ECONOMY AND MANAGEMENT

N. Kalyuzhna*[1],
orcid.org/0000-0003-0513-705X,
A. Khodzhaian[2],
orcid.org/0000-0002-3015-1016,
I. Baron[3],
orcid.org/0000-0003-4841-5152

1 – State University of Trade and Economics, Kyiv, Ukraine
2 – Taras Shevchenko National University of Kyiv, Kyiv, Ukraine
3 – Security Service of Ukraine in Odesa region, Odesa, Ukraine
* Corresponding author e-mail: n.kalyuzhna@knute.edu.ua

ECONOMIC SECURITY OF UKRAINE UNDER THE DESTRUCTIVE INFLUENCE OF EXOGENOUS DETERMINANTS

Purpose. To design a Methodical Approach to assessing the level of economic security of Ukraine under the destructive influence of exogenous determinants and verification of the results of its application.

Methodology. The methods of analysis and synthesis are used to substantiate the functional components and aspects of ensuring the economic security of the state and to develop a system of indicators for their assessment. The index method is used in developing an integral indicator of the level of economic security of the state.

Findings. It is proved that for transitive economies the impact on economic security of geopolitical and geo-economics threats of an exogenous nature, which are significantly strengthened in the conditions of globalization, is decisive. The necessity is substantiated to develop a methodology for assessing the economic security of Ukraine in the direction of developing Methodical approaches that allow providing a thorough assessment of the actual determinants of economic security, which primarily include the impact of globalization processes and the escalation of military-political threats. A Methodical Approach to the determination of indicators of economic security of the state is proposed, which is based on the separation of functional components and aspects of provision in the structure of economic security of the state. A system of indicators for evaluating elements of economic security is developed, taking into account the relationship between the values and dynamics of indicators with the influence of exogenous determinants. A toolkit for assessing the level of economic security of the state is proposed, which provides for the calculation of the integral indicator of the level of economic security based on the generalization of the values of indicators of the state of its functional components and aspects of provision. The integral indicator of the level of economic security of Ukraine was calculated during 2006−2020. Based on the analysis of the dynamics of the integral indicator of the level of Ukraine's economic security and its component indicators, key regularities in their absolute and relative transformations are revealed.

Originality. A Methodical Approach to assessing the level of economic security of Ukraine in terms of destructive influence of exogenous determinants is proposed basing on the calculation of an integral indicator, which allows formulating conclusions regarding the state and trends of the transformation of economic security of Ukraine.

Practical value. The obtained results create the basis for determining the priorities of ensuring the economic security of Ukraine, which should be both overcoming the destructive influence on the economic development of exogenous determinants, and using the opportunities created in the internal and external environment of the country to prevent threats to the economic security of the state.

Keywords: *economic security of the state, transitive economy, exogenous determinant, destructive influence, globalization, military-economic aspect, integral indicator*

Introduction. The world economic system develops dynamically under the conditions of the intensified influence of globalization factors; by all means, the abovementioned has positive consequences for modernization and stabilization of national economies at the expense of more active growth of productive forces, and acceleration of scientific and technological progress. At the same time, conflict of national economic interests under globalization challenges impacts destructively economic security of the countries with transitive economy whose potential to compete in the global markets with transnational capital turns out to be rather inadequate. Under such conditions, policy priorities to ensure economic security of Ukraine should include both the overcoming of destructive influence of exogenous determinants and the use of capabilities created in the internal and external environment of countries preventing threats to economic security. Influence by the globalization processes, objective transformation in so-

ciopolitical life of Ukraine, and activation of external military and political threats stipulate initiation of new actualities ensuring economic security of the state. They should be taken into consideration while assessing its current level and determining the strengthening tendencies.

Literature review. In later years, the leading scientists in the field of security studies note significant transformation of threats to sustainable performance of national economies. In this context, importance of research by such authors as Forrest, J. [1], Gehrke, T. [2], Yapatake Kossele, T. P., & Shan, L. J. [3], Odehnal, J., & Neubauer, J. [4], and others should be mentioned. The scholars believe that actual threats to economic security of countries are political, military, foreign trade, and epidemiological threats; they have to be substantiated as a part of methodological approaches assessing economic security of countries. So, relying upon the instrumental analysis and asymptotic tests, Yapatake Kossele, T. P., & Shan, L. J. [3] emphasize a direct correlation between crisis of political management and economic security in the Central

African Republic (CAR) supported by dynamics of indicators of economic growth in the country. Analysis of findings, obtained by Odehnal, J., & Neubauer, J. [4] with the help of panel models as for the economic, security, and political determinants of the NATO countries, confirmed importance of military spending to ensure economic security of a state in the modern world. Paper [5] insists that economic rivalry of large states helps them take advantages under multilateral foreign trade and political agreements, which challenges economic security of small states making them select proper corrective strategy and adjust institutional rights. Finally, research outputs by T. Gehrke [2] are worth mentioning to confirm vulnerability of economic security of the world countries to the consequences of COVID-19 pandemic as well as to more active use of military and political tools by powerful global players as the means implementing national interests.

The problematics of the national economy response to destructive influence of numerous external and internal threats at different stages of Ukrainian development was studied by prominent domestic researchers and experts in the field of security studies who proposed a number of methodological approaches to assess the level of the national economic security. Professionals from NASU Institute for Economics and Forecasting, headed by V. M. Heyets, were among the pioneers in Ukrainian scientific community who proposed the first integral approach to assess the level of the national economic security (1999). The integral indicator, calculated according to the approach and based upon the internal national environment, can be interpreted as a characteristic of institutional favourableness ignoring potential destructive impact of the external geopolitical factors. Following valuable contribution to the development of methodological foundations to assess economic security level is Methodological Recommendations by the experts from the National Institute of International Security Problems of the NSDC of Ukraine under the auspices of A. I. Sukhorukov (2003). The set of indicators in the methods demonstrates transformation of ideas on the dominants of Ukrainian economy growth in the early 2000s being proved by the assessment of debt obligations of Ukraine; liquidity of international reserves of the NBU; sufficiency in fuel and energy resources of the state; calculation of export-import coverage ratio etc. At the same time, there are no indicators assessing a level of military and political threat to sovereignty of Ukraine. In the context of the recent research in the field of security studies, calculation of the integral indicator of economic security of Ukraine is worth mentioning. The calculation, represented in the paper by V. Levchenko, at al., was performed while developing the multiplicative model [6]. According to the calculation results, dynamics of economic security of Ukraine in 2008−2018 correlates with crisis processes in the financial and economic sector as well as with escalating political instability which confirms gradual transformation of the idea on the priority threats to economic security of the country. Finally, we note that the available approaches assessing a level of national economic security differ in a degree of security threat detail as well as in the level of their methodological substantiation as for their generalization and evaluation. For example, high substantiation level of security indicators as well as methodology of their calculation has been demonstrated by an approach represented in Methodical recommendations of the Ministry of Economic Development of Ukraine [7] involving various degrees of influence of endogenous and exogenous factors on the economic security level at the expense of their weighing.

Analysis of the methodological approaches to assess economic security of Ukraine, proposed by scientists, whose detailed results were stated in their early papers, has shown gradual evolution of the ideas on exogenous and endogenous determinants of security threats. The abovementioned has made it possible to separate three conditional stages of the methodology formation and progress of tools assessing threats to eco-

nomic security of Ukraine: *stage 1* (1991−1999) is recognizing the priority of endogenous determinants as socioeconomic threats to economic security of Ukraine; *stage 2* (2000−2013) is comprehensive understanding of threats to economic security of Ukraine if endogenous determinants dominate; *stage 3* (since 2014) is comprehensive understanding of threats to economic security of Ukraine if exogenous determinants of destructive and constructive influence dominate.

While defining the key current exogenous influence factors, scientists single out quite appropriately activation of external military and political threats in addition to a bilateral nature of the globalization effects. The abovementioned offers opportunities for the national economy growth (constructive influence) as well as threats resulting from the global decision-making centres (destructive influence). Hence, research results of authors [8] have made it possible to support a hypothesis as for the nonavailability of direct static dependence between a level of a country involvement into the world economy and a level of its economic growth, which confirms transformation of the concept of the national economy openness as the prerequisite of its successful development; and vice versa, which helps understand the excessive openness as a source of extra globalization risks for weak economies. Paper [6] notes thoroughly that in the context of current integration processes, the problem of ensuring economic security becomes of specific topicality since market openness promotes free movement of resources. At the same time, it is a threat of rapid transfer of crisis phenomena from one economy to another.

On the whole, in recent years scientists have been emphasizing increasingly a decisive influence of geopolitical and geoeconomic threats of exogenous nature on the economic security of Ukraine [6, 9]. The impossibility to ignore globalization effects is also mentioned by foreign researchers since they consider it as typical consequences of interdependence of national economies as well as progressing integration and homogenization of the world [10] which needs actualization of methodological approaches to assess economic security. Together with the national scientific environment, foreign researchers also recognize bilateral nature of the globalization consequences for comparatively weak national economic systems [11, 12] generally involving countries with transitive economy. Economic security of such countries suffers extra threats through the impossibility to compete efficiently against more powerful states in the international markets, and transnational capital in the national market. The abovementioned confirms the need to develop mechanisms overcoming destructive globalization effect, and use possibilities, creating constructive influence for the national economy growth.

Hence, despite the proper number of scientific studies within the subject sphere, it is required to more thoroughly study the problems resulting from the necessity to progress methodology of national economic security research under escalation of geopolitical and globalization challenges. Adequate and timely assessment of threat to economic security of Ukraine becomes of the specific importance. The matter is that Ukraine is a transitive economy being vulnerable to a destructive influence of the globalized world environment. Moreover, as paper [13] mentions fundamentally, belonging of Ukraine to the group of countries with extremely low potential of economic relation reproduction and implementation of interests of subjects impacts negatively a level of economic security of the state while being an additional endogenous risk factor and increasing substantially exogenous threats to its strengthening.

Purpose of the paper is the development of methodological approach to assessing the level of economic security of Ukraine under destructive influence of exogenous determinants and verification of the results of its use.

Results. Economic security of a state is determined through a set of its functional components, i.e. key tendencies to ensure it. The tendencies differ greatly in terms of content and goal. In our opinion, determination of functional compo-

nents of economic security of a state should follow an approach according to which its functional components are singled out characterizing only those economic processes and phenomena as well as aspects in terms of which economic security has to be provided in the adjacent to economic processes spheres of society life and the state development. Consider availability of a similar sphere in the structure of national security of Ukraine as an additional indicator of branching of functional components and aspects [14]. Namely, if a proper sphere is singled out in the national security structure, then it is expedient to consider the component as an aspect of economic security since its measures to ensure it are provided inclusive of those at the national security level. As for the determination of the specific functional components and aspects of economic security, it seems the most feasible (in case of definite actualization) to follow approach to the national economic security proposed by the methods calculating the level of economic security of Ukraine of 02.03.2007 [15].

Taking into consideration the reasons, it is proposed to refer production, energy, financial, resource-based, foreign trade, food, investment, and innovative to functional components of economic security of the state. Social, demographic, environmental, military-economic, scientific and technical, and globalization components are proposed to be considered as the aspects ensuring economic security of the state. The expediency of military-economic aspect separation within the economic security structure is quite justified in view of the necessity to provide the conditions of military-economic potential in Ukraine corresponding to the urgent necessity to strengthen its defensive might under the conditions of acute geopolitical and territorial conflicts. Moreover, essential specification is separation of a globalization aspect as a part of traditional elements of the national economic security predetermined by critical influence of exogenous destructive determinants on economic security of Ukraine as a result of objective transformations of the world economic growth conditions. First of all, it concerns impact by the global pandemic COVID-19 and specific functioning of the national economic system under the hybrid war with the Russian Federation, which has taken the form of open military aggression since 24.02.2022.

For the process of development of methods assessing a level of the national economic security, the key task is to substantiate its indicators based upon traditional approaches to assess the national economic security in accordance with objective tendencies of the world economy growth, and based upon actual transformations of Ukrainian economic performance. Taking into consideration earlier supported thesis as for the critical influence of exogenous destructive determinants on economic security of Ukraine, selection of indicators of the national economic security level is proposed in such a way to help their dynamics represent maximally the influence of external factors as well as its transformation tendencies.

Another restriction, proposed to be taken into account while selecting the indicators of the national economic security, is to avoid their interaction with such a key indicator as the gross domestic product to prevent a multicollinearity effect (i.e. linear dependence) between the indicators while calculating integral indicator of the national economic security. If possible, preference should be given to relative indicators in contrast to absolute ones for more demonstrative substantiation of structural transformations in their dynamics. Finally, since assessment of the substantiated level of the national economic security will be favoured by the possibility to compare the calculated indicators with their boundary and/or optimum values, selection of the indicator involves an option of comparison.

In accordance with the proposed approach to single out functional components and provision aspects in the structure of economic security, identify their assessment indicators involving maximally interaction of values and dynamics of indices experiencing influence of exogenous determinants (the results are systemized in Table 1).

It should be mentioned that a military-economic component (aspect) is an integral part of the national security. At the time when military forces are still the defining element of the state ability to defend its national interests, provision of the required level of military security guarantees sovereignty, territorial integrity, and inviolability from the invasion through military attacks, economic security becomes the foundations of the national security. Right owing to sustainable economic growth all other problems concerning the national security ensuring can be solved. Against the background when military aggression by the Russian Federation is becoming more active, and taking into consideration the global escalation of tension

Table 1

Indicators of the national economic security in the context of recognition of the priority of exogenous determinants

Economic security elements	Measurement units	Indicator
Functional components		
Production	%	Specific weight of the gross value added of the processing sector in the total amount of the gross value added of industry
Energy	%	Import share in the consumption of fuel and energy resources (level of energy dependence)
Financial	Monetary units	Gross external debt (both national and private)
Resource-based	%	Export share of raw materials and semi-finished products in the total export
Foreign trade	Normalized value in the range of [0−1]	Export-import coverage ratio
Food	%	Share of AIC and food industry goods in the total import
Investment	%	Specific weight of foreign investment share in the total amount of the fixed-asset investment
Innovative	%	Share of science-intensive products in the total export
Aspects of ensuring		
Demographic	Normalized value in the range of [0−1]	Rate of depopulation (Pokrovsky vitality coefficient)
Social	Normalized value in the range of [0−1]	Human Development index
Scientific and technical	%	Share of enterprises, implementing innovations, in the total amount of industrial undertakings
Environmental	1000 t p.a.	Amount of the emission of pollutants by stationary and mobile sources
Military-economic	m. u.	Expenditures connected with the national defence need funding
Globalization	Normalized value in the range of [0−100]	KOF Globalisation Index

in the international relations, assessment of a military-economic aspect of the economic aspect becomes of special attention for Ukraine. It is proposed to select expenditures connected with the national defence need funding as an indicator assessing a state of military-economic aspect. The level of the expenditures should be sufficient to ensure defence capability of the country as its ability to guard own territories in the case of military aggression or military conflict.

Moreover, the selected indicator to assess globalization influence on the national economic security (i.e. globalization aspect) has also to be commented. As it has been mentioned, objective globalization processes are prerequisites of initiation and escalation of certain external threats for the national economy as well as a source of new capabilities for its development. In the context of weak economies, globalization effect is of a bilateral nature since it may either result in the increased competitiveness of the country at the expense of its involvement into international labour division (constructive influence) or in the national economy destabilization through the decline in its sovereignty (destructive influence).

KOF Globalisation Index by Swiss Economic Institute is proposed to be selected as an indicator of globalization influence on the national economic security [16]; the Index is believed to be an objective measure of a country's involvement in the world economy. Among other things, expediency of the KOF Globalisation Index use right under the current conditions of the world development is supported by its structure according to which subindices of political, economic, and social globalization are singled out. In addition, they are evaluated with the help of a number of indices. For example, social globalization index of a country is measured through such indicators as international tourism, international mobility of students, and migration (respectively, 21.2, 20.4 and 16.6 % of weight within the subindex). In the context of the world pandemic, which constrained significantly such and similar characteristics of business activities, determination of their dynamics favours assessment of influence of 2019−2020 quarantine restrictions on the national economic security.

In the context of recognition of priority of exogenous determinants, substantiation of the system of economic security indicators creates foundations to calculate the integral index of economic security level; for the purpose, following formula is proposed

$$I_{sl} = \frac{1}{N}\sum_{i=1}^{N} X_i \cdot 100\,\%; \quad X_i \in [0;1], \quad (1)$$

where I_{sl} is integral index of the national economic security level (%); N is the number of indicators of the national economic security in accordance with functional components and aspects of ensuring ($N = 14$); X_i is normalized value of the ith indicator of the national economic security ($i = 1 - 14$).

Varying dimensionality of the indicators of the national economic security (Table 1) stipulates the need to normalize their values to unify them (i. e. they should be of a dimensionless type) using the formula

$$X_i^0 = \frac{X_i - X_i^{\min}}{X_i^{\max} - X_i^{\min}}, \quad i = \overline{1, N}, \quad (2)$$

where X_i^0 is normalized value of the ith indicator of the national economic security level; and $X_i^{\min}, X_i^{\max}$ are minimum and maximum of the ith indicator of the national economic security level respectively in terms of the research boundaries.

The integral indicator is in the range from 0 (minimum) to 100 % (maximum). It creates grounds for an assessment of the national economic security level according to its values (Table 2). Assigning weigh coefficients to indicators as part of the integral indicator is considered as inexpedient measure in view of similar importance of the selected indicators in terms of the national economic security ensuring.

Table 2

Gradations of the national economic security level depending upon the integral indicator value

| Range of the values | Intervals to assess the national economic security level | | | | |
	1	2	3	4	5
Integral indicator value	0−20 %	21−40 %	41−60 %	61−80 %	81−100 %
Level of the national economic security	critical	dangerous	unsatisfactory	satisfactory	optimal

In the context of the national economic security ensuring, the key task is timely identification of exogenous determinants themselves and tendencies of their influence. The problem solving should involve analysis of dynamics as well as tendencies of changes in the indicators of functional components and aspects of economic security to support either constructive or destructive influence of corresponding determinant, and assess critical nature of their current values. If positive dynamics of an indicator characterizing certain exogenous determinant of constructive influence is confirmed, then it is possible to state its positive value for economic security. In contrast, increase in the indicator corresponding to exogenous determinant of negative influence should be considered as a source of threats to the national economic security as well as to the national sovereignty.

To test the approach to assess the national economic security under destructive influence of exogenous determinants, identify the level of economic security in Ukraine and analyse its dynamics. According to functional components and aspects of the national economic security ensuring, values of economic security of Ukraine were determined for 2006−2020. The values are systemized in Table 3. In compliance with the sequence of stages of the developed methodological approach, calculation of the integral indicator of the national economic security level should follow normalization of the values to unify them (i.e. they should be of a dimensionless type). The calculation results of the integral indicator of the economic security in Ukraine for 2006−2020, based upon the normalized values of indicators, are also shown in Table 3. Moreover, the table demonstrates the integral indicator values of economic security of Ukraine for 2007−2018 in accordance with the Methodical Recommendations concerning assessment of economic security of Ukraine subject to the Order by the Ministry of Economic Development of Ukraine No. 1277 of 29.10.2013 [7]. It should be mentioned that the Methodical recommendations of the Ministry of Economic Development are the current developments in the field of economic security of Ukraine assessment involving calculation of numerous indicators and their use to identify the economic security level being measured in percentage. It can assume the following values: absolutely dangerous (0 %); critical (1−20 %); dangerous (21−40 %); unsatisfactory (41−60 %); satisfactory (61−80 %); and optimal (81−100 %).

Relying upon the authors' approach and the Methodical Recommendations by the Ministry of Economic Development, comparison of the integral indicator of economic security of Ukraine will generate interest from the viewpoint of determination of common regularities or, vice versa differences in values and dynamics of the indices.

The Table uses the following symbols:
X_1 is specific weight of the gross value added of the processing sector in the total amount of the gross value added of industry, %;

Indicators and calculation results of the economic security level in Ukraine during 2006–2020 according to the developed methodological approach

Indicators and calculation results		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Indicators of economic security level																
X_1		73.32	74.66	71.3	63.29	66.28	59.22	54.81	56.41	58.39	60.45	62.27	61.37	57.39	56.61	57.58
X_2		67	75.59	78.36	71.80	69.27	76.54	63.63	57.11	56.03	62.12	56.44	70.42	65.78	70.44	70.44
X_3		54,512	79,955	101,659	103,396	117,343	126,236	135,065	142,079	126,308	118,729	113,518	116,578	114,710	121,739	125,690
X_4		74.41	71.78	74.86	71.44	71.76	73.19	70.34	71.87	74.97	75.16	74.98	75.25	75.36	75.92	75.61
X_5		0.85	0.81	0.78	0.87	0.85	0.83	0.81	0.82	0.99	1.01	0.92	0.87	0.83	0.83	0.91
X_6		7.03	6.8	7.5	10.86	9.4	7.8	8.9	10.6	11.2	9.4	9.9	8.7	8.8	9.4	12
X_7		3.66	3.53	3.26	4.52	2.06	2.09	1.79	1.71	2.57	3	2.74	1.38	0.31	0.75	0.47
X_8		16.47	17.67	15.74	17.78	16.76	16.08	16.76	16.62	15.31	15.02	13.6	13.37	13.58	12.42	12.48
X_9		0.61	0.62	0.68	0.73	0.71	0.76	0.79	0.76	0.74	0.69	0.68	0.63	0.57	0.53	0.52
X_{10}		0.715	0.722	0.729	0.733	0.727	0.732	0.737	0.742	0.744	0.747	0.742	0.746	0.747	0.750	0.779
X_{11}		10	11.5	10.8	10.7	11.5	12.8	13.6	13.6	12.1	15.2	16.6	14.3	15.6	13.8	13.6
X_{12}		5956.5	6611.1	5383	5707.3	5943.6	6106.9	6036.7	5883.7	4819.5	3988.5	4296	3760.2	3718.1	3733.4	3 646.5
X_{13}		6.407	8.074	9.495	8.334	10.242	12.295	14.041	13.931	26.51	49.084	58.099	68.856	86.582	102.489	102.557
X_{14}		63.4	64.91	67.09	69.14	70.83	71.33	71.75	72.91	73.5	73.86	73.38	73.97	74.77	75.11	74.95
Calculation results of integral indicator of economic security level																
Integral indicator of economic security in Ukraine, %	Authors' methodological approach	36.93	44.22	46.41	53.20	48.30	51.22	46.19	49.57	55.15	58.34	53.70	49.29	45.44	46.51	54.85
	Methodical recommendations of the Ministry of Economic Development of Ukraine 2013 [7]	X	52	48	46	47	50	47	48	45	44	48	48	49	X	X
Level of economic security in Ukraine		dangerous	unsatisfactory (being in the range from 44.86 to 59.66 %)													

X_2 is import share in the consumption of fuel and energy resources (level of energy dependence), %;

X_3 is gross external debt (both national and private), USD mln;

X_4 is export share of raw materials and semi-finished products in the total export, %;

X_5 is export to import ratio being a normalized value in the [0−1] range;

X_6 is share of AIC and food industry goods in the total import, %;

X_7 is specific weight of foreign investment share in the total amount of the fixed-asset investment, %;

X_8 is share of science-intensive product in the total export, %;

X_9 is rate of depopulation (Pokrovsky vitality coefficient), the normalized value in the [0−1] range;

X_{10} is Human Development index, the normalized value in the [0−1] range;

X_{11} is share of enterprises implementing investment in the total amount of industrial undertakings, %;

X_{12} is the amount of emission of pollutants by the stationary and mobile sources, 1000 t p.a.;

X_{13} is expenditures connected with the Ministry of Defence and Armed Forces of Ukraine financing, UAH bln;

X_{14} is KOF Globalisation Index, the normalized value in the [0−100] range;

X means that data are not available (the indicator was not calculated)

First of all, it should be noted that in terms of the authors' approach as well as in terms of the Methodical Recommendations, the values of economic security of Ukraine are within one and the same range (Table 3). Namely, during 2007−2018 period, for which calculations by the Ministry of Economic Development were performed, the integral indicator of economic security of Ukraine is considered as 'unsatisfactory' according to the both approaches, i.e. its values are within 41−60 % range. On the other hand, Fig. 1 explains that despite their being at almost similar level, dynamics of economic security of Ukraine and its critical points demonstrate certain differences. First of all, it concerns assessment of economic security of Ukraine during 2014−2016.

The differences may result from the specific nature while selecting the indicators as well as their different weighs in the structure of the integral indicator according to the Methodical Recommendations of the Ministry of Economic Development. It goes without saying that calculation of such a large amount (130 indicators), stipulated by the methods, helps obtain maxi-

mally substantiated and integral assessment of the level of economic security of Ukraine. At the same time, the authors' approach emphasizes selection of the indicators representing in full the influence of destructive determinants of exogenous nature on the economic security of Ukraine. In addition, their dynamics makes it possible to draw conclusions on the increase/decrease in the economic security level right relying on escalating/lessening the external threats of different nature. For this reason, analyse the value of economic security of Ukraine as well as its certain indicators relying upon the author's approach to identify the key regularities in their absolute and relative transformations. Figs. 2 and 3 show dynamics of definite indicators of Ukrainian economic security for 2006−2020 depending upon the functional components and aspects of ensuring.

Production component. Specific weight of the gross value added of the processing sector in the total amount of the gross value added of the industry has been selected as the indicator demonstrating the national economic security level in the context of a production component. Current level of the index as well as its dynamics gives an idea about progressiveness of industrial structure of the country since under the conditions of postindustrial society a progressive industrial structure is shaped right on the basis of hi-tech sectors of a processing industry (machine-building etc.). During 2006−2020, the specific weight of the gross value added of the processing sector in the total amount of the gross value added of the industry varied from 74.66 % in 2007 down to 54.81 % in 2012; in addition, it has an obvious tendency to its decrease.

Energy component. Dynamics of an import share in the consumption of fuel and energy resources as an indicator of energy component of the economic security supports the idea that Ukraine is among the energy-deficient nations. Degree of its energy dependence varies from 56 % in 2014 and 2016 up to 78 % in 2008 (the figures have been averaged in terms of types of fuel and energy resources) having no unambiguous tendency to be increased or decreased. Maybe, dependence of a country upon the energy resource import is of a disincentive nature for the national economy growth while being a source of external threats for its economic security due to high potential of a political leverage in the field of energy supply.

Financial component. The amount of the gross external debt (both national and private) has been selected as an indicator of financial component of the national economic security. As Fig. 2 explains, during 2006−2020, minimum value being USD 54512 mln was in 2006. Its peak value, being USD 142079 mln occurred in 2013. The dynamics of the gross Ukrainian debt is of clear increasing nature. The abovementioned speaks for growing dependence of the national economy upon the external creditors, resulting from lack of own financial resources, and poses obvious exogenous threats for the national economic security. Nevertheless, it should be mentioned that since the peak from the viewpoint of external borrowings 2013, the gross national debt has not such threatening values.

Resource-based component. Before 2012, dynamics of the processing industry share in the export structure of Ukraine as an indicator of a resource-based component of the economic security was of an unstable nature. Its minimum was 70.34 %. In the second half of the analysed period, the indicator had consistently high value in the range from 74.97 % (2014) up to 75.92 % (2019). The increased share of a processing industry product in the national export structure gives evidence of high level of exogenous threats for economic security due to raw material specialization of the state while being indicative of its impossibility to provide competitive advantages on the basis of hi-tech production release.

Foreign trade component. During 2006−2020, Ukrainian export-import coverage ratio was 1.01 only in 2015. During other years, the indicator was not higher than 1 with its minimal 0.78 value (2008). It speaks for irrational structure of the national foreign trade structure. Excess of imports over exports in Ukraine stipulates import dependence of the economy
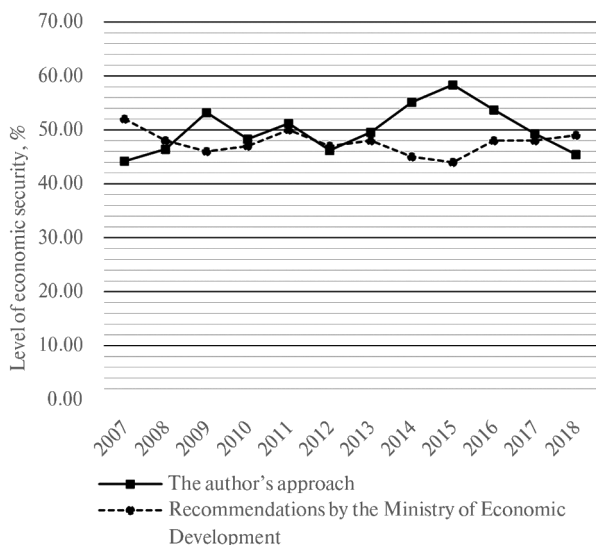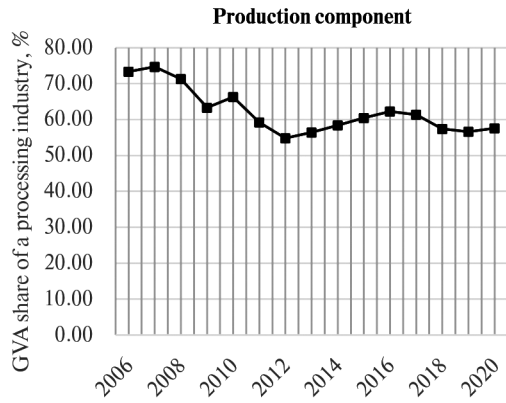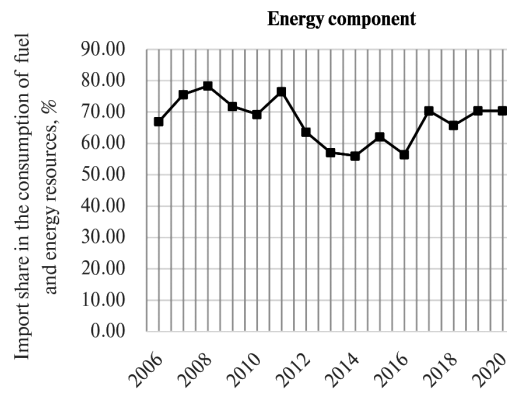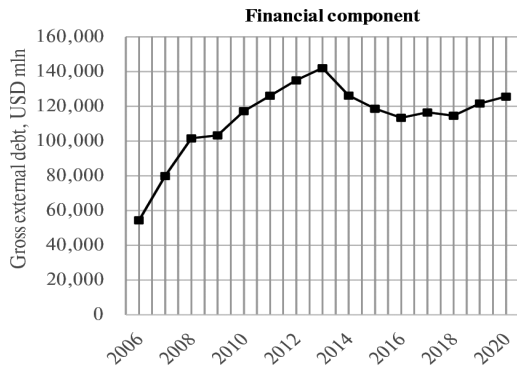

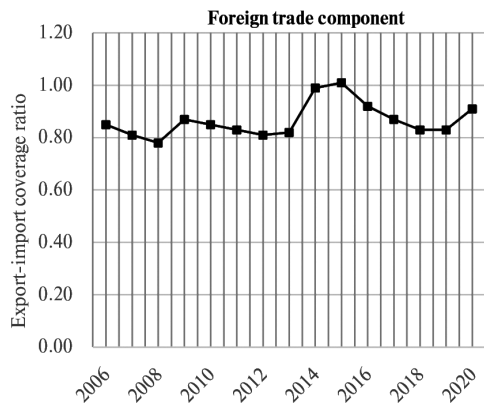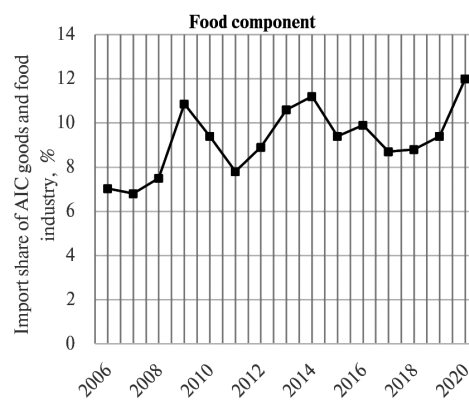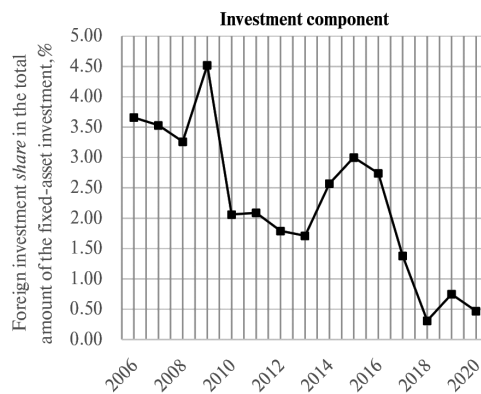*Fig. 1. Dynamics of integral indicators of economic security of Ukraine for 2007−2018*
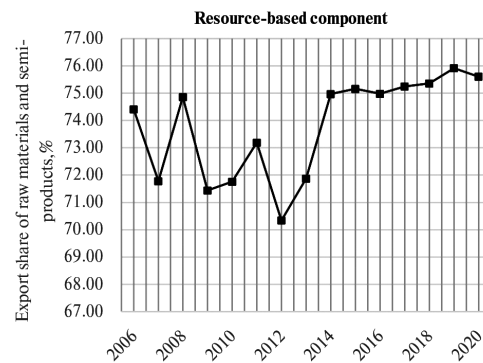
Fig. 2. Dynamics of indicators of the economic security of Ukraine level during 2006–2020 in terms of functional components
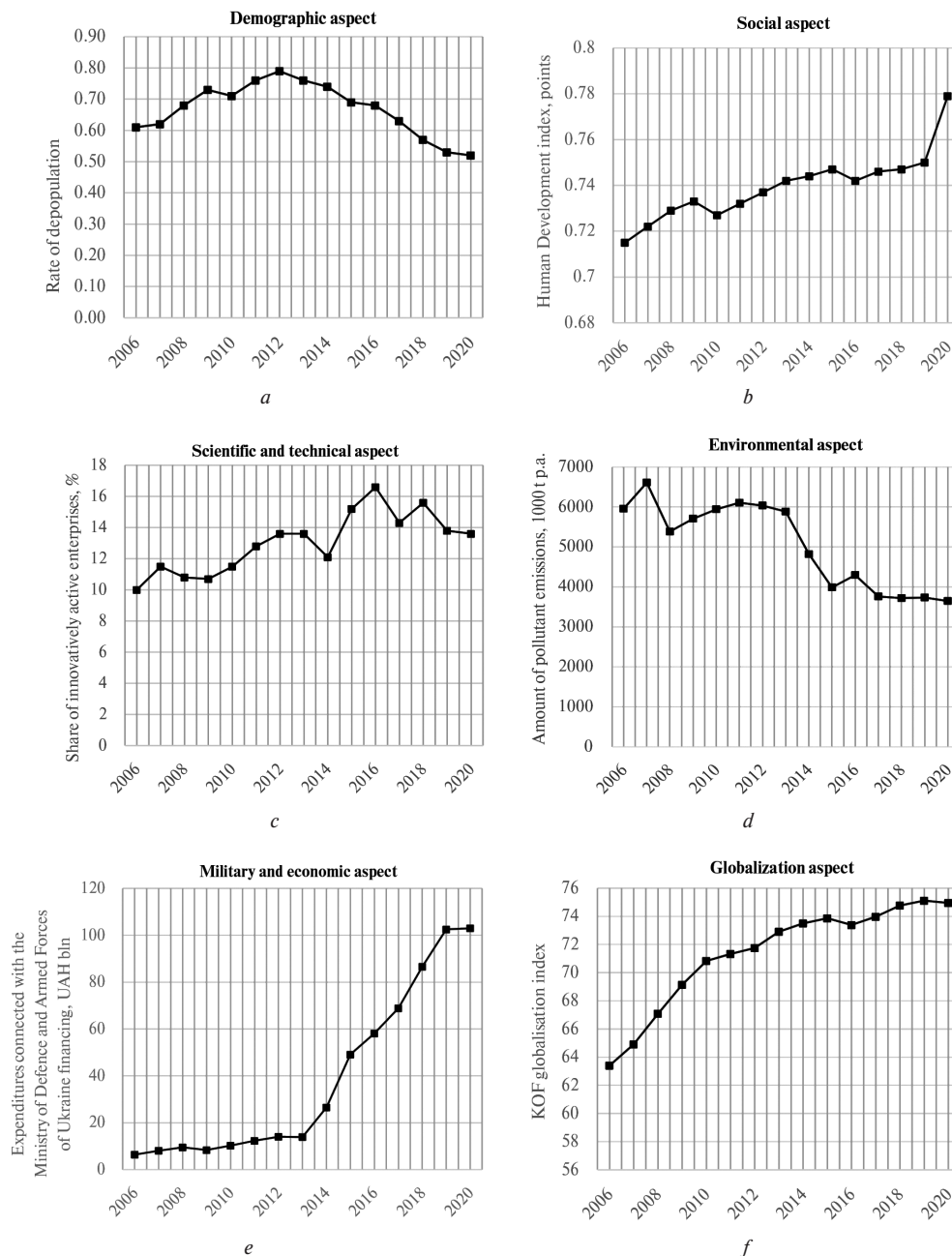
Fig. 3. Dynamic of indicators of the economic security of Ukraine level during 2006—2020 in terms of aspects of ensuring

while being risky for the national sovereignty. In addition to the above-supported resource orientation of the state exports as well as high level of the national foreign trade openness, threats to the national security in the field of Ukrainian foreign trade collaboration become of a tangible nature.

Food component. Import share of agroindustrial complex and food industry in the total import structure, selected as food security indicator, did not have any distinct dynamics being in the range of 6.8 % (2007) up to 12.0 (2020). Obviously, the fact is critical that maximum of the value was registered right in 2020 demonstrating its noticeable increase by 2.6 % to compare with 2019. It testifies to the tendency for escalating threats to the national economy of Ukraine resulting from loss of opportunities to be self-sufficient in the food sphere.

Investment component. As Fig. 2 explains, dynamics of specific weight of foreign investment in the total investment in the fixed asset is of the most dangerous character to compare with other indicators of economic security of Ukraine. In 2009, the investment component indicator demonstrated its maximum, i.e. 4.52 %. Starting from 2016, its sharp decrease

took place; the minimum was registered in 2018 at the level of 0.31 %. The tendency for foreign investment share drop in the fixed asset means the lack of foreign investor interest in the progress of Ukrainian industries.

Innovative component. During 2006—2020, science-intensive share in the total export structure as an indicator of an innovative component of economic security of Ukraine was in the range from 17.78 % in 2009 down to 12.48 in 2020 having obvious tendency for its decrease. Under the conditions of global dominating of hi-tech structures, the fall in sales of science-intensive product abroad is indicative of the fact that Ukraine loses its innovative potential in the production sphere and domestic manufacturer cannot compete efficiently in the global markets.

Demographic aspect. Rate of depopulation (Pokrovsky vitality coefficient) demonstrates constant threatening dynamics due to its drop down to minimum in 2020 (i. e. down to 0.52 points). During the analysed period, it achieved its maximum in 2012 when it was 0.79. However, the maximum is still unsatisfactory.

Social aspect. As contrasted with the absolute majority of other indicators of economic security of Ukraine, in accor-

dance with Human Development index, its social aspect demonstrates significant improvement. Relying upon a report by the United Nations Development Programme (UNDP) for 2020, Human Development index of Ukraine achieved its maximum being 0.779 points. Its minimum for 2006−2019, being 0.715 points, accounts for 2006; in this context, clear positive dynamics of the index values is available.

Scientific and technical aspect. To avoid multicollinearity effect, such an indicator of scientific and technical aspect of the national economic security has been selected as a share of enterprises implementing innovations in the total amount of industrial undertakings since right their number represents both performance level as well as a level of practical significance of scientific research. The indicator dynamics demonstrates a slow up tendency with 16.6 % maximum in 2016 and 10 % minimum in 2006. Increase (even if minor) in the share of innovatively active enterprises can be considered as a positive signal for strengthening of economic security of Ukraine.

Environmental aspect. Dynamics of the amount of emission of pollutants by stationary and mobile sources has a clear tendency to its decrease. The indicator value is from 6611.1 thousand tons in 2007 down to 3646.5 thousand tons in 2020. Hence, 2006−2020 showed almost half as much reduction in the emission. Despite the fact that such dynamics is positive from the viewpoint of harmful impact on the Ukrainian ecological system, it results evidently from the decline in industrial production while testifying indirectly to the increased risks to the national economic security on the whole in terms of significant improvement of its environmental component.

Military and economic aspect. Since 2013, expenditures connected with the Ministry of Defence and Armed Forces of Ukraine financing have demonstrated their rapid upward tendency which is a response to escalation of foreign policy threats to the sustainable national progress due to the armed aggression by the RF in the East and annexation of the Crimea. During 2006−2020, costs to finance needs of the national defence increased by more than 16 times, i. e. from UAH 6.407 billion in 2006 up to UAH 102.557 billion in 2020. It is possible to conclude that in the recent years the Government has understood both level and potential of escalating threats to economic security of Ukraine, which came true in 2022, and tried to ensure adequate financing of the defence requirements.

Globalization aspect. For 2006−2020, a value of KOF Globalisation Index, selected as the indicator of globalization aspect of economic security, increased considerably. In 2006, at the beginning of the analysed period, the index value was 63.4 points; it achieved 74.95 points in 2020. We can state, that the level of Ukraine involvement in the world economic and political processes for the last 15 years continues its consistent growth.

Integral indicator of the level of economic security in Ukraine. Dynamics of the integral indicator, shown in Fig. 4, supports the idea that during 2007−2020, the national economic security level is considered as 'unsatisfactory', i.e. its value is in the 41−60 % range; in 2006, the economic security condition was assessed as 'critical' since it could not excess its boundary 40 %. At the same time, it is possible to confirm unstable tendency towards the integral indicator increase from 36.93 % in 2006 up to 58.34 % in 2015.

The critical value of integral indicator in 2006 is explained by the fact that the year demonstrated several important indicators of economic security were minimal during the analysed period. Namely, 2006 indicated the lowest values of social (Human Development index − 0.722 points); military and economic (costs for defence needs − UAH 6.407 billion); globalization (KOF Globalisation Index − 63.4 points) aspects.

As for the maximum of the integral indicator, falling on 2015, it should be mentioned that it was the only year during the analysed period which demonstrated values of export-import coverage ratio excessing 1 (i. e. 1.01). It corresponds to the accepted level of foreign trade component of economic secu-

rity of Ukraine. Moreover, 2015 also showed significant increase in expenditures connected with financing the Ministry of Defence and Armed Forces of Ukraine compared to the previous years. It was stipulated by escalation of military threats from the Russian Federation; in addition, it influenced heavily the final value of the integral rate of economic security. It is important, that the second most important after 2019 positive peak of foreign investment in the fixed asset (3 % of the total amount) also belonged to 2015. The fact pointed to a tendency of the increased interest of the world investors in capital investment in the domestic economy after the events of 2014; unfortunately, the tendency was not maintained. Finally, it was the year of 2015 to display sharp decrease in the emission of pollutants (1.24 thousand tons p.a.). On the one hand, it had positive influence on the assessment environmental component of economic security. On the other hand, it is a direct sequence of deindustrialization of Ukrainian economy as well as exclusion of metallurgical and coal enterprises at the occupied territories from the industrial chains.

Conclusions. On the whole, the analysis of the integral indicator dynamics for 2006−2020 makes it possible to state that a moderate tendency to increase the level of economic security of Ukraine took place during the period. According to the proposed assessment approach, strengthening of the economic security level should be considered as a result of gradual growth during the 15 years of studies in the following indicators: costs for needs of the national defence (i. e. military and economic aspect); KOF Globalisation Index (i. e. globalization aspect); and Human Development index (i. e. social aspect). At the same time, negative tendencies, stipulating unstable dynamic of the integral indicator, demonstrate such important economic security indicators as the specific weight of foreign investment share in the total amount of the fixed-asset investment (i.e. investment component), and rate of depopulation (i.e. demographic aspect). Also, increase in the gross external depth has to be considered as the negative factor influencing a value of the integral indicator of economic security of Ukraine (i. e. financial component). It should be noted that to compare with 2018−2019, the year of 2020 demonstrated rather significant increase in the integral indicator value being 54.85 % making it possible to assume potential transition of the economic security level from the 'unsatisfactory' category (41−60 %) to the 'satisfactory' (61−80 %) one. Nevertheless, the unpredictable consequences for economic security of Ukraine have resulted from military aggression by the RF whose influence will stipulate a catastrophic drop in the key indicators of economic security. Hence, at the end of 2022, sharp negative
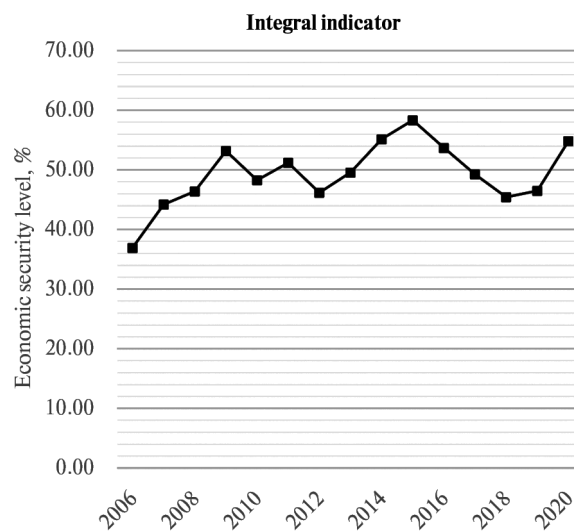
Fig. 4. Dynamics of the integral indicator of economic security level of Ukraine for 2006−2020

dynamics should be expected relative to such functional components of economic security of Ukraine as: foreign trade (due to destruction of logistics infrastructure and impossibility to export products by sea); financial (as a result of the increased external debt); investment (due to fears of foreign investors to put money in the economy being in a military conflict) etc. At the same time, one can expect system increase in costs for the national defence financing (military and economic aspect); reduction of pollutant emissions (environmental aspect); further activation processes aimed at involvement of Ukraine in the global geopolitical and geo-economic environment (globalization aspect). In a situation like this, Ukraine should have such priorities to ensure its economic security as overcoming destructive influence on the economic development of endogenous and exogenous determinants and use of possibilities created in the internal and external environments of the country to prevent threats to the national economic security.

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Економічна безпека України в умовах деструктивного впливу екзогенних детермінант

Н. Г. Калюжна[*1], *А. О. Ходжаян*[2], *І. Г. Барон*[3]

1 — Державний торговельно-економічний університет, м. Київ, Україна

2 — Київський національний університет імені Тараса Шевченка, м. Київ, Україна

3 — Головний відділ із боротьби з корупцією та організованою злочинністю Служби безпеки України в Одеській області, м. Одеса, Україна

* Автор-кореспондент e-mail: n.kalyuzhna@knute.edu.ua

Мета. Розроблення методичного підходу до оцінювання рівня економічної безпеки України в умовах деструктивного впливу екзогенних детермінант і верифікація результатів його використання.

Методика. Методи аналізу й синтезу використані для обґрунтування функціональних складових і аспектів забезпечення економічної безпеки держави й розробки системи індикаторів їх оцінювання. Індексний метод використано при розробці інтегрального показника рівня економічної безпеки держави.

Результати. Доведено, що для транзитивних економік визначальним є вплив на економічну безпеку геополітичних і геоекономічних загроз екзогенного характеру, які суттєво підсилюються в умовах глобалізації. Обґрунтована необхідність розвитку методології оцінювання економічної безпеки України в напрямі розробки методичних підходів, що дозволяють надати ґрунтовну оцінку актуальним детермінантам економічної безпеки, до яких у першу чергу віднесено вплив глобалізаційних процесів та ескалацію військово-політичних загроз. Запропоновано методичний підхід до визначення індикаторів економічної безпеки держави, що базується на виокремленні у структурі економічної безпеки держави функціональних складових і аспектів забезпечення. Розроблена система індикаторів оцінювання елементів економічної безпеки з урахуванням взаємозв'язку значень і динаміки індикаторів із впливом екзогенних детермінант. Запропоновано інструментарій оцінювання рівня економічної безпеки держави, що передбачає розрахунок інтегрального показника рівня економічної безпеки на підставі узагальнення значень індикаторів стану її функціональних складових і аспектів забезпечення. Обчислено інтегральний показник рівня економічної безпеки України протягом 2006—2020 рр. На підставі аналізу динаміки інтегрального показника рівня економічної безпеки України та його окремих індикаторів виявлені ключові закономірності в їх абсолютних і відносних трансформаціях.

Наукова новизна. Запропоновано методичний підхід до оцінювання рівня економічної безпеки України в умовах деструктивного впливу екзогенних детермінант на підставі розрахунку інтегрального показника, що дозволяє сформулювати висновки щодо стану й тенденцій трансформації економічної безпеки України.

Практична значимість. Отримані результати створюють підґрунтя для визначення пріоритетів забезпечення економічної безпеки України, якими мають стати як подолання деструктивного впливу на економічний розвиток екзогенних детермінант, так і використання можливостей, що створюються у внутрішньому й зовнішньому середовищі країни для упередження загроз економічній безпеці держави.

Ключові слова: *економічна безпека держави, транзитивна економіка, екзогенна детермінанта, деструктивний вплив, глобалізація, воєнно-економічний аспект, інтегральний показник*

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