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RESEARCH ARTICLE

Determinants of State Economic Security: Features of Analysis in the Context of Confronting Global Challenges

Vitalii Polovenko[1*], Andrii Svatok[2], Mykhailo Prokopchuk[3], Sergii Golubytskyi[4], Nataliia Pylypchuk[5]

[1] Doctoral Student, Defence Management Education and Research Centre, The National Defence University of Ukraine, Kyiv, Ukraine
[2] Postgraduate Student, Department of National Security, Public Management and Administration, Zhytomyr Polytechnic State University, Zhytomyr, Ukraine.
[3]Postgraduate Student, Department of National Security, Public Management and Administration, Zhytomyr Polytechnic State University, Zhytomyr, Ukraine
[4] Doctor of Law, Associate Professor, Department of National Security, Interregional Academy of Personnel Management, Kyiv, Ukraine
[5]Senior Researcher, Research Center, Yevhenii Bereznyak Military Academy, Kyiv, Ukraine.

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***Corresponding Author:**

polovenko469@gmail.com

ABSTRACT

In the context of Russian military aggression and general market instability, the issue of ensuring Ukraine's economic security takes on paramount importance. Economic security synergises economic and political components, ensuring the effective functioning of the market environment, maintaining long-term competitiveness, and protecting national economic interests. The complex geopolitical situation, crises, and instability of economic processes highlight the importance of the state's economic security. The research aims to identify the main determinants of ensuring economic security and the possibilities of optimising the situation in the face of global challenges. The research used general scientific methods, including analysis and synthesis, comparison, and structural-logical methods.The constituent elements of Ukraine's economic security, factors affecting this process, and factors destabilising its provision were examined. The research demonstrated that in a globally integrated environment, security stability depends on the level of implementation of digital innovations for risk management. A range of priority digitalisation solutions was outlined, including artificial intelligence and machine learning for forecasting and mitigating risks. Modern digital technologies that contribute to the automation of real-time risk management processes were studied. The experience of developed countries in managing economic security processes was examined. The main determinants of guaranteeing economic security and resource recovery in the context of wartime and post-war recovery were identified. It has been proven that a practical concept of ensuring economic security should provide a high level of control and risk forecasting, with the aim of preventive protection against crises. The results obtained in the study may have practical value in the formation of programmes for optimising economic security management based on transparency and crisis management principles.

INTRODUCTION

The concept of economic security, based on the principles of public administration, is positioned as the most effective option for ensuring adequate protection for the country's economy in crisis conditions. Against the backdrop of global challenges, the determining factor influencing economic security processes is the level of resource production, optimally balanced by structural, qualitative, and quantitative characteristics calculated per capita, forming the social component of economic security. Other essential components include production and energy security, external economic (macroeconomic), food and financial security, investment-innovation, and demographic security, which form the state's economic security index.

It should be noted that these factors in Ukraine are undergoing destructive impacts due to military actions. In particular, Ukraine's scientific and technical potential has suffered significant losses over the past years, and its current state poses a tangible threat to innovation-technological security. The instability of pricing policies and several crisis processes characterise the food component. At the same time, despite the difficulties and uncertainties in the context of the war, the information and management components are characterised by stable progress. There is a transformation of the traditional management paradigm towards transparency, and digitalisation processes have become evident in all spheres of public life. The intensive integration of advanced information and communication technologies has demonstrated practical effectiveness. However, the impact of digitalisation is not unequivocal. It requires in-depth analysis and periodic optimisation of management practices and strategic approaches to ensure resilience and reliability in a dynamic socio-economic environment.

The relevance of the research problem becomes particularly important given the need to increase the effectiveness of the national strategy for ensuring the state's economic security in the face of global challenges.

LITERATURE REVIEW

Several contemporary scholars are researching the issue of ensuring the state's economic security. Researchers analyse the features of innovative management mechanisms in this direction (Samoilenko & Tantsiura, 2024) and study the processes of regulating security policy (Nikitishyn, 2022). Ukrainian scientists primarily investigate strategies for ensuring economic security in the context of resource provision, food security, and financial stability (Karpenko, 2023). Some authors (Tretiak et al., 2023; Oliinyk et al., 2022), analysing the essence of the economic security phenomenon, identify challenges and risks related to the research process, particularly cybercrime and the lack of updated regulatory support. Povzun (2020) conducts a comprehensive study of economic security as a management system from the perspective of individual factors contributing to forming its holistic concept.

Researchers Zaverukha and Kopytko (2022), Kryshtanovych et al. (2023) characterise the main elements of the essence of economic security and define theoretical and methodological approaches to forming a model for increasing the efficiency of its provision system. The most significant works of recent times are by Artyushok et al. (2023), Pantielieieva (2020), Levytska et al. (2022), which analyse the principles of digitalisation in the national security sphere, highlight the conceptual foundations of financial security strategy involving the potential of digitalisation, and determine the optimal functionality limits of digital tools in the system of state management of national security. Tretiak et al. (2022) consider the impact of military ecocide in Ukraine on economic security.

Several contemporary scientists have contributed significantly to solving the problems of the state's economic security in crisis conditions (Kussainov et al., 2023; Desyatnyuk et al., 2024; Javed & Faizan, 2024). In certain studies (Hidayat et al., 2024; Xu & Zhang, 2024), the main conceptual foundations of digitalising financial operations are formed, focusing on the difficulties in implementing individual

elements of digital optimisation in today's realities. Despite the numerous scientific publications on the researched issue, identifying the main factors ensuring the state's economic security has been carried out fragmentarily, and the functionality of digital optimisation in the field needs more research.

The research aims to identify the main determinants of ensuring economic security and the possibilities of optimising the situation in the face of global challenges.

RESEARCH METHODS

In the course of the research, several general scientific methods were employed, including analysis and synthesis (to study current theoretical concepts and scientific developments on economic security issues, clarify the terminological framework, and assess the impact on socio-economic development); comparison (to systematise conceptual approaches to the definition of basic concepts and criteria for choosing effective economic security measures in crisis conditions of instability, and to identify related risks and obstacles); structural-logical method (to develop proposals for improving the management mechanism).

RESEARCH RESULTS

Economic security is a component of national security, forming its material foundation. Ensuring economic security is positioned as the exclusive prerogative of the state. In the context of Ukraine, a specific component structure of economic security has been formed (Figure 1).

Figure 1: Critical Components of the State's Economic Security

Source: compiled by the author

In the context of the social component of economic security in crisis conditions, integrating practical tools to stop the decline in real incomes of the population in crisis conditions and during periods of instability is seen as necessary. This process is based on a system for monitoring fundamental indicators of social security, i.e. the total amount of income, its structure, the size of the subsistence minimum, the level of wages, the unemployment rate, and the degree of income differentiation among various social groups.

The technical-production component of economic security represents the ability of the national economic complex to quickly compensate for the negative consequences of internal acute crisis phenomena or disruptions in foreign economic relations and to implement expanded reproduction steadily.

At the same time, the scientific-technological component of economic security envisages such a level of development of the country's scientific and technical potential that guarantees the independent development and implementation of the latest technological solutions. Increasing technological potential will contribute to the resilience of the economy, its intensive progress, and the reduction of the country's economic dependence on foreign partners.

Food security is determined by the ability of the national agro-industrial complex to respond promptly to market conditions, ensure the stability of resource provision, as well as the purchasing power of the population, the accessibility of food for all social strata, and the level of protection of domestic producers.

The energy component is assigned a unique role in the state's economic security structure. It determines the guarantees of the stability of energy supplies for society's life support, the needs of the national economy, and the defence complex.

The management component of the state's economic security includes a system of skills and abilities for effectively implementing the entire management cycle aimed at promptly solving problems, identifying promising goals, rational strategic planning, and communicative competence.

At the same time, the information component of economic security includes an algorithm for the internal and external exchange of socio-economic, military, and scientific-technical informative data between state and non-state structures, ensuring the proper preservation of business confidentiality for the benefit of society and the state.

The substantiation of priority vectors for regulating the state's economic security level must be carried out in the context of its constant components based on the results of integral assessment and neural network modelling. In general, for a reliable assessment of the level of economic security, a target indicator – the integral index of economic security – is used, which includes several weighted sub-indices (external economic and macroeconomic security, production and energy, demographic and social security, investment-innovation, food, and financial security). These sub-indices are calculated based on data from assessing more than 130 individual indicators. These data are obtained from statistical data and survey results from respondents.

According to the principles of dynamic equilibrium, achieving optimality in all analysed directions is seen as a guarantee of a high level of economic security in the long term. When forming regulatory measures aimed at minimising existing deviations, it is necessary to consider the significance of the identified threats' impact on the final characteristic of the state's economic security, which allows for a controlled influence on its level and the formation of strategic directions for regulating the situation.

Table 1 presents the general characteristics of the proposed approach to identifying the vectors for regulating the state's economic security. The primary goal of this process is to promptly identify exogenous and endogenous threats to economic security by analysing the state's main components.

Table 1: Vector of Economic Security Regulation of the State

Vector	Tools	Results
Resource management	Integral index, cluster analysis, neural network modelling	Description of the sufficiency and efficiency of resource use, identification of territorial security zones in terms of functional subsystems
Stability	Trend analysis	Identification of fluctuations in resource security zones in the dynamics

Balance	Sensitivity analysis, qualitative and quantitative balance analysis, graph analytical method	Identification of threats and imbalances, their ranking by the strength of impact

Source: compiled by the author

It is necessary to focus on the information component of economic security. In particular, monitoring and promptly neutralising external and internal threats and dangers become especially important (Figure 2). As cyberattacks become more frequent and diverse, the state management system of security processes must employ the latest technological capabilities to protect critically crucial economic infrastructure and information from cyberattacks. Modern satellite systems enable real-time monitoring, creating the conditions for effective and prompt response to threats. Mobile applications, chats, and unique platforms provide the public with seamless access to information about the activities of the government and state institutions, stimulating processes of public control and identifying current issues.

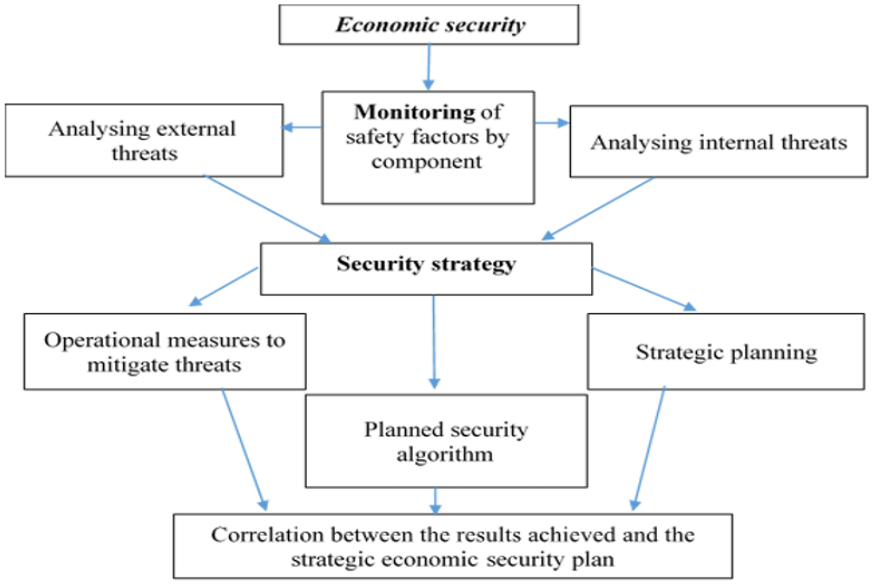

Figure 2: Algorithm for Ensuring Economic Security

Source: compiled by the author

Ukraine's economic security strategy for 2025 involves using modern tools for regulating financial relations to implement security tasks effectively. These include FinTech tools – financial technologies. A fundamental feature of this definition is the use of modern digital tools in financial circulation. For instance, cryptocurrency is a digital currency that operates autonomously without inclusion in the central payment system. Many startups, investment platforms, exchanges, and exchangers are built on it. The application of FinTech tools is closely related to the popularisation of mobile device use, the emergence of alternative – electronic and digital – types of payments and new national and international payment systems, the use of artificial intelligence technologies through the implementation of robotic personal assistants, chatbots, as well as biometrics and digital identification of financial service clients. Meanwhile, among the vital digital threats in economic digitalisation are corporate data theft, hacker attacks, industrial espionage, and insufficient provision of digital technologies and competent personnel.

In conditions of crisis and instability, the shadow economy poses a particular threat to economic security. It is characterised as economic activity hidden from control, taxation and corruption. The level of the shadow economy in 2010–2023 ranged from 28–36 % of GDP (Figure 3). For comparison, the average value for European Community countries is 18 %, and for the USA, Canada, and Japan – 6 %–10 % of GDP. At the same time, the consistently high level of the shadow economy in Ukraine during the crisis conditions of a full-scale war indicates the need to change traditional management and legislative tools.

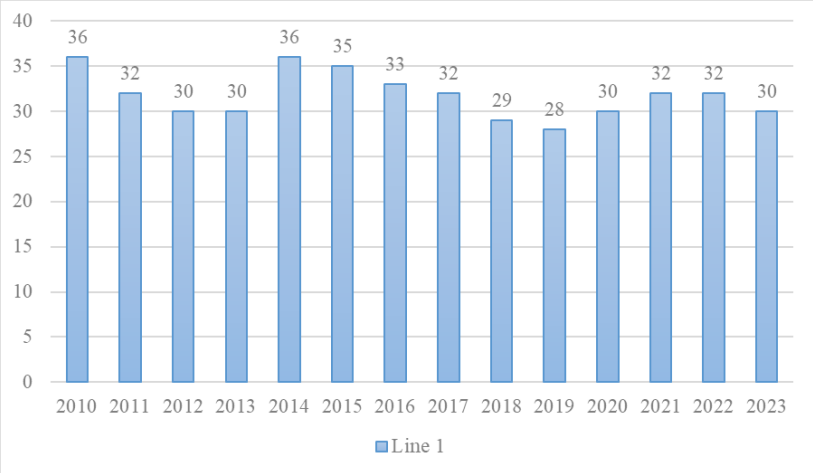

Figure 3: Integral Shadow Economy Indicator, as a percentage of official GDP

Source: compiled by the author based on (Ministry of Economy of Ukraine, 2024)

The forms of manifestations of the shadow economy include various forms of tax evasion, illegal use of natural resources, increased expenses through overestimation of the cost of purchased goods, production of unaccounted goods with their subsequent sale, illegal privatisation of state property, illegal foreign economic operations, and money laundering of illegally obtained income. In their causal connection, shadowing economic relations causes the national emergence and development of unfavourable socio-economic processes. In particular, the consequences include non-payment of taxes, the inability to make total social payments, exacerbation of social problems, degradation of the country's productive forces, suppression of capital turnover, destruction of production, unemployment, and demoralisation of the population. Synergistically, such phenomena have a degrading impact on the state's economic security.

In addition, corruption has a significant destabilising effect on economic security. Corruption schemes cause substantial threats in managing public finances, customs and tax policies, the energy sector, and public procurement. Corruption and the shadow economy phenomena have a mutually reinforcing effect. The components of economic security operate in close interaction, forming strong correlation links. In this regard, to guarantee a high level of national economic security, it is necessary to form a favourable management policy concerning energy self-sufficiency, demographic growth, cybersecurity, and other components.

Digital technologies act as a powerful driver of the principles of transparency in the economic system, especially at the state level. An important role belongs to the technologies for managing regulatory and supervisory processes, which allow for increased transparency of currency regulation, stopping the export of capital and money laundering under the guise of foreign investments, and limiting the functioning of the shadow sector of the financial market. At the same time, the regulatory boundaries of financial security regulation should be based on monitoring and risk assessment. Such a concept will promote the preservation of data confidentiality and cybersecurity, which are seen as innovative components of the state's economic security.

The main principles of public administration in economic security should be openness, transparency, adaptability, compatibility with regional and global management systems, and the ability to promptly filter measures within the framework of the developed management process algorithm.

DISCUSSION

Certain researchers' publications (Budiasih, 2024) draw attention to the possibilities of digital tools for maximising the potential of interaction between society and the state in ensuring economic security. According to some authors (Cangiano et al., 2019), the management of public finances and the digitalisation of payments are closely related to the state's economic security, which requires appropriate attention from legislators.

Modern scientists (Gelepithis & Giani, 2022), studying the inclusion of education and economic security, see the foundation of the state's economic security in guarantees regarding the prioritisation of national interests, ensuring law and order, and the safe functioning of the financial and economic environment. Meanwhile, Hirsch Ballin et al. (2020) propose expanding the security concept within the strategic vision of defence policy.

Abdumannab and Rustambek (2024) investigate the interrelationship between cybersecurity and economic security, highlighting the challenges and risks of modernity in this direction. Richardson et al. (2020) propose a paradigm shift that strengthens the state's financial security by developing FinTech and other financial tools. At the same time, several scientists (Rybalchenko et al., 2021; Fîţă & Grigorie, 2021) emphasise the importance of ensuring the proper condition of each component of economic security, as an imbalance in any sphere will cause destructive fluctuations in the entire economic system.

Lutsyk (2023), studying the phenomenon of economic security in the context of global challenges and threats, positions the definition of economic resilience as a modern direction in the field of security, which will be able to adapt to the influence of threats and form a mechanism for counteraction, recovery, and ensuring the proper functioning of the system.

Meanwhile, Mazaraki and Melnyk (2022) argue that in the conditions of a significant change in the structure of demand and production, loss of personnel and markets, and the destruction of economic ties, the state should focus on "rebooting" Ukrainian industry with the correct prioritisation of future economic development.

CONCLUSION

A country's economic security ensures the effective functioning of the market environment, the maintenance of long-term competitiveness, and the protection of national economic interests. Ukraine's complex geopolitical situation, crises, and instability require optimising security processes.

A practical concept for ensuring economic security must provide high control and risk forecasting to prevent crises. In a globally integrated environment, the stability level of economic security significantly depends on the level of implementation of digital innovations for risk management. Modern digital technologies facilitate the automation of real-time risk management processes, as evidenced by the successful experience of developed countries. The study has justified that modern digital technologies are crucial in implementing economic security. Using digital technologies enhances the speed of processing large amounts of information and the quality of corresponding decisions. Additionally, their application positively impacts the efficiency of government activities, reduces the risks of potential losses and damages, and ensures the effectiveness of protection systems.

Future research directions in the studied topic should focus on analysing the potential of digital technologies to guarantee national stability and protect citizens' rights. Particular attention should

be paid to maintaining the confidentiality of digital information, minimising threats in the digital space, developing scientific and personnel potential, and increasing investment opportunities. The proposed approach will significantly improve the state's national security in synergy.

AUTHOR CONTRIBUTIONS

V. P.: Conceptualization, Methodology, Resources, Formal analysis, Writing – Original draft, Writing – Review & Editing.

A. S.: Conceptualization, Methodology, Data Curation, Writing – Original draft, Writing – Review & Editing.

M. P.: Conceptualization, Methodology, Formal analysis, Project administration, Writing – Original draft, Writing – Review & Editing.

S. G: Conceptualization, Methodology, Data Curation, Writing – Original draft, Writing – Review & Editing.

N. P.: Conceptualization, Methodology, Formal analysis, Project administration, Writing – Original draft, Writing – Review & Editing.

REFERENCES

Samoilenko LYa, Tantsiura L; 2024. Public administration of Ukraine: problems in the conditions of war. Public policy and public administration in wartime. Series: Modernisation, Reformation or Deformation of Political Institutions in the Context of Modern Challenges, 55–60. https://jppasa.donnu.edu.ua/article/view/15707

Nikitishyn A; 2022. Financial, budgetary and socio-economic security of the state in the context of military aggression. Economy and Society, 45. https://doi.org/10.32782/2524-0072/2022-45-49

Karpenko OI; 2023. Economic security of the country and international ratings: analysis and assessment tools. Scientific Bulletin of Poltava University of Economics and Trade. Series "Economic Sciences", 3(109):5–12. https://doi.org/10.37734/2409-6873-2023-3-1

Tretiak N, Marenych A, Kharchenko A, Kharchenko Yu; 2022. Military ecocide in Ukraine and its impact on the country's economic security. Financial Space, 4(48):18–27.

Oliinyk OS, Shestopalov RM, Zarosylo VO, Stankovic MI, Golubitsky SG; 2022. Economic security through criminal policies: A comparative study of western and european approaches. Revista Cientifica General Jose Maria Cordova, 20(38):265–285. https://doi.org/10.21830/19006586.899

Povzun DI; 2020. Economic security of the region as a component of national security ofUkraine. Economy and State, 8:89–94. https://doi.org/10.32702/2306-6806.2020.8.89

Zaverukha DA, Kopytko MI; 2022. Characteristics of the main elements of the essence of economic security. Scientific Notes of the University "KROK", 1(65):19–24. https://doi.org/10.31732/2663-2209-2022-65-19-24

Kryshtanovych M, Shulyar R, Svitlyk M, Zorya O, Fatiukha N; 2023. Theoretical and methodological approaches to forming a model for increasing the system's efficiency for ensuring the economic security of a banking institution. Financial and Credit Activity: Problems of Theory and Practice, 2(49):56–64.

Artyushok K, Verstiak A, Kravchuk P, Polova O, Kapelista I; 2023. Institutional security in relations of ownership of natural resources: state environmental and economic policy and decentralisation. Financial and Credit Activity: Problems of Theory and Practice, 6(53):376–391.

Pantielieieva NM; 2020. Financial security in the digital economy: expectations and reality. Financial Space, 38(2). https://doi.org/10.18371/fp.2(38).2020.209289

Levytska S, Pershko L, Akimova L, Akimov O, Havrilenko K, Kucherovskii O; 2022. A risk-oriented approach in the internal auditing system of the subjects of financial monitoring. International Journal of Applied Economics, Finance and Accounting, 14(2):194–206. https://doi.org/10.33094/ijaefa.v14i2.715

Kussainov K, Goncharuk N, Prokopenko L, Pershko L, Vyshnivska B, Akimov O; 2023. Anti-corruption management mechanisms and the construction of a security landscape in the financial sector of the EU economic system against challenges to European integration: Implications for artificial intelligence technologies. Economic Affairs (New Delhi), 68(1):509–521. https://doi.org/10.46852/0424-2513.1.2023.20

Desyatnyuk O, Naumenko M, Lytovchenko I, Beketov O; 2024. Impact of Digitalization on International Financial Security in Conditions of Sustainable Development. Problemy Ekorozwoju/Problems of Sustainable Development, 1:104–114. https://ph.pollub.pl/index.php/preko/article/view/5325/4341

Javed U, Faizan A; 2024. Guardians of the Digital Realm: Navigating the Frontiers of Cybersecurity. Integrated Journal of Science and Technology, 1(2). https://ijstindex.com/index.php/ijst/article/view/6

Hidayat M, Defitri SY, Hilman H; 2024. The Impact of Artificial Intelligence (AI) on Financial Management. Management Studies and Business Journal (PRODUCTIVITY), 1(1):123–129. https://doi.org/10.62207/s298rx18

Xu X, Zhang H; 2024. Analysis of enterprise financial management under the background of digital transformation. SHS Web of Conferences, 181. https://doi.org/10.1051/shsconf/202418102030

Ministry of Economy of Ukraine; 2024. https://www.me.gov.ua/?lang=uk-UA

Budiasih Y; 2024. The Influence of Digital Technology on Financial Management. Accounting Studies and Tax Journal (COUNT), 1(1):92–100. https://doi.org/10.62207/wb6d3c96

Cangiano M, Gelb A, Goodwin-Groen R; 2019. Public financial management and the digitalisation of payments. Public financial management and the digitalisation of payments. Washington DC: Center for Global Development. https://www.zbw.eu/econis-archiv/bitstream/11159/3501/1/public-financial-management-and-digitalization-payments.pdf

Gelepithis M, Giani M; 2022. Inclusion without solidarity: education, economic security, and attitudes toward redistribution. Political Studies, 70(1):45–61. https://doi.org/10.1177/0032321720933082

Hirsch Ballin E, Dijstelbloem H, de Goede P; 2020. The extension of the concept of security. Security in an interconnected world: A strategic vision for defence policy, 13–39. https://library.oapen.org/bitstream/handle/20.500.12657/37367/1/2020_Book_SecurityInAnInterconnectedWorl.pdf#page=22

Abdumannab YT, Rustambek RF; 2024. Cyber security and economic security: relationship and challenges. Journal of Innovation in Education and Social Research, 2(6):227–229. https://journals.proindex.uz/index.php/jiesr/article/view/1287

Richardson JH; 2021. Economic and financial aspects of social security: an international survey. Routledge. https://doi.org/10.4324/9781003254546

Sirenko N, Atamaniuk I, Volosiuk Yu, Poltorak A, Melnyk O, Fenenko P; 2020. A paradigm shift that strengthens the state's financial security through the development of FINTECH. In 2020 IEEE 11th International Conference on Dependable Systems, Services and Technology (DESSERT), IEEE, 110–116. https://doi.org/10.1109/DESSERT50317.2020.9125026.

Rybalchenko L, Ryzhkov E, Okhrimenko S; 2021. Modelling the economic component of national security. Review of Philosophy, Economics and Law, 1:25–36. https://doi.org/10.31733/2786-491X-2021-25-36

Fîţă ND, Grigorie E; 2021. Factors of achieving and ensuring energy security in the context of national and Euro-Atlantic security. In MATEC Web of Conferences, EDP Sciences, 342. https://doi.org/10.1051/matecconf/202134204011

Lutsyk, YuO; 2023. Economic security in the context of global challenges and threats. Tavrian Scientific Herald. Series: Economics, 15:74–83. https://doi.org/10.32782/2708-0366/2023.15.9

Mazaraki A, Melnyk T; 2022. Economic security of Ukraine in the context of Russian aggression. Scientia fructuosa, 145(5):4–28. https://doi.org/10.31617/1.2022(145)01