MACROECONOMIC FORECASTS IN THE CONTEXT OF THE WAR IN UKRAINE: CAUTIOUS OPTIMISM VS. HOPEFUL PESSIMISM

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E. Kamyshnykova. Macroeconomic forecasts in the contex of the war in Ukraine: cautious optimism vs. hopeful pessimism.

How different variants of security risk shape the future of the Ukrainian economy? The war background with its built-in uncertainty factor makes the development of accurate forecasts more challenging. The paper proposes to solve the problem of short-term and medium-term forecast accuracy of macroeconomic indicators of Ukraine in the context of the war based on the use of a scenario approach. Four hypothetical scenarios regarding the development of socio-economic situation in Ukraine ranging from optimistic to pessimistic variants due to duration of large-scale war have been designed. Real GDP growth, net migration, volume of remittances and unemployment rate are the key macroeconomic measurements that have been projected for 2023-2024 period. Research findings form the basis for shaping a clear strategy for the post-war recovery of Ukraine in the medium to long term as three out of four macroeconomic scenarios assume the end of hostilities within a period under forecast. The paper contributes to improved theoretical rationale for existing linkages between key macroeconomic indicators and uncertainty factor driven by military situation in economic projections. The implications of the research include the design of economic policy mix adequate for optimistic and pessimistic scenarios of the development of the war in Ukraine.

Keywords: GDP growth; forecast; scenario approach, inflation, migration

Камишникова Е. В. Макроекономічні прогнози в контексті війни в Україні: обережний оптимізм проти обнадійливого песимізму.

Як різні варіанти ризику безпеки формують майбутнє української економіки? Військовий фон із вбудованим фактором невизначеності ускладнює розробку точних прогнозів. У роботі запропоновано вирішити проблему точності короткострокового та середньострокового прогнозу макроекономічних показників України в умовах війни на основі використання сценарного підходу. Розроблено чотири гіпотетичні сценарії розвитку соціально-економічної ситуації в Україні від оптимістичного до песимістичного внаслідок тривалості широкомасштабної війни. Зростання реального ВВП, чиста міграція, обсяг грошових переказів і рівень безробіття є ключовими макроекономічними показниками, які прогнозуються на період 2023-2024 років. Результати дослідження є основою для формування чіткої стратегії післявоєнного відновлення України в середньо- та довгостроковій перспективі, оскільки три з чотирьох макроекономічних сценаріїв припускають припинення військових дій протягом прогнозованого періоду. Стаття сприяє покращенню теоретичного обґрунтування існуючих зв'язків між ключовими макроекономічними показниками та фактором невизначеності, спричиненим військовою ситуацією в економічних прогнозах. Наслідки дослідження передбачають розробку комплексу економічної політики, адекватного оптимістичному та песимістичному сценаріям розвитку війни в Україні.

Ключові слова: зростання ВВП; прогноз; сценарний підхід; інфляція; міграція

Statement of the problem. The war has a devastating impact on the Ukraine's economy that is difficult to be estimated in terms of the main macroeconomic indicators.

Ukraine's real GDP growth contracted to 30.3% in 2022 [1] that set a historical anti-record since Ukraine's independence. The current situation can be compared with the 1990s when the structural transformations of the planned economy into a market one took place. What

Ukraine will have in a macroeconomic aspect in a short- and medium-term perspective remains puzzling. The war context with its built-in uncertainty factor aggravates the problem significantly.

Analysis of recent publications.

National regulators and different international institutions vary a lot in their measurements of economic fundamentals. Current GDP forecast of the European Bank for Reconstruction and Development (EBRD) for Ukraine's real GDP growth in 2023 is 1.0%. In 2024 3.0% growth is predicted [2].

In accordance with the cautious predictions of the national financial regulator (NBU) for the coming years, the marginal growth of the main macroeconomic indicator by 0.3% is expected in 2023 [1]. The decline in security risks, in other words, the end of the war or the active phase of hostilities will lead to the full-fledged output growth.

The World Bank forecasts are close to NBU's predictions. According to the World Bank report, the Ukrainian economy will grow by 0.5% in 2023 and by 3.5% in 2024 [3]. In terms of ongoing escalation of war situation, raise in food and energy prices, acceleration of interest rates in the region the growth is expected be slower.

International Monetary Fund (IMF) is not so optimistic regarding the macroeconomic situation in Ukraine. It predicts that Ukraine's GDP growth will be in the -3 to +1 percent range in 2023 [4]. According to predictions for the Ukrainian economy for 2024 IMF economists expect 3.2% real GDP growth.

Differentials between the aforementioned projections of the key macroeconomic indicators due to high uncertainty associated with the war necessitated the use of scenario approach to forecasting.

The aim of the paper is solving the problem of short-term and medium-term forecast accuracy of macroeconomic indicators of Ukraine in the context of the war based on the use of a scenario approach.

Research results.

The war in Ukraine is an event that is difficult to predict, which can be classified as a "black swan" according to the theory of Nassim Taleb (2010) [5]. Although classic forecasting methods are of limited use for events of this origin the extent of their influence requires consideration of the possible consequences of their continued operation or transformation in the future.

In theory, the scenario method is used to analyze rare and unique events that do not have representative statistics this is why it is fully consistent with the conditions of Russian military aggression in Ukraine. It is a predictive method of development of events used to determine their consequences. In a scenario-based forecasting the scenarios are generated by considering all possible factors or drivers, their relative impacts, the interactions between them, and the targets to be forecast [6].

Based on a scenario approach I consider four hypothetical scenarios regarding the development of socio-economic situation in Ukraine due to duration of large-scale war in short- and medium-term perspective. The projections, which refer the security situation, play a decisive role in shaping economic conditions in Ukraine. The period covered by forecast includes two years, that is until the end of 2024. The estimates presented in each scenario are based on certain assumptions and confirmed by regression dependencies.

Among different variables underlying the scenario approach to predicting the socio-economic consequences of the war in Ukraine I focus on the key macroeconomic indicators.

In the first scenario I consider improving the security situation in the mid-2023 related to the end of hostilities on the territory of Ukraine or at least significant success of the Ukrainian army regarding deoccupation of territories previously occupied after February 2022. This scenario coincides in key assumptions with baseline scenario provided by The National Bank of Ukraine (NBU) which has published its Inflation Report with a macroeconomic forecast in 2022 [7]. In this report the baseline scenario of the macroeconomic forecast is a moderate one in terms

of improving security situation and taking necessary fiscal and monetary measures in state economic policy. A reduction in security risks in mid-2023 due to military successes of Ukrainian army is the main assumption that will return Ukrainian economy to gradual smooth recovery in 2023-2024.

The second scenario is based on assumption of prolongation of hostilities on the territory of Ukraine until mid-2024. It intersects with the alternative scenario of NBU. Both baseline and alternative scenarios are variations of realistic forecasts based on different assumption on the duration of large-scale war in Ukraine.

Under the second scenario a negative migration trend is predicted to change to a positive one only in 2024 due to the end of hostilities in Ukraine. 2023 will still be characterized by an outflow of 1.4 million Ukrainian refugees in search of temporary protection in other countries. Besides, in March 2024 the Temporary Protection Directive granted to millions of Ukrainian war refugees by EU member states will be expired. If it is not extended this will be an additional incentive for majority of forced migrants not integrated in the host societies to return in Ukraine.

The third scenario should be called 'pessimistic one' based on the predictions of the protracted war predominantly localized in the specific regions. The war is expected to turn into periodically renewed hostilities with varying degrees of scale and intensity. Considering the experience of Russian aggression in the eastern regions of Ukraine in the period from 2014 to 2022 the situation will be similar to the frozen conflict with periodic outbreaks. Despite the continuation of the hostilities in connection with the transition of the economy to a military footing, the Ukrainian economy is projected to reach low GDP growth of up to 0.5% per year. Maintaining further GDP growth in the context of the ongoing military conflict will be difficult and require large-scale international financial support.

Continuation of the war conflict with alternating phases of attenuation and escalation will have a devastating impact on human potential and will lead to a further outflow of the Ukrainian population to other countries, primarily border realms. Another risk of prolonging the conflict relates to the fact that part of refugees who fled the war in Ukraine will reunite with their family members or integrate in the host communities that will transform them into post-war emigrants. The cumulative value of the migration outflux will exceed 10 million Ukrainians abroad in about 3 years since war outbreak. Given the demographic structure of the stock of Ukrainian emigrants, in the medium term, Ukraine will lose a critically significant part of the economically active population that will undermine its ability to quickly post-war recovery.

Shrinking economic activities due to ongoing war operations decreases demand at the labour market that results in boosting unemployment rate up to 30%. High security risks in 2024 set vector of Ukrainian migrants ouflow that will slightly reduce pressure on the labour market and lead to decreasing unemployment rate almost to the level of 2022.

In the forth scenario which one should call 'optimistic' the war in Ukraine is predicted to conclude in peace in a short term perspective with long lasting security guarantees and favorable conditions provided by international partners. Under this scenario Ukraine gets a chance to become a full-fledged partner of the European union, the integral part of European security architecture and gets full access to reparations.

From the security perspective, this scenario is close to security situation assumptions characteristic for baseline scenario provided by NBU. The differences lie in the scale and pace of international assistance and the type of economic policy pursued by the national government for the post-war reconstruction of the Ukrainian economy. That is why in 2023 the annual level of real GDP is projected to be at 2%, while in 2024 the implementation of the post-war economic recovery program is expected to lead to the rise of the main economic indicator to 7%. Ukrainian labour market is projected to benefit from this program providing significant amounts of investment covered by international aid to restore infrastructure and develop promising sectors of the economy.

If a peace agreement will be signed in 2023 that will encourage economically active population to return in Ukraine for the purposes of family reunification and participating in labor

market processes. Also, Ukrainian government will implement measures to stimulate the return of Ukrainian migrants to their homeland. In the next after-war year the migration inflow is predicted to amount to 3 million Ukrainians that preserves Ukrainian demographic potential from devastation. Part of labor migrants and war refugees currently employed in the host countries will have an incentive to return in Ukraine. As a result of implementation of economic recovery program, the unemployment rate will decrease to around 15%. This is the most optimistic variant of unemployment level forecast in the post-war period but this is still above its natural level because of disbalances at the labor market.

Table 1. Possible macroeconomic scenarios regarding the security situation in Ukraine

| Indicators	Starting point (2022)	2023				2024			
		Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Real GDP, % yoy	-30.3	2.0	0.5	0.5	2.0	5.2	2.5	1.3	7.0
Migration (net), mln	-8	0.4	-1.4	-1.4	0.4	2.5	0.6	-1.2	3.0
Remittances in Ukraine, USD bn	13.9	16.4	16.9	16.9	16.4	13.8	15.5	16.9	13.2
Unemployment (ILO, period average)	24.5	20.0	30.2	30.2	20.0	18.2	24.1	27.3	15.0
Security risk	extra high	High (until mid-2023)	extra high	extra high	High (until mid-2023)	low	High (until mid-2024)	extra high	low
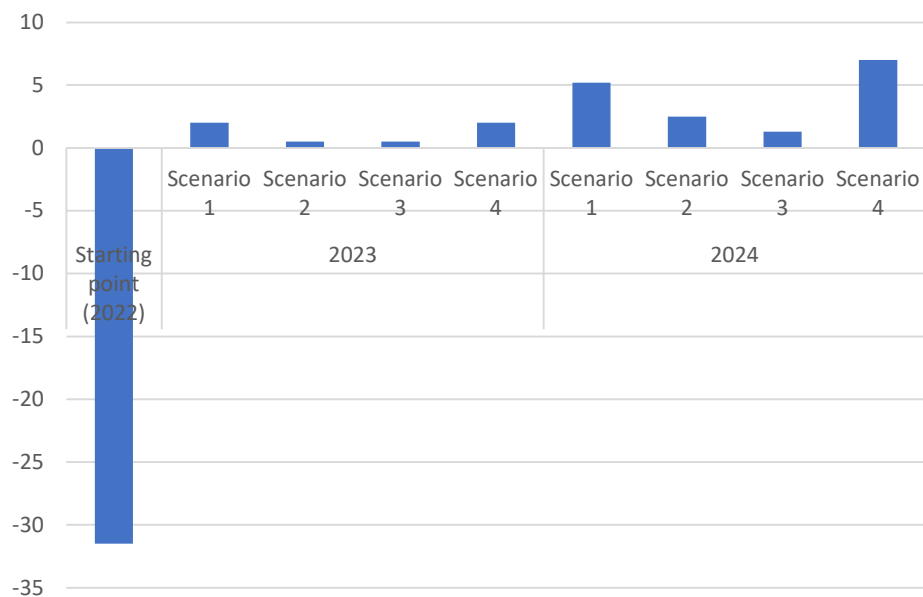
Figure 1. Future GDP-growth, %, possible scenarios

Scenario 1 assumes the security risks will decrease in the mid-2023. Scenario 2 predicts the end of the war conflict in the mid-2024. Scenario 3 is *pessimistic regarding the protracted war in the specific regions.* Scenario 4 is similar to 1 in terms of security situation but more optimistic one in terms of *large-scale international financial assistance.*
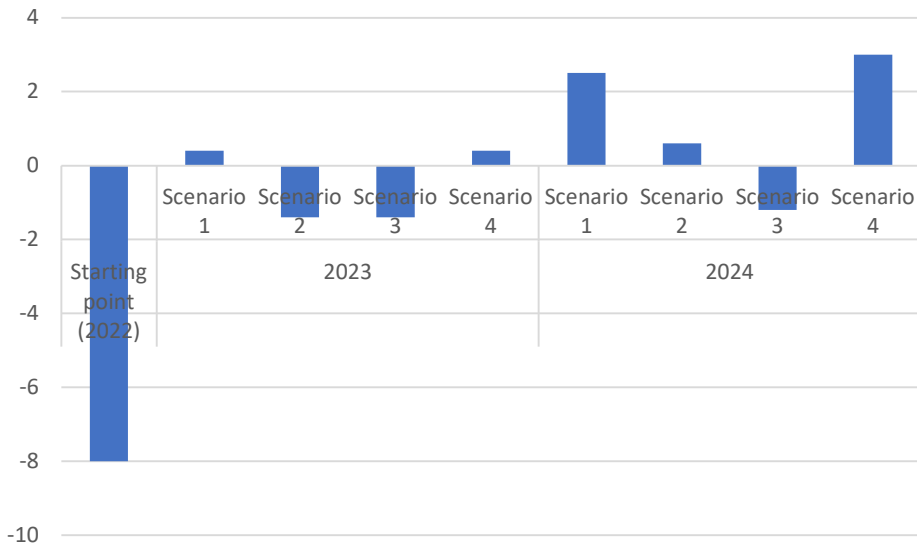
Figure 2. Future net migration, mln people, possible scenarios
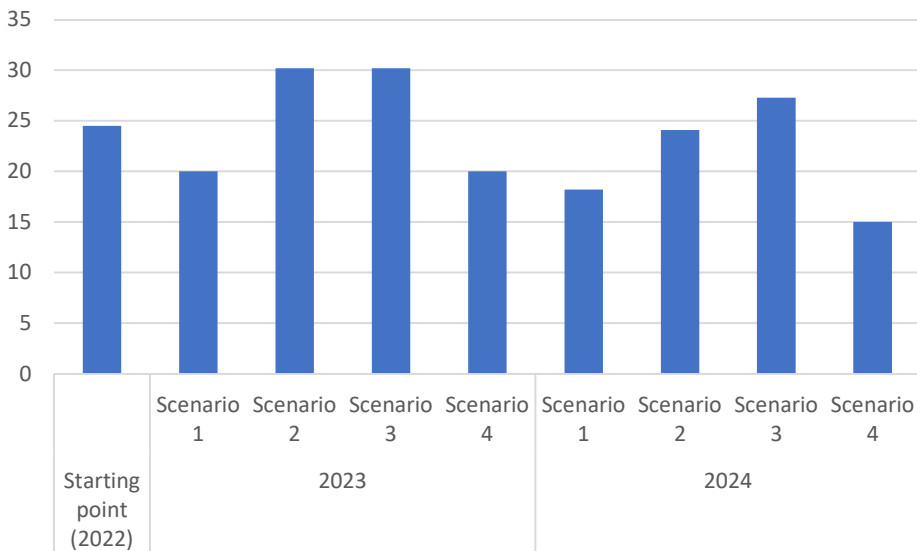

Figure 3. Future unemployment rate, %, possible scenarios

Scenario 1 assumes the security risks will decrease in the mid-2023. Scenario 2 predicts the end of the war conflict in the mid-2024. Scenario 3 is *pessimistic regarding the protracted war in the specific regions.* Scenario 4 is similar to 1 in terms of security situation but more optimistic one in terms of *large-scale international financial assistance.*

Scenario planning has been considered as a tool to improve the strategic agility, by cognitively preparing not only multiple scenarios but also multiple consistent strategies [8]. Each of above considered macroeconomic scenarios regarding the security framework requires implementing adequate measures in conditions of in-war and after-war situation in Ukraine.

Considering the fact that conclusion of peace in 2023-2024 is not a presuming factor in scenario three the key goal of government economic policy in the context of ongoing war includes stabilizing economic situation in the short run and its full transition on military lines. The military state reduces opportunities for economic maneuvers and highlights the problem of Ukraine's survival as a political and socio-economic subject at the expense of external and internal resources.

International financial assistance from international organizations, national governments, non-government organizations and other stakeholders became the main source of covering significant budgetary needs and safeguarding macro financial stability during a full-scale war. A

regular financial support mechanism in the form of grants and loans is a part of major project to ensure sustainable public administration in Ukraine through cooperation with international partners.

With the start of Russian military aggression, Ukrainian authorities implemented the programs of business relocation, lending and insurance that confirmed the orientation on support of business in war environment. Business relocation in the safer regions within Ukraine creates opportunities for its survival and transformation in a military format. However, relocation in EU is a contradictory measure providing new economic connections with European countries and fostering process of economic European integration on the one hand, and threatening to lose active Ukrainian entrepreneurs doing business abroad, on the other hand.

Among the arsenal of government policy instruments aimed at supporting business entities and purposefully stimulating the creation of new jobs in a wartime the other measures could be also suggested including government order for the purchase of goods and services, nationalization of a systemically important companies threatened with bankruptcy, stimulation of import substitution and localization of production etc.

Conclusion.

In the paper a scenario approach to solving the problems of short-term and medium-term forecasting of macroeconomic indicators in the context of the war in Ukraine has been proposed. Real GDP growth, net migration, volume of remittances and unemployment rate are the key macroeconomic measurements that have been projected for 2023-2024 period.

The assumptions used in the formation of scenarios determine the variation of challenges that Ukraine needs to face and contribute to the development of policies to address them.

Macroeconomic scenarios one, two and four assume the end of hostilities within a period under forecast that is why it is necessary to shape aforehand a clear strategy for the post-war recovery of Ukraine in the medium to long term.

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