

UDC 330.101.54
JEL Classification: A10, C18
DOI: <https://doi.org/10.54929/2786-5738-2023-9-03-06>

ASSESSING UKRAINE'S SHADOW ECONOMY: METHODS AND KEY DRIVERS

ОЦІНКА ТІНЬОВОЇ ЕКОНОМІКИ УКРАЇНИ: МЕТОДИ ТА КЛЮЧОВІ ФАКТОРИ

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This study comprehensively assesses Ukraine's shadow economy, focusing on evaluation methodologies and identifying key determinants. It aims to provide insights into the intricacies of Ukraine's shadow economy, shedding light on its size, impact, and underlying drivers. The study critically reviews assessment approaches and conducts empirical testing within the Ukrainian context to refine estimations. By employing a comprehensive approach, it assesses the shadow economy's size and drivers, considering factors such as tax rates, unemployment, and GDP growth. The study emphasizes the importance of a context-specific approach and the need for regular updates to assessment methods to align with current economic conditions. The research offers valuable insights into Ukraine's shadow economy and its key drivers, laying the foundation for informed policy decisions. It sets the stage for future studies to explore the dynamics and potential solutions related to Ukraine's shadow economy.
Key words: shadow economy; assessment methods; fiscal landscape; determinants; customs and tariff regulation.

Дослідження присвячене багатогранному питанню тіньової економіки в Україні. Акцентується увага на методах оцінки та ключових детермінантах, що використовуються для вимірювання її розміру та впливу. Зауважується, що тіньова економіка постійно становить значну перешкоду для економічного ландшафту України, стабільно складаючи значну частину її ВВП. У статті характеризується явище «тіньової економіки», її особливості та види, підкреслюється різниця вітчизняної та європейської термінології. Визначаються ключові чинники, що впливають на рівень тіньової економіки, такі як податкові ставки, рівень безробіття та зростання ВВП. У статті критично розглядаються існуючі підходи до оцінювання частки тіньової економіки, які спираються на вітчизняні та міжнародні наукові дослідження, спрямовані на розкриття особливостей функціонування даного феномену в Україні. Аналізуючи ці методи в українському контексті, автор має на меті вдосконалити та підвищити точність оцінок, що в кінцевому підсумку дозволить сформулювати цінні висновки для урядовців. Для даного дослідження були використані офіційні джерела, такі як Державна служба статистики та Міністерство фінансів України. Основний вектор дослідження спрямований на формування чіткої позиції стосовно розробки комплексного підходу до аналізу тіньової економіки в Україні, а також на створення підвалин для розробки науково обґрунтованої політики та ініціативи для ефективного подолання загроз, які створює тіньова економіка. Підкреслюється необхідність застосування контекстно-орієнтованих підходів, а також важливість регулярного оновлення методів оцінки відповідно до мінливих економічних умов, що забезпечує ефективність стратегій та заходів протягом тривалого часу. Зазначається, що проведення макроекономічного аналізу структури зовнішньої торгівлі може допомогти у виявленні тіньових схем, пов'язаних із митно-тарифним регулюванням. Наголошується, що подальші дослідження, зосереджені на еволюції тіньової економіки та її адаптивності, можуть надати важливу інформацію про ефективність таких заходів.
Ключові слова: тіньова економіка; методи оцінки; фінансовий ландшафт; детермінанти; митно-тарифне регулювання.

Statement of the problem in a general form and its connection with important scientific or practical tasks. The Ukrainian economy has long grappled with the persistent challenge of a substantial

shadow economy. According to data compiled by the Ministry of Economy of Ukraine, the size of the shadow economy has remained consistently high, accounting for approximately 27-31% of the country's GDP in

2019-2023 [7]. This prevalence of informal economic activities poses significant hurdles to Ukraine's post-military aggression recovery, necessitating the exploration of effective measures to overcome the shadow economy and bolster state budget revenues.

To address this pressing issue, a comprehensive theoretical analysis of the methodologies employed in assessing the level of the shadow economy is imperative. Such an analysis should be tailored specifically to the Ukrainian context, where the extent and impact of the shadow economy are particularly pronounced. By critically examining and evaluating existing assessment methodologies, policymakers and researchers can gain valuable insights into the intricacies of the shadow economy in Ukraine. This, in turn, can inform the development of targeted strategies and interventions to combat its negative effects.

Analysis of the latest studies and publications, which the author relies on, which consider this problem and approaches to its solution. Research conducted by both foreign and Ukrainian scholars has focused on exploring various methods for assessing and understanding the determinants of the shadow economy. Ivanchenko and Semibratova's study provides a comprehensive summary of these methods, categorizing them into two groups: micro (direct) and macro (indirect) approaches [17]. Similarly, a team of Ukrainian scientists has systematized the methods into three groups: accounting and statistical methods, methods of open inspection, and economic and legal methods [12].

Foreign scholars Dell'Anno and Davidescu identify three main assessment methods: direct approaches that capture the scope of shadow economic activity at a particular moment in time (survey methods), indirect methods to track the development of shadow activities through time using macroeconomic variables, and structural equation models (SEM) that estimate shadow activity as an "unobserved" variable [6].

A study conducted by Berger et al. [1] investigated the relationship between the debt-to-GDP ratio and the size of the underground economy in Greece. The findings confirmed theoretical assumptions, demonstrating a positive correlation between the two variables. The authors highlighted the significant influence of factors such as high tax rates, the complexity of taxation systems, tax burden, social security burden, size of the public sector, and total public expenditure on the shadow economy. Moreover, the study revealed that less developed economies or transition economies tend to exhibit different sets of determinants, often linked to the imperfections in their tax systems and labor markets. In contrast, more developed economies generally experience a lower scale of the shadow economy, primarily due to proper business and labor market regulations. Later, Berger et al. [2] found that the shadow economy can be restrained by reducing income disparity while

spending and tax decentralization have minimal effects.

Remeikiene and Gaspareniene [16], Lithuanian scholars, provided a comprehensive characterization of the shadow economy across fiscal, economic, legal, and statistical contexts. They also analyzed the strengths and weaknesses of theories explaining the phenomenon of the shadow economy. In addition, they conducted an empirical study examining the effect of shadow economy drivers on the size of the shadow economy in Ukraine between 2005 and 2012 [10].

The experts from the Kyiv-Mohyla Academy have made a significant contribution to the research and economic modeling of Ukraine's shadow economy. Their team developed an aggregate macro model for Ukraine, using a system of simultaneous equations to capture the relationships between key macroeconomic indicators such as the exchange rate, employment, inflation, GDP, discount rate, labor demand, and the level of Ukraine's shadow economy [14].

This article addresses unresolved issues within the broader problem of Ukraine's shadow economy. It enhances existing estimation methodologies, explores unique aspects of Ukraine's shadow economy, and provides tailored policy recommendations. The study emphasizes the need for longitudinal research, regional and sectoral variations analysis, and comparative studies with peer economies in the region. In summary, it offers a comprehensive understanding of Ukraine's shadow economy and practical insights for policymakers and stakeholders.

Formulation of the goals of the article (statement of the task). This study aims to comprehensively assess Ukraine's shadow economy, focusing on evaluation methodologies and identifying key determinants.

The methodology employed in this study involves a comprehensive approach to assess Ukraine's shadow economy. Data collection is initiated through official sources such as the State Statistics Service and the Ministry of Finance. To achieve the set goal, the study conducts an extensive review of existing shadow economy estimation methods in Ukraine, focusing on their strengths and weaknesses for potential enhancements. This approach aims to identify key drivers of the shadow economy, encompassing variables such as tax rates, unemployment, and GDP growth.

Presentation of the main research material. In accordance with the reasons and nature of the business activity, the International Labour Organization (ILO) experts categorize the unobserved economy into several components: the shadow economy, informal economy, illicit economic activity and output, unrelated to the economy (production for personal use only), and procedures that are statistically intractable due to flawed data collection systems [13, p. 22].

While the term “shadow economy” is commonly used in Ukraine and scientific research [9], EU countries prefer the term “informal economy” [11].

The State Statistics Service of Ukraine [18, p. 2] defines the shadow economy as legal activities that are hidden from public officials to avoid taxes, social security payments, mandatory minimum wage standards, compliance with working hours, workplace safety and health norms, as well as specific administrative processes, including statistical reporting. In essence, this interpretation aligns with the international definition of the informal economy and undeclared labor within the formal sector of European countries. Determinants of the shadow economy have received significant attention in the literature and studies conducted by international organizations.

The relative impact of shadow economy determinants in OECD countries, expressed as a percentage, includes factors such as the scale of the shadow economy, individual income tax, indirect taxes, taxation sentiment, rates of unemployment and self-employment, GDP growth, and free business environment [6]. Experts hypothesize that the tax burden has a significant impact on the scope and growth of the shadow economy in OECD countries – the shadow economy grows as a result of higher tax burdens.

In the context of fiscal considerations, Remeikiene and Gaspareniene [16, p. 520] link the shadow economy to tax evasion and black accounting practices. Concealing profits from fiscal and regulatory

authorities serves as a mechanism to offset excessive fiscal pressure and maintain a certain level of profitability. A growing share of the shadow economy in GDP can result in macroeconomic imbalances and pose risks to a country's economic security. Tax evasion efforts impose significant financial losses on transition countries' budgets [12, p. 246]. Therefore, conducting macroeconomic analysis of foreign trade structures can help identify shadow schemes related to customs and tariff taxation.

Canh and Dinh Thanh [3] utilized panel econometric methods and found that export diversification and quality have non-linear effects on the shadow economy. Hence, non-linear methods are recommended for studies focusing on customs and tariff taxation.

The Ministry of Economy of Ukraine [15, p. 3] employs four methods to estimate the size of the shadow economy: the energy method, the monetary method, the “household expenditures – retail turnover and services” method, and the method of enterprise loss-making. These methodologies were approved by the Decree of the Ministry of Economy of Ukraine No. 123 of 18.02.2009 “On Approval of the Methodological Recommendations for Calculating the Level of the Shadow Economy” [4] and have been further enhanced by the Decree of the Ministry of Economy No. 104 of 20.01.2021 [5]. Table 1 presents an overview of the methods used to calculate the shadow economy in Ukraine.

Table 1

Methods for calculating the shadow economy in Ukraine

Methods	Essence	Drawbacks	Recommendations
1	2	3	4
Method of "household expenditures – retail turnover"	A direct method that measures the difference between consumer spending on products and the total amount of goods sold to the population by all legal organizations	The sample survey of household living conditions is voluntary, which may affect the representativeness of the sample.	Ensure that the sample survey of household living conditions is representative.
Financial method	An indirect method that determines trends in the proportion between the cost of goods, works, and services used in production and gross income of enterprises (business associations), institutions, organizations in the country	The base period for calculation is 2003, which may not accurately reflect current economic conditions.	It is necessary to constantly review the base period for the calculation, as the UAH exchange rate appreciated significantly in 2014 and in 2022.
Monetary method	An indirect method that calculates the sum of weighted values using the Gutmann method (Gutmann, 1977) and the modified method	The base year for calculation is 1991, which may not accurately reflect current economic conditions.	
Energy method	An indirect method that contrasts the rise of GDP with the growth of residential electricity consumption. It is presumable that an increase in residential electricity use will follow an increase in real GDP. It is presumed that electricity is used for underground production if domestic electricity consumption is growing faster than GDP.	The base period for calculation is 1990, which may not accurately reflect current economic conditions.	

1	2	3	4
Method of loss-making enterprises	It determines the marginal minimum and maximum shadow economy ratios as a share of GDP within which the level of the shadow economy is located.	To compute the maximum marginal shadow economy ratio, it is assumed that all successful businesses report only unadulterated data, and all unprofitable enterprises conceal the entire gross value added of their output, not just their profits.	The approach to estimating the gross value added of loss-making enterprises should be reviewed.

Source: compiled by the author

This methodology has been utilized in Ukraine since 1990 and has consistently relied on the same determinants. However, it is crucial to revise the base period due to the significant appreciation of the hryvnia, which has influenced consumer and producer behavior and resulted in a decline in purchasing power. The “household expenditures – retail turnover”, energy, and enterprise loss-making methods encompass imports of goods, imports and exports of energy, and imports of production inputs, respectively.

Conclusions from this study and prospects for further research in this direction. In conclusion, this study has undertaken a comprehensive assessment of Ukraine’s shadow economy, with a focus on evaluation methodologies and the identification of key determinants. The study has shed light on the persistent challenge posed by Ukraine’s shadow economy, emphasizing the need for a context-specific approach. It has also underscored the importance of regularly updating assessment methods to align with evolving economic conditions.

Future research can delve deeper into the dynamics of the shadow economy by exploring its evolution over time. Longitudinal studies can provide valuable insights into the effectiveness of policy interventions and the adaptability of the shadow economy to changing economic landscapes. Additionally, further investigation into the specific sectors or regions most affected by shadow economic activities can guide targeted policy measures.

Moreover, comparative analyses with other post-transition economies can offer a broader perspective on shared challenges and potential solutions. Collaborative efforts between researchers and policymakers should be encouraged to facilitate the implementation of evidence-based policy reforms. To conclude, Ukraine can effectively combat the shadow economy by refining its assessment methodologies, implementing strategic tax reforms, fostering collaboration, and continuing to advance research in this critical domain.

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