

**Larysa Sidelnykova**E-mail: [larisa1907s@gmail.com](mailto:larisa1907s@gmail.com)

Doctor of Economics, Professor

Kherson National Technical University

Khmelnyskyi, Ukraine

**ORCID ID:** 0000-0001-7182-2923**Oksana Posadnieva**E-mail: [posadnevaoksana@gmail.com](mailto:posadnevaoksana@gmail.com)

PhD in Economics, Associate Professor

Kherson National Technical University

Khmelnyskyi, Ukraine

**ORCID ID:** 0000-0001-8721-5124

## **PROBLEMS OF ENSURING BUDGETARY SECURITY OF THE STATE DURING MARTIAL LAW**

**Abstract.** *The article examines the assessment of the budgetary security of the state in periods of macroeconomic shocks. The balance of the State Budget of Ukraine over the past 10 years is analyzed. A chronic deficit of the state budget are revealed. The main reasons for the budget deficit are given. It is noted that the chronic budget deficit is the main destructive factor that leads to a decrease in budget security. The place of budgetary security in the general economic security of the state is shown. The main indicators that characterize the level of budgetary security of the state are described. Special attention is paid to indicators that depend on the level of budget balance. The main reasons for the growth of the deficit during the previous destructive events in the Ukrainian economy and the factors that contributed to the growth of the deficit during the Russian-Ukrainian war are indicated. The main indicators of Ukraine's budgetary security over the past 10 years are analyzed. A significant deterioration of budgetary security indicators in 2022 is established. A significant decrease in the level of GDP in 2022 and its decisive impact on indicators of budgetary security are revealed. It is noted that the decrease in the level of budgetary security leads to a decrease in the level of debt security of the state. Forecast figures for certain budgetary security indicators are provided. The main directions for using budget funding for further strengthening of budgetary security are suggested.*

**Key words:** budget, deficit, budgetary security, budgetary security indicators, public debt.

**JEL classification:** H60, H61, H62, H68

**ლარისა სიდელნიკოვა**E-mail: [larisa1907s@gmail.com](mailto:larisa1907s@gmail.com)ეკონომიკის დოქტორი, პროფესორი  
ხერსონის ეროვნული ტექნიკური უნივერსიტეტი  
ხმელნიცკი, უკრაინა**ORCID ID: 0000-0001-7182-2923****ოქსანა პოსადნიევა**E-mail: [posadnevaoksana@gmail.com](mailto:posadnevaoksana@gmail.com)ეკონომიკის დოქტორი, ასოცირებული პროფესორი  
ხერსონის ეროვნული ტექნიკური უნივერსიტეტი  
ხმელნიცკი, უკრაინა**ORCID ID: 0000-0001-8721-5124**

## **სახელმწიფო საბიუჯეტო უსაფრთხოების უზრუნველყოფის პრობლემები საომარი მდგომარეობის დროს**

**აბსტრაქტი.** სტატიაში განხილულია სახელმწიფოს საბიუჯეტო უსაფრთხოების შეფასება მაკროეკონომიკური შოკების პერიოდებში. გაანალიზებულია უკრაინის სახელმწიფო ბიუჯეტის ბალანსი ბოლო 10 წლის განმავლობაში. გამოვლინდა სახელმწიფო ბიუჯეტის ქრონიკული დეფიციტი. მოცემულია ბიუჯეტის დეფიციტის ძირითადი მიზეზები. აღნიშნულია, რომ ბიუჯეტის ქრონიკული დეფიციტი არის მთავარი დესტრუქციული ფაქტორი, რომელიც იწვევს ბიუჯეტის უსაფრთხოების შემცირებას. ნაჩვენებია საბიუჯეტო უსაფრთხოების ადგილი სახელმწიფოს ზოგად ეკონომიკურ უსაფრთხოებაში. აღწერილია ძირითადი მაჩვენებლები, რომლებიც ახასიათებს სახელმწიფოს საბიუჯეტო უსაფრთხოების დონეს. განსაკუთრებული ყურადღება ეთმობა ინდიკატორებს, რომლებიც დამოკიდებულია ბიუჯეტის ბალანსის დონეზე. მითითებულია უკრაინის ეკონომიკაში წინა დესტრუქციული მოვლენების დროს დეფიციტის ზრდის ძირითადი მიზეზები და ფაქტორები, რომლებმაც ხელი შეუწყო დეფიციტის ზრდას რუსეთ-უკრაინის ომის დროს. გაანალიზებულია უკრაინის საბიუჯეტო უსაფრთხოების ძირითადი მაჩვენებლები ბოლო 10 წლის განმავლობაში. დადგენილია საბიუჯეტო უსაფრთხოების მაჩვენებლების მნიშვნელოვანი გაუარესება 2022 წელს. 2022 წელს მშპ-ს დონის მნიშვნელოვანი შემცირება და მისი გადამწყვეტი გავლენა საბიუჯეტო უსაფრთხოების მაჩვენებლებზე ვლინდება. აღნიშნულია, რომ საბიუჯეტო უზრუნველყოფის დონის შემცირება იწვევს სახელმწიფოს სავალდებულო უზრუნველყოფის დონის შემცირებას. მოცემულია საპროგნოზო მაჩვენებლები საბიუჯეტო უსაფრთხოების გარკვეული ინდიკატორებისთვის. შემოთავაზებულია საბიუჯეტო დაფინანსების გამოყენების ძირითადი მიმართულებები საბიუჯეტო უსაფრთხოების შემდგომი გაძლიერებისათვის.

**საკვანძო სიტყვები:** ბიუჯეტი, დეფიციტი, საბიუჯეტო უზრუნველყოფა, ბიუჯეტის უსაფრთხოების მაჩვენებლები, სახელმწიფო ვალი

**JEL კლასიფიკაცია:** H60, H61, H62, H68

## **Introduction and review of literature**

Aspects of budget security are relevant for many countries of the world, because it is the key to stable economic development of the state and ensuring investment attractiveness, and is also the basis for the state's debt security. A review of foreign scientific publications shows a lack of direct research on the issue of budget security. However, the basic foundations of the development of the budget system and ways of ensuring budget stability were formed by such well-known economists as: E. Atkinson, K. Arrow, R. Kelly, A. Pigou, J. Stiglitz and others. Due to the relevance of this vector of research for Ukraine, many Ukrainian scientists investigated the problem of strengthening budget security, namely: O. Vlasjuk [1], O. Horalko, O. Gorayska [2], L. Zveruk [3], M. Petrychko [4], S. Svirko, A. Dykiy, O. Dyka, T. Trosenyuk [5], S. Frolov, O. Kozmenko, A. Boyko [6], and others. A special contribution to the development of the conceptual apparatus of budgetary security and the possibility of its mathematical measurement was made by a group of Ukrainian scientists under the leadership of the corresponding member of the National Academy of Sciences of Ukraine O. Vlasjuk [1]. This group of scientists developed the first legally enshrined approaches to the definition of budgetary security, which were subsequently established by the Order of the Ministry of Economic Development and Trade of Ukraine dated 10.29.2013 No. 1277 "On the approval of Methodological recommendations for calculating the level of economic security of Ukraine" [7].

The issue of improving the practice of balancing the State Budget of Ukraine has always been relevant in terms of the presence of a chronic budget deficit throughout the years of independence. This issue is especially acute during the full-scale military invasion of the Russian Federation into the territory of independent Ukraine. A significant reduction in the real GDP, a decrease in the employment, the destruction of the production infrastructure, and the occupation of 20% of the territory led to significant shortfalls in revenues to the budgets of all levels. Such shortfalls of funds inevitably lead to a forced reduction in expenditures, which is unacceptable during military operations, since defense expenditures increase several times, at the same time, social expenditures also escalate, due to an increase in the number of the population in need of social assistance. Currently, it is especially important to study the budgetary security of the country and outline the prospects for its provision in modern conditions, in particular, in conditions of war.

At this stage of the functioning of the Ukrainian economy, it is important to study the budgetary security indicators of the state and determine their trends in order to solve the problem of overcoming the negative economic consequences caused by the full-scale military invasion of the Russian Federation into the territory of Ukraine.

## **Methodology**

The theoretical basis of the research is scientific publications in the field of economic, financial and budgetary security. The research is based on the assumption of a significant impact of budget security on further socio-economic development and debt dependence of the state.

The research methodology is based on the use of general scientific and special methods of cognition. The empirical method was used in the process of collecting information for analyzing the dynamics of budget indicators. The analytical method was used in the process of mathematical and analytical processing of statistical and financial indicators. The coefficient method was used to calculate debt security indicators. The methods of synthesis and comparison were used to summarize and compare indicators of budget security over the past 10 years. A modeling method was used to assess forecast data on the budget deficit and GDP. Systematization and logic methods were used in the process of summarizing research results and developing proposals for the further use of budget financing sources to ensure economic development and improve the state of budget security.

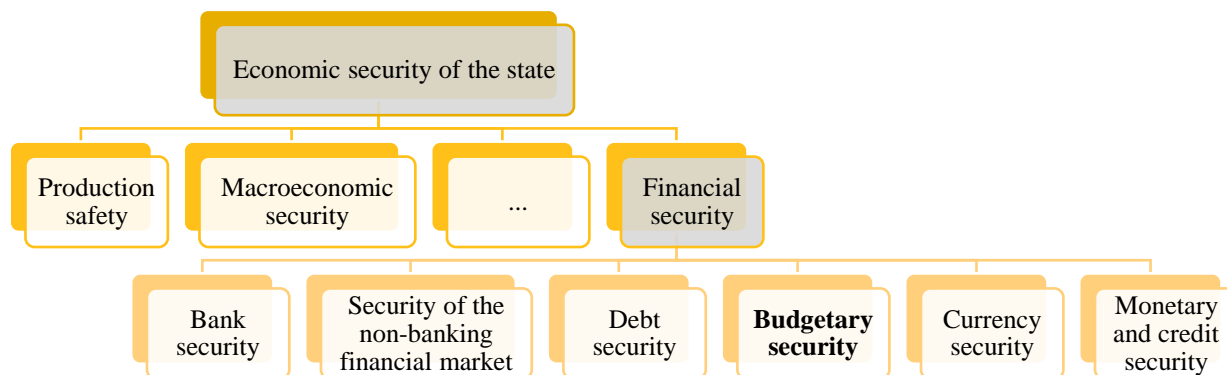
## Results

The balance, optimality, and stability of the state budget determine the rate of economic growth of the state, the effectiveness of the functioning of public authorities, and the quality of public services provided. Ensuring sustainable economic development or recovery from macroeconomic crises is possible only under the condition of ensuring stable budgetary security of the state. The issues related to budgetary security are always relevant for all countries of the world. They are especially important during certain destructive events that occur in the country and directly affect the condition of funding of budgets at all levels. Budgetary security is influenced by numerous factors that play a positive or negative role in ensuring the fulfillment of social and economic tasks assigned to the state.

Budgetary security as an important factor of socio-economic development of the state is a kind of indicator and criterion of the effectiveness of its fiscal policy and the organization of the budgetary process. From an economic point of view, budgetary security expresses the ability of the state to perform its own functions and tasks with the help of the budget, as well as to satisfy the needs of taxpayers and recipients of budget funds taking into account public interests [6].

Considering budgetary security as a component of the financial security of the state, it can be argued that its condition through financial security has an impact on the economic security of the country as a whole (Figure 1).

Figure 1. Components of economic security of the state

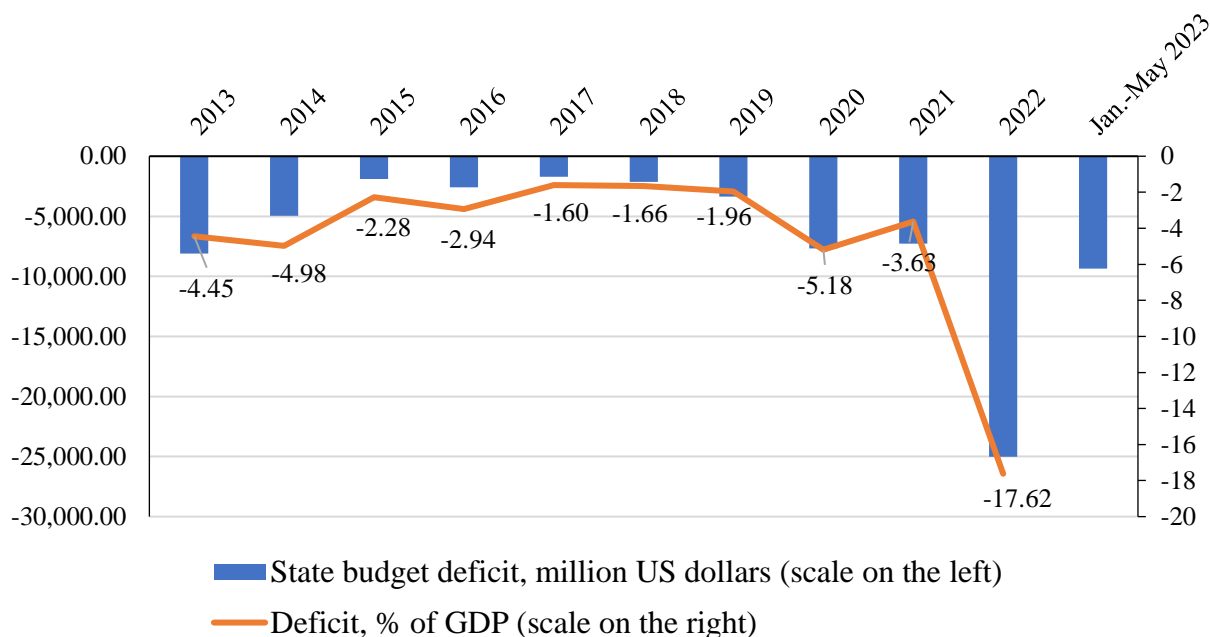


Source: Methodological recommendations for calculating the level of economic security of Ukraine [7]

In the conditions of martial law and in view of the prospects of future economic transformations, there is a need for a detailed study of the budget balance to ensure economic stability and development of the state. The long-term lack of revenues in the State Budget of Ukraine is caused by a number of economic and political factors, which in turn led to a decrease in the importance of revenues as a macroeconomic regulator in the economic system of the state. Balancing the budget is important, since a long-term deficit leads to a decrease in the economic potential of any country. Ukraine has a chronic budget deficit, which significantly increased during the war (Figure 2).

Figure 2 shows that over the past 10 years, Ukraine has had a fairly significant budget deficit, both in nominal terms and as a percentage of GDP. Herewith, if after the "revolution of dignity" in 2014 and the first act of the Russian Federation's invasion into the territory of Ukraine and the occupation of several regions, the deficit was curbed and its total amount reduced, the economic crisis of 2020 caused by the COVID-19 pandemic and a full-scale invasion of Russia in 2022 caused a significant increase in the deficit and put the State Budget of Ukraine in complete dependence on external donors.

Figure 2. Deficit of the State Budget of Ukraine in 2013-2023



Source: Ministry of Finance of Ukraine [8]

Such condition of the budget negatively affects the budgetary security of the state.

In the scientific literature, there exist numerous methods of assessing the budgetary security of the state, but this study applies the method of assessment described in the Methodological recommendations for calculating the level of economic security of Ukraine, approved by the Ministry of Economic Development and Trade of Ukraine [7]. According to this methodology, the following indicators are used to assess the budgetary security of the state (Table 1).

Table 1. Indicators of the state budgetary security

The name of the indicator	The value of the indicator									
	$X^L_{critic.}$	$X^L_{dang.}$	$X^L_{unsatisf.}$	$X^L_{satisf.}$	$X^L_{opt.}$	$X^R_{opt.}$	$X^R_{satisf.}$	$X^R_{unsatisf.}$	$X^R_{dang.}$	$X^R_{critic.}$
Ratio of the state budget deficit/surplus to GDP, %	-6	-5	-4	-3	-2	3	5	6	8	10
Deficit/surplus of budgetary and extra-budgetary funds of the general government sector, % to GDP	-3	-2	-1	-1	0	0	1	2	3	5
Level of GDP redistribution through the consolidated budget, %	18	19	20	23	25	28	30	33	35	37
Ratio of the volume of aggregate payments for servicing and repayment of the public debt to state budget revenues, %	-	-	-	-	-	6	7	10	13	16

Source: Methodological recommendations for calculating the level of economic security of Ukraine [7]

In the study, we focus on the last 10 years, which caused significant macroeconomic shocks to Ukraine. The first shock was the occupation of Ukrainian territories, including those that brought significant fiscal revenues to the Ukrainian budget (Donetsk and Luhansk regions), the suspension of foreign trade with Russia, and the military conflict on the territory of Ukraine in 2014. The second shock was the economic crisis caused by the COVID-19 pandemic in 2020-2021. The third, most powerful shock was the full-scale military aggression of the Russian Federation against Ukraine in 2022. All these destructive events contributed to the growth of the budget deficit and, as a result, the growth of the public debt.

The study of the main indicators of Ukraine's budgetary security over the past 10 years makes it possible to assess the impact of all these destructive events on the budget system of Ukraine (Table 2).

Table 2. Budgetary security of Ukraine in 2013-2022

The name of the indicator	Critical value	Value of the indicator by years									
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Ratio of the state budget deficit/surplus to GDP, %	-6 (10)	-4.45	-4.98	-2.28	-2.94	-1.6	-1.66	-1.96	-5.18	-3.63	<b>-17.62</b>
Deficit/surplus of budgetary and extra-budgetary funds of the general government sector, % to GDP	-3 (5)	-0.05	0.23	0.11	-0.13	-0.03	0.21	0.01	0.31	-1.14	-2.76
Level of GDP redistribution through the consolidated budget, %	37	30.43	29.11	32.94	32.84	34.09	33.28	32.45	32.82	30.45	<b>42.31</b>
Ratio of the volume of aggregate payments for servicing and repayment of the public debt to state budget revenues, %	16	<b>33.85</b>	<b>48.11</b>	<b>47.15</b>	<b>33.88</b>	<b>59.88</b>	<b>37.84</b>	<b>46.74</b>	<b>47.57</b>	<b>45.63</b>	<b>33.94</b>

Sources: Ministry of Finance of Ukraine, State Statistics Service of Ukraine [8; 9]

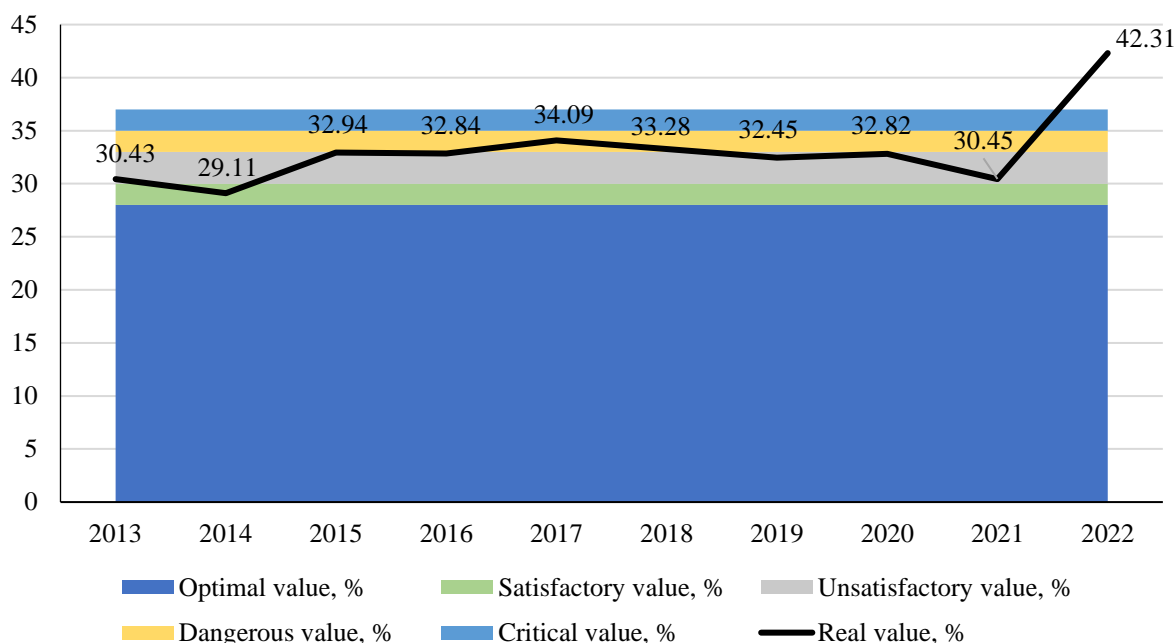
Table 2 shows that in 2022 the value of all indicators of the budgetary security of the state deteriorated dramatically. The first indicator (the ratio of the state budget deficit to GDP) exceeded the critical value by 3 times. However, two years before that, it also had either a dangerous or a critical meaning. The second indicator (the ratio of deficit/surplus of budgetary and extra-budgetary funds of the general government sector to GDP) mostly had an optimal value throughout the studied period, but in 2022 it increased sharply and is already of critical importance. This trend indicates the increase in the unprofitability of state funds other than budgets, which was a consequence of military actions on the territory of the state. The third indicator (the level of GDP redistribution through the consolidated budget) during the entire studied period mostly had a satisfactory or unsatisfactory value, but in 2022 its amount exceeded the critical value for the first time, which indicates a significant dependence of the gross domestic product created in the country on budget revenues (Figure 3).

Figure 3 shows that the indicator of GDP redistribution through the consolidated budget over the past 10 years has never had an optimal value. This situation indicates that too little gross domestic product is produced in Ukraine, so budget revenues are its main component. Given this, it can be concluded that



Ukraine needs to work on increasing GDP in the future in order to achieve the optimal value of GDP redistribution through the consolidated budget.

Figure 3. Redistribution of GDP through the Consolidated Budget of Ukraine in 2013-2023, %



Source: Ministry of Finance of Ukraine [8]

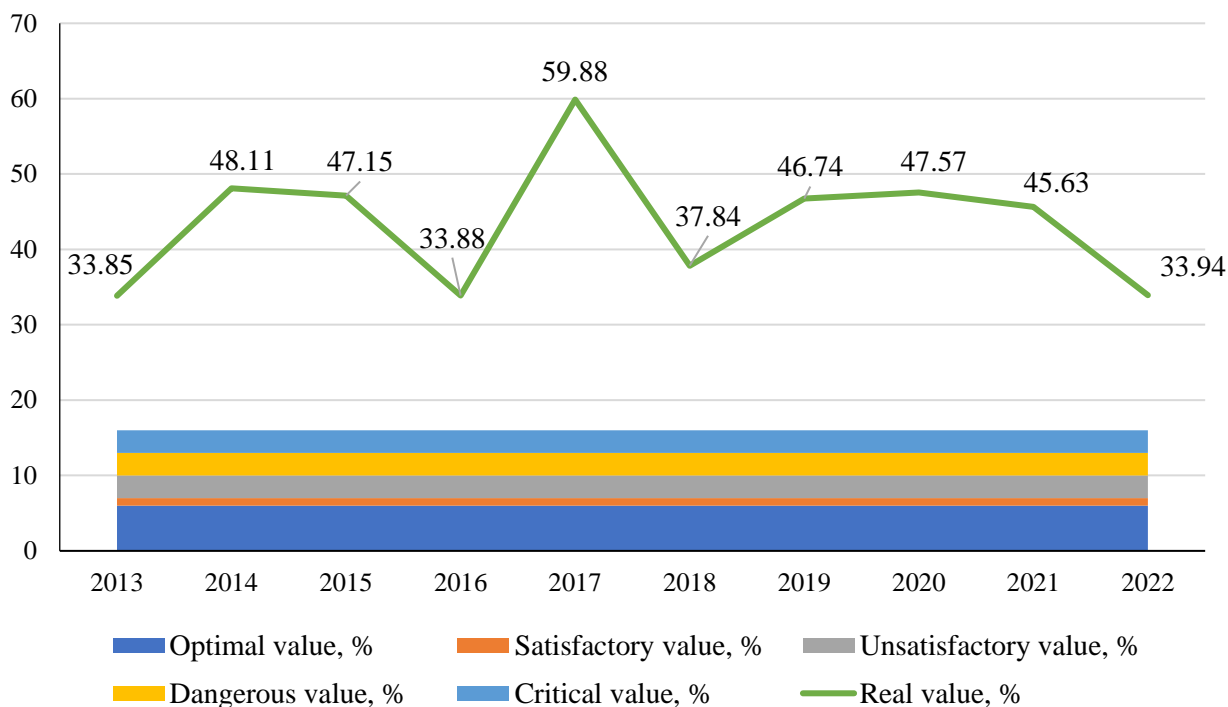
The data given in Table 2 suggest that the most problematic indicator of Ukraine's budgetary security is the ratio of the volume of aggregate payments for servicing and repayment of the public debt to state budget revenues. For all the years of the study, the value of this indicator has been worse than critical (Figure 4).

Figure 4 shows that the debt dependence of the State Budget of Ukraine is quite high. Over the past 10 years, the indicator of the ratio of the volume of aggregate payments for servicing and repayment of the public debt to the revenues of the state budget not only has not had an optimal value, but has also exceeded the critical value many times over. This situation indicates rather low revenues of the state budget, while budget expenditures are not being optimized and the debt dependence of the budget is increasing. This trend for the budget of Ukraine is stable. It is not related to the war that started in 2022. The Ukrainian budget has the following chronic problems:

- poor planning of the indicators of the budget revenues. Very often, in order to artificially understate the budget deficit when drawing up the budget for the previous year, revenue indicators are slightly overestimated, although in order to ensure budget stability and reduce debt dependence, the correct decision for the government would be to ensure the optimization of expenditures;
- "political" factors related to the adoption of populist decisions regarding the increase of social standards and expenditures for certain types of economic activity in the period preceding the parliamentary and presidential elections;
- significant growth of shadow economy, tax evasion and withdrawal of funds to offshore zones;
- lack of incentives for technological transformation of the economy and creation of innovative activities that would provide higher profits and, as a result, would pay more taxes;

- insufficient level of decentralization of the economy. Many local budgets depend on subsidies from the state budget, which creates an additional burden on the central budget and reduces its revenues.

Figure 4. The ratio of the volume of aggregate payments for servicing and repayment of the public debt to the revenues of the State Budget of Ukraine in 2013-2023, %



Source: Ministry of Finance of Ukraine [8]

All the factors listed above led to Ukraine's significant debt dependence on external and internal creditors. Despite the fact that the indicator of the ratio of the volume of aggregate payments for servicing and repayment of the public debt to state budget revenues in 2022 decreased compared to the previous year, this does not indicate a decrease in debt dependence. In 2022, the debt dependence of the budget, on the contrary, increased, because military actions on the territory of Ukraine require an increase in budget expenditures for defense and for social support of vulnerable segments of the population, while tax and non-tax revenues of the budget decreased. The formal reduction of this indicator occurred due to the increase in budget revenues. However, these revenues did not come to the budget from internal sources. Ukraine received additional revenues from external donors (the European Union and the USA) in the form of grants. In addition, in 2022, Ukraine was granted significant amounts of credit funds that are to be repaid in the future, and therefore, the country's debt dependence will continue to grow.

Furthermore, the negative indicators of budgetary security, which significantly worsened in 2022, were influenced by the following factors:

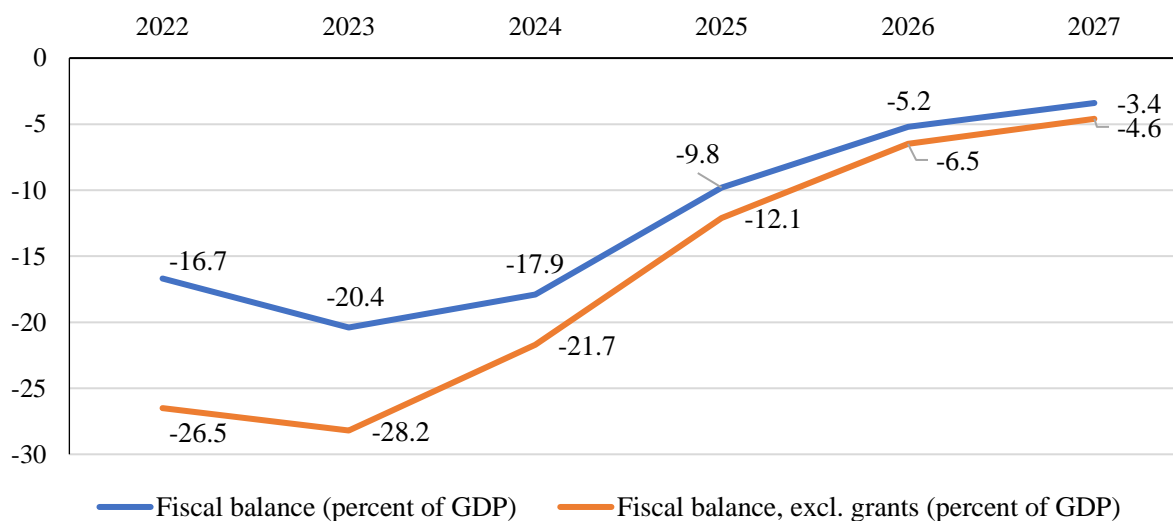
- the suspension of all foreign economic transactions across sections of the Ukrainian-Russian and Ukrainian-Belarusian borders, including transit operations, complete halting of air transportation and the blocking of seaport operation, which, according to the State Statistics Committee, resulted in a drop in the volume of imports and exports of goods by 24.1% and 35.1% respectively compared to 2021 [9];
- significant drop in the economy and business activity of taxpayers;
- large-scale population migration both within and outside of Ukraine;
- destruction of oil refineries, metallurgical plants, infrastructure and energy facilities;



- granting the right to individual entrepreneurs and legal entities to switch to a simplified system of taxation, accounting and reporting with the payment of a flat tax at the rate of 2%, which reduced both state and local budget revenues;
- temporary introduction of the VAT rate of 7% and reduction of the excise tax rate on the main types of fuel;
- temporary exemption in April and June from the payment of customs duties on vehicles imported by citizens, as well as import duties on goods imported by enterprises;
- exemption from taxation of the transactions involving the importation of defense goods into the customs territory of Ukraine;
- reduction of income from rent for the use of subsoil for natural gas extraction: introduction of differentiated rates; temporary determination of tax liabilities based on the amounts of natural gas that were sold, not extracted; changing the approach to determining the actual sale price of natural gas for calculating tax liabilities;
- increase in the monetary support of military personnel [10].

All these factors led to a shortfall in significant amount of planned funds to be received by the state budget, the increase in the budget deficit and the budget's dependence on external donors. The uncertainty of the end terms of the war, the future condition of the country's economy and economic potential after the end of hostilities also makes it impossible to provide a reliable forecast of the budgetary security of Ukraine and to determine the ways out of the economic crisis. The International Monetary Fund does not give optimistic forecasts regarding the balance of the budget of Ukraine in the coming years (Figure 5).

Figure 5. IMF forecast regarding the ratio of Ukraine's budget deficit to GDP in 2022-2023, %



Source: International Monetary Fund [11, p. 5]

Figure 5 shows that the IMF gives a disappointing forecast for the first indicator of the country's budgetary security. According to this forecast, Ukraine, provided it receives external grants, will reach the critical level of budgetary security based on the budget deficit indicator only in 2026. If Ukraine does not receive external grants for covering budget expenditures, then in 2027 it will reach an unsatisfactory level of budgetary security. In any of these cases, the public debt will grow and, in 2024, it will reach

105% of GDP [11, p. 5]. Therefore, the problem of debt security of the country is currently even greater than the problem of budgetary security. According to IMF forecasts, positive dynamics in reducing the budget deficit and public debt are expected only starting from 2025. Despite this dynamic, the long-term continuation of military operations on the territory of Ukraine may nullify the expected positive developments.

## Conclusions

The findings of the study show that in 2022 the budgetary security of Ukraine has significantly worsened, mostly due to the war on the territory of the state. However, in previous years, the condition of the budgetary security was also not satisfactory. Significant volumes of the budget deficit, low level of GDP, lack of the structural transformation of the economy led to a critical level of the budgetary security. Moreover, the poor planning of budget revenues led to the growth of the budget deficit during the budget year, which, in turn, prompted the need to attract credit funds to cover this deficit on the terms unfavorable for the state. However, at the current stage of development of the Ukrainian economy, it is impossible to abandon external borrowing. During the war and in the first post-war years, the state will need enormous resources to rebuild the industrial and social infrastructure, restore production assets and the housing stock, and provide access to social and medical services. Therefore, external loans and grants will become a necessary condition for ensuring the viability of Ukraine. Considering this, Ukraine needs to continue fruitful cooperation with European and American partners. However, the priority in using the raised funds after the end of the war should be the creation of a sustainable energy-efficient and inclusive infrastructure, stimulating the development of competitive industry and improving the quality of human capital. Under the condition of building a competitive economy, the budgetary security of the state will be restored. In case of the irrational use of the funds raised, Ukraine will appear in a situation where debts will grow, and external and internal creditors will bear too great risks, which will significantly reduce the amount of financing and lead to an acute economic and political crisis.

Therefore, the main priority in future economic reforms should be the rational use of internal and external sources of budget financing for the structural and innovative transformation of the economy, which will ultimately allow reducing the debt burden and balancing the budget.

## References

1. Vlasjuk, O. S. (2008). *Theory and practice of economic security in the system of economic science*. Kyiv: National Institute of International Security Problems [in Ukrainian].
2. Ghorajko, O. V., Ghorajka, O.V. (2013). The budget component of the financial security system. *Scientific bulletin of the NFU of Ukraine*, 23.1, 230-237 [in Ukrainian].
3. Zveruk, L. A., Bilyk, O. Gh. (2017). Budget security as an important priority for the development of the budget system of Ukraine. *Interscience. Series "Economic Sciences"*, 2, 35-39 [in Ukrainian].
4. Petrychko M. M. (2015). Assessment of the level of budgetary security of Ukraine: problems and solutions. *Economic space*, 97, 140-148 [in Ukrainian].
5. Svirko S., Dykyi A., Dyka O., Trosteniuk T. (2022). Budget security as a dynamic determinant of the socio-economic development of Ukraine. *Financial and credit activities: problems of theory and practice*, 6(47), 280-293 [in Ukrainian].
6. Frolov, S. M., Kozmenko, O. V., Boiko, A. O. et al. (2015). *Management of financial security of economic entities*. Sumy: SIHE «UAB NBU» [in Ukrainian].
7. Ministry of Economic Development (2013). Order "About the approval of methodical recommendations about calculation of level of economic security of Ukraine", available at: <https://zakon.rada.gov.ua/rada/show/v1277731-13#Text> (Accessed 25 July 2023).
8. Ministry of Finance of Ukraine (2023). "State budget of Ukraine", available at:

<https://index.minfin.com.ua/ua/finance/budget/gov/> (Accessed 23 July 2023).

9. State Statistics Service of Ukraine (2023). “Operations of the general public administration sector”, available at: [https://ukrstat.gov.ua/imf/arhiv/oszdu\\_86\\_u.htm](https://ukrstat.gov.ua/imf/arhiv/oszdu_86_u.htm) (Accessed 25 July 2023).

10. Ministry of Finance of Ukraine (2023). “Information from the Ministry of Finance of Ukraine on the implementation of the State Budget of Ukraine for 2022”, available at: [https://mof.gov.ua/uk/budget\\_2022-538](https://mof.gov.ua/uk/budget_2022-538) (Accessed 26 July 2023).

11. International Monetary Fund (2023). “Ukraine: Selected Economic and Social Indicators, 2021-27”, available at: <https://www.imf.org/-/media/Files/Publications/CR/2023/English/1UKREA2023001.ashx> (Accessed 26 July 2023).