

# The Economic Security System in the Conditions of the Powers Transformation

Olena Arefieva<sup>1</sup>, Svitlana Tulchynska<sup>2</sup>, Olha Popelo<sup>3</sup>, Serhii Arefiev<sup>4</sup>, Tetiana Tkachenko<sup>2</sup>

[popelo.olha@gmail.com](mailto:popelo.olha@gmail.com)

<sup>1</sup> National Aviation University, Kyiv, Ukraine

<sup>2</sup> National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute", Kyiv, Ukraine

<sup>3</sup> Chernihiv Polytechnic National University, Chernihiv, Ukraine

<sup>4</sup> Kyiv National University of Technologies and Design, Kyiv, Ukraine

## Abstract

In the article, the authors investigate the economic security system in the conditions of the powers transformation. It is substantiated that economic security acts as a certain system that includes components and at the same time acts as a subsystem of the highest order. It is determined that the economic security system of regions acting as a system has its subsystems, which include: production, financial, environmental, innovation, investment and social subsystems. The parameters of the economic security system include relative economic independence, economic stability and self-development of economic systems, and it is proved that an important feature of economic security in addition to its systemic nature is multi-vector. It is substantiated that the monitoring of ensuring the economic security system of the development of economic systems of different levels in the conditions of the powers transformation should contain the analysis of social, economic and ecological development of regions; spheres of possible dangers of the development of regional economic systems; the nature of the threats; the degree of the possibility of threats; time perspective of economic development threats; possible consequences of losses for economic entities; the impact of threats to the object of the economic entities' activity; possible asymmetry of economic development of regional economic entities. Possible threats as a consequence of the powers transformation have been identified. A PEST analysis of the impact of factors of different nature on economic security and the development of regional economic systems in the powers transformation is carried out. A recurrent ratio is proposed for the economic security system in the conditions of the powers transformation.

**Key words:** *economic security system, powers transformation, region, structural parameters, PEST-analysis, monitoring.*

## 1. Introduction

The purpose of this study is to substantiate the economic security system in the powers transformation. To achieve this goal, the following tasks were solved, namely: methodological tools of the study were substantiated; existing levels of economic security systems are clarified and the subsystems and structural parameters of economic security of the regions are singled out; the

importance of monitoring the economic security system is proved and its direction is determined; threats of economic systems as a result of the powers transformation are singled out; the PEST-analysis of the factors influencing economic security of regional economic systems in the conditions of the powers transformation is carried out; the representation of the economic security system of the regions in the conditions of the powers transformation in a recurrent ratio is offered.

Modern challenges to the development of the world economy and economic systems at the macro and meso levels prove the growing relevance of ensuring their economic security in the powers transformation. The practice of European countries proves that modern changes in power tend to decentralization processes. Decentralization of power, like any phenomenon, has positive and negative manifestations for the development of economic systems at different levels. Today, as shown by the analysis of literature sources on this issue, which is given below, the essence of the concepts of "regionalism" and "regionalization" have a dualistic nature. On the one hand, regionalism and regionalization presuppose deepening of democratic processes of socio-economic development of economic systems, accompanied by the formation under the influence of various exogenous and endogenous factors of consciousness and identity of the population of a certain territorial space. On the other hand, regionalism and regionalization can cause political threats, polarize social development and threaten the country's territorial integrity. It should be noted that processes of the power decentralization in Ukraine take place in the context of the annexation of part of the territory and hostilities in the east of its territory. This and other necessitate the substantiation and involvement of the economic security system of economic systems of different levels, including meso-level.

## 2. Literature Review

Many domestic and foreign scientists have devoted their researches to the processes of economic security of

the regions, among which it should be noted: Agarkov G., Tarasyeva T. (2020); Akhmetshin E., Pavlyuk A., Kokorev A. (2018); Bogomolova L., Ustyuzhantseva A. (2020); Butko M., Pishenin I. (2019); Chimee I. (2019); Cosmulese C., Grosu V., Hlaciuc E. (2019); Djakona A., Lavrov R. (2020); Dubyna M. (2017); Fedyshyn M., Abramova A. (2019); Garafonova O. (2021); Glechikova N., Nechaev V., Seriohin A. (2020); Grigoraş-Ichim C., Savchuk D., Zhavoronok A. (2018); Ivanova N., Samiilenko G. (2020); Kholiavko N. (2021); Khudolei V., Bepalov M. (2021); Kravchenko V., Kudryavtseva T., Kuporov Y. (2021); Lazarenko I., Saloid S. (2020); Revko A. (2020); Pesotskiy A., Koscheyev V., Taranov A. (2021); Pestryakov A., Sbrodova N., Titovets A. (2021); Rudenko M. (2020); Shkarlet S. (2020); Stepnicka N., Wiaczek P., Brzozowiec D. (2020); Trusova N., Hryvkivska O., Yavorska T. (2020) and others.

The authors of the article Petryakov A., Sbrodova N. and Titovets A. determine the relationship between the development of agriculture and economic security of the region. Scientists study aspects of the current level of economic security of the Sverdlovsk region and outline the problems (Petryakov A. et al., 2021).

Researchers Pesotskiy A., Koscheyev V. and Taranov A. investigated the approach to the characterization of risks caused by both excessive and insufficient administrative influence on the activities of transnational and other large companies. They identified negative consequences of both processes for the country as a whole and for individual regions. Particular attention is paid to the anti-corruption component of economic security as a prerequisite for effective cooperation between government agencies and business groups (Pesotskiy A. et al., 2021).

The purpose of the study of Trusova N., Hryvkivska O., Yavorska T., Prystemskyi O., Kepko V. and Prus Y. is a comprehensive assessment of innovative development of agribusiness in Ukraine within the limits of economic security. Scientists conducted a comprehensive analysis of the level of economic security, sustainability of regional development by components of the system (Trusova N. et al., 2020).

The aim of Polish scientists Stepnicka N., Wiaczek P. and Brzozowiec D. is to study the impact of local currencies on improving the level of economic security in the region, especially in periods of economic security risks, such as the context of epidemic risk caused by the COVID-19 pandemic (Stepnicka N. et al., 2020).

The main purpose of the study of Bogomolova L. and Ustyuzhantseva A. is to consider issues and prospects of economic security in the northern oil and gas regions of Russia as a priority of public policy in the northern region. A systematic analysis and evaluation of scientific and technical, technological and innovative goals of regional economic development is carried out (Bogomolova L. et al., 2020).

An article by Nigerian scholar Chimee I. examines the factors of economic security, status negotiations and political opportunities as correlates explaining the conversion to Islam in the northern region and parts of Igboland in southeastern Nigeria (Chimee I., 2019).

The purpose of the article by Kravchenko V., Kudryavtseva T. and Kuporov Y. is to develop a method for assessing threats to economic security in the regions of Russia. The authors identified that the greatest risks to the system were related to the relationship between competition and budget savings. The following classification of the analyzed regions was proposed, in particular, 4 groups were identified: inefficient public procurement, efficient public procurement and public procurement that threaten the economic security of the region, i.e. high competition with low savings and low competition with high savings. Based on these groups, respectively, it is possible to develop individual tools for monitoring economic security for each region (Kravchenko V. et al., 2021).

The authors Agarkov G. and Tarasyeva T. note that ensuring economic security is a priority for the development of both the regional socio-economic system and the economy as a whole. Within the article, the methodological basis is considered, and an assessment of economic resilience of the region to external threats is proved. The process of forming the region's resilience to external threats is based on its components, among which are financial, industrial and labor. The result of testing this method is a quantitative integrated assessment of the level of internal immunity of the region (Agarkov G. et al., 2020).

In the article of Rudenko M., the essence of the economic security mechanism of the region is considered, its components are allocated, and also the basic directions of this mechanism are defined, economic security of the Perm region is analyzed, and also problems of economic security are outlined and the corresponding decisions are developed (Rudenko M., 2020).

The authors of the article Glechikova N., Nechaev V. and Seriohin A. built a model of the economic security system based on the assessment of the index. The evaluation criteria determine the degree of the economic security development in five options from high to low. The model of economic security of federal districts and their constituent regions developed by the authors includes a system of indicators based on an index approach, on the basis of which the general level of the economic security development of the country is formed (Glechikova N. et al., 2020).

The purpose of the article of Akhmetshin E., Pavlyuk A., Kokorev A., Lazareva T. and Artemova E. is to develop solutions to improve economic development of the region to stabilize its economic security. Scientists have used the dialectical-materialist method of cognition,

general and special, as well as private-scientific methods based on it. The authors considered the main approaches to the concept of economic security in general, as well as economic security of the region, financial security, as well as approaches to the methodology of assessing economic security of regions. They analyzed the statistics and compared it with other regions (Akhmetshin E. et al., 2018).

### 3. Methodology

In the study, the authors used a systematic approach to justify the economic security system in the powers transformation, it allowed to justify the principles of the economic security system, namely:

- patterns that take into account the patterns of evolutionary development of economic systems and its institutional support in the powers transformation;

- continuity and consistency, which provide that measures to ensure economic security should not be one-time, but continuous, while not contradicting each other, be consistent and simultaneously act as a system at the level of different economic systems;

- strategic, which provides strategic support for economic security of regional economic systems, taking into account the system approach, which provides for the systemic nature of interconnected processes to ensure the security development of systems at different levels;

- interacts, this principle ensures the coordination of actions of all participants in the economic security system, timely informing the subjects about possible threats and measures to prevent and overcome them.

The use of a systematic approach and the principles of regularity, continuity, consistency, strategicity and interaction to the economic security system in the powers transformation contribute to improving the efficiency of its operation.

### 4. Results

In the approved normative documents of Ukraine, the main goals of ensuring national security of the country are: guaranteeing peaceful, sovereign existence of an integral, democratic, legal state that is able to ensure a new quality of social, economic and humanitarian development. One of the main directions of ensuring the national security of Ukraine is to ensure economic security of the state. Of course, economic security is one of the important aspects of the development of any country, from ensuring economic security directly depends on environmental, informational, financial security, as well as ensuring the country's defense capabilities. This is due to the fact that economic security is the foundation of stable social and environmental development of the country and its regions.

Economic security is a certain system that includes certain components and at the same time acts as a subsystem of the highest order. In addition, an important feature of economic security to its systemic nature is multi-vector. The multi-vector nature of the economic system is due to the fact that its subjects act as individual households, enterprises, communities, as well as certain industries, groups of industries, territories, regions and the state as a whole. An important aspect to increase the effectiveness of the measures aimed at ensuring economic security is to establish a close relationship between them. Today, as regions become independent actors in the international market, it is becoming increasingly important to ensure economic security at the meso level, this is also due to the fact that the regions have their own unique features and threats that may be associated with territorial their location and proximity to borders, natural and climatic features, development of productive forces, etc.

As already noted, economic security of the regions acting as a system has its own subsystems which include:

- production subsystem, characterized by the formed production specialization of the region, the availability of production capacity and potential opportunities for their development, the state of fixed assets of the production sector of the regional economy;

- financial subsystem, characterized by financial independence of local budgets, tax revenues to local budgets;

- ecological subsystem, which is parametrically described by the man-made state of the regions, the state of the environment;

- innovation subsystem, characterized by the possibility of producing new knowledge, the presence of scientific, technical and innovative potential of the regions;

- investment subsystem, which provides a certain level of investment attractiveness of the regions, taking into account the development of the shadow sector and corruption cases at the level of various branches of government;

- social, which is detailed by the structure of the labor market of the region and the income of the population, social security, duration and living standards of the population, migration processes.

At the same time, economic security of the regions has certain structural parameters, namely:

- relative economic independence, because economic security of the regions is a system and at the same time acts as a subsystem of economic security of the country, economic independence is relative within the functioning of the economic system of the country as a whole. However, under the conditions of transformation in the direction of regionalism and the policy of the power decentralization, it is the regions that acquire subjectivity

in international relations and independence in the distribution of resources, including financial ones, to increase economic efficiency of regional development. The regional level is more flexible and lively than the national level in making certain timely decisions to prevent and counter economic threats. At the meso level, monitoring of existing potential competitive prospects and threats to the development of regional economic systems makes it possible to increase the efficiency of economic development and at the same time localize the effects of economic bifurcations. Special attention in the context of ensuring economic security of the regions is the development of border areas. Whereas international cooperation must be based on mutually beneficial conditions and not jeopardize the use of resources, which may cause environmental damage and endanger national economic interests of the country;

- economic stability, which is ensured by security development and manifested in the stable socio-economic development of regional economic systems, which is possible provided that destabilization of the socio-economic situation, ensuring the rights and freedoms of economic entities, overcoming corruption. Economic sustainability of regional economic systems is not possible without achieving sustainable development of environmental and social spheres. Economic stability must be ensured by preventing the disruption of stable socio-economic development of the regions and increasing the competitiveness of regional economic systems in the international market;

- self-development of economic systems, is self-sufficiency in the formation of a resource base for independent solution of problems and possible threats that may be caused by both internal and external factors influencing economic security of the region. Self-sufficiency of socio-economic development of regions depends on revenues to local budgets, the presence of their deficit and the volume of intergovernmental transfers. Increasing the self-sufficiency of regions contributes to more effective economic security and response to possible threats. Self-development of regional economic systems while ensuring economic security is also facilitated by the modernization of the regional economy and providing favorable conditions for attracting investment resources for socio-economic regional development and intellectual capital in production, expanding innovation, training, intensification of public-private partnership.

Returning to the fact that the economic security system of regional economic systems is a subsystem of economic security of the national economy, it is important not only to build a system of economic security at the meso level, but also to integrate regions into an inviolable single economic space.

It should be noted that in order to ensure economic security, an important aspect is the monitoring of possible

threats and the development of measures to eliminate the emerging dangers and eliminate their consequences (Fig. 1). Monitoring should include continuous monitoring of economic development of regional economic systems and threats to economic security, as well as contain tools for response and operational action to ensure the overcoming of existing threats to economic development and eliminate the consequences of their manifestation.

Monitoring of the economic security system of economic systems development of different levels in the conditions of the powers transformation should contain the analysis of:

- social, economic and environmental development of the regions;

- areas of possible dangers to the development of regional economic systems;

- the nature of the threats, which may cover political, environmental, economic, social spheres, as well as the place of origin in relation to internal or external factors;

- the degree of possibility of threats in the direction of high or low probability,

- the time perspective of the emergence of threats to economic development within the long-, medium- or short-term period;

- possible consequences of losses for economic entities, which may be imperceptible, insignificant, significant, catastrophic;

- the impact of threats to the object of the economic entities' activity in the direction of property, financial, economic, technological, innovative, environmental and other factors of activity;

- possible asymmetry of economic development of regional economic entities, including as a result of the impact of threats to economic development.

It should be noted that the powers transformation has a significant impact on economic security of the meso-level, as there may be problems related to:

- the transfer of responsibilities between central, regional and local authorities, which involves the delegation and transfer of certain rights and responsibilities between different levels of government in the process of the powers decentralization;

- aggravation of interregional relations as a result of increasing concentration of resources in more developed regions and reduction of donor intergovernmental funding for regions that are outsiders in terms of economic development;

- weakening of interregional and internal consolidation due to the increasing role and greater attractiveness of foreign economic relations;

- exacerbation of environmental problems that may be caused by man-made disasters and natural phenomena that require the consolidation of significant financial resources;

- polarization of society as a result of imbalance of interests under the influence of political, social, mental and other factors;
- emergence of socio-political conflicts as a result of some lobbying of the interests of business and political elites, emergence of the centers of social tension in the regions;
- strengthening the resource dependence of regions and territories, which may be due to the peculiarities of location and sources of socio-economic development;

- reform of the structure of the national economic system as a result of disruption of relations and interaction between the subjects of the national economy, which was caused, for example, in Ukraine by the annexation of part of its territory and implementation;
- unreasonableness of management decisions at the level of regional and local government due to insufficient competence of government staff.

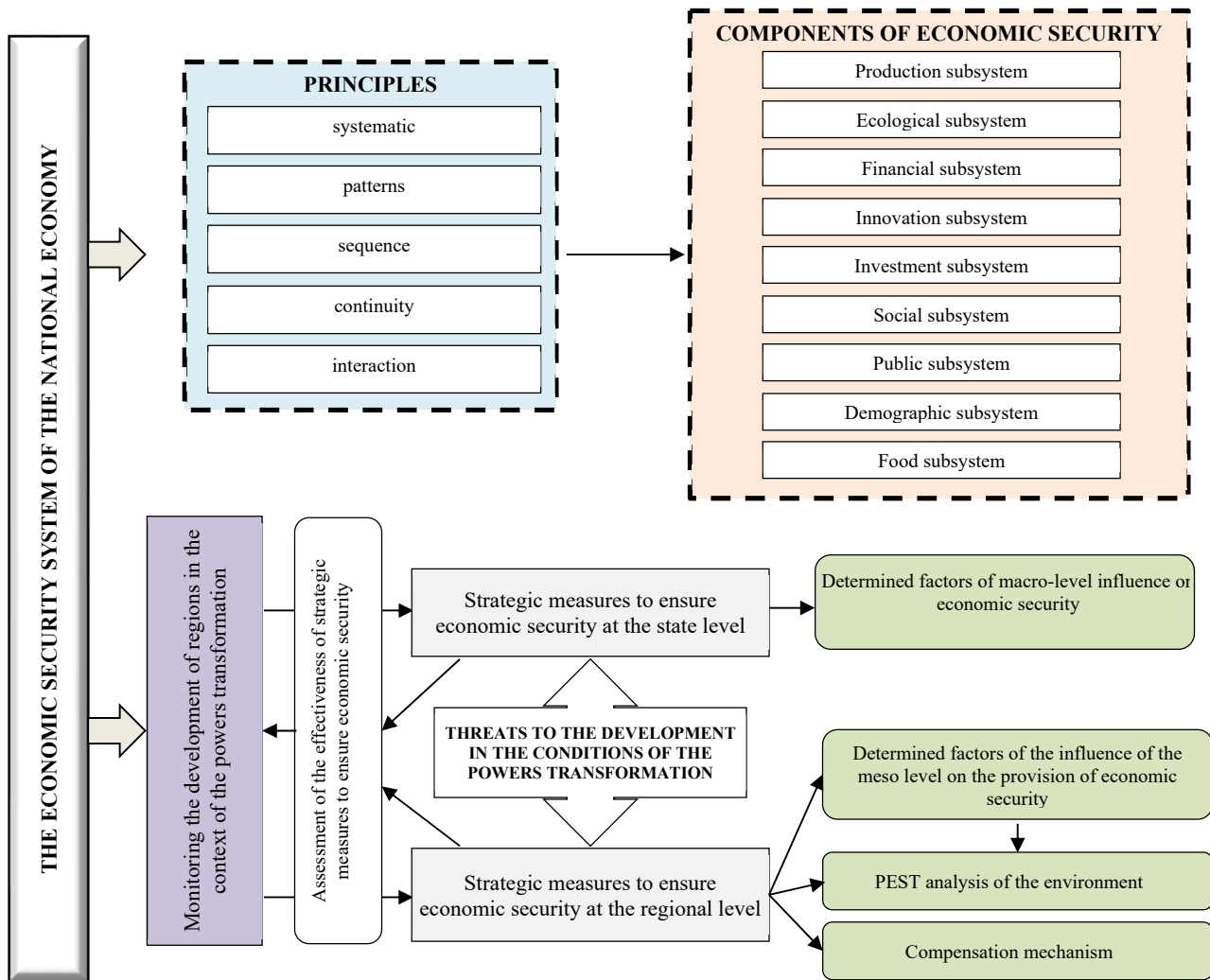


Fig. 1. The economic security system

Source: compiled by the authors

The PEST analysis is a necessary tool for monitoring economic security of regions, as its methodology provides an opportunity to analyze processes that may contribute to and threaten the development of regional economic systems in political, legal, economic, socio-cultural and scientific-technological aspects of the development.

Table 1 forms the PEST-analysis, which was conducted by the authors of this study on the impact of factors of different nature on economic security and development of regional economic systems in the transformation of power.

Table 1: Labor productivity in Ukraine and in the world

| Influencing factors | Opportunities  | Threats   |
|---------------------|--|---|
| Political and legal | <ul style="list-style-type: none"> <li>- decentralization of power and increasing the role of regional and local authorities in ensuring economic security;</li> <li>- strengthening the system of municipal and regional authorities and united territorial communities, which allows for more clear and timely decisions;</li> <li>- finding a balance of interests of all regional actors and establishing a closer relationship between them;</li> <li>- consolidation of regional communities to achieve concrete results or counteract dangers;</li> <li>- introduction of targeted programs of socio-economic development of the state and regional level;</li> <li>- preferential lending to socially significant projects to increase the economic security of social development;</li> </ul>   | <ul style="list-style-type: none"> <li>- exacerbation of socio-political conflicts;</li> <li>- excessive centralization of state power and neglecting delegation of authority to a lower level of government;</li> <li>- imperfection of the mechanism of inter-budgetary relations, which will lead to the increase in the economic level of backward regions due to more developed ones with significant demotivation of their development;</li> <li>- weakening of internal consolidation;</li> <li>- excessive, including financial, dependence of regions on the center and redistribution of intergovernmental transfers;</li> <li>- corruption of the state and local authorities;</li> <li>- inefficiency of state and regional target programs due to their underfunding;</li> <li>- non-compliance with labor laws and social standards by employers</li> </ul>   |
| Economic            | <ul style="list-style-type: none"> <li>- introduction of the measures to reduce social tensions;</li> <li>- changes in the financial and fiscal policy in the direction of increasing the self-sufficiency of the regions;</li> <li>- emergence of the regions as independent actors in the international space;</li> <li>- expansion of foreign economic relations;</li> <li>- increasing the competitiveness of regional entities, including through innovative orientation of economic activity of regional entities;</li> <li>- integration processes of the cooperation and integration of regional production systems;</li> <li>- growth of aggregate demand as a result of real growth of incomes of the population of regions;</li> <li>- innovative modernization of economic systems of different levels;</li> <li>- development of small and medium business and increase of self-employment</li> </ul> | <ul style="list-style-type: none"> <li>- high uncertainty of market conditions under the influence of COVID-19 and other factors of variability;</li> <li>- outflow of capital and other resources from the regions to the center and / or abroad;</li> <li>- violation of sustainable structural and production relations between regions;</li> <li>- rising energy prices, which may lead to a decline in the competitiveness of products;</li> <li>- inefficient budget and tax system, which does not increase the self-sufficiency of regional economic systems and increases the budget deficit at various levels;</li> <li>- high level of shadowing of the economy, which distorts the real socio-economic situation of regional development;</li> <li>- increase in imports in consumption and decrease in exports in production;</li> <li>- rising prices for monopoly products and services;</li> <li>- low investment activity of the credit and banking system;</li> <li>- destabilization of economy due to crises, inflation, fluctuations in the national currency, etc.</li> </ul> |
| Sociocultural       | <ul style="list-style-type: none"> <li>- growth of consciousness and self-identification of the population of regions;</li> <li>- development of historical and cultural centers and grouping of the population;</li> <li>- growth of educational and qualification-professional level of the population of the regions;</li> <li>- development of medical insurance services and improvement of the quality of life of the population;</li> <li>- increasing the impact of human and intellectual capital on the socio-economic development of regions;</li> <li>- increasing the social protection of the population of the regions;</li> <li>- raising the level of education and implementing the principle of lifelong learning;</li> <li>- dissemination of programs for the development of socio-cultural sphere</li> </ul>   | <ul style="list-style-type: none"> <li>- commercialization of institutions and enterprises in the social sphere, which negatively affects the availability of social services;</li> <li>- growth of social insecurity of the population, especially vulnerable groups, violation of the principle of inclusive development;</li> <li>- increasing differentiation in living standards between regions and urban and rural populations;</li> <li>- reduction of life expectancy and population growth;</li> <li>- reduction of the level and quality and living conditions of the population;</li> <li>- growth of social tension in society and its appearance in acts of protest of the population;</li> <li>- migration processes and outflow of highly qualified personnel, including research and innovation;</li> <li>- structural disparities in the labor market;</li> <li>- non-acceptance by the population of reforms in the educational and medical spheres;</li> <li>- insufficient budget funding for the socio-cultural sphere</li> </ul>   |

|                                 |  |  |
|---------------------------------|--|--|
| <b>Scientific and technical</b> | <ul style="list-style-type: none"> <li>- active use of information technologies;</li> <li>- innovative renewal of worn-out means of production;</li> <li>- growth of innovative production and output of innovative products;</li> <li>- entering the international market with innovative products and services;</li> <li>- intensification of research and development work in accordance with the strategic directions of the study;</li> <li>- growth of scientific-innovative and technological potential of regions;</li> <li>- increasing the innovative culture of the population</li> </ul> | <ul style="list-style-type: none"> <li>- unattractiveness of intellectual work, especially among young people;</li> <li>- reduction of educational and scientific potential, outflow of highly intelligent personnel;</li> <li>- reduction of funding for basic and applied science;</li> <li>- reduction of venture investment;</li> <li>- low level of protection of intellectual labor and property;</li> <li>- reduction of innovatively active enterprises and reduction of the share of production of innovative products;</li> <li>- lack of the effective policy of innovation and scientific and technological development, including at the regional level;</li> <li>- reduction of the demand for innovative products of domestic production in the country and abroad</li> </ul> |
|---------------------------------|--|--|

Source: compiled by the authors of the study.

The PEST-analysis is one of the tools for monitoring the economic system and provides an opportunity to justify strategic directions for the development of measures to prevent economic threats to the development of regional economic systems.

Thus, the introduction of a system of continuous monitoring and the PEST-analysis helps to increase the effectiveness of the development and implementation of strategic measures to counter external threats and risks and ensure the economic security of the regions as a whole.

Thus, the economic security system in the powers transformation ( $S_n$ ) can be represented as a recurrent ratio according to the formula proposed by the authors:

$$S_n = \begin{cases} S_1 = f(p, f, e, i, inv, s), n = 6 \\ S_2 = f(rei, ts, sv), n = 3 \\ S_3 = f(M), n = 1, \dots, m \\ S_4 = f(T), n = 1, \dots, m \\ S_5 = f(P) O_{pl}, O_e, O_{sc}, O_{st}, T_{pl}, T_e, T_{sc}, T_{st} \end{cases} \quad (1)$$

where  $S_l$  – subsystems of economic security of regions, namely: production (p), financial (f), environmental (e), innovation (i), investment (inv) and social (s);

$S_2$  – structural parameters of the economic security system, namely: relative economic independence (rei), economic stability (es), self-development of economic systems (sv);

$S_3$  – monitoring to ensure the economic security system of the economic systems development in the conditions of the powers transformation (M);

$S_4$  – the impact of the powers transformation on the economic security system of the regions (T);

$S_5$  – the PEST-analysis of opportunities (O) and threats (T) of the development of regional economic systems in political and legal (pl), economic (e), socio-cultural (sc) and scientific and technological (st) aspects of the development.

This recurrent ratio makes it possible to create an idea of the integrity and multifaceted nature of the economic security system in the transformation of power.

## 5. Conclusions

The study makes it possible to determine that the economic security system in the powers transformation should focus on the meso-level system, which is intermediate between the system of national level and the level of economic entities, which has its own subsystems and properties. The economic security system must guarantee the stability of economic development and ensure the competitiveness of economic entities, the access to necessary production, financial, technological, labor and other resources, ensure socio-economic and environmental development, counter threats to the internal and external environment and take into consideration the interests of each subject of economy and national economy as a whole.

The scientific novelty of this study is the presented systems of economic security of regions in the form of a recurrent ratio, which provides an assessment of the system as a whole and allows to take into account its composition, structural parameters, impact of transformation processes and simultaneous monitoring and PEST analysis regional economic systems.

Of practical importance is the PEST-analysis of factors influencing economic security of regional economic systems, which allows within the system of economic security of regions to develop and implement a compensation mechanism to combat multi-vector threats to socio-economic development.

Further research requires the development of strategic support for economic security of regional economic systems in the transformation of power.

## References

- [1] Agarkov, G.A., Tarasyeva, T.V. (2020). Assessment of passive economic security of the socioeconomic system of the region. *International Conference on Numerical Analysis and Applied Mathematics*, 2293, 120002. <https://doi.org/10.1063/5.0030882>.
- [2] Akhmetshin, E.M., Pavlyuk, A.V., Kokorev, A.S., Lazareva, T.G., Artemova, E.I. (2018). Assessment of the economic

- security of the region (on the example of chelyabinsk region). *Journal of Applied Economic Sciences*, 13(8), pp. 2309-2322.
- [3] Bogomolova, L., Ustyuzhantseva, A. (2020). Issues of ensuring the economic security of the Northern Regions of Russia. *Utopia y Praxis Latinoamericana*, 25(5), pp. 51-62. <https://doi.org/10.5281/zenodo.3984204>.
- [4] Butko, M., Ivanova, N., Popelo, O., Samiilenko, G. (2020). Conceptual foundations of the regional industrial cluster formation based on European experience and leading world tendencies. *Financial and credit activity: Problems of theory and practice*, 1(32), 319-329.
- [5] Butko, M., Popelo, O., Pishenin, I. (2019). Innovations in Human Resources Management in Eurointegration Conditions: Case for Ukrainian Agro-industrial Complex. *Marketing and management of innovations*, 2, 74-82.
- [6] Chimee, I.N. (2019). Economic security, status negotiation and political opportunity as correlates in explaining the politics of conversion to Islam in the northern and southeastern regions of Nigeria. *Cogito*, 11(2), pp. 160-179.
- [7] Cosmulese, C.G., Grosu, V., Hlaciuc, E., & Zhavoronok, A. (2019). The Influences of the Digital Revolution on the Educational System of the EU Countries. *Marketing and Management of Innovations*, 3, 242-254. DOI: <http://doi.org/10.21272/mmi.2019.3-18>.
- [8] Fedyshyn, M.F., Abramova, A.S., Zhavoronok, A.V., & Marych, M.G. (2019). Management of competitiveness of the banking services. *Financial and credit activity: problems of theory and practice*, 1(28), 64-74. DOI: <https://doi.org/10.18371/fcaptop.v1i28.163340>.
- [9] Glechikova, N., Nechaev, V., Serioigin, A. (2020). Modeling the Development of the Economic Security System of Regions as the Basis of Stability. *Studies in Systems, Decision and Control*, 282, pp. 141-148. [https://doi.org/10.1007/978-3-030-44703-8\\_16](https://doi.org/10.1007/978-3-030-44703-8_16).
- [10] Grigoraş-Ichim, C.E., Cosmulese, C.G., Savchuk, D., & Zhavoronok, A. (2018). Shaping the perception and vision of economic operators from the Romania – Ukraine – Moldova border area on interim financial reporting. *Economic Annals-XXI*, 173(9-10), 60-67. DOI: <https://doi.org/10.21003/ea.V173-10>.
- [11] Kholiavko, N., Djakona, A., Dubyna, M., Zhavoronok, A., Lavrov, R. (2020). The higher education adaptability to the digital economy. *Bulletin of national academy of sciences of the Republic of Kazakhstan*, 4(386), 294-306.
- [12] Khudolei, V., Bespalov, M., Tulchynska, S., Tulchinsky, R., Kholivko, N. (2021). Fiscal stimulation of spatial development: the eu countries' cases. *Financial and credit activity: problems of theory and practice*, 1(36), 124-132.
- [13] Kravchenko, V., Kudryavtseva, T., Kuporov, Y. (2021). A method for assessing threats to the economic security of a region: A case study of public procurement in Russia. *Risks*, 9(1), pp. 1-10. <https://doi.org/10.3390/risks9010010>.
- [14] Lazarenko, I., Saloid, S., Tulchynska, S., Kyrchenko, S., Tulchynskiy, R. (2020). Necessity of implementing data science course in economics curricula. *Information technologies and teaching aids*, 4(78), 132-144. DOI: [10.33407/itlt.v78i4.3505](https://doi.org/10.33407/itlt.v78i4.3505).
- [15] Pesotskiy, A.A., Koscheyev, V., Taranov, A.I. (2021). Globalization from the Standpoint of Economic Security of a Country and Its Regions: Some Aspects of Threat Systematization. *IOP Conference Series: Earth and Environmental Science* (8 - 10 December 2020, Vladivostok), 666(69), 062117.
- [16] Pestryakov, A., Sbrodova, N., Titovets, A. (2021). Digitalization of crop production as a factor in strengthening the economic security of the region. *1st International Scientific and Practical Conference "Innovative Technologies in Environmental Engineering and Agroecosystems" (ITEEA 2021)*, 262. <https://doi.org/10.1051/e3sconf/202126203028>.
- [17] Popelo, O., Butko, M., Revko, A., Garafonova, O., Rasskazov, O. (2021). Strategy of the Formation and Development of an Innovative Agroindustrial Cluster of the Region in a Context of Decentralization of the Authoritative Powers. *Financial and credit activity: problems of theory and practice*, 2(3), 219-230. DOI: <https://doi.org/10.18371/fcaptop.v2i37.230180>.
- [18] Popelo, O., Dubyna, M., Kholiavko, N. (2021). World Experience In The Introduction Of Modern Innovation And Information Technologies In The Functioning Of Financial Institutions. *Baltic Journal of Economic Studies*, 7(2), 188-199. DOI: <https://doi.org/10.30525/2256-0742/2021-7-2-188-199>.
- [19] Revko, A., Butko, M., Popelo, O. (2020). Methodology for Assessing the Influence of Cultural Infrastructure on Regional Development in Poland and Ukraine. *Comparative Economic Research. Central and Eastern Europe*, 23(2), 21-39.
- [20] Rudenko, M.N. (2020). Development of a sustainable mechanism for the economic security of the region. *Rivista di Studi sulla Sostenibilita*, X(2), pp. 33-47.
- [21] Shkarlet, S., Dubyna, M. (2017). Submission of mention of the category "financial trust". *Scientific bulletin of Polissia*, 2(4(12)), 45-52.
- [22] Shkarlet, S., Ivanova, N., Popelo, O., Dubyna, M., Zhuk, O., "Infrastructural and Regional Development: Theoretical Aspects and Practical Issues," *Studies of Applied Economic* 38-3(1) (2020), <http://dx.doi.org/10.25115/eea.v38i4.4002>.
- [23] Shkarlet, S., Kholiavko, N., Dubyna, M., Zhuk, O. (2019). Innovation, educational, research components of the evaluation of information economy development (as exemplified by eastern partnership countries). *Marketing and Management of Innovations*, 1, 70-83.
- [24] Stepnicka, N., Wiazek, P., Brzozowicz, D. (2020). Local currencies versus the level of economic security of the region during the COVID-19 period. *WSEAS Transactions on Business and Economics*, 17, pp. 889-899. <https://doi.org/10.37394/23207.2020.17.87>.
- [25] Trusova, N.V., Hryvkiivska, O.V., Yavorska, T.I., Prystemskyi, O.S., Kepko, V.N., Prus, Y.O. (2020). Innovative development and competitiveness of agribusiness subjects in the system of ensuring of economic security of the regions of Ukraine. *Rivista di Studi sulla Sostenibilita*, 2, pp. 141-156. URL: <http://elar.tsatu.edu.ua/handle/123456789/13418>.