

## Zakharii Varnalii

Taras Shevchenko National University of Kyiv, Kyiv, Ukraine

## Svitlana Onyshchenko

Poltava National Technical Yuri Kondratyuk University, Poltava, Ukraine

# UKRAINIAN BUDGET SECURITY: FOUNDATIONS AND DIRECTIONS OF PROVISION IN TERMS OF THE DIGITAL ECONOMY DEVELOPMENT

**Abstract**. The development of the research on state budget security and main methodological framework and directions of its ensuring for the national economy steadiness increases.

Theoretical bases of the state budget security are founded on the updated theories of state finances, budget and economic security. Methodological bases of the research are founded on dialectical, functional, protective and system approaches, according to which budget and economic security are reviewed in their cause and effect dependence.

Conceptual bases of the budget security are developed and its place in the system of state economic security is defined.

Initial categories of the state budget security research related to the concept content, such as "budget", "budget process", "budget system", "security", "budget security" are defined.

It has been determined that the state budget is a systemically important state budget security element, and a form of budget security aspect is reflected in the system of assessments that characterize its level in dynamics and relatively optimal value of indicators and integral index.

The object of budget security is the level of state budget execution, efficiency of the budget resources usage, budget process, and budget system.

The object of budget security is activity of state authorities, financial institutions, and budget policy instruments aimed at the implementation of an adequate level of budget security in terms of the digital economy development in Ukraine.

The state policy strategic priorities concerning strengthening of budget security under current conditions are offered. The criteria for the effectiveness of the strategic priorities of the budget policy in accordance with the provision and strengthening of the state budget security are determined.

The essence and role of budget security as the dominant component of financial security of the state are determined. The structure and main characteristics of the Ukrainian budget security have been developed. The main strategic target priorities while forming the directions of ensuring budget security of Ukraine in terms of digital economy development are proposed.

The applied recommendations create a sound basis for building an entire system for ensuring Ukraine budget security. The research scientific results were used by the state and local authorities while improving the existing regulatory and methodological provision, and creating policy documents for the safe budget system development and inter-budget relations in Ukraine. In particular, strategic priorities for ensuring budget security have been implemented in the work of the Budget Committee of the Verkhovna Rada of Ukraine when adopting a draft bill and preparing appropriate recommendations for legislative documents of the budget process organization.

Jel Classification System: A 10, F52, O 10, P 41, Q 01, R 10, R 58 Keywords: security, security budget, financial security, the state budget, threat, budget policy

**Introduction** Ukraine is facing extremely complex and responsible tasks related to the scale of global problems that are on the agenda and constitute significant threats to Ukraine's budgetary security by hampering the effective development of the national economy.

The basis of the state financial stability under globalization is improvement of the budget process and directions on the effective budget system formation from the standpoint of safe development, while the proper place should be given to the issues of strengthening the state budgetary security.

The mentioned above actualizes an in-depth study of the theoretical and methodological foundations of budget security and the directions of its provision.

Conceptual approaches to the definition of the essence and content of the budget security concept have been investigated by domestic experts (Baranovsky, 2014; Vlasyuk, 2016)<sup>198</sup>. Budget security has been considered in

<sup>&</sup>lt;sup>198</sup>Baranovs'kyy, O. (2014). Security philosophy: monograph: in 2 t. Kyiv: UBS. NBU, pp. 11-81; Vlasyuk, O. (2016). National security of Ukraine: the evolution of domestic policy problems. National Institute of International Security Problems at the National Security and Defense

#### ECONOMIC SECURITY AT RISK: FINDINGS FROM DIGITALIZATION OF THE NATIONAL ECONOMY

University of Economy in Bydgoszcz, Publishing House

ensuring the strategy of socio-economic development of the state (Kolisnyk, 2009)<sup>199</sup>. It separates the budget component and explores the threats and influence factors (Martyniuk, 2013)<sup>200</sup>. The studies of theoretical analysis on budgetary security are provided in the work by V. Muntian, G. Pasternak-Taranushenko, S. Pyrozhkov and others. However, modern economic science lacks unambiguity in defining the notion of "budget security", theoretical substantiation of the essence and specifics as well as directions of its provision, so many questions are open and controversial.

Dynamics and polystructure of processes forming a system of budget security ensuring as well as their inadequate theoretical and methodological foundation require systematic scientific approach to the stated problem. The study of the principles of budget and other constituents of the state economic security provision in terms of the digital economy development is relevant.

The main principles of the state budget security are thematically disclosed within the theory of state finances, budget and economic security. At the basis of budget security theoretical generalization, the initial categories and related concepts such as "budget", "budget process", "budget system", "security", "budget security" are defined. Structural and functional analysis has been used to systematize the evolution of the state budget security scientific concepts. The preference is given to a system approach as it is aimed at defining the essence of the state budget security subject and the process as an independent system having numerous elements and relations concerning research subject formation and development. It is the budget system which possesses the leading role in the state financial system.

In fact, there is no component of national security that would not directly depend on the level of the state budgetary security. In terms of

Council of Ukraine. [online] Available at http://www.niss.gov.ua/content/articles/files/Vlasuk-fin-99d56.pdf [Accessed 17 December 2017].

<sup>&</sup>lt;sup>199</sup>Kolesnik, O. (2009). Budget to ensure security of socio-economic development: Author. Dis. candidate. Econ. Sciences specials. Ternopol, Ukraine.

<sup>&</sup>lt;sup>200</sup>Martyniuk, V. (2013). Assessment of the national economy based on the integral index of economic security. Economics, management, entrepreneurship, 25 (I), p. 179-188.

European integration and financial globalization, each country seeks to preserve its financial independence, and therefore the state budget security is the dominant source of financial security. At the same time, the level of budget security is interdependent and interrelated with other components of the state national security.

At the current stage of security science development, budget security as an economic category, is poorly investigated and is mainly considered under financial or economic security.

Despite the urgency of the problem, today there is no single universally accepted definition for the essence of budget security; the semantics and morphology for this concept vary depending on the tasks, place, as well as the presence of internal and external threats at this stage of society development.

The urgency of the research of budget security issues at the current stage is due to the fact that Ukraine has a deficit state budget for many years, which requires the use of additional resources in the form of external and internal borrowings, money emissions and other measures that affect adversely the level of the state financial security as a whole.

Particular actuality of the state budget security study is explained by conditions of digital economy development, which is based on the digital informational technologies. This significantly influences the condition and states of the problem of provision not only the budget security but all the other constituents of Ukraine's national security.

At present, the digital economy is developing at an unpredictable speed, dramatically changing the essence of the very national economy, implementing qualitatively new managerial models based on the modern digital technologies, ensuring transition from effectiveness and rationality to focusing on openness, democratization, sociolization, creativity of institutional processes, a variety of effective ways of the national economy development.

At the current stage of security science development, fiscal security as an economic category, is poorly investigated and is mainly considered under financial or economic security. However, in the scientific literature there are three main conceptual approaches to the definition of the essence of the state

budgetary security, but some scholars propose to consider this category comprehensively by combining existing approaches:

1) budget security as a condition for the budget system security from internal and external threats, which ensures the state ability to finance the realization of its functions in accordance with national interests;

2) budget security as a set of conditions for the budget system stability, a priority role, which is determined by the objective necessity for a balanced budget;

3) state budget security as a condition for the state solvency, taking into account the balance of revenues and expenditures of state and local budgets and the efficiency of using budget funds.

The most complete definition for the state budget security within the framework of the first conceptual approach was proposed by O. Baranovsky, according to which "one must understand budget security as a condition and measures for ensuring the budget sovereignty of the state (the possibility of implementing an independent fiscal policy taking into account the specifics of the the national budget system functioning); solvency (a budget potential level) of the state and its regions, local communities, economic entities and households in order to fulfill their functions and ensure functioning and vital functions, taking into account the balance of incomes and expenditures of the state and local budgets, corporate budgets and household budgets and expediency, legality, timeliness and socio-economic efficiency of using budget funds at all levels" <sup>201</sup>.

The second conceptual approach is based on the understanding of the state budget security as the budget system stability, which ensures balanced and deficit-free budget.

<sup>&</sup>lt;sup>201</sup>Baranovskyi, O. (2014). Security philosophy: monograph: in 2 t.Kyiv: UBS. NBU, p. 597.

In particular, according to S. Kireyev, fiscal security is characterized by the budget balance degree, hence the size of deficit or deficit-free budget, and the fiscal security level is inversely proportional to the budget deficit level <sup>202</sup>.

The third approach is based on the understanding of fiscal security as defense of the budget system and all its elements from internal and external threats, which ensures the state ability to finance the realization of its functions in accordance with national interests, and this approach is followed by V. Dets<sup>203</sup>.

O. Demenok and V. Glukhova argue that fiscal security is the ability of the budget system to ensure the state financial independence and the effective use of its budget funds in the process of performing social protection functions; public administration and international activities; financing of science, education, culture, health care; ensuring the national security and defense, implementing the investment and environmental policies <sup>204</sup>.

O. Kolisnyk characterizes the theoretical approaches to a comprehensive understanding of fiscal security as an economic concept. Based on the use of philosophical categories "content" and "form", it is substantiated that the content of budgetary security manifests in the ratio of budget funds, parameters of their formation and distribution and the total needs for recipients of such resources; by the form, budget security is manifested in the system of assessments that characterize its level; the budget security objects are budget funds, quantitative and qualitative characteristics of their distribution between the links of the budget system, socio-political, legal and procedural aspects of the budget process, serving as indicators and criteria for assessing and ensuring the budget security; the subject is the activity of the state, aimed at guaranteeing a certain level of budgetary security by

<sup>&</sup>lt;sup>202</sup>Kireyev O.I., Mishch V.I. (2005). Improvement of coordination of monetary and fiscal Policy: Information and analytical materials. Kyiv: Center Researches of the National Bank of Ukraine, 2005 - 96s.

<sup>&</sup>lt;sup>203</sup>Dets, V. (2008). Intergovernmental budget adjustment in the system of economic security: Author. Dis. candidate. Econ. Sciences specials. Kyiv, Ukraine.

<sup>&</sup>lt;sup>204</sup>Demenok O.V., Glukhov V.I. (2010). Ukraine security budget as part of the financial security of the state: state and prospects. Available at http://www.nbuv.gov.ua /portal/soc\_gum/nie/2010\_1/016-022.pdf.

influencing its object <sup>205</sup>. Budget security is regarded as financial conditions expressed in the volume of budget resources and the principles on their formation and distribution, which ensures the ability of the state and society to self-preservation and development. According to the scientists' research, fiscal security is considered as a prerequisite for the implementation of the effective state of financial and economic policy as the basis for achieving the national interests. Rational budget use as the financial basis for state regulation of a market economy should ensure the regulation of economic and social processes aimed at society interests, create the preconditions for economic development in the country. Therefore, an important direction for economic policy is the balance achievement in the state financial sphere as an indispensable condition for the steady growth of the economy and the realization of national interests <sup>206</sup>.

When considering the budget security of the national economy from the standpoint of the system approach, it should be presented in the state economic security system, taking into account the provisions of the current legislation and guidance materials, that is, the method of regular relation of the system elements.

The system-forming element of budget security of the state is the state budget, which is a multi-aspect concept. As an instrument of state policy, budget plays a key role in ensuring social and economic development of the state and realization of its national interests, namely: the volume and structure of the revenue and expenditure parts of the budget influence the functioning of all economy sectors.

The essence of state budget security is investigated, its place in the general system of state economic security is determined. Financial globalization essence is investigated; its main characteristics are highlighted, influence objective preconditions and factors in budget security are studied. It

<sup>&</sup>lt;sup>205</sup>Kolesnik, O. (2009). Budget to ensure security of socio-economic development: Author. Dis. candidate. Econ. Sciences specials. Ternopol, Ukraine.

<sup>&</sup>lt;sup>206</sup>Baranovskyy, O. (2014). Security philosophy: monograph: in 2 t. Kyiv: UBS. NBU, p. 607.

is proved that financial globalization as a contradictory process has a dual influence and generates asymmetry in the world economy development <sup>207</sup>.

In the scientific literature there are three main conceptual approaches to the definition of the essence of the state budgetary security, but some scholars propose to consider this category comprehensively by combining existing approaches.

The definition of the state budget security within the framework of the first conceptual approach is set out in the Methodological Recommendations on the calculation of the level of Ukraine's economic security. Also, the vast majority of scholars hold the first position, according to which the essence of budget security is considered as a condition of solvency and financial sustainability of public finances, which enables state authorities to perform their functions as effectively as possible.

The system approach, as a general scientific methodological direction of research, involves revealing the phenomenon essence, object and process as independent systems and have an integral set of elements and sets of relations between them.

Budget security of the state is an integral part of Ukraine's financial security subsystem, which is to preserve the financial system balance, ordering of intersystem links and elements determined by the purpose of the system functioning as a whole and the development of each of the subsystems.

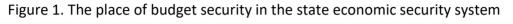
An element of the system is a system component, which is conventionally regarded as indivisible depending on the specific research tasks. The elements of the Ukrainian economic security system are industrial, macroeconomic, foreign economic, energy, investment and innovation, social, demographic and food components (Figure 1).

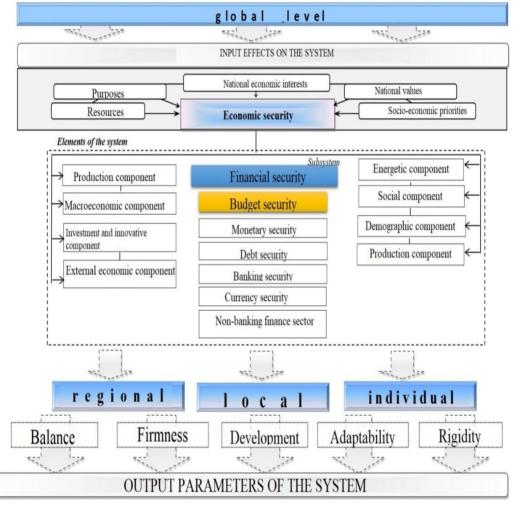
A subsystem is a part of a system where, unlike a system element, it is possible to distinguish other components. Such a subsystem of Ukraine's economic security is financial security, which, in its turn, has six components:

<sup>&</sup>lt;sup>207</sup>Budget Security of Ukraine: the essence, threats and ways of providing: a monograph / S.V. Onishchenko. – Kyiv: Knowledge of Ukraine, 2017. p. 59-60.

banking security, security of the non-bank financial market, debt, budget, currency and monetary security.

The elements and subsystems as a whole are components of the state economic security system. Such division of the system into separate elements and subsystems according to the system approach is ambiguous; it was carried out in order to study the integral level of the state economic security.





Source: compiled by the authors on the basis of research

The ratio between the components of the system is based on interdependence and interconditionality is determined by the notion of "relation". The main characteristics of the state budget security are public finances stability, the state budget balance, the effective use of budget funds, the balance of external and internal debt, which create the necessary financial conditions for a stable social and economic development in the country, show the decomposition of the Ukrainian budget security structure as a complex economic category.

It is expedient to consider the state budget security in two aspects of its manifestation: on the one hand, as a characteristic feature of the budget, which is its ability to function (security of the budget itself) at all levels of the budget system and at all stages of the budget process; and, on the other hand, as the basis for state funding through the budget by state authorities and local self-government as the basis for the achievement of national economic interests.

In view of the above mentioned, and based on the own ground work, we propose to regard the concepts within the functional and protective approach, namely, budget security as the level of the budget system ability, which provides for solvency and the state financial stability, effective use of budget funds, taking into account strategic priorities for budget relations development and the potential to confront and prevent internal and external threats.

The form of the budget security is embodied in the system of assessments that characterize its level in dynamics and the relatively optimal value of indicators and integral index. The object of budget security is the level of the state budget implementation, the efficiency of using budget resources, budget process, and budget system. The subject of budget security is the activity of state authorities, financial institutions, and budgetary policy instruments aimed at implementing a safe level of budgetary security.

Trends in the global community determine the dominant role of progressive public policy in budget security provision. The budget policy in Ukraine should be based on the implementation of best experience of developed countries in strengthening the financial framework of the state

budget, increasing the responsibility of the budget process participants, increasing transparency at all stages of the budget process, developing medium-term budget planning and the program-target method, which can become an effective direction to increase the effectiveness of the participants of the budget process in Ukraine and contribute to raising the level of budget security of the state.

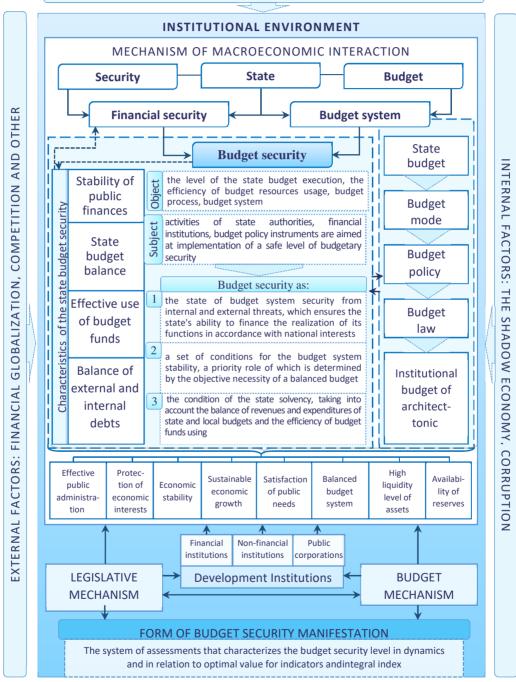
The provision of state budget security as an element of financial security subsystem and a complicated system of the state economic security has to take place grounded on detailed investigation on internal connections between other constituents and its components from positions of structural steadiness. In case of economic security system, internal environment functioning without controversy and conflicts to national economic interests, the economic security system gets adapted to external environment conditions without losing its steadiness and possible structural changes.

An important aspect of understanding the system properties of complex objects, considering the analysis of connections inside the system, is that on the one hand, it is possible to define and systematize the reasons of influence, on the other hand – correct its cause and effect connections. Aiming at this, it is necessary to monitor and predict the changes in indices of an object under research with the help of studying tendencies of strengthening or weakening of the defined cause and effect connection.

As far as an important property of the state economic security system is its directness, which is determined by adaptability of its functioning, the way of studying the mechanism of the system direct behavior lies in its model research. Grounded on the analysis of macroeconomic objects and processes modeling, there was offered a structural model of the state budget security as a complicated financial subsystem on the basis of identification of primary factors and conditions of occurring threats behind the spheres of financial activity, which makes it possible to neutralize the threats to the state budget security at the primary stage of their occurring, as well as minimize their influence viewing numerous changes in the financial system of Ukraine.

### Figure 2. Decomposition of the Ukrainian budget security structure





Source: compiled by the authors on the basis of research

Using the tools of economics and mathematical modeling made it possible to quantify the parameters characterizing the process of the emergence and impact of threats to budget security. The structural model of the emergence and impact of threats to budget security state looks as:

$$M_B = V_B \cup W_B = (V_B((P \cap N \cap F) \leftrightarrow \{Q_i\}_{i=1}^n \leftrightarrow I)) \cup (f : W_B(\bigcup_{j=k} \alpha_{jk}) \to E)$$
(1)

where: MB - model of the emergence of threats to budget security and their impact on economic security in general;

 $V_B$  - areas of security budget threats;

W<sub>B</sub> - impact of budget security on economic security in general;

P - current state of the real sector of the economy;

N - peculiarities of fiscal policy regulation;

F - globalization factors that affect the national economy;

*Qi* - parameters that reflect the influence of factors on the budget state security;

I - Integral assessment of budget security;

 $\alpha_{jk}$  - parameters that reflect the impact of budget security on other economic security types;

*E* - GDP of the country.

The spread of threats under the lack of effective mechanisms for their neutralization leads to the transformation of real threats to the system, which are the catalysts of additionally acquired threats. In turn, both systemic and extra acquired threats may act as factors and conditions for the emergence of others potential threats to the budget security of the state.

The proposed structural model of occurrence, distribution and influence of threats on budgetary security of the state are based on the following principles:

 segmentation - the identification of threats is carried out according to their spheres of emergence within each of the economic security of the state components;

- objectivity the existence of a threat to economic security should be proven by means of economic and mathematical methods of statistical indicators analysis;
- 3) dynamics detection and forecasting of threats is carried out according to the trends that shape the current state of the national economy;
- completeness all factors, phenomena, events and processes that are sources of threats, are subject to consideration, taking into account the negative consequences of their influence on the system of economic security;
- 5) significance the simulation is subject to threats that objectively impede the realization of national economic interests and are the catalysts of destructive changes in the economic system.

In the absence of a timely and situational response to the existing threats, a gradual accumulation of them occurs, that prompts disruptive shifts both in budgetary security, as in the financial system of the state as a whole.

The system for assessing the level of fiscal security as a part of financial and economic should be clearly structured into organizational, informational, analytical and administrative sub-systems that, in turn, consist of separate elements.

The analytical subsystem of monitoring state budget security is based on collecting, processing and systematizing output macroeconomic indicators. The assessment of the state financial security is carried out by means of tools and methods for the consolidation of systemized information, regression, correlation, dispersion, discriminative, covariance and integral analysis. The organizational component is intended for the purpose, object and subjects of the financial security monitoring, and the informational component regulates a clear listing of statistical information, normative and procedural acts and instructive documents of diagnostics.

In this case, particular attention is paid to determining the level of the impact of threat on the integral level of the state budget security, in accordance with which a mechanism for prevention of threats is developed through their modeling and forecasting. From the practical point of view, the

level of threat has a direct correlation with the loss from it and the volume of resources necessary for its neutralization in the framework of a certain mechanism.

The trends in spreading threats in accordance with the modeling method are based on the dynamics of phenomena, events or processes that are sources of threats, since the emergence of contradictions in the realization process of national economic interests, the phase of their aggravation, regulation and liquidation of negative consequences. At the same time, it is fundamentally important to identify the moment of the threat transformation from a potential one to a real one in order to prevent such a phenomenon.

According to the developed model, the impact of threats on the level of budgetary security has been identified. In order to estimate the magnitude of such impacts, the coefficients of determination between indicators, reflecting the level of this threat, and integral indicators of budget security are determined.

The decomposition of sub-indexes of the budgetary security respective spheres and the calculation of the coefficients for determining the threat indicators and the integral index makes it possible to claim that in the present conditions, the maximal amount of the real threats to the state functioning is concentrated in the investment and innovation, production, demographic, energy and financial sectors of Ukraine's economic security.

There is a need for a more detailed study of the causes and factors of the impact on the level of budget security and its correlation with other components of economic security. In the course of the study, the correlation between the integrated estimate of budgetary security and the corresponding estimate of other types of security has been evaluated (Table 1).

The correlation relationship is a relationship between characteristics of socioeconomic phenomena, where the value of an effective characteristic,

apart from factor characteristic, is influenced by many other features that act in different directions simultaneously or sequentially <sup>208</sup>.

The correlation relationship can only be found in the form of a general trend when comparing factors on a mass scale <sup>209</sup>. When correlation is positive, the relationship between the values will be direct: if one value increases, the other one increases as well.

Table 1. Correlation relat	ionship between	budget security	and other types of
security			

Security Type	Correlation	Student's T-	Student's T-	Conclusion on
	Coefficient with	Test (Actual	Test (Table	the Existence
	Budget Security	Value)	Value)	of Correlation
Industrial Security	0,324050803	1,28164506	2,144786681	Insignificant
Demographic	-0,06939584	-0,260282947	2,144786681	Insignificant
Security	-0,06939584			
Energy Security	-0,30852344	-1,213591979	2,144786681	Insignificant
Foreign Economic	0,149021034	0,563881945	2,144786681	Insignificant
Security	0,149021034			
Investment and	0,794192997	4,890186458	2,144786681	Significant
Innovation Security	0,754152557			
Macroeconomic	0,233806979	0,899764348	2,144786681	Insignificant
Security	0,233000375	0,000704040	2,144700001	magnineant
Food Security	-0,455585348	-1,914917314	2,144786681	Insignificant
Social Security	-0,133418701	-0,503710357	2,144786681	Insignificant
Banking Security	0,537725262	2,386354735	2,144786681	Significant
Non-Bank Financial	0,587477823	2,716301731	2,144786681	Significant
Market Security	0,387477823	2,710301731	2,144700001	Significant
Debt Security	0,717705867	3,856427652	2,144786681	Significant
Budget Security	1	x	х	х
Currency Security	0,542539186	2,416573881	2,144786681	Significant

<sup>&</sup>lt;sup>208</sup> Onyshchenko S.V. Systemic interrelations of fiscal security in the conditions of financial globalization // Bulletin of the University of Dnipropetrovsk. Series: Innovation Management. - 2016. - Vol. 24, Issue 7. - S. 250-258.

<sup>&</sup>lt;sup>209</sup> The general concept of the correlation-regression analysis method. Statistical terminology.[Electronic resource] – Available at: http://credobooks.com/korelyacijnij-analiz-2.



#### ECONOMIC SECURITY AT RISK: FINDINGS FROM DIGITALIZATION OF THE NATIONAL ECONOMY

Monetary and Credit Security	-0,282834056	-1,103317865	2,144786681	Insignificant
Financial Security	0,775815952	4,600673282	2,144786681	Significant
Economic Security	0,528193908	2,32748238	2,144786681	Significant

University of Economy in Bydgoszcz, Publishing House

Source: calculated and designed by the authors

When correlation is negative, the relationship is reverse: an increase in one value is associated with a decrease in the other. The degree of correlation is measured with different relationship indicators. Such indicators are correlation coefficient, correlation ratio, etc. The correlation coefficient acquires values from -1 to 1. The closer it is to 1 in the absolute value, the stronger the correlation. If the correlation coefficient equals 0, then there is no linear correlation between the variables. In order to test the significance of the correlation coefficients, the Student's t-test has been used according to the formula (2):

$$t = r \sqrt{\frac{n-2}{1-r^2}},$$
 (2),

where *r* is the correlation coefficient, and *n* is the number of initial data.

If this value in absolute magnitude exceeds the critical (table) value, then the correlation coefficient is significant and one can speak about the existence of the correlation relationship.

It has been established that the level of budget security is substantially related to other security components, such as: investment and innovation security, banking security, non-bank financial market security, debt security, budget security, currency security, financial security and economic security.

The equation of linear regression for estimating budget security by other types of security has been constructed. For these equations, determination coefficients R2 have been established and graphs have been produced. The equation of pair linear regression takes the form  $\overline{y} = ax + b$  where  $\overline{y}$  is the average value of the effective indicator (estimate of budget security); *x* is the factor affecting *a* and *b*, which are regression coefficients. If a>0, then when

factor x increases, the estimate of budget security increases as well. If a<0, then factor x increases, and it decreases. To verify the adequacy of the equation, we establish the determination coefficient by the formula (3).

$$R^{2} = 1 - \frac{\sum (y_{i} - ax_{i} - b)^{2}}{\sum (y_{i} - \overline{y})^{2}}$$
(3),

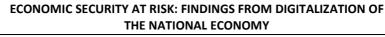
Where **y***i*is an estimation of budget safety in a i-year, **x***i*is an estimation of factor in a i-year; **y** is average meaning of the value of budget safety during these years. The nearer R2 to 1, the stronger connection is there between **x** and **y**. For the adequacy verification the Fisher's criterion is used. Thus, its actual value is calculated with formula (4)

$$F = \frac{R^2}{1 - R^2} (n - 2) \tag{4},$$

Where R is a coefficient of determination; n is an amount of initial data. If this value according to absolute value exceeds critical (tabular) one, then equalization is adequate.

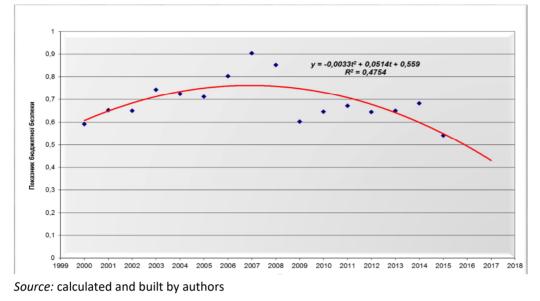
Equalizations that describe dependence of integral index of budget safety on the indicated factors are built. The dynamics of index of budgetary safety for 2000-2015 years are investigated and on the basis of these data the prognosis of this index for two years is done (pic. 3). A quadratic function (y = -0,0033t20,0514t 0,559) is used for a prognosis. A prognosis showed, in maintenance in the nearest years of present tendency in the dynamics of economic security indexes, budget strength security will be reduced.

It is determined that the integral index of the budget security strength has its fundamental connection with the estimations of investment and innovative, bank, safety of nonbanking financial market, money-and-credit, promissory, currency, financial and economic safety.





232



Direct dependence and the biggest influence on dissatisfaction budget strength security was entailed by fully dangerous currency and promissory strength securities, that in a complex with the increase of the external borrowing of government resulted with the increase of general national volume and assured by the state debt to the absolutely dangerous values, that strengthen default risks.

A digital economy, that opens new powerful possibilities for the state, society and citizens, has an important value in the system of providing of budget safety of Ukraine. The Cabinet of Ministers of Ukraine accepted Conception of Development of Digital Economy and Society of Ukraine for 2018-2020 and confirmed the plan of events in relation to its realization. The adoption of the digital economy of Ukraine will help to provide all constituents of national safety, including the budget safety of Ukraine, particularly through active and effective financial policy.

In the strategic planning, budget security is guaranteed only by a competitive economy, which can be built exclusively through the revival and accelerated development of promising sectors of the national economy under

sound budget policies. Instead, now there is a tendency to only take measures to stabilize the political and social and economic situation in Ukraine.

The major target strategic priorities while forming the directions for Ukraine budget security provision should be as follows: ensuring national security interests and implementation of national economic interests; ensuring credit worthiness, financial stability and keeping the balance of Ukrainian budget system; decreasing the state debt dependency; effective execution of the revenue and expenditure parts of the consolidated and state budget and public obligations; stimulating the development of budget-forming industries and strategically important enterprises.

The main task of the state financial policy in the context of strengthening budget security is to create such an economic, social, political and legal environment, and institutional support that would stimulate the balancing of the budget and tax process (Figure 4).

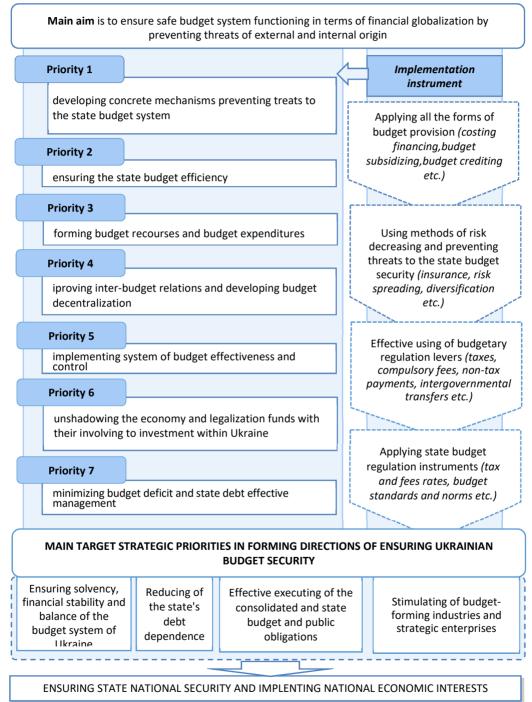
This process has to be followed by the realization of appropriate priorities for budget security strengthening, the most actual among which are the following:

- developing concrete mechanisms to prevent threats to the state budget system;
- ensuring the state budget efficiency;
- forming budget reserves and structuring budget expenditures;
- improving inter-budget relations and developing budget decentralization;
- implementing the budget effectiveness and control system;
- unshadowing the economy and funds legalization with their involving into investment within Ukraine;
- minimizing the state deficit, and state debt effective management.

System disproportions in the real sector of the national economy of Ukraine, underestimation of the role and value of development of the digital economy influence directly on the level of its competitiveness and state of budget safety.



## Figure 4. Strategic priorities for ensuring Ukrainian budget security



Source: compiled by the authors on the basis of research

**Conclusions.** The study made it possible to define a dominant role and place of budgetary security in the system of financial and economic security of the state. The modern paradigm of security science shows that security is the most important category and a prerequisite for a balanced functioning of the social relations system that provides protection from global challenges and threats.

At the present stage of security science development three basic conceptual approaches to the definition of budget security as an economic category have been formed. A system-forming element of budget security in the state is the state budget, which is a multi-dimensional concept. The budget as an instrument of state policy plays a key role in ensuring the socioeconomic development of the state and the realization of its national interests, in particular, the volume and structure of the revenue and expenditure parts of the budget affect the functioning of all economic sectors.

The statement of the theory of economic security as a complex polysystem phenomenon in terms of the essence, structure, characteristics and place of budget security as a dominant component of the financial security of the state, allowed using comparative and correlation-regression analysis to establish cause and effect relationships and to identify the main functional dependencies with all the components of the state economic security.

The strategic priorities are proposed, and the criteria of budget policy for strengthening budget security are defined, which envisages forming a favorable macroeconomic environment, development of the real sector of the economy, stability of state finances and creditworthiness of the state, and financial security of Ukraine.