and the efficiency of economic transformations; that is, it determines the possibility of acceleration (slowdown) of economic growth. It is worth mentioning that in Ukraine, the main factors of such economic inertia are the preservation of the structure of the economy, which was formed during the times of the former USSR; disparities in the national and regional economy; an underdeveloped institutional environment and, as a result, high transaction costs, which inhibit and complicate economic development; reduction of scientific and innovative potential due to insufficient funding; lack of financial resources for renewal of non-current assets of enterprises; and significant disparities in wages and low incomes of the population. One of the consequences of the Russian Federation's military aggression against

Ukraine was the destruction of the stable structure of the economy, as well as changes in the institutional environment. This affected the volume of investments, their direction, and effectiveness.

V. Prokhorova et al. (2023; 2024) noted that the Ukrainian economy is assumed to be influenced not only by internal factors but also by world crises. This affects not only the volume of production but also the general dynamics of processes and their dynamics. In such a situation, as M. Ramli et al. (2020) noted, it is advisable to use non-parametric regression methods, namely spline functions. Splines allow processing of data whose trends ("behaviour") change at certain subintervals. The prospects for the Ukrainian economic recovery have a very high level of uncertainty, and the current trends in its development could be considered non-stationary, that is, those that were the result of distribution shifts and stochastic trends. Incorrect consideration of the dynamics of stochastic processes leads to the formation of potentially erroneous relationships. It is necessary to agree with the opinion of J.L. Castle et al. (2021) that non-stationary processes are difficult to model and predict using a simple selection of the equation that would "best" describe the dynamics of the process or using "hundreds of empirical fits and selecting a preferred one". This necessitated the use of more flexible analysis tools to substantiate the economic recovery strategy, considering the factors that could become its drivers or brakes.

O. Kravchenko (2020) noted that in conditions of high instability of the external environment and, as a result, the non-stationary character of the development of the economy, an effective method of analysis is scenario modelling. It allowed studying the prospects for the development of the economy with a possible change in the factors of its external and internal environment. Unlike classical methods, the results of scenario analysis related mainly to strategic aspects of development, which allowed analysing possible options for the Ukrainian economy's recovery and determining its priority areas. Summarising the above, it should be noted that the conducted study is consistent with the research of other scientists. The approach proposed by the authors allows for assessing the effectiveness of alternative options for Ukrainian economic recovery in the post-war period based on the level of international support and the characteristics of the institutional environment, considering the dynamics and changes in the inertia of economic processes.

## ■ CONCLUSIONS

On the basis of the conducted research, it was determined that during 2000-2021, the management of the Ukrainian economy was ineffective, which negatively affected the possibilities of its recovery while maintaining current development trends. Potential opportunities for Ukraine's economic recovery are being formed both in its external environment (cooperation with the EU, international investments) and within the country (use of innovative potential, introduction of digital technologies). Therefore, the KUs that determine the intensity of the Ukrainian economy recovery in the post-war period are the level of international support (political, economic, and financial) for the Ukrainian economy, which shapes the possibilities of its reproduction, and the country's institutional environment, which determines the effectiveness of economic

reproduction. The deepening crisis phenomena in the global economy necessitate the need to focus attention on the level of development of the institutional environment as a factor stimulating the reduction of the impact of economic inertia on the intensity of its development and ensuring the acceleration of its recovery.

The analysis of possible scenarios for the recovery of the Ukrainian economy showed that the most likely scenario is the implementation of a scenario that involves the formation of a “stimulating” institutional environment. This ensures economic recovery, considering the limited available financial resources, in particular received from international support. The main emphasis should be on the country’s reindustrialisation, eliminating structural imbalances, and creating a competitive economy. The reindustrialisation strategy should focus on the transition to

the sixth technological system, the implementation of a “green” economy, and the development of intellectual capital. In addition, funding for the development of innovative technologies should be a priority. Further research should be directed to the development of strategies for the development of individual regions, considering their characteristics and capabilities. It is also necessary to solve the problem of determining the optimal ratio between the amount of investment in the economic recovery of Ukraine and the social support of the population.

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#### ■ CONFLICT OF INTEREST

None.

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## **Дослідження пріоритетних напрямів відновлення економіки України на основі сценарного моделювання**

■ **Анотація.** Визначення стратегії відновлення економіки України після завершення війни є актуальним, оскільки вона впливає на її стійкий розвиток, залучення міжнародної допомоги та забезпечення довгострокового економічного зростання. Метою статті стало визначення ключових факторів, що визначатимуть інтенсивність відновлення економіки, а також побудова і оцінювання можливих сценаріїв розвитку України після завершення «гарячої» фази війни. Для дослідження особливостей розвитку економіки України було використано інструментарій непараметричної регресії сплайн-функції. Встановлено, що розвиток економіки України відбувався з уповільненням. Обґрунтовано доцільність використання сценарного моделювання в умовах високої невизначеності перспектив розвитку України. На основі SWOT аналізу визначено сильні й слабкі сторони економіки України як передумови її відновлення після завершення війни та виділено ключові фактори відтворення, а саме рівень міжнародної підтримки України (можливості її відтворення); та інституційне середовище (ефективність відтворення економіки). Побудовано чотири сценарії відновлення економіки України після завершення війни. Оцінено ймовірність їх реалізації. Визначено, що найбільш ймовірним є сценарій «Повільний розвиток», який передбачає формування «стимулюючого» інституційного середовища при зниженні міжнародної підтримки. Таке інституційне середовище має сприяти реіндустріалізації економіки, підвищенню її конкурентоспроможності, усуненню існуючих структурних дисбалансів, розвитку інститутів фінансування науково-дослідних розробок, інвестиційної та інноваційної діяльності, а також збільшенню внутрішнього попиту. Розвиток промисловості має базуватися на необхідності переходу до шостого технологічного устрою, що передбачатиме значні інвестиції в розвиток інтелектуального капіталу, в розробку і впровадження інноваційних технологій. Результати проведеного дослідження можуть бути використані органами державної влади під час розробки стратегії економічного відтворення України

■ **Ключові слова:** післявоєнний період; стратегія; розвиток; ключові фактори; сильні та слабкі сторони