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STATE BUDGET IN THE CONTEXT OF A WARTIME ECONOMY AND POST-WAR TRIGGERS FOR ITS RECOVERY

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Abstract. The *purpose of this study* is to systematically analyse the functioning of the state budget of Ukraine in the context of the war economy and identify the key triggers of its post-war recovery. The article discusses the current challenges associated with the transformation of the structure of budget expenditures, a significant budget deficit, rising public debt and the need to attract international financial assistance. The wartime period for public finances is characterised by a significant shift in priorities, with the focus on security and defence forces, social support and the restoration of critical infrastructure. This reallocation of resources is a response to the unprecedented challenges faced by the state, but it creates additional risks to financial sustainability in the medium and long term, creating uncertainty about the triggers for post-war economic recovery from the consequences of the Russian-Ukrainian war. The *main methods of the study* are: quantitative analysis of economic and financial indicators of Ukraine and comparative analysis with other countries that have faced military conflicts. It is determined that the key barriers are the lack of domestic financial resources, high level of external debt and significant debt service costs. The impact of international financial assistance on ensuring macroeconomic stability and prospects for improving the efficiency of its use for resource support for economic recovery are also investigated. The qualitative analysis identified the main social and economic factors that influence the structure of the State Budget in the context of the Russian-Ukrainian war, including demographic changes, internal displacement of the population, the need to support veterans, and other previously unknown or insignificant factors that were inert in the pre-war period. Based on the *results of the study,* the author proposes a strategic context of triggers for the modernisation of public finances, including: further optimisation of the expenditure structure, improvement of the efficiency of budgetary resources management, introduction of innovative approaches to tax policy, and ensuring transparency in the use of international financial assistance. Particular attention is paid to the adaptation of international experience to Ukrainian realities, including the introduction of mechanisms for monitoring and evaluating the effectiveness of public spending. The practical significance of the study lies in the development of recommendations for improving the efficiency of public budget management in difficult economic conditions. It is determined that post-war reconstruction requires not only financial resources, but also the consolidation of efforts of the government, international partners and civil society. The main challenge is to strike a balance between the short-term needs to finance the security and defence forces and social protection and the long-term goals of sustainable development, which is becoming more inclusive. The authors propose an approach that combines rapid response to wartime challenges with laying the foundations for inclusive economic growth in the future. It is *concluded* that public finances are a key instrument for economic resilience during war and the basis for its post-war recovery. In particular, strategic management of budgetary resources will minimise the impact of external shocks, promote the development of domestic markets and ensure social stability. Further research in this area will contribute to the development of effective financial planning mechanisms adapted to Ukraine's current challenges and needs. It was also found that the war economy has significantly transformed the structure of Ukraine's state budget, directing major resources to defence and social support, which has led to unprecedented spending growth and budget deficits. At the same time, a sharp increase in public debt, including external debt, has highlighted the country's dependence on international assistance. In the post-war period, economic recovery

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will largely depend on investments in infrastructure reconstruction, which can become a driver of economic growth and job creation. Achieving financial sustainability requires comprehensive reforms of public financial management, effective use of international support, and stimulation of long-term economic development. In addition, the article emphasises the importance of promoting the use of the frozen assets of the aggressor country, which can become a source of financing for the restoration of Ukraine's infrastructure, helping to reduce the debt burden. The authors highlight the need for further research and integration of international experience in the field of financial stabilisation and development of an inclusive economy, which will help Ukraine to cope with the challenges of post-war recovery.

Keywords: state budget, public finance, post-war recovery, consolidated budget expenditures, total public debt.

JEL Classification: H60, H61, H62

1. Introduction

The war in Ukraine has caused profound transformations in the functioning of the state budget and the country's financial system. The growing need to finance defence capabilities, support socially vulnerable groups of the population, and restore critical infrastructure has put an unprecedented strain on public finances. Under these conditions, the state budget has become a key instrument of anti-crisis policy aimed at stabilising the economy and ensuring the resilience of Ukrainian society in general and economic policy in particular. However, significant challenges related to the growing budget deficit, public debt and dependence on external assistance require a systematic approach to reforming the public finance management system. The issue of optimising the structure of budget expenditures is particularly important, as the current situation requires reallocation of resources to finance new priorities, such as military security, social assistance, support for displaced persons and programmes to support economic activity. The issues of transparency and accountability in the use of budgetary resources remain relevant, which is the key to effective public finance management in the crisis period caused by the Russian-Ukrainian war. In addition, the post-war period will require not only economic recovery but also the creation of conditions for long-term sustainable development, the inertia of which begins with the basic triggers of post-war recovery. In this context, the state budget should play a central role, ensuring a balance between short-term anti-crisis measures and strategic investments in infrastructure development, inclusive economy and innovation. Thus, studying the mechanisms of adaptation of the state budget to wartime challenges and developing recommendations for their optimisation are extremely important for Ukraine. The purpose of this study is to analyse the transformational changes in the state budget of Ukraine in the conditions of the war economy and to identify the key areas of economic recovery in the post-war period. Particular attention is paid to the issues of efficient use of budgetary resources, ensuring financial sustainability and introducing innovative approaches to public finance management. To achieve the aim of the study, the following tasks are envisaged: to analyse the structure of budget expenditures of Ukraine in the wartime period, in particular, their transformation under the influence of new military priorities; to assess the level of budget deficit and public debt, as well as to determine their impact on the financial stability of the country; to study the role of international financial assistance in ensuring the stability of public finances; to develop recommendations for optimising the management of budgetary resources in the post-war period. The main empirical data for this study include: statistical data published by the State Treasury of Ukraine, the State Statistics Service of Ukraine, the Ministry of Finance of Ukraine and the National Bank of Ukraine, as well as reports of international organisations such as the International Monetary Fund, the World Bank and the European Bank for Reconstruction and Development. The results of a quantitative analysis of economic and financial indicators of Ukraine's development in comparison with other countries that have experienced and/or are experiencing military conflicts are used. In addition, the authors analyse the legislative and regulatory acts governing the functioning of the budget system and public financial management system in the context of the crisis. It is expected that the results will help to identify the best ways of post-war economic recovery and reform of Ukraine's budget policy aimed at ensuring its financial stability and sustainable development, taking into account the chosen European integration model.

2. Analysis of Literature Data

The issues of the state budget in general and during the period of economic instability and financial crisis, in particular, are widely studied by many foreign and Ukrainian financial scientists who have proved that it is in such conditions that the state budget becomes a key instrument of anti-crisis policy, which ensures, on the one hand, the invincibility of the chosen social vector of development, and on the other hand, adapts the economic policy of the state to the new socio-economic normality of its functioning. In order to identify these patterns, the ontogeny of the expenditure structure is studied, in particular, in terms of redistribution of resources between the social (including programmes to support the activity of economic agents and their reorientation to the needs of the security and defence forces) and military parts of the state budget. In addition, it is proved that with the growth of the budget deficit to cover immediate expenditure needs, the crisis period is mainly extended and additional uncertainty is created in the needs of the security and defence forces, and the fiscal potential of the state budget is reduced.

Another important area is the analysis of debt indicators, in particular, the level of public debt and its ratio to GDP, as well as debt service costs. An increase in the debt burden in a crisis can pose long-term risks to the sustainability of public finances and fail to provide resources for the triggers of post-war economic recovery in the timeframe required.

The study of the impact of these indicators, such as deficit, debt and expenditure structure, makes it possible to assess their complex impact on macroeconomic stability, investment climate and quality of life in all its manifestations. In this context, it is particularly important to continue to find a balance between fiscal sustainability and economic stimulus programmes, including in terms of inclusion and comprehensive post-war reconstruction. For Ukraine, this is of particular importance due to the ongoing economic challenges caused by both internal and external factors, including military operations, the energy and social crisis, global economic turbulence, uncertainty about the behavioural model of allied countries in supporting Ukraine's state budget balance and providing military assistance.

Thus, the study of the state budget in times of crisis is an important area that contributes to the formation of effective management decisions aimed at ensuring the sustainability of public finances, inclusive and comprehensive post-war economic recovery.

For example, Simla Güzel and Işın Kirişkan Çetin (2016) study the impact of global economic crises and public finance efficiency based on the typology of the EU experience. As a result of regression analysis and other econometric approaches, they proved that high public budget expenditures did not have a positive impact on economic dynamics and in some cases acted as a deterrent to economic reconstruction.

In turn, Marta Rodríguez-Vives and Hans Olsson (2023) studied the impact of Eurozone public budget expenditures on overcoming the consequences of the pandemic crisis, in particular during the period of the COVID-19 virus and the restrictions imposed on the activities of economic agents.

Also, representatives of the International Monetary Fund Kerstin Gerling, Paulo A Medas et al. (2017) thoroughly studied the fiscal crisis and proved that procyclical fiscal policy (spending cuts in proportion to the decline in economic activity) is mainly used to overcome crises. They proved that the decline in economic growth is exacerbated if it is accompanied by a financial crisis and usually leads to the entrenchment of the effect of economic stagnation.

Another important study is Ahmad Danu Prasetyo nf Ubaidillah Zuhdi (2013), which examines the interactions and interdependencies of budget expenditures and human development in 81 countries. For this purpose, they studied the level of efficiency of budget expenditures in each country in the areas of healthcare, education, transfers and subsidies, taking into account the progress achieved in human development indicators.

It is also worth noting the works (James R. Brown, 2021; Luis Carranza-Ugarte, 2023; Ablam Estel Apeti, 2024; Giovanna Ciaffi, 2024; Prayoga, 2022), which are focused on the study of public lending through the prism of the crisis' impact on economic activity, ontogeny in programming fiscal rules to overcome crisis phenomena and rethinking the theory of public expenditure budgeting.

However, the above studies do not take into account and at the same time dissonate the well-established theoretical and practical set of consequences of the war's impact on public finances and the relevance of the measures taken to overcome the post-war crisis.

Ukrainian scholars also deal with the state budget and its role in the periods of Ukraine's independence, including those that were recognised as crises. For example, Storonyanska, Benovska, Ivashko (2024) examines the issue of public spending during the period of wartime economy, when budget expenditures increase aggregate demand and stimulate aggregate economic growth.

The vast majority of studies point out the problem of the state budget deficit in Ukraine and propose ways to solve it, in particular, they prove a close relationship between the size of the budget deficit and the public debt, where: the budget deficit increases the public debt, and the growth of the debt, in turn, requires additional budget expenditures for its servicing, thereby increasing the budget deficit (Yaniv, Zinchenko, 2016). Given this, it is also worth noting the most highly rated recent works by T. Bogdan, O. Yermolenko and other studies (Bogdan, 2013; Yermolenko, Kokovikhina, Lysonkova, 2023; Bogdan, 2024), which are devoted to the study of the peculiarities of debt formation and debt management in modern conditions, as well as raise the issue of debt sustainability both in the conditions of a war economy and in the process of post-war recovery. In particular, in the works (Uniyat and Yuzvin, 2019; Kindzerskyi, 2022; Sharov, 2015; Humeniuk, 2022; Petrukha et al., 2024; Bogdan, 2024; Petrukha, Klymenko, Petrukha, 2024), the issues were studied in addition to the above:

– Economic inclusion as a component of the system of modernisation of public finances and triggers of post-war recovery;
– post-war recovery of Ukraine's real economy, taking into account demographics and quality of life issues;
– foreign experience of post-war transformation of public finances and modernisation of economic policy, taking into account the needs for economic resilience, including the ability to ensure the adaptability of veterans (participants in military conflicts) to do business both during the Russian-Ukrainian war and during the formation of triggers for post-war recovery.

The existing literature provides a broad overview of trends in the state budget and public finance, which helps to form an idea of the key challenges and opportunities facing countries in difficult periods, in particular in the context of meeting the needs of the war economy and post-war recovery.

At the same time, an analysis of these sources reveals certain gaps in the study of radical changes in the structure of public finance and budget during the war and post-war period. In particular, they emphasise insufficient attention to the specifics of the Ukrainian context, where the impact of military operations and the need for rapid recovery create unique challenges and require the development of new approaches to budget planning and public finance management.

In this context, clarifying the role of the state budget in the wartime economy and its role in shaping the triggers of post-war recovery is gaining new significance, as it requires not only a theoretical rethinking of the problem, but also a new practical perspective that will ultimately allow developing effective mechanisms to overcome the economic consequences of the Russian-Ukrainian war, restore infrastructure, maintain social stability and ensure inclusive economic growth.

Thus, further study of this issue will contribute to a deeper understanding of the processes taking place in public finances during the crisis caused by the Russian-Ukrainian war and to the development of evidence-based recommendations for implementing economic recovery policies.

3. Current Status and Medium-Term Outlook for Ukraine's Economy

Prior to the Russian-Ukrainian war, the poverty rate in Ukraine was around 20 per cent, which, according to the World Bank (2022), meant that about 5 million people lived below the income line of 5.5 USD per day. However, the war created conditions for a significant deterioration in this indicator. Thus, according to the World Bank's forecast (2023), poverty may increase by at least 20%, the level of which will be further determined by the employment of the population, its real income, and the damage caused by Russia to Ukraine's infrastructure.

Traditionally, low incomes, high unemployment and unequal access to quality education and healthcare have been the main drivers of poverty in Ukraine (World Bank, 2022). The war may significantly worsen the situation, especially for vulnerable groups, which increases the risk of increased income inequality. According to World Bank research (2022), rising inequality can cause social unrest, slow economic growth and reduce trust in government.

Corruption remains one of the most important structural problems in Ukraine. According to Transparency International's Corruption Perceptions Index (2022), Ukraine ranks 122nd out of 180 countries. The military situation poses additional challenges for anti-corruption control, as it is more difficult to ensure effective oversight of the use of resources during a crisis. As stated in the Transparency International report (2022), corruption can lead to inefficient management of resources, slower economic growth and further deepening of the crisis of trust in the government.

Thus, the war in Ukraine has significantly complicated the socio-economic situation, deepening poverty and inequality, as well as increasing the risks of corruption, which requires a comprehensive approach to addressing these issues. The war has significantly worsened the state of public finances. Budget revenues declined and expenditures increased. This has led to a significant budget deficit, which is financed by borrowing. Ukraine's public debt has increased significantly as a result of the war, which could lead to macroeconomic instability.

Ukraine's economy has faced significant challenges in recent years due to the hostilities, which have led to a significant decline in economic activity, a growing budget deficit, and a change in the structure of the balance of payments. Based on the data presented for 2021-2026 (Table 1), it is possible to form an idea of the main macroeconomic indicators, their dynamics, and forecast the development of the economy.

In 2022, due to the outbreak of a full-scale war, Ukraine's real GDP declined by 28.8%, an unprecedented figure. In 2023, the economy began to show signs of stabilisation, with real GDP growth of 5.3%. According to forecasts, in 2024-2026, economic growth will remain positive, but slow, at a rate of 4.0-4.6% annually, which will not allow the economy to recover to the pre-war period in the medium term.

The Consumer Price Index (CPI) rose significantly to 20.2% in 2022, but is forecast to gradually decline to 5.7% in 2024-2026, indicating that the price situation is expected to stabilise.

The dynamics of nominal and real wages reflect the significant impact of the war on household incomes. In 2022, real wages declined by 11.4%, but are expected to recover in the coming years, with an average annual growth rate of 6.5-14.0%. At the same time, the unemployment rate will remain high, at 11.6-10.6% in 2025-2026.

The fiscal sector is also experiencing significant crisis. The consolidated budget shows a persistent deficit, reaching -16% of GDP in 2023, although the deficit is forecast to gradually decline to -12% in 2026. The absolute budget deficit will decrease from 1,347 billion UAH in 2024 to 1,182 billion UAH in 2026, reflecting the difficulties in financing social and military expenditures and the need for external support.

The balance of payments shows mixed dynamics. In 2022, there was a current account surplus (+8.0 billion USD), driven by a sharp decline in imports due to hostilities. However, in 2023-2026, this figure is expected to deteriorate to -28.4 billion USD, driven by an increase in imports of goods and services (from 83.3 billion USD in 2022 to 97.3 billion USD in 2026) and a recovery in export activity (from 57.5 billion USD in 2022 to 63.6 billion USD in 2026).

Private remittances will remain an important source of financial inflows, supporting currency stability. In 2026, their volume is forecast to reach 12.4 billion USD.

Despite a short-term increase to 40.5 billion USD in 2023, Ukraine's gross reserves are projected to reach 34.7 billion USD in 2026, indicating a decrease in available resources for currency stability.

The forecast shows a gradual recovery of Ukraine's economy after the deep crisis caused by the war. At the same time, the prospects remain dependent on stabilisation of the security situation, attraction of international financial assistance, and reform of fiscal and monetary policies. Improvements in macroeconomic indicators, such as real GDP, employment and foreign exchange reserves, will be key to restoring investor confidence and sustaining economic growth.

4. Public Finance in a War Economy and Post-War Triggers for its Recovery

Public finances are one of the key factors of economic resilience in the face of military challenges, ensuring the functioning of critical sectors and supporting the population. At the same time, they are the main trigger for economic recovery in the post-war period, helping to rebuild destroyed infrastructure, stimulate investment, and restore confidence in the economy.

Table 2 shows the dynamics of the execution of the consolidated budget of Ukraine and the factors that helped the country's economy to survive the war.

Table 1

Current macroeconomic situation in Ukraine in 2021-2023 and forecast for 2024-2026

Indicator	2021	2022	2023	2024	2025	2026
	Fact			Forecast		
Real sector						
Nominal GDP, billion UAH	5450,8	5239,1	6537,8	7630,0	8720,2	9714,9
Real GDP, % y-o-y	3,4	-28,8	5,3	4,0	4,3	4,6
CPI (average for the period)	9,4	20,2	12,9	6,1	9,5	5,7
Nominal salary (average for the period)	20,9	6,0	17,4	21,0	16,0	8,9
Real wages (average for the period)	10,5	-11,4	3,7	14,0	6,5	2,9
Unemployment rate, % (ILO, average for the period)	9,8	21,1	18,2	14,2	11,6	10,6
Fiscal sector						
Consolidated budget, balance, billion UAH	-187	-845	-1331	-1347	-1640	-1182
Consolidated budget, % of GDP	-3	-16	-20	-18	-19	-12
Balance of payments						
Current account, billion USD	-3,9	8,0	-9,6	-16,3	-27,9	-28,4
Exports of goods and services, billion USD	81,5	57,5	51,3	57,2	57,7	63,6
Imports of goods and services, billion USD	84,2	83,3	89,2	92,1	95,6	97,3
Private remittances to Ukraine, billion USD	14,0	12,5	11,3	9,9	11,1	12,4
Financial account, billion USD	-4,4	11,1	-18,9	-15,2	-24,9	-22,2
Consolidated balance sheet, billion USD	0,5	-2,9	9,5	-0,8	-2,9	-6,2
Gross reserves, billion USD	30,9	28,5	40,5	43,6	41,0	34,7

Source: compiled by the authors based on data from (National accounts; Prices. The State Statistics Service of Ukraine; "Information on the state of implementation of the Consolidated and State Budgets of Ukraine"; Annual report on the implementation of the Law of Ukraine "On the State Budget of Ukraine"; Inflation report, October 2024; Dynamics of international reserves; Balance of payments)

In the pre-war period, Ukraine's economy showed moderate growth in budgetary indicators, although the fiscal system continued to face a number of structural challenges. In 2020-2021, state budget revenues grew, increasing from 1,376.7 billion UAH in 2020 to 1,662.2 billion UAH in 2021, accounting for 30.5% of GDP. Tax revenues, in particular personal income tax (PIT), excise tax, and value added tax (VAT), remained the main source of income, showing steady growth.

At the same time, budget expenditures increased from 1,595.4 billion UAH in 2020 to 1,844.4 billion UAH in 2021, but remained manageable, keeping the budget deficit relatively stable (-3.4% of GDP in 2021). Financing was provided by domestic and external borrowing, which remained relatively low.

The period of war (2022 to date) has been a challenge for the Ukrainian economy, forcing the government to adapt its fiscal policy to the extraordinary circumstances. In 2022, consolidated budget revenues increased significantly to 2,196.6 billion UAH (41.9% of GDP), driven by the mobilisation of tax revenues and large-scale international financial assistance. In particular, official transfers from international partners amounted to 481.3 billion UAH in 2022, and their share in revenues was 9.2% of GDP.

However, budget expenditures also increased rapidly during this period, reaching 3043.9 billion UAH in 2022 (58.1% of GDP). The main items of expenditure were defence funding, support for socially vulnerable groups, and the cost of restoring critical infrastructure. This led to a sharp increase in the budget deficit, which rose to 16.1% of GDP in 2022.

In 2023-2024, there is a gradual increase in budget revenues to 3411.9 billion UAH in 2024, a significant share of which is generated by VAT (741.0 billion UAH in 2024) and personal income tax (586.5 billion UAH in 2024). Despite this, the high level of expenditures (4844.3 billion UAH in 2024) continues to put pressure on the budget system, and the budget deficit remains at a significant level (-9.3% of GDP in 2024).

Public finance played a key role in ensuring the resilience of Ukraine's economy during the war. International aid, tax revenues and sound public expenditure management have enabled the country to withstand economic challenges, providing a foundation for future recovery. However, maintaining a high

Table 2
Performance indicators of the Consolidated Budget of Ukraine at 2020-2024

Indicator	2020	2021	2022	2023	2024 (assessment)
	% of GDP				
Revenues, including:	**32,6%**	**30,5%**	**41,9%**	**46,8%**	**44,7%**
Tax revenues, including:	**26,9%**	**26,7%**	**25,6%**	**24,7%**	**27,3%**
Personal income tax and levy	7,0%	6,4%	8,0%	7,5%	7,7%
Corporate income tax	2,8%	3,0%	2,5%	2,4%	3,7%
Rent for the use of subsoil of national importance	1,2%	1,5%	1,7%	0,9%	0,7%
Excise tax:	3,6%	3,3%	2,2%	2,9%	3,1%
Value added tax	9,5%	9,8%	8,9%	8,8%	9,7%
Import duty	0,7%	0,7%	0,4%	0,6%	0,6%
Local taxes and duties	1,8%	1,6%	1,6%	1,5%	1,6%
Non-tax revenues	5,6%	3,7%	7,0%	15,5%	12,6%
Official transfers from the European Union, foreign governments, international organisations, donor agencies	0,0%	0,0%	9,2%	6,5%	4,7%
Expenses	**37,8%**	**33,8%**	**58,1%**	**67,0%**	**63,5%**
Lending:	**0,1%**	**0,1%**	**0,0%**	**-0,1%**	**-0,1%**
Granting of loans	0,4%	0,3%	0,2%	0,1%	0,1%
Loan repayment	-0,2%	-0,2%	0,2%	0,2%	0,2%
Financing, including:	**5,3%**	**3,4%**	**16,1%**	**20,0%**	**18,6%**
Borrowings	15,3%	11,5%	25,0%	25,7%	33,1%
internal	9,4%	7,7%	13,3%	8,3%	8,0%
external	5,9%	3,8%	11,7%	17,4%	25,4%
Repayment	-9,2%	-8,2%	8,7%	6,7%	14,7%
internal	-5,7%	-6,4%	7,8%	5,7%	4,8%
external	-3,5%	-1,8%	0,9%	1,0%	11,3%

Source: compiled by the authors based on data from (National accounts. The State Statistics Service of Ukraine; "Information on the state of implementation of the Consolidated and State Budgets of Ukraine"; Annual report on the implementation of the Law of Ukraine "On the State Budget of Ukraine"; Inflation report, October 2024) budget deficit and debt burden requires reforms and further co-operation with international partners.

In the post-war period, public finance will be the main catalyst for economic growth. First, investments in infrastructure rebuilding will create a multiplier effect, boosting economic activity in other sectors. Second, the reduction in the budget deficit to -12% of GDP in 2026 indicates the potential for a gradual reduction in the debt burden. Third, the provision of social guarantees and support programmes will stimulate consumption growth, which remains an important driver of GDP.

At the same time, in order to successfully use public finances as a trigger for post-war economic recovery, it is necessary to minimise the risks of corruption and ensure transparency in the allocation of resources. The key tasks are to introduce mechanisms to control expenditures and create favourable conditions for attracting international financial assistance and investment.

It is evident that public finances fulfil a dual function: during wartime, they provide support to the economy and the population; in the post-war period, they are instrumental in stimulating recovery and long-term growth. Effective management of this instrument is critical to achieving resilience and sustainable development of Ukraine's economy.

At the same time, the deterioration in the fiscal sector's performance is due to the need to finance critical budget items. Fig. 1 shows the structure of consolidated budget expenditures by functional classification of expenditures in 2022-2024, which indicates a significant change. Total budget expenditures have increased significantly, reaching unprecedented levels in 2022-2024, reflecting the government's efforts to allocate resources to support the country's defence capability and socially important areas. The share of defence expenditures increased to 27% in 2022-2023, and in 2024 it is expected to further increase to 29% of total budget expenditures. This demonstrates the priority of financing the security sector in times of war.

At the same time, the share of expenditures on social protection and public order remained relatively stable, amounting to 8-9% and 7-10% respectively. This demonstrates the government's attempt to maintain a balance between social support for the population and financing key defence needs.

Other areas, such as education, received significantly less money, with their share falling to 4-5% of total expenditures. This trend highlights the redistribution of resources in favour of the defence sector.

In general, the structure of consolidated budget expenditures during the wartime period indicates a change in the focus of public finance. The bulk of budget funds is allocated to support defence, which is critical for ensuring the country's resilience in times of war, although this comes at the expense of funding for other areas.

Comparing defence expenditures in the world, as shown in Table 3, Ukraine demonstrates an unprecedented level of spending due to the need to ensure defence capability in a full-scale war. In 2023,

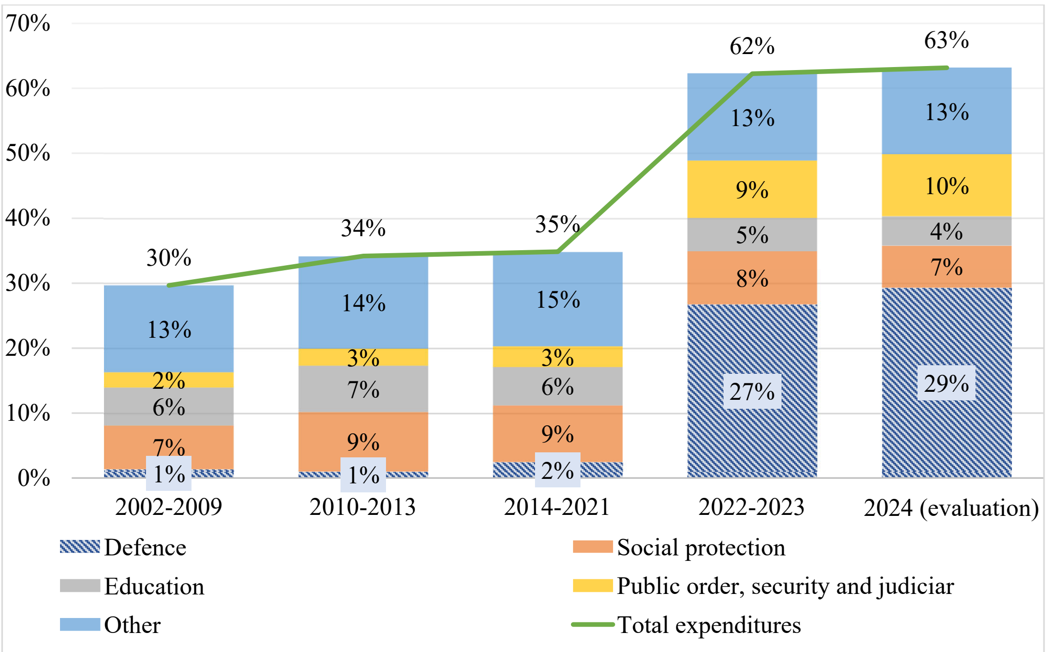

Figure 1. Dynamics of expenditures by functional classification, % of GDP

Source: compiled by the authors based on data from (National accounts. The State Statistics Service of Ukraine; "Information on the state of implementation of the Consolidated and State Budgets of Ukraine"; Annual report on the implementation of the Law of Ukraine "On the State Budget of Ukraine"; Inflation report, October 2024) the share of defence spending in Ukraine reached 31.6% of GDP, which is significantly higher than in other countries.

By comparison, even in countries with a high level of military activity, such as Israel (5.3 per cent), Lebanon (8.9 per cent) or Algeria (8.2 per cent), defence spending is much lower. In the world's leading economies, such as the United States (3.4 per cent), the United Kingdom (2.3 per cent) or Germany (1.5 per cent), defence spending is even less significant. This indicates that no other country in the world faces such high financial pressure in the military sphere as Ukraine.

The huge increase in defence spending is the key factor behind the structural changes in Ukraine's state budget. All other expenditures have been reviewed and optimised to ensure that the defence sector receives the necessary funding. Military spending in times of war has become not only a means of ensuring national security, but also the basis for the survival of the state as a political and economic entity.

Against the backdrop of rising budget expenditures, especially in the defence sector, insufficient budget revenues, and a general economic downturn due to the hostilities, Ukraine's public debt is growing rapidly (Table 4).

Even in the pre-war period, Ukraine's debt was growing steadily. In 2014, the debt amounted to 1,100.8 billion UAH (69% of GDP), and by 2021 it had grown to 2,672.1 billion UAH (49% of GDP). In 2015-2016, debt growth rates were the highest, due to the economic crisis caused by the military operations in the East of the country, the devaluation of the hryvnia, and significant borrowing to finance the budget deficit. For example, in 2015, the debt increased by 143% year-on-year.

After 2016, the growth rate of debt began to slow gradually, and its ratio to GDP even decreased

Table 3
Dynamics of defence spending in the world, % of GDP

Country	2010-	2014-	2023	Trend in change (2023 to 2010-2013)
Ukraine	1,0	4,6	31,6	↑-↑-↑
Lebanon	4,1	0,4	8,9	↑
Algeria	4,3	0,6	8,2	↑
Russia	3,6	0,4	5,9	↑
Israel	5,7	0,5	5,3	↓
Poland	1,8	0,2	3,8	↑
United States	4,6	0,3	3,4	↓
India	2,7	0,3	2,4	↓
United Kingdom	2,4	0,2	2,3	↓
Iran	2,5	0,2	2,1	↓
Norway	1,4	0,2	1,6	↑
Italy	1,5	0,1	1,6	↑
the Netherlands	1,3	0,1	1,5	↑
Czechia	1,1	0,1	1,5	↑
Germany	1,2	0,1	1,5	↑
Portugal	1,5	0,1	1,5	-
Spain	1,4	0,1	1,5	↑
Turkey	2,1	0,2	1,5	↓

Source: compiled by the authors based on data from (National accounts. The State Statistics Service of Ukraine; "Information on the state of implementation of the Consolidated and State Budgets of Ukraine"; Annual report on the implementation of the Law of Ukraine "On the State Budget of Ukraine" Military expenditure)

Table 4
Dynamics of the total amount of public and publicly guaranteed debt of Ukraine

Measurement unit	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	30.11.2024
billion UAH	1100,8	1572,2	1929,8	2141,8	2168,4	1998,3	2551,9	2672,1	4075,5	5519,5	6644,7
	69,8	65,5	71,0	76,3	78,3	84,4	90,3	98,0	111,4	145,3	159,7
% of GDP	69	79	81	72	61	50	60	49	78	83	87
% y-o-y	-	143	123	111	101	92	128	105	153	135	120

Source: compiled by the authors based on data from (National accounts. The State Statistics Service of Ukraine; Public debt and publicly guaranteed debt)

(from 81% in 2016 to 49% in 2021). This was due to an improvement in the economic situation and increased fiscal discipline.

With the outbreak of full-scale war in 2022, debt dynamics changed dramatically. In 2022, the debt increased to 4075.5 billion UAH, accounting for 78% of GDP, and in 2023 it increased to 5519.5 billion UAH (83% of GDP). By the end of 2024, the debt is expected to grow further to 6644.7 billion UAH (87% of GDP).

Debt growth in 2022 was particularly high (+153% y-o-y), driven by the need to cover large-scale budget expenditures on defence, social support, and infrastructure restoration. A significant part of the debt was formed by international financial borrowings, which allowed the country to avoid default and support critical expenditures.

An analysis of the structure of Ukraine's public debt for the period 2014-2024 shows (Figure 2) significant transformations driven by changing economic conditions and the impact of military operations. These changes concern both the ratio of domestic and external debt and the role of state-guaranteed obligations.

The share of domestic public debt remained relatively stable throughout the period under review. In 2014-2019, it accounted for 25% of total debt. In 2022-2023, this figure remained almost at the same level (25%), and in 2024 it is projected to decline slightly to 24%. This shows that domestic financing remains an important but limited resource for covering the budget deficit.

The share of external public debt has grown significantly. In 2014-2019, it stood at 34%, and by 2024 it had risen to 60%. This indicates that Ukraine is increasingly relying on international financial institutions and foreign loans to cover its budget deficit, especially in times of war. The sharp increase in the share of external debt in 2022-2023 to 49% confirms the importance of international assistance in financing the country's critical needs.

Guaranteed debt (both domestic and external) has been gradually declining as a share of the total debt structure. In 2014-2019, it was 10%, but by 2024 it had fallen to 4%. This may be due to the government's shift to more direct financing through public debt, as well as limited opportunities to attract additional government-guaranteed obligations.

Changes in the structure of Ukraine's public debt reflect the challenges of financing the economy in a time of war. The main emphasis is on external borrowing, which has become a key source of financing for growing expenditures, especially in the defence sector. At the same time, domestic financing has remained stable, but its role in the overall debt structure is declining.

In 2014-2024, the structure of Ukraine's external public borrowings underwent significant changes (Figure 3), reflecting the adaptation of financial policy

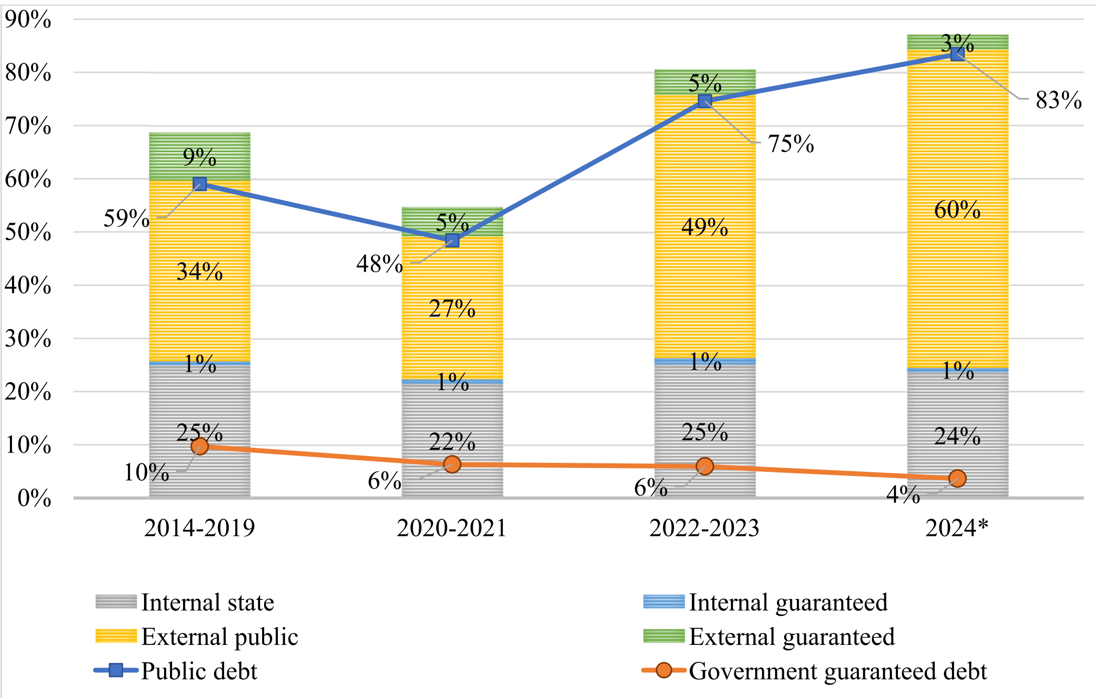

Figure 2. Dynamics of the structure of Ukraine's public and publicly guaranteed debt, % of GDP

Source: compiled by the authors based on data from (National accounts. The State Statistics Service of Ukraine; Public debt and publicly guaranteed debt)

to the challenges of the economic crisis and military operations.

The most notable trend is the rapid growth in the share of debt to international financial institutions, which increased from 36% in 2014-2019 to 71% in 2024. This demonstrates the key role of international financial assistance in supporting the Ukrainian economy during the war. International financial institutions such as the IMF, the World Bank and the EU have become Ukraine's main creditors, providing access to critical funding.

At the same time, the share of debt on securities issued gradually decreased, from 53% in 2014-2019 to 14% in 2024. This is due to Ukraine's difficult access to international financial markets due to increased credit risks caused by the war. Ukraine was forced to focus on raising funds from international institutions that offer financing on favourable terms.

Also notable is the increase in the share of debt to foreign governments from 4% in 2014-2019 to 7% in 2022-2023, which indicates an increase in bilateral loans, in particular from the United States, Canada, and European partners. These dynamics are driven by the need to ensure quick access to resources to finance defence and social needs.

The change in the external debt structure reflects the strategy of the Ukrainian government aimed at minimising debt risks, reducing borrowing costs and ensuring stability in the context of the ongoing military conflict.

Ukraine's public finances underwent dramatic changes in 2014-2024, driven by economic crises, military operations and large-scale challenges to the budget system. The main characteristic of this period was a significant increase in public spending, in particular on defence, which became a key factor in the redistribution of resources. Simultaneously, a significant budget deficit, limited domestic sources of financing, and a falling economy led to a sharp increase in public debt, much of which was attributable to external loans.

International financial assistance has become a key element of public finance sustainability, providing the necessary resources to cover critical needs. Structural shifts in debt liabilities, aimed at increasing the share of loans from international financial institutions, highlight the country's dependence on global support. Overall, public finances remain a tool for ensuring economic stability during the war and a foundation for future recovery. However, the high debt burden and the need for significant external financing point to the need for long-term strategies to manage financial risks.

Unfortunately, in the context of uncertainty about funding from the US and EU, public finances are relatively unstable, forming crisis contours in the model of resource support for the transition to an inclusive economy.

5. Further Research and Discussion of the Results

In the future, Ukraine will face significant financial pressure from the need to repay and service its public debt. According to forecasts (Figure 4), public debt payments (repayments and servicing) will peak at 1,425 billion UAH in 2024, which poses a significant challenge to the state budget. In the following years, this figure is expected to gradually decline, but debt service costs will remain significant throughout the forecast period.

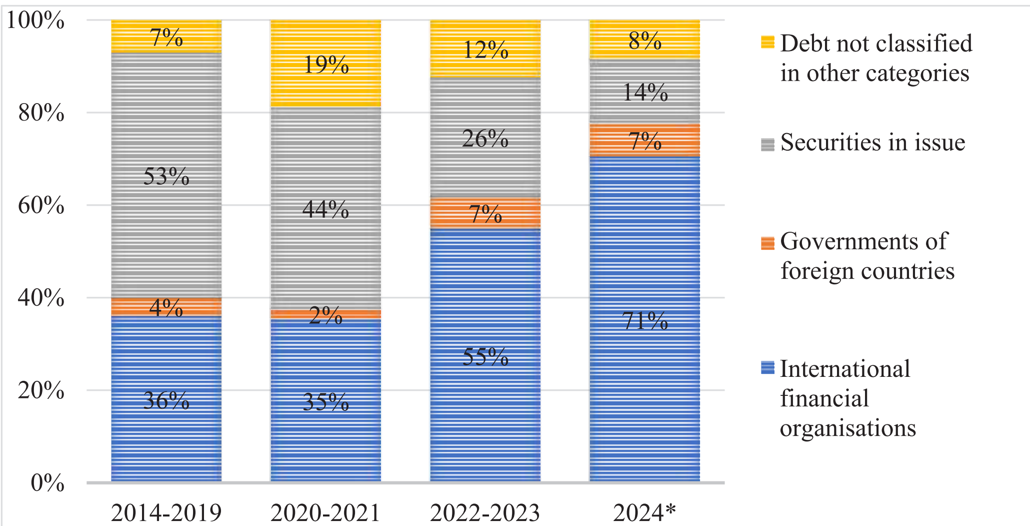

Figure 3. Dynamics of the structure of Ukraine's external public debt, % of external public debt

Source: compiled by the authors based on data from (Public debt and publicly guaranteed debt)

The share of public debt to GDP, which will reach 107% in 2025, will gradually decline, provided that the government does not continue to increase its debt obligations. This indicates a tendency towards stabilisation of the debt burden in the long run, but only if public finances are managed effectively and economic growth is stimulated.

Throughout the 2030s, debt repayments will remain high, with peak repayments in 2034-2035 (512-522 billion UAH). This is due to the large share of external borrowings, which will require significant foreign currency resources. After 2040, debt repayments will decline to more manageable levels, creating prospects for reducing the budgetary burden.

All of this poses the challenge for Ukraine to find effective ways to service and repay its debt, while restoring and stimulating economic growth. This requires innovative approaches that can ensure both short-term sustainability and long-term development.

One of the key areas is the development of veterans' businesses, which has the potential not only to facilitate the integration of veterans into economic life, but also to attract significant financial investments. Veteran-owned businesses can be an important factor in economic recovery, helping to create new jobs, stimulate entrepreneurial activity and develop an inclusive society. It is also necessary to work with international partners on debt restructuring and the use of frozen assets of the Russian Federation. This could create new opportunities to reduce the debt burden and finance infrastructure reconstruction.

Further research should focus on international experience, debt cancellation, the use of frozen assets of aggressors, and the development of inclusive economic models.

An important factor in such studies is that there are countries in the world that are in permanent military conflict, have relatively high living standards, and yet do not have high debt obligations (Figure 5).

The most striking example is Israel, which ranks 32nd out of 90 countries surveyed and has a debt level of less than 70% of GDP (Ukraine ranks 68th and is projected to have a debt level of 107% of GDP in 2025).

Analysing the precedents of other countries will allow Ukraine to develop effective strategies for resolving debt issues and economic recovery. Particular attention should be paid to co-operation with international financial institutions and the search for long-term instruments to stimulate economic growth, taking into account the country's current challenges and needs.

5. Conclusions

The topic of the study is extremely relevant, as the Russian-Ukrainian war has caused significant changes in the architecture of the state budget of Ukraine and public finance. Increased spending on defence, social support, and infrastructure reconstruction poses unprecedented challenges that require immediate solutions, including rethinking the role of public finance in ensuring the functioning

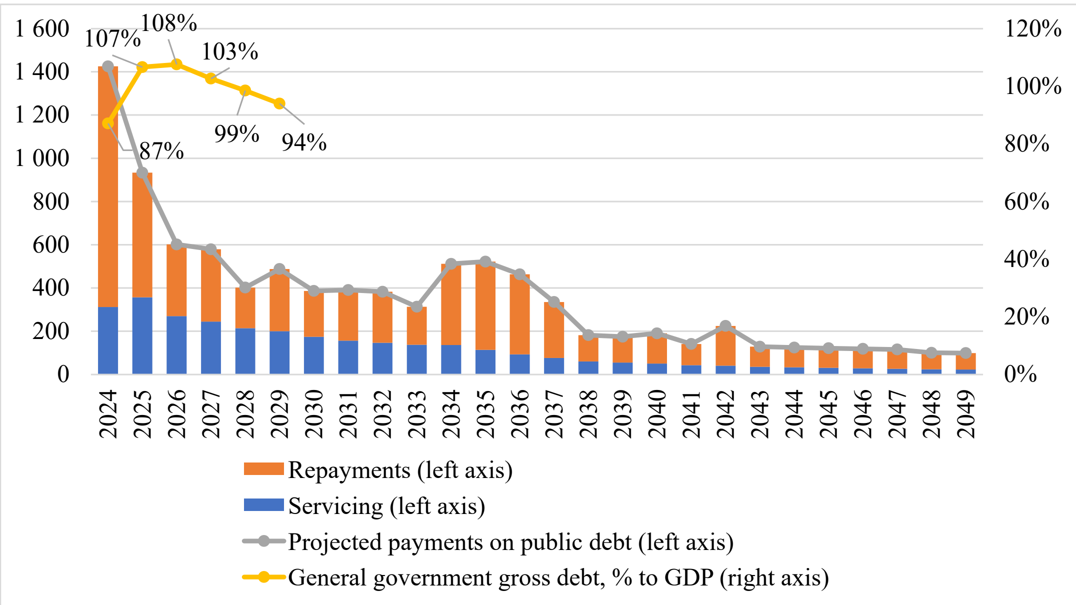

Figure 4. Projected public debt payments in 2024-2049 under existing agreements as of 01.10.2024 and projected debt level in 2024-2029

Source: compiled by the authors based on data from (National accounts. The State Statistics Service of Ukraine; Public debt and publicly guaranteed debt)

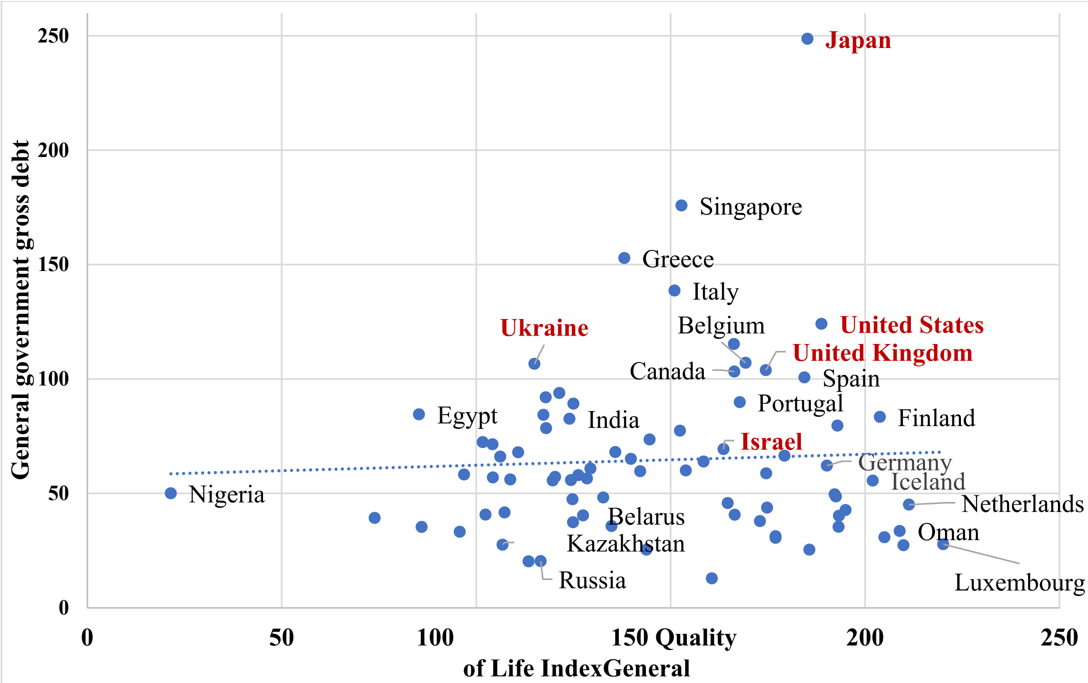

Figure 5. Ratio of living standards and public debt in the world in 2025

Source: compiled by the authors based on data from (World Economic Outlook database: October 2024; Quality of Life Index by Country)

of the wartime economy and creating triggers for its post-war recovery. Given the new reality of Ukraine's economy, research into the mechanisms of budget adaptation, expenditure optimisation and transparency is critical for anti-crisis management in the short term and for creating the foundations for sustainable development in the post-war period.

The analysis of the modern economic literature has revealed some gaps in the study of the need to radicalise changes in the structure and mechanisms of public finance and its component of the state budget during the war and the post-war period. In particular, there are no comprehensive studies that would take into account the high level of volatility of the economy and public finances in the context of the Russian-Ukrainian war and would have relevant results of the impact of institutional changes in public finance management on the functioning of the wartime economy.

The war economy has significantly changed the structure of the state budget of Ukraine, focusing on the needs of the security and defence forces, financial support programmes for the acceptable quality of life of the Ukrainian population, distorting the pre-war programmed triggers for the modernisation of public finances, which were adopted at the end of 2021, i.e., on the eve of Russia's full-scale invasion of Ukraine. Thus, defence spending rose to an unprecedented 31.6% of GDP in 2023, significantly exceeding the level observed in other countries, including those classified as allies.

The Russian-Ukrainian war has led to an increase in public debt to a record high of 87% of GDP in 2024. This is due to the reorientation of the main source of financing of the state budget from internal resources to external ones (including borrowings and non-grant programmes of international financial assistance), which has significantly reduced the level of financial sovereignty in general and the social and military part of the state budget in particular. At the same time, the high level of the budget deficit, which reached 16% of GDP in the second year of the full-scale invasion, is the result of a forced increase in spending on the needs of the security and defence forces and additional social protection for the population of Ukraine affected by the war. To manage the budget deficit, it is imperative to carry out comprehensive reforms in public finance and develop a coherent budget strategy for the post-war economic recovery from the war's consequences. The core of this strategy should be public investment in infrastructure facilities, which will create an additional impetus for the post-war economic recovery in the form of a multiplier effect by adding new jobs in the public administration sector, public and corporate sectors, including through the development of veteran businesses and the fight against systemic corruption.

Given the share of Ukraine's external debt, which at the end of the third year of the war was almost 60%, the second most important factor that will require a new rethink in the modernisation of public finances and their relation to the triggers of post-war economic recovery is debt policy management, which should balance the need to meet immediate needs and provide impetus for the reconstruction of the national economy and the principles of inclusion. At the same time, the assistance of the allied countries is the dominant feature of the war economy, forming signs of Ukrainian resilience and outlining the contours of the economic front. In the future, given the existing triggers for post-war economic recovery, it is important not only to continue co-operation with international partners to obtain new resources on favourable terms, but also to restructure existing debts and build a new level of institutional trust to attract domestic and foreign investment. The dominant condition here is the institutional capacity of state regulators to overcome the distorted structure of budget expenditures set by the wartime economy and to finance social expenditures that will generate positive progress and ensure the inertia of human capital recovery, bringing post-war Ukraine closer to EU Member States in terms of the ratio of living standards to public debt.

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