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SHADOW ECONOMY OF UKRAINE UNDER MARTIAL LAW: INSTITUTIONAL DETERMINANTS, RISKS, AND MECHANISMS OF COUNTERACTION

Vladyslav Pustovar,

*Doctoral Student at the Department of Political Science,
Mykhailo Drahomanov Ukrainian State University (Kyiv, Ukraine)*

ORCID ID: 0009-0001-9790-0210

vvpustovar7@gmail.com

Abstract. The article examines the complex phenomenon of Ukraine's shadow economy under martial law, a period in which the scale of informal activity increases sharply due to infrastructure destruction, declining institutional capacity, and deep societal uncertainty. The aim of the study is to analyse the structural features of shadowing during wartime, identify the key factors contributing to its expansion, and assess the impact of the shadow sector on Ukraine's economic and national security. Particular attention is paid to the transformation of economic behaviour among actors who are forced to adapt to extreme conditions, thereby altering the nature of their interaction with state institutions.

The methodological framework combines quantitative and qualitative approaches, including the analysis of statistical data, econometric modelling, content analysis of legal acts, comparative studies of countries that have experienced armed conflict, and an interdisciplinary approach integrating political economy, institutionalism, and theories of economic security. This methodological design enables a comprehensive understanding of the multidimensional nature of shadowing under wartime conditions.

The article identifies the main drivers of shadow economy growth, including the sharp decline in state control, disruption of logistical chains, commodity shortages, increased reliance on cash transactions, migration processes, and institutional destabilisation. It is shown that informal employment, tax evasion, smuggling, corruption markets, and shadow logistics significantly expand their presence as a result of transformed economic incentives and heightened risks in the formal sector.

The findings demonstrate that the shadow economy has become one of the central factors undermining the state's economic resilience, as it erodes budgetary stability, impedes effective financial planning, exacerbates social inequality, and destabilises the labour market. Shadowing also reduces investment attractiveness, distorts competition for small and medium-sized enterprises, and creates a favourable environment for criminal networks that pose direct threats to national security.

The paper argues that effective counteraction to shadowing is possible only through strengthening the institutional capacity of the state, digitalising control mechanisms, modernising the tax system, implementing risk-based approaches to monitoring financial operations, and enhancing cooperation between the state, business, and civil society. International partners play an important role by supporting the modernisation of supervisory institutions and the introduction of technological solutions.

The conclusion emphasises that, in wartime, the shadow economy functions not only as an economic challenge but also as a systemic indicator of state resilience, its ability to uphold the rule of law, and its capacity to implement effective policy. Successful de-shadowing is possible only through an integrated combination of institutional, legal, technological, and social strategies aimed at strengthening trust, transparency, and the adaptability of economic governance during wartime and post-war recovery.

Key words: shadow economy, economic security, martial law, institutional capacity, corruption, market shadowing, economic policy.

Introduction. In the current context of large-scale military aggression against Ukraine, the problem of the shadow economy has acquired a new dimension, as periods of profound turbulence exert maximum pressure on economic and political institutions, exposing their systemic vulnerabilities. Spontaneous transformations of the market environment, the destruction of traditional production

chains, the decline in households' purchasing power, and the limited capacity of the state to exercise control and regulate economic processes create favourable conditions for the spread of informal economic practices. Under such circumstances, the shadow sector becomes not only an economic phenomenon but also an important political-institutional factor influencing societal trust, state resilience, and the ability of public institutions to withstand external and internal threats.

The war significantly modifies the mechanisms underpinning the formation of the shadow economy, as security disruptions, mass population displacement, destruction of infrastructure, and changes in the structure of employment give rise to new forms of informal activity that are difficult to capture through traditional control mechanisms. The growing role of cash transactions, shortages of certain goods, external pressures on logistical channels, and heightened wartime risks create an environment in which economic actors are forced to adapt by resorting to unofficial mechanisms. These processes result in reduced state budget revenues and weakened fiscal and monetary policy, which in turn narrows the state's capacity to sustain defence capabilities and support the social sphere.

The purpose of this study is to conduct a comprehensive analysis of Ukraine's shadow economy under martial law from the perspectives of political economy, institutional theory, and national security, and to identify key mechanisms that either contribute to its expansion or may enable its gradual reduction. Particular attention is given to identifying transformational changes in the behaviour of economic actors, analysing the institutional effectiveness of state economic security policy, and determining the factors that intensify the link between shadowing and wartime risks. The study also aims to assess whether war-induced transformations can be leveraged as a catalyst for further reforms and improvements to the institutional architecture of economic governance.

The research tasks include analysing the current state of the shadow economy in Ukraine and identifying the structural trends that emerged after the onset of full-scale aggression. The study also involves identifying the key sources of shadowing, assessing the impact of wartime risks on the behaviour of businesses and households, and evaluating the effectiveness of state measures aimed at combating shadow economic activity. A separate set of tasks concerns the analysis of legal, institutional, and organisational barriers that hinder the reduction of shadowing, along with the development of recommendations for enhancing economic security policy during wartime and post-war recovery.

The methodological basis of the research comprises a combination of quantitative and qualitative methods that enable a comprehensive assessment of the shadow sector. Quantitative methods include the analysis of statistical data, the calculation of shadow-economy indicators, and econometric tools for evaluating the dynamics of shadow processes. Qualitative methods involve content analysis of legal documents, the examination of scholarly approaches, comparative studies of countries affected by armed conflict, and the interpretation of behavioural patterns associated with actors' adaptation to crisis conditions. This interdisciplinary methodological approach ensures the comprehensiveness and objectivity of the findings.

The scientific novelty of the study lies in deepening the theoretical and methodological approach to analysing the shadow economy under wartime conditions by integrating its economic, political, and security dimensions. Novelty is also reflected in the attempt to conceptualise the shadow economy as an indicator of the resilience and adaptability of state institutions in periods of extreme disruption, as well as in the development of a new analytical model that accounts for the impact of wartime risks on economic actors' behaviour. The research also provides an assessment of the potential for using crisis conditions as an impulse for reforming the economic system and strengthening institutions responsible for combating shadow economic activity.

Main part. During the period of martial law, the shadow economy becomes an exceptionally important indicator of the state's institutional capacity, as its scale directly correlates with the level of governance transparency, the effectiveness of anti-corruption measures, and the quality of public policy implementation. Numerous studies indicate that the rise of shadow economic activity during

crises is a typical response to declining trust in the state and its institutions, highlighting the need for a comprehensive analysis of the interrelationship between the wartime context, political stability, and the economic behaviour of citizens. It is precisely under wartime conditions that long-standing structural problems within the economic system become most visible, manifesting acutely following the radical disruption of the economic operating regime.

In scholarly discourse, the shadow economy is traditionally examined through the lens of rational choice theory, institutional economics, theories of state regulation, and social models of behaviour, all of which make it possible to develop a holistic understanding of the causes and consequences of its expansion. In the Ukrainian context, these approaches require significant reconsideration, as martial law reshapes not only the economic interests of market participants but also their behavioural strategies, altering the criteria of rational decision-making. Wartime conditions create a situation in which economic actors seek to minimise risks even if it requires shifting into the shadow sector, as uncertainty and danger strengthen the incentives to act outside formal regulatory mechanisms (Docenko, 2020).

At the same time, society increasingly perceives the shadow economy as a compulsory form of adaptation to extreme circumstances, complicating the state's efforts to restore legal economic practices. Under such conditions, the state must not only combat shadow activities but also create enabling conditions for economic actors to return to the legal sector by reducing regulatory burdens, digitalising procedures, increasing the transparency of tax mechanisms, and reforming oversight institutions. A crucial factor remains the strengthening of public trust, as trust constitutes the fundamental precondition for restoring legitimate economic relations in the post-conflict period.

In contemporary scientific literature, the shadow economy appears as a multidimensional phenomenon that encompasses a wide range of economic relations occurring outside formal accounting, control, and regulation. The essence of this phenomenon is further complicated by the fact that different academic schools interpret it through their own theoretical frameworks, emphasising economic, legal, or sociological dimensions. Economic approaches view the shadow economy as a means of cost optimisation and adaptation to excessive regulatory pressure, whereas the legal perspective focuses on violations of established norms and procedures that create an alternative space of economic activity beyond the functioning legal framework (Pylypchenko, 2015).

Sociological approaches emphasise that the shadow economy emerges as a result of insufficient institutionalisation of social relations, within which citizens and businesses orient themselves not toward formal norms but toward practices perceived as more effective and predictable. In this perspective, shadowing appears as a socially acceptable response to inefficient procedures, low-quality public administration, and a lack of trust in institutions that regulate economic relations. Thus, the shadow economy functions not only as an economic anomaly but also as a form of social adaptation that enables actors to minimise risks in an environment of heightened uncertainty.

Economic theory consistently upholds the view that the shadow sector is formed through a combination of individual strategies and institutional constraints that create incentives to bypass regulatory norms. These incentives arise when formal rules are either excessively rigid or fail to provide adequate protection of property rights and fair access to market resources, encouraging actors to seek alternative avenues of economic activity. At the same time, the legal perspective highlights that the shadow economy contains elements not only of objective necessity but also of unlawful activity that generates economic and social losses for the state.

In the context of war, approaches to defining the shadow economy require further refinement, as the factors of military conflict create a unique environment for transforming economic behaviour. Increased security threats, infrastructure destruction, and disruption of logistical chains generate not only new forms of shadow operations but also heightened social tolerance toward them, complicating the application of traditional analytical methods. Under such conditions, improving theoretical defi-

nitions of shadowing becomes critically important for shaping adequate state strategies of counteraction (Sakhnevych et al., 2025).

The classification of the shadow economy is one of the key analytical tools, as it allows researchers to systematise the diverse manifestations of this phenomenon and identify their specific characteristics. A central component of the shadow economy is informal employment, which includes both illegal labour and concealed forms of wages paid outside official accounting. During wartime, informal employment expands significantly, as a large proportion of the workforce is forced to change residence, loses access to formal labour markets, or works in hazardous conditions, thereby becoming oriented toward flexible—though legally risky—forms of labour activity.

Another fundamental element of shadowing is tax evasion, traditionally considered the most widespread type of shadow operation. Tax evasion may occur through income concealment, underreporting of the tax base, or using profit-shifting schemes that minimise fiscal obligations. During wartime, such practices intensify, as entrepreneurs face high operational costs and market instability, stimulating them to preserve economic viability by any available means.

Smuggling and related forms of illegal movement of goods hold a significant place among shadow economy practices, as they inflict substantial damage on the state budget and undermine legal trade relations. Disruptions in border control during wartime create additional opportunities for smuggling networks, which exploit weaknesses in state monitoring and increased demand for scarce goods. These networks form an alternative system of goods circulation dependent on corruption and criminal structures, making them difficult to dismantle.

The classification of the shadow economy should also include so-called grey logistics, which encompasses unofficial transportation activities, unregistered routes, or manipulation of documents to conceal actual volumes of transported goods. During active hostilities, such forms of shadowing may become particularly prominent, as many logistical channels operate under high-risk conditions, encouraging actors to use informal schemes to reduce costs and increase operational flexibility. This creates a parallel transport infrastructure that increases the speed of certain operations while simultaneously weakening oversight of the market (Blinov & Cherep, 2025).

Corruption markets constitute a distinct dimension of the shadow economy, within which economic relations are structured around bribery, informal agreements, and abuses of official authority. During wartime, corrupt practices may acquire an especially dangerous character, as they affect not only economic processes but also defence resources and the distribution of critically important goods. Corruption markets destabilise the system of public administration and undermine trust in government, making them a key factor contributing to institutional weakness.

The theoretical foundations for studying the shadow economy rely heavily on state capacity theory, as institutional quality determines the ability of the state to control economic processes and uphold the rule of law. State capacity theory posits that the state must possess an adequate level of administrative, economic, and political resources to implement effective economic policy. During wartime, state capacity becomes a decisive factor in counteracting shadow practices, as weak institutions create conditions for their rapid proliferation.

From the perspective of institutionalism, the shadow economy is viewed as a consequence of the discrepancy between formal rules and actual practices that emerge within society due to historical, cultural, and social factors. Institutionalists emphasise that even in the presence of strengthened formal control, shadow practices may persist if they align with the logic of social interactions or offer greater efficiency compared to legal norms. Under wartime conditions, this divergence between formal and informal institutions only intensifies, making it necessary to reconsider mechanisms of institutional modernisation (Blinov & Cherep, 2025).

Theories of economic security also play a central role in analysing the shadow economy, as shadowing directly affects the state's ability to maintain the stable functioning of its economy. Economic

security in this context is understood as the set of conditions ensuring the resilience of the economic system to shocks, including those associated with war. The shadow economy undermines these conditions by reducing fiscal resources, weakening the legitimacy of state institutions, and generating additional risks for national security.

As a result, the interplay between state capacity theory, institutionalism, and economic security creates a comprehensive theoretical and methodological foundation that enables a deeper understanding of the mechanisms underlying the formation of the shadow economy during wartime. This integrated approach allows for the analysis of not only the economic parameters of the shadow sector but also its interconnections with political stability, governance quality, and the structure of social relations. This is particularly significant in the Ukrainian context, where the combination of wartime challenges, institutional transformations, and economic instability creates a unique environment for studying this phenomenon.

During the period of martial law, the structural and institutional factors determining the scale of the shadow economy acquire exceptional complexity, as the general destabilisation of governance significantly alters the interaction between formal and informal institutions. War produces conditions in which traditional control mechanisms are unable to ensure the full functioning of regulatory processes, thereby creating space for the expansion of various forms of shadow activity. Under such circumstances, the decline of administrative capacity increases economic actors' dependence on informal practices, which are often perceived as the only viable means of adaptation to the unpredictable circumstances created by hostilities (Sakhnevych et al., 2025).

Wartime transformations of public administration occur as a result of changes in the digital, administrative, and staffing capacities of institutions, which are forced to reorganise their priorities in line with defence needs. A number of supervisory bodies effectively lose the ability to conduct systematic inspections, as their resources are redirected toward ensuring defence capability. This reduces the effectiveness of oversight over economic processes and creates conditions in which economic actors operate in an environment of minimal risk of detection, thus encouraging the expansion of shadow operations—especially in sectors where control was already challenging even in peacetime.

The weakening of the supervisory function of state institutions is also linked to the decentralisation of decision-making, which in wartime becomes an unavoidable necessity, as certain regions operate with relative autonomy due to the mobility of the front and the shifting of administrative centres. This situation contributes to uneven application of regulatory norms, substantially increasing opportunities for selective enforcement of legislation and exploitation of gaps in law enforcement. As a result, a space emerges in which informal mechanisms substitute formal rules, and shadow practices gradually become embedded in market behaviour, transforming into elements of institutional routine.

Structural changes in the market system caused by infrastructure destruction significantly influence the scale of shadowing, as disruptions in logistical connections reduce the possibility of conducting legal trade. The destruction of transport routes, loss of storage facilities, restricted access to seaports, and systemic failures in the functioning of the railway network create critical obstacles to meeting market needs. Under these conditions, some economic actors are forced to resort to informal supply mechanisms that offer speed and flexibility but do not comply with legal regulatory requirements (Poplyuyko & Melnyk, 2025).

Market distortions caused by logistical breakdowns generate shortages, thereby creating opportunities for shadow intermediaries who exploit the scarcity of goods to artificially inflate prices. Such deficit conditions stimulate the growth of informal logistics networks operating outside state control and relying on unofficial agreements that facilitate the rapid movement of goods through dangerous or technically unsuitable routes. As a result, market competition becomes unequal, as actors adhering to formal rules find themselves in significantly worse conditions compared with those using shadow supply schemes.

Changes in the market environment are further exacerbated by disruptions in export-import channels, which limit the ability of firms to conduct foreign economic activity and increase the cost of legal operations. Partial or complete blockage of seaports, customs delays, border congestion, and reduced capacity of logistical corridors create a situation in which official channels become less accessible and economically burdensome. This facilitates the expansion of smuggling schemes that provide cheaper, albeit illegal, access to external markets, thereby increasing pressure on legal businesses and reducing overall economic transparency.

Another important factor contributing to the growth of the shadow economy during wartime is mass internal and external migration, which significantly alters the structure of the labour market and creates conditions for expanding informal employment. Internally displaced persons face numerous challenges in securing formal employment, as many enterprises have ceased operations or reduced staff, and labour markets in receiving regions cannot rapidly absorb large numbers of new workers. In such circumstances, informal labour practices emerge as survival mechanisms, including work without employment contracts, partial reporting of working hours, or cash-based payments.

External migration, which has affected millions of Ukrainian citizens, also contributes to the expansion of informal employment, as a significant proportion of migrant workers are employed abroad without official registration. Although such activity does not always fall within the Ukrainian economic domain, it influences the domestic market by reducing the number of economically active individuals and, consequently, the fiscal base that could otherwise support wartime expenditures. Informal employment abroad also creates a psychological norm of tolerance for shadow practices, which is often reproduced in citizens' behaviour upon their return to the country (Zhuk, 2024).

Warfare creates additional incentives for the expansion of corruption practices across military, humanitarian, and logistical sectors—areas that become particularly vulnerable due to rapid changes and high concentrations of resources. Corruption within military structures may manifest itself through the improper use of budget funds, abuse in procurement processes, or manipulation of accounting operations. Such corruption inflicts substantial harm, as it reduces the effectiveness of army provisioning, undermines public trust in the state, and stimulates shadow structures that rely on corrupt mechanisms to advance their own interests.

The humanitarian sector is also critically vulnerable to corrupt abuses, as it operates in an environment of accelerated resource distribution and insufficient transparency. Uncontrolled movement of humanitarian cargo, the absence of effective monitoring, and discrepancies between the declared and actual volumes of aid create conditions in which part of the resources enters shadow markets. This vulnerability is intensified by the fact that humanitarian assistance often includes scarce goods with high market value, making them attractive for illicit resale or diversion through unofficial channels.

The logistics sector, which plays a crucial role in supplying the population and the military during wartime, is likewise characterised by high corruption risks. Control over access to transport resources, fuel reserves, specialised equipment, and critical routes creates opportunities for informal agreements that regulate access to these resources outside state oversight. Such conditions facilitate the emergence of shadow logistics markets in which service prices are determined not by economic factors but by actors' ability to maintain corrupt networks at various levels.

During wartime, the number of illegal schemes in fuel trade increases substantially, as fuel becomes a critically important resource for both military operations and the functioning of the civilian economy. Fuel shortages, supply disruptions, and sharp price fluctuations contribute to the emergence of shadow channels that ensure rapid access to fuel through smuggling operations, quality falsification, or document manipulation. These schemes undermine market transparency and create safety risks for consumers, as shadow fuel often fails to meet quality standards.

The trade in medicines also becomes subject to shadowing during wartime, as demand for many medical products rises significantly and official channels are often unable to ensure timely supply.

Under such circumstances, informal markets for pharmaceuticals emerge, including contraband drugs, falsified products, expired goods, or medicines of unknown origin. This generates additional health risks for the population and undermines trust in the healthcare system, which is often unable to respond promptly to these challenges (Lykholat & Levytska, 2022).

Particularly dangerous is the spread of illegal schemes in the trade of dual-use goods—products that may be utilised for both civilian and military purposes. Oversight of such goods becomes significantly more complicated during wartime, as their movement often occurs under accelerated and simplified procedures, creating opportunities for manipulation. Shadow operations involving dual-use goods pose a threat to national security, as such items may end up in the possession of actors whose interests are incompatible with those of the state.

The illegal circulation of cash becomes one of the most active segments of the shadow economy during wartime, as instability in non-cash transactions and growing distrust in the banking system encourage citizens and businesses to rely on cash as their primary means of payment. This creates extensive opportunities for tax evasion, income concealment, and implementation of corruption schemes, thereby increasing the overall level of shadowing. At the same time, cash operations may be used to finance unlawful activities, creating additional risks for the state.

The shadow economy represents one of the most serious threats to Ukraine's economic security, as its scale directly influences the state's ability to fulfil its core functions in conditions of military confrontation. Fiscal risks arising from budget shortfalls limit the state's capacity to accumulate necessary resources for financing the defence sector, which in wartime requires stable and predictable funding. When economic actors conceal income and conduct unofficial operations, the fiscal base contracts significantly, creating a structural budget deficit and increasing the state's dependence on external assistance (Smyrna, 2023).

Insufficient budget revenues are further exacerbated by the fact that the shadow economy disrupts the logic of systemic financial planning, as the opacity of financial flows makes it impossible to accurately forecast expenditures and revenues. Under such conditions, the state is forced to use debt instruments or reduce investment in critically important sectors, thereby deepening structural imbalances in the economy. In wartime, these imbalances become especially acute, as any reduction in fiscal capacity directly affects the country's defence potential and its ability to ensure the security of its citizens.

The impact of the shadow economy on the labour market manifests itself in its destabilisation, which weakens the country's human resource potential and leads to the degradation of human capital. Informal employment deprives workers of social protections, lowers their level of security, and creates conditions under which qualified personnel gradually leave the country in search of better opportunities. This trend produces deep social inequality, as part of the population is forced to work without legal safeguards, reducing their opportunities for professional development and intensifying the marginalisation of vulnerable groups.

Labour market destabilisation has a cumulative effect, as declining official employment reduces contributions to pension and social insurance funds, thereby threatening the long-term sustainability of the social protection system. Under wartime conditions, these processes become particularly significant because social stability is a key element of internal security and societal resilience. When a considerable share of economic relations occurs outside the legal framework, the state loses the ability to shape a fair and competitive labour market.

The shadowing of economic activity significantly undermines the country's investment attractiveness, as the opacity of economic operations, instability of the regulatory environment, and high corruption risks create negative expectations among potential investors. The absence of equal competitive conditions deprives legal businesses of opportunities for growth, as shadow actors gain economic advantages by avoiding taxes, regulatory compliance, and quality standards. This erodes healthy

competitive dynamics and reduces the incentives for firms to modernise, innovate, and engage in long-term planning (Yanishin et al., 2023).

Small and medium-sized enterprises (SMEs) are particularly vulnerable to the effects of the shadow economy, as informal practices create conditions in which official enterprises cannot compete with actors operating outside the regulatory framework. During wartime, this problem becomes acute because SMEs form the backbone of economic resilience and a source of social stability; yet they are forced to reduce production or cease operations entirely due to unequal market conditions. The shadow economy thus diminishes the country's ability to ensure balanced regional development, deepening economic disparities.

The connection between the shadow economy and criminal networks constitutes one of the most dangerous aspects of its impact on economic security, as the shadow sector provides financial resources for criminal groups, enabling them to expand their activities. This interaction is further reinforced by corruption, which allows criminal networks to operate beyond state oversight. When corruption becomes an entrenched element of economic processes, the political system gradually loses legitimacy, creating preconditions for political destabilisation.

The destructive influence of the shadow economy on political institutions is exercised through systems of informal connections that create alternative decision-making channels beyond public scrutiny. Such networks undermine the state's ability to implement fair regulation, deepen institutional weakness, and create the risk of power concentration in the hands of groups pursuing private interests. Under wartime conditions, these processes intensify, as the need for rapid decision-making may generate opportunities for abuses and further shadow expansion.

The shadow economy poses a serious threat to macro-financial stability, as violations of budgetary discipline, declining tax revenues, and financial opacity create conditions for rising debt burdens and devaluation pressures. In such a situation, the state is compelled to employ monetary policy instruments to stabilise the economy, which may result in inflationary risks or restricted access to financing for businesses. The long-term effect of these processes is a weakening of economic autonomy, as the state becomes increasingly dependent on external creditors and institutions, limiting its ability to pursue policies aligned with national interests (Predborskyi, 2014).

Summarising the impact of the shadow economy on economic security, it can be argued that its influence is multifaceted and deeply embedded in the functioning of the state. Shadowing disrupts fundamental mechanisms of economic development, weakens institutional resilience, and generates risks for societal stability. Under wartime conditions, these risks acquire a critical character, as the level of economic security directly determines the state's capacity for defence and recovery.

Counteracting the shadowing of the economy during wartime requires a comprehensive approach that combines institutional reforms, digital instruments, tax modernisation, and cooperation between the state, business, and civil society. Strengthening the institutional capacity of the state is a primary condition for reducing the shadow sector, as institutions are responsible for implementing the rules that regulate economic processes. During wartime, it is crucial to focus on reinforcing supervisory functions, which requires modernising the anti-corruption system and reforming law enforcement agencies that must receive sufficient resources and authority to operate effectively (Kondrat, 2025).

Enhancing institutional capacity also requires increasing the transparency of public governance and minimising opportunities for abuse, which involves creating effective mechanisms of internal and external audit. The effectiveness of anti-corruption instruments must rely on integrating preventive and punitive measures that not only identify corrupt behaviour but also disrupt the conditions that give rise to it. In wartime, institutional anti-corruption mechanisms must operate continuously, as any weakness automatically creates preconditions for shadow expansion.

The digitalisation of state services represents one of the most effective means of reducing shadow practices, as digital tools ensure transparency of operations, data automation, and the reduction of

human intervention. The introduction of electronic auditing, electronic tax services, and electronic systems for monitoring high-risk operations creates conditions for the automatic detection of anomalies associated with tax evasion or manipulation of financial flows. Such technologies enable efficient oversight and minimise opportunities for corrupt interference (Kononenko et al., 2024).

Digitalisation also contributes to the development of e-evidence systems, which allow automatic recording of violations and increase transparency in decision-making processes. During wartime, this becomes particularly important, as a significant share of public services is provided remotely, creating opportunities for optimising administrative procedures. Digital tools make it possible to create a unified information space among state bodies, improving risk monitoring and reducing opportunities to exploit legislative loopholes.

One of the key areas of countering economic shadowing is tax system reform, aimed at creating incentives for businesses to transition into the legal sector. Reducing the tax burden on micro- and small enterprises, as well as simplifying tax administration procedures, can significantly decrease the motivation of economic actors to rely on shadow schemes. It is essential to ensure the stability of tax policy, as frequent rule changes create uncertainty that pushes businesses into informal practices (Vysotska et al., 2025).

Tax incentives must be combined with clear oversight mechanisms to prevent optimisation schemes that may evolve into shadow operations. In the post-war period, the tax system must move toward reducing regulatory pressure while increasing the responsibility of businesses for financial transparency. Such a balance will strengthen trust in the state and raise the level of legality of economic activity.

Analytical monitoring tools that utilise risk-based approaches and large datasets enable in-depth analysis of financial operations and rapid identification of potential violations. The use of machine-learning algorithms for modelling risks and analysing anomalies in payment transactions can significantly increase the effectiveness of combating the shadow economy. In this context, open registries should serve as a primary source of data, ensuring public oversight and reducing the likelihood of hidden privileges for certain actors.

The development of analytical instruments must be accompanied by the creation of integrated data-exchange platforms among state institutions, ensuring better coordination and eliminating duplication of functions. This approach allows for the formation of a comprehensive picture of economic processes and enables precise identification of shadow operations, which often mask themselves as regular business activities. The use of modern analytical methods should become a fundamental element of the economic security system.

Effective counteraction to the shadow economy requires active cooperation among the state, businesses, and civil society, as only shared responsibility can ensure a reduction in the scale of shadow activity. Dialogue between government bodies and the entrepreneurial sector should aim to harmonise regulatory conditions that maintain a balance between economic freedom and transparency. Civil society organisations can play a significant role in monitoring public policy and informing the population about the risks associated with shadowing (Suvorova & Kulhanik, 2023).

Collaboration among different actors enables the formation of social intolerance toward shadow practices, which is essential for the long-term reduction of shadow activity. In the post-war period, it is crucial to ensure the involvement of civil society in reconstruction processes, as transparent interaction between citizens and the state strengthens public trust and reduces the prevalence of informal operations. Such a model of cooperation contributes to the formation of an institutional culture that prevents the re-emergence of informal practices.

International partners play an important role in promoting economic transparency, as they provide not only financial assistance but also expert solutions that help modernise the institutional architecture of the state. The involvement of international organisations in customs and tax reform facilitates the implementation of standards consistent with global practices and helps create an environment

unfavourable to shadow operations. During wartime, international partners can provide access to monitoring technologies, analytical platforms, and data exchange systems, substantially increasing the effectiveness of efforts to combat the shadow economy.

Summarising the mechanisms for countering shadowing, it can be argued that the effectiveness of state policy in this sphere depends on the coherence of institutional, digital, tax, and social instruments, which must operate in a mutually reinforcing manner. During wartime, combating the shadow economy should become one of the priorities of economic policy, as the level of economic security directly determines the state's capacity for recovery and resilience. Such a strategy must be based on an integrated approach that ensures not only the reduction of shadow practices but also the strengthening of public trust in the state as a guarantor of legal order.

Conclusion. The conducted study has demonstrated that the shadow economy under martial law acquires a systemic and multidimensional character, affecting not only economic indicators but also the institutional resilience and national security of Ukraine. Shadowing intensifies due to a combination of external and internal factors: reduced state supervisory capacity, the destruction of logistical chains, resource shortages, the growth of informal employment, corruption risks, and large-scale migration processes. Under such conditions, the shadow sector generates parallel economic practices that distort competitive conditions, reduce fiscal revenues, and undermine the state's ability to ensure defence capability and social stability.

At the same time, the findings show that combating shadowing requires the integrated application of institutional, tax, digital, and anti-corruption instruments, which must operate in a mutually reinforcing manner. Effective de-shadowing is possible only if transparency in public governance is enhanced, the tax system is modernised, risk-based monitoring is implemented, digital control systems are expanded, and business and civil society actively participate in forming a culture of intolerance toward informal practices. During wartime and the post-war recovery period, these measures become not only an economic necessity but also a strategic prerequisite for strengthening national security.

Future research should focus on the empirical assessment of the impact of specific segments of the shadow economy on the defence sector, financial stability, and labour market dynamics; evaluating the effectiveness of digital analytical platforms in detecting shadow operations; and analysing regional differences in shadow activity, particularly in areas close to the frontline. It is also promising to study behavioural models of economic actors under crisis conditions and to develop adaptive policy mechanisms aimed at minimising shadow-related risks during both wartime and post-war recovery.

References:

1. Blinov, V., & Cherep, O. (2025). Lohistyka pid chas viiny ta problemy z yakymy ztykaiutsia pereviznyky [Logistics during the war and problems faced by carriers]. *Stalyi rozvytok ekonomiky*, 1(52), 204–209. <https://doi.org/10.32782/2308-1988/2025-52-28> [in Ukrainian]
2. Vysotska, I., Nahirna, O., & Papirnyk, S. (2025). Podatkove rehuliuvennia yak instrument protydii tinovii ekonomitsi [Tax regulation as a tool to counteract the shadow economy]. *Naukovyi visnyk Lvivskoho derzhavnoho universytetu vnutrishnikh sprav (seriia ekonomichna)*, 1, 12–19. <https://doi.org/10.32782/2311-844x/2025-1-2> [in Ukrainian]
3. Zhuk, O. P. (2024). Struktura ta tendentsii zainiatosti naselennia Ukrayny v umovakh viiny [Structure and trends of employment in Ukraine under wartime conditions]. *Efektyvna ekonomika*, 11. <https://doi.org/10.32702/2307-2105.2024.11.31> [in Ukrainian]
4. Kondrat, A. V. (2025). Systema subiektiv zapobihannia tinizatsii ekonomiky [The system of actors preventing the shadowing of the economy]. *Law and Society*, 1, 582–588. <https://doi.org/10.32842/2078-3736/2025.1.85> [in Ukrainian]
5. Kononenko, L., Kolomoiets, O., & Bykadorova, N. (2024). Vplyv cyfrovych tekhnolohii na tinovu ekonomiku: Ekonomiko-pravovyi aspekt [Impact of digital technologies on the shadow economy: Economic and legal aspect]. *Ekonomika ta suspilstvo*, 65. <https://doi.org/10.32782/2524-0072/2024-65-64> [in Ukrainian]

6. Lykholat, S. M., & Levytska, M. Ye. (2022). Doslidzhennia vplyvu viiny na rynok likarskykh zasobiv Ukrayny [Study of the impact of the war on the Ukrainian pharmaceutical market]. *Naukovi zapysky Lvivskoho universytetu biznesu ta prava. Seriia ekonomichna. Seriia yurydychna*, 35, 203–209. <https://doi.org/10.5281/zenodo.7765286> [in Ukrainian]
7. Pylypchenko, O. O. (2015). Tinova ekonomika: Poniattia, prychyny vynyknennia ta napriamy podolannia [Shadow economy: Concept, causes, and ways to overcome]. *Derzhava i pravo. Seriia "Politychni nauky"*, 68, 193–203. [in Ukrainian]
8. Predborskyi, V. A. (2014). Tinova ekonomika: Synerhetychnyi fenomen [Shadow economy: A synergetic phenomenon]. *Formuvannia rynkovykh vidnosyn v Ukrayni*, 4(155), 7–13. [in Ukrainian]
9. Sakhnevych, B., Bezuglova, I., & Fedotov, O. (2025). Vplyv viiny na masshtaby tinovoї ekonomiky v Ukrayni [Impact of war on the scale of Ukraine's shadow economy]. *Social Development: Economic and Legal Issues*, 5. <https://doi.org/10.70651/3083-6018/2025.5.10> [in Ukrainian]
10. Smyrna, K. (2023). Tinizatsiia ekonomiky yak zahroza ekonomichnii bezpetsi Ukrayny [Shadow economy as a threat to Ukraine's economic security]. *Naukovi perspektyvy*, 11(41). [https://doi.org/10.52058/2708-7530-2023-11\(41\)-685-698](https://doi.org/10.52058/2708-7530-2023-11(41)-685-698) [in Ukrainian]
11. Suvorova, S. H., & Kulhanik, O. M. (2023). Tinova ekonomika v Ukrayni: Stan ta shliakhy podolannia [The shadow economy in Ukraine: State and ways to overcome]. *Tsyfrova ekonomika ta ekonomichna bezpeka*, 8(08), 168–172. <https://doi.org/10.32782/dees.8-28> [in Ukrainian]
12. Docenko, A. (2020). The essence, prerequisites, and consequences of the shadow economy in the modern world. *Scientific Notes of Taurida National V.I. Vernadsky University. Series: Economy and Management*, 70(2). <https://doi.org/10.32838/2523-4803/70-2-16>
13. Poplyuyko, Y. V., & Melnyk, M. O. (2025). Assessing the level of Ukraine's shadow economy under martial law and identifying key influencing factors. *Statistics of Ukraine*, 109(2). [https://doi.org/10.31767/su.2\(109\)2025.02.02](https://doi.org/10.31767/su.2(109)2025.02.02)
14. Yanishin, Y. S., Dudyak, R. P., & Vovk, O. V. M. (2023). Shadow economy in Ukraine and its determinants. *Scientific Messenger of LNU of Veterinary Medicine and Biotechnologies*, 25(101), 22–30. <https://doi.org/10.32718/nvlvet-e10103>