

Threats and dangers to economic security of Ukraine in the terms of war

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Abstract

The article is devoted to the issue of identification and systematization of risks and threats to the economic security of Ukraine in the terms of war, considering their hierarchical nature, according to which the economic security of the state is the foundation. Based on the indicator method, threats with the maximum level of influence on economic and social security have been identified, and their dynamics over recent years have been analyzed. Risks and threats to the economic security of Ukraine are systematized by spheres and the level of influence on target security parameters. The influence of war criminals on environmental safety has been investigated and the existence of interdependence of environmental threats with indicators of economic safety has been proven. The need to include indicators of environmental threats in the system of indicators of the economic security of the state is substantiated, considering the complexity of their action. The study aims to identify the principal threats and risks to Ukraine's socio-economic security under martial law, assess their implications for macroeconomic indicators and social dynamics, and propose strategies to mitigate these challenges. It explores the concepts of risks and threats as fundamental elements of economic security, emphasizing their interrelation, where risks represent the likelihood of adverse outcomes and threats signify potential harm to the economic system caused by internal or external factors.

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Introduction

The scale and impact of the war radically changed the paradigm of socioeconomic development and the priority of measures to ensure national security. Ukraine is undergoing numerous trials due to the huge losses that the state, business and population are suffering. It necessitates the introduction of a proactive, safety-oriented approach at all levels of the social hierarchy.

The prerequisite for the beginning of the armed aggression against Ukraine was the economic bleeding of Ukraine, carried out through direct economic pressure, such as trade and tariff confrontation, blockade of Ukrainian trade, blockade of gas supplies, etc. The economic war against Ukraine was directed primarily against the economies of the east and south of Ukraine, which, due to certain features, depended on the Russian Federation, in particular as recipients of raw materials and energy resources from Russia and as a market for a significant share of their own products (Solingen, 2017; Baranovsky, 2014; Varnaliy, 2020).

The current economic situation in Ukraine convincingly shows that countering threats to the socioeconomic security of the state, business, and individual is an important prerequisite for maintaining normal living conditions and protecting the population during the war, so the problem of identifying and assessing risks and threats to the economic security of the state becomes relevant and exceptional. And the consideration of this category through the prism of social security, with the allocation of social security as a superstructure, acquires special weight for the prevention of social and humanitarian disasters (Maltsev & Shevchenko, 2021). Considering the magnitude of the impact of environmental threats as a result of the continental war on the territory of Ukraine, the combination of global and national challenges and threats, the priority of ensuring environmental security at the international level (Onyshchenko et al., 2022b).

The war unleashed by the Russian Federation against Ukraine has fundamentally changed not only the political but also the socio-economic landscape of the country. The deep economic turmoil, destruction of infrastructure, loss of human capital, blocking of international trade and

large-scale emigration processes have put Ukraine in front of new challenges that require prompt response. The current stage of the country's development is characterized by an unprecedented level of uncertainty, which necessitates the development of new approaches to ensuring economic security as a key factor in the stable functioning of the state.

The peculiarity of modern threats to Ukraine's economic security is their multidimensional nature. They cover not only the financial and production spheres, but also have a direct impact on the environmental, social and humanitarian components. For example, the environmental consequences of hostilities, including soil and water pollution and large-scale fires caused by shelling, have a significant impact on the agricultural sector, export potential, and public health. In this context, economic security becomes the basis of national security, and its provision is of strategic importance.

The prerequisites for aggression against Ukraine were laid down even before the outbreak of hostilities, when the country faced economic pressure aimed at bleeding it dry. Trade restrictions, export blockades, and manipulation of energy resources were the first stage of preparation for military action. The eastern and southern regions of the country, which were economically dependent on the Russian market, were the most vulnerable. In view of this, the current issues of economic security require a rethinking of the concepts of socio-economic sustainability through the prism of integration of environmental and humanitarian factors (Heiets, 1999).

Thus, there is an important issue of identifying, assessing and systematizing risks and threats to the economic security of the state in times of war. It is necessary to identify the most critical threats, their impact on socio-economic stability, and to develop practical recommendations for minimizing them. It is particularly important to take into account the environmental component, which has so far been neglected within the system of economic security indicators.

The aim of the study is to identify the key threats to Ukraine's economic security in the context of war, analyze their impact and develop recommendations to minimize the negative consequences. The purpose of this article is to identify the key threats and risks to Ukraine's socio-economic security under martial law, to analyze their impact on macroeconomic indicators and social processes, and to outline ways to neutralize these threats and minimize the consequences. The article examines the phenomena of threats and risks as key categories of economic security, in particular their interdependence, in which risks are considered as the primary phenomena that form threats. The author defines risks as the probability of adverse consequences and uncertainty of future events, and

threats as the potential for damage to the economic system under the influence of internal and external factors.

The article considers the legislative aspects of economic security, in particular, the Economic Security Strategy of Ukraine until 2025, which defines the main directions of sustainable development of the national economy, integration into the European economic area and expansion of mutually beneficial economic cooperation with other states. Particular attention is paid to the consequences of the large-scale aggression of the Russian Federation against Ukraine, which led to significant losses in GDP, destruction of infrastructure, rising inflationary pressures and mass migration.

It is noted that in 2022, Ukraine's economy suffered significant losses, including a decline in GDP, infrastructure destruction worth more than \$100 billion, rising unemployment due to migration, and a decrease in investment activity. The author analyzes in depth the impact of the war on business operations, in particular on the activities of small and medium-sized enterprises, which have largely ceased to operate. Attention is paid to the problems of assessing losses due to the lack of complete data, as well as the methodology for calculating losses for different categories of objects.

A special focus was made on the demographic challenges caused by the hostilities, including a shrinking labor force due to youth migration and limited employment opportunities. The results of opinion polls indicate potential risks associated with uncertainty about the return of some citizens to their homeland, which could slow down the economic recovery after the war.

Literature Review

The priority of studying the problems of socioeconomic security is due to the growing number of global challenges and threats of a hybrid nature, which has been confirmed by active scientific research. The works of Ukrainian and foreign scientists are devoted to the formation of the conceptual foundations of economic security. threat nature disclosure based on the definition of the "economic security" concept content, the mutual influence and interdependence of economic security negative factors; threat assessment and modeling (Onyshchenko et al., 2022a; Theo, 2022; Onyshchenko et al., 2021).

However, in the conditions of a large-scale war on the territory of Ukraine, the priority of the threat influence has changed significantly, the complexity and consequences of environmental threats actualize the problem

of ensuring environmental security as a prerequisite and superstructure for socioeconomic security at the macro level (National Risk Assessment, 2019). The study of war crimes against the environment is carried out in the works of scientists, however, the problem of the ecothreat impact caused by military operations on the indicators of the state socioeconomic security requires more careful study (Reznikova et al, 2020; Vyhor, 2022)

The issue of identification, systematization and assessment of threats in the system of ensuring the economic security of the state has attracted the attention of many scholars who have made a significant contribution to the development of this topic. Dunaev and Orlov (2023), in his research, made a significant contribution to the development of conceptual approaches to systematizing threats to economic security. Kovalenko et al. (2024) focus on identifying the main mechanisms of influence of global threats on the national economy and proposes methods for their assessment and management. They examine strategies and tactics that can be used by states to minimize the impact of these threats, taking into account the specifics of individual countries' economic systems. The research covers issues of adaptation of economies to globalization and technological changes that may create new risks to economic security.

Yelizarov and Radchenko (2019) have also significantly expanded the concept of economic security, in particular, by emphasizing the importance of analyzing external and internal threats to the economic stability of the state. Skoruk (2016) added new aspects to the analysis of threats, in particular, by considering the issue of their adaptation to the conditions of modern global changes. He explores not only traditional threats but also new challenges related to technological innovations and changes in international economic structures. His approach allows for a clearer understanding of how economic processes can be exposed to risks due to global transformations.

Robertson (1992) and Waters (1995) laid the theoretical foundations for the study of globalization as a complex integrated process. In his works, Robertson (1992) draws attention to the impact of globalization on the economic security of states, noting that the deepening of international relations creates both new opportunities and new threats to national economies. He also points to the importance of integration processes for the development of national economic systems. Waters (1995), in turn, sees globalization as a key factor accelerating changes in economic structures and affecting opportunities for economic security. He analyzes global trends and their impact on states, focusing on the economic and social consequences that may arise from this process.

Onishchenko (2016) has also made a significant contribution to the study of threats to economic security associated with globalization. He draws

attention to the emergence of new risks to the economic stability of states as a result of the development of global economic processes, such as financial globalization and technological change. Rokocha explores other aspects of globalization processes, in particular those related to interstate economic relations and their impact on national security.

Despite the numerous accomplishments in the study of threats to economic security, the research on this topic requires further development, especially in view of the new challenges arising in the context of Russia's military aggression against Ukraine. Considering the changes in the global economic situation, in particular due to geopolitical tensions and military conflicts, it is necessary to continue to improve theoretical and practical approaches to the analysis and management of threats to the economic security of states.

Materials and Method

The research is based on the application of comparative analysis method for the threat identification to the social and economic security of Ukraine, the analysis of time series and the graphical method for the study of trends in negative security factors, the generalization method for the systematization of identified risks and threats, as well as the modeling method for assessing the influence of environmental threats on indicators of the state socioeconomic security.

The method of comparative analysis allows identifying potential threats to economic security by analyzing time series. Data for the period from 2014 to 2023, which covers both the beginning of military aggression and its escalation, were taken for comparison. The sources of statistical data were reports of the State Statistics Service of Ukraine, analytical reviews of international organizations such as the OSCE and the World Bank, as well as materials of civil society organizations. This allowed to obtain a wide range of information necessary for accurate analysis.

The graphical method was used to visualize trends in the impact of key threats. It depicted the dynamics of such indicators as changes in GDP, export dynamics, unemployment rates, and other socioeconomic factors. This method made it possible to visually present changes in key indicators that affect the country's economic security. The method of generalization ensured the systematization of identified risks and threats by spheres of influence. This made it possible to identify certain categories of threats, including financial, environmental, and social. This systematization helped identify the main areas for developing countermeasures.

The modeling method was used to assess the impact of environmental threats on the economic security of the state. The impact of soil contamination on the agricultural sector was modeled, for example, based on data on the dynamics of yields in the most affected regions. This made it possible to assess the scale of the impact of environmental problems on key sectors of the economy.

The study used a variety of statistical methods to collect, process and analyze data, including the mass observation method, the grouping method and the graphical method. The mass observation method allowed us to collect large amounts of data reflecting the state of the economic and social situation in Ukraine for the selected time period. This method covered a wide range of indicators related to various aspects of economic security, such as economic growth, unemployment, inflation, as well as changes in macroeconomic indicators under the influence of global and domestic factors, including war.

The method of groupings was used to classify data into different categories, which allowed us to identify general trends in the economic development of Ukraine during the study period. With the help of groupings, numerous economic and social indicators were analyzed, their dynamics were determined, as well as the degree of influence of various factors that took place at that time. This allowed for a more in-depth consideration of issues related to the adaptation of the economy to the changes that took place in the context of globalization and military operations.

The graphical method was used to visualize the data obtained, which helped to clearly demonstrate changes in the main indicators and compare them at different stages of the study. The graphs made it easy to trace the trends of changes, as well as to assess the effectiveness of political and economic measures that affected the economic security of Ukraine.

The method of theoretical generalization was also used, which allowed to formulate general conclusions and recommendations on ensuring the economic security of the state on the basis of factual data. This method involved combining and integrating data from various sources to form a holistic picture, as well as identifying potential factors affecting the country's economic stability.

The research period covers the period from 2010 to 2022. This provides an opportunity to identify both long-term trends and reactions to short-term events, such as Russia's military aggression against Ukraine. An important step in the analysis is to compare the two periods of 2021 and 2022, as it was during this time that significant changes occurred due to the outbreak of war. The war undoubtedly had a decisive impact on the economic situation in the country, including inflation, economic growth, unemployment, and other

socioeconomic indicators. Analyzing these changes using statistical methods shows how the war led to a significant decline in production, higher energy prices, as well as a sharp increase in the number of IDPs and a decrease in the country's investment attractiveness.

A comparison of 2021 and 2022 shows how macroeconomic indicators were affected by the war. The economy was still showing some signs of recovery from the COVID-19 pandemic in 2021, but in 2022 the economic situation deteriorated significantly due to military aggression. The war resulted in a decline in production, higher unemployment and inflation, and a decline in foreign investment. This analysis clearly shows how external military threats can dramatically change domestic economic processes, which is reflected in the results of the study.

Results

In terms of instability and global challenges, a defensive approach to interpreting the essence of economic security, the initial category of which is “threat”, is widely used. Threats to the state economic security are phenomena and processes that negatively affect the economy of the nation, suppressing the economic interests of individuals, societies, and the state. Constant monitoring and identification of significant threats to economic security largely contribute to maintaining them at the proper level, as well as the development and implementation of timely and practical measures to reduce or completely eliminate threat negative consequences. (Onyshchenko et al., 2023a)

Risks in comparison with threats are the primary category, and threats are the secondary one, since threats arise in the presence of a combination of risks. Risks are interpreted as the possibility of adverse or undesirable consequences, the uncertainty of an event occurrence in the future. Therefore, it can be noted that risks are an economic category, the essence of which is in the uncertainty of the actually expected result of an event in the future under the influence of a complex of negative and positive factors. An economic threat is a potential opportunity to harm a business due to internal and external factors (Milka et al., 2023). Economic danger under the threat of real manifestation is a direct, real form of threat.

According to the Law of Ukraine “On the Fundamentals of National Security of Ukraine” dated June 19, 2003, the threat to the state economic security is the existing and potentially possible phenomena and factors that endanger the vital national interests of Ukraine. Decree of the President of Ukraine dated August 11, 2021 No. 347/2021 approved the economic

security strategy of Ukraine for the period up to 2025, which determines the ways to achieve the goals and implement the priorities of national interests in the field of ensuring economic security (President of Ukraine, 2021).

The sustainable development of the national economy, the integration of Ukraine into the European economic space, the development of equal and mutually beneficial economic cooperation with other states meet the national interests of Ukraine (Onyshchenko et al., 2023b; Krasnobayev et al., 2023; Onyshchenko et al., 2023c). Ensuring national economic interests requires the formation and implementation of a strategic course in the field of ensuring economic security, aimed both at constantly increasing the competitiveness of the Ukrainian economy and gradually strengthening economic stability and, accordingly, the invulnerability of the national economy to external and internal threats. (Aviv & Ferri, 2023; Barbieri, 2022).

The practical implementation of the State Strategy for Economic Security should be carried out through a system of specific measures, mechanisms implemented on the basis of qualitative indicators and quantitative indicators of the country socioeconomic development (Utenkova, 2019). Such a system is the basis and content of the national economic policy. In this case, economic security can be developed only in the conditions of providing socially necessary conditions for the reproduction of social products, in a system of complex relationships and interdependencies determined by the social structure of society, the depth of social contradictions and objective ways of implementing social security (Onyshchenko et al., 2023d). An adequate level of social security is a part of priority system for countries dealing with various issues of economic development and functioning.

As a result of the large-scale aggression of the Russian Federation against Ukraine, the level of all risks affecting the financial system stability has increased significantly. Ukraine GDP losses in 2022 are significant. According to various forecasts, GDP decrease in 2022 is going to be from -10% to -30-40% (assuming that the size of the occupied territories does not increase, and the active phase lasts several months), which corresponds to a reduction in electricity consumption by about 35% (according to DTEK estimates). 30% of the national GDP falls for the nine hardest hit regions of Ukraine. Inflationary pressures remain high due to the industrial and transport infrastructure destruction and rising production costs. As a result, budget expenditure volume to support the gradual recovery of business and economy is rapid (Fitch Ratings, 2022).

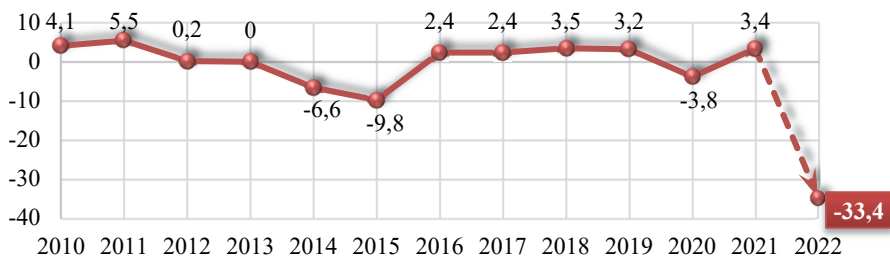


Figure 1 - Change in real GDP of Ukraine in % to the previous year (in 2022 - Fitch Ratings forecast)

Source: built by the authors on the basis of the Fitch Ratings (2022).

According to the budget losses assessments by Ministry of Finance, Ukraine losses amount to about UAH 2 billion per day. In March, infrastructure losses amounted to \$119 billion, or \$4.25 billion per day. Given that the total physical damage caused to infrastructure is estimated at \$100 billion, which includes damage to transport infrastructure (\$39 billion) and destruction of housing stock (\$29 billion).

As of May 2, 2022, the total amount of direct damage inflicted on Ukraine due to the war started by Russia reached almost \$92 billion – Ukrainians lost almost 90,000 cars in more than two months. Over the last week of April 2022, direct losses to the Ukrainian economy due to the destruction and damage of civilian and military infrastructure increased by almost \$4.5 billion. In addition, according to KSE estimates, as at May 2, direct losses of enterprises (assets, depots) have already amounted to about \$10 billion dollars because of the war.

At the same time, the total losses of the Ukrainian economy because of the war, considering both direct and indirect losses, for example, GDP decrease, disinvestment and labour outflow, additional spending on defense and social support, etc., range from \$564 billion to \$600 billion. From February 24 to May 2, 2022, at least 940 secondary and higher education institutions, 231 healthcare institutions, 33.7 million square meters of residential buildings, 543 kindergartens, 11 airports and 6 thermal power plants were damaged, destroyed or confiscated. In addition, tens of thousands of kilometers of roads and railways, 295 bridges and bridge crossings were destroyed or damaged (Kyiv School of Economics, 2022).

The activity of enterprises was stopped in the first weeks of the war, and then resumed very slowly. More than half of the member companies of the European Business Association in Ukraine suspended or discontinued their activities during the war (57%). The situation is similar with small companies. Damage to property during the war is difficult to assess, since in hot spots they are sometimes impossible to trace, and moreover to study. For

example, most buildings in Chernyiv, Sumy and Kharkiv are known to have been damaged, but information on individual enterprises is extremely limited. Some wealth holders are reluctant to report that their assets are damaged (because their shares/bonds are placed overseas, they don't want to intimidate investors) or that they are in good condition (they are afraid of being the next target). Some locations are of strategic importance, and access to information about their status is limited. On the other hand, some owners have inflated their damages in order to demand more compensation.

However, there are valuation methods for large facilities (airports, large industrial plants, ships, aircraft, etc.) that can be valued separately through annual accounts or other available data, companies use all fixed access, unfinished production and warehouses. Medium properties (schools, hospitals, shops, cultural institutions, etc.) are valued at average unit cost (annual invoices, Prozorro tenders, etc.), typical properties (real estate, vehicles, small businesses) and networks (road and rail), electricity and gas, telecommunications) are estimated using indirect methods by combining relevant regional statistics and the share of losses by region or city.

Industrial asset losses as of April 2022 are \$6.7 billion. Metallurgy lost at least 30% of its assets. Among the biggest losses are Azovstal and MMK Illich, the second and third largest metallurgical plants in Ukraine, respectively. These threats to socio-economic security are catalysts of risks to the financial component of economic security (Onyshchenko et al., 2023e). In particular, The deficit of the budget general fund for the first quarter of 2022 is UAH 67.5 billion. (about 2.3 billion dollars). About 30% of the total budget, or UAH 32.5 billion, is made up of dividends paid by state-owned enterprises (excluding UAH 19 billion of NBU revenue at the end of February), the source has been exhausted, and the remaining 70% of income is likely to decrease.

In the first quarter of 2022, the advance of dividends by SOEs and the transfer of revenues from government units contributed to the budget. Additional support from international donors is becoming increasingly important given the limited revenue expected in the second quarter. The introduction of exchange rates and the restriction of the capital movement at the beginning of the war significantly unloaded the foreign exchange market. The level of international reserves of the NBU remains at an acceptable level, but the export potential is significantly limited, especially due to logistics. Energy prices, especially natural gas, have risen rapidly. The war also worsened global growth forecasts and lowered global trade.

Due to economic risks, the threat of inflation is increasing. The increase in consumer inflation in 2022 at significantly higher rates compared to similar indicators in 2021 (Fig. 2) testifies to further increase in inflationary

pressure due to the consequences of the war. Inflation escalation risks remain significant in the context of Russian prolonged full military aggression and deliberate destruction of food warehouses, retail outlets, blockades of ports and damage to transport infrastructure. Measures taken by the National Bank, the Verkhovna Rada and the government of Ukraine are aimed at curbing price increases.

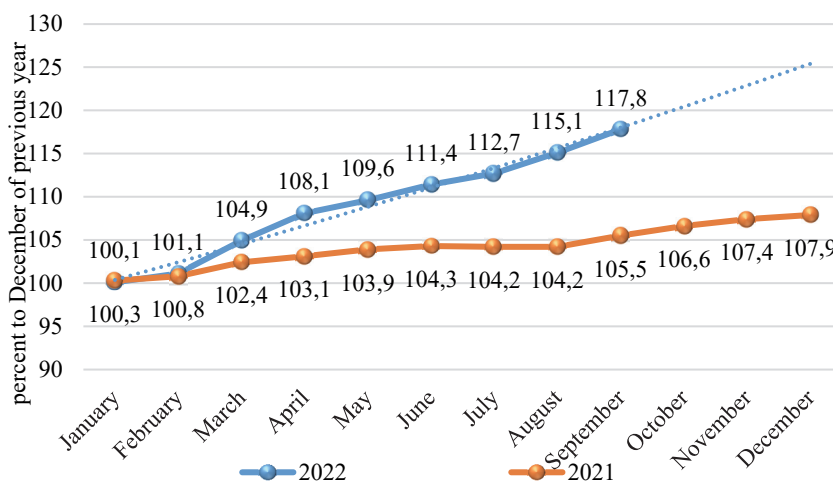


Figure 2 - Dynamics of the consumer price index of Ukraine during 2021-2022
Source: built by the authors.

The reduction in the number of labor resources in Ukraine through migration is threatening. Combat actions forced about 27% of the population to leave their permanent place of residence, including 36% of the population aged 18-24 and 34% of those aged 25-34. According to UN estimates, since February 24, 2022, 5,757,014 people have left Ukraine. At the same time, 1,464,500 Ukrainians have returned to Ukraine from European countries since February 28. Earlier, from February 21 to February 23, 113 thousand people left the Donetsk and Luhansk regions for the Russian Federation. 6.48 million people have been displaced around Ukraine due to the war.

The largest number of people migrated to Poland - 2,451,342 people. Citizens, including women with children who have not lost their homes, are likely to return to their former place of residence. However, students and schoolchildren who complete their studies in other countries can become non-permanent immigrants. The settlement of young people in the host country accelerates the obsolescence of the Ukrainian population. Assessing the mood of the population according to a social survey in March 2022, 10%

of Ukrainians crossing the border in the Transcarpathian (Zakarpatska) region did not plan to return to Ukraine, and 11% are considering such an option. The implementation of these intentions may lead to a labor shortage in Ukraine and slow down the pace of post-war economic recovery.

According to the results of the study, key risks and threats to socioeconomic security can be identified (Fig. 3). Considering threat nature, management actions are to be aimed at neutralizing the risks of the social component of Ukrainian economic security, which act as forms of danger and, by their presence, reduce the security level (Onishchenko et al., 2014).

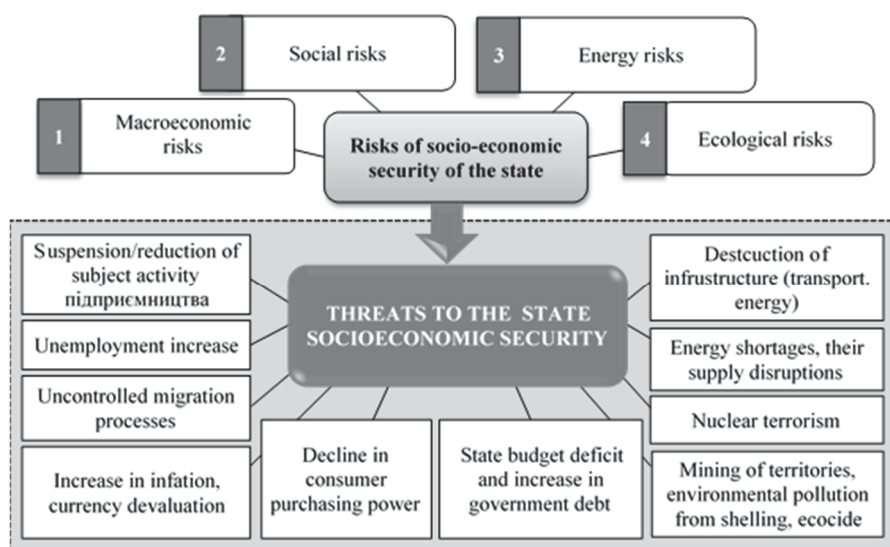


Figure 3 - Systematization of the main risks and threats to the socioeconomic security of Ukraine in the terms of war
 Source: built by the authors.

In general, it is still impossible to assess the level and impact of threats to the socioeconomic security of Ukraine due to the lack of generalized data on key macroeconomic and social indicators in 2022. However, in general, this influence is manifested in the fact that due to the employment opportunities restriction and in connection with the change of residence, the situation in the employment sphere and income of the employed population has worsened. It is expected that Ukraine GDP is declining in all respects, private consumption is decreasing, unemployment is growing due to population migration, income and secondary spending are declining, investment activity is decreasing due to significant uncertainty and high risk (Liu & An, 2023).

It should be noted that, according to experts, in the conditions of combat actions, environmental threats are the most dangerous in terms of the level of influence. As a result of the shell or rocket explosion, toxic chemicals are released into the air, and the debris, falling into the ground, pollute fertile soils in agricultural areas and poison groundwater (Strelets, 2022). The restoration of these natural resources takes place over several decades, so the impact of environmental threats is prolonged in time.

In addition, combat actions lead to natural fires, including forest fires, which destroy the ecosystem, pose a threat to human life and health, can lead to the destruction of all biodiversity in the fire area and lead to air pollution. The destruction and damage of forest plantations in the south of Ukraine, where active combat actions are taking place, affect the climate of these regions and may lead to significant erosion processes, since forest plantations in this area perform a protective function.

Considering that in the course of combat actions, depots of ammunition, equipment, fuel are the key targets for destruction, the threats to environmental safety due to the burning of oil and oil products at a base with several tanks are equal in scale to the monthly volumes of transport emissions into the atmosphere Kyiv. They are accompanied by sulfur oxide emissions which are the cause of acid rain. There is also the threat of airstrikes against enterprises that use hazardous chemicals in their production, resulting in sources of nitrogen, ammonia and other hazardous substances.

According to the Ministry of Environmental Protection and Natural Resources of Ukraine, which collects data on environmental threats caused by military operations in Ukraine, almost 250 cases of ecocides against the environment have been recorded in Ukraine since the start of the large-scale russian invasion (Fig. 4). Threats to the environmental security of Ukraine as a result of the war are large-scale in terms of consequences and negatively affect the environmental situation around the world. According to preliminary minimum estimates in monetary terms, the amount of environmental damage assessed by the State Environmental Inspectorate in accordance with approved methods, as at 10.10.2022, is 1,337 billion UAH (SaveEcoBot, n.d; Eco Threat, n.d).

Ukraine, as a result of the full-scale invasion of rf on February 24, 2022 and the conduct of active combat actions, is one of the most mined countries in the world. The remnants of rockets and shells, anti-personnel mines and other explosive objects pose a threat to human life and health, biodiversity. They can pollute soils, water and air as a result of ruptures and they are a real danger for decades (Onyshchenko et al., 2023f, Samusevych et al., 2021).

However, the threat of nuclear terrorism is unprecedented. Before russia's invasion of Ukraine and the capture of the Chornobyl and South Ukrainian

nuclear power plants, humanity has not yet known cases where the territories of nuclear power plants became sites of military operations. These nuclear facilities are used for military purposes, are constantly under the threat of shelling, and the South Ukrainian nuclear power plant has become an object of nuclear terrorism that violates all international agreements and carries catastrophic danger to all mankind. The first consequences of the nuclear power plant usage as an instrument of nuclear terrorism were assessed after the liberation of the territory of the Chernobyl nuclear power plant.

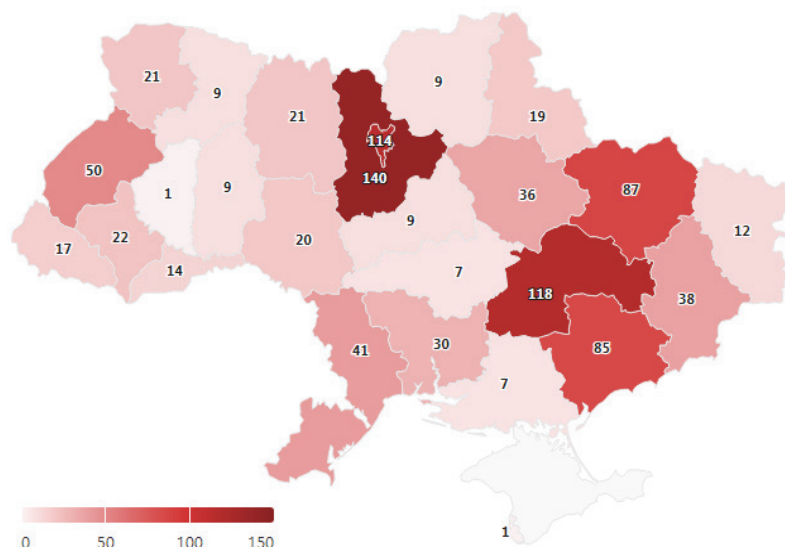


Figure 4 - War crimes against the environment in Ukraine, threatening environmental security by regionalization

Source: built by the authors on the basis of the SaveEcoBot (n.d.)

According to an independent investigation conducted by the German Greenpeace, the military takeover of the Chernobyl zone and the consequences of the presence of Russian troops there turned out to be catastrophic, because they led to an increase in the level of radiation in the occupied territories of Polissia. In war conditions, it is difficult to assess the impact of threats in the environmental sphere on indicators of socioeconomic security, but not considering this factor does not enable to obtain an objective assessment of the socioeconomic security level at the macro level.

Conclusion

It has been revealed that the sources of threats to economic security at the macro level are the factors and conditions of the external and internal environment of the national economic system. Their complex action is the cause of events and processes that signal the presence of a potential or real threat to the state socioeconomic security. In the context of a growing number of global challenges, monitoring risks and threats to the state socioeconomic security is a necessary condition and basis for making managerial decisions.

The war has significantly deepened these threats, manifesting in the deterioration of employment conditions, reduced income levels, and increased uncertainty. The displacement of the population and limited access to employment opportunities have destabilized the labor market and weakened private consumption. The decline in GDP, coupled with reduced investment activity and increased unemployment, has further aggravated the socioeconomic crisis. This requires the development of robust mechanisms to monitor and address these issues comprehensively.

In addition to economic challenges, environmental threats have emerged as a critical concern. The large-scale destruction caused by military actions has resulted in toxic emissions from shell explosions, soil and groundwater contamination, and the degradation of fertile lands, particularly in agricultural regions. The long-term impact of such threats is profound, as the restoration of damaged natural resources spans decades. The ecological damage caused by forest fires, the destruction of biodiversity, and the alteration of regional climates further intensifies these threats. The burning of oil products and emissions from destroyed industrial facilities have compounded air pollution, posing risks not only to human health but also to global environmental stability.

The systematic documentation of nearly 250 cases of ecocide, as reported by the Ministry of Environmental Protection and Natural Resources of Ukraine, highlights the severe and widespread impact of environmental threats. With estimated damages exceeding 1,337 billion UAH, these threats underscore the urgency of integrating environmental considerations into the broader framework of socioeconomic security. The study's findings confirm the necessity of incorporating environmental threat indicators into the system of socioeconomic security to better reflect the complex and multifaceted nature of these challenges.

Systematization and modeling of threat impact are the basis of an active approach to ensuring socioeconomic security during the war. The necessity of improving the methodological principles for assessing the state

socioeconomic security by introducing a procedure for identifying and monitoring threats, considering the principles of consistency, complexity, and hierarchy, has been proved. The complex impact of eco-threats arising in the conditions of war, established in the course of the study, requires further research to supplement the set of indicators of the state socioeconomic security with indicators reflecting the threat impact in the environmental sphere.

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