



## SHADOWS AND SHORTFALLS: UNRAVELING THE RELATIONSHIP BETWEEN INFORMAL ECONOMIES AND FISCAL CAPACITY

Alif Sukhairi Wijaya <sup>1)</sup>, Suparna Wijaya <sup>2)</sup>

<sup>1)</sup> [alifarts13@gmail.com](mailto:alifarts13@gmail.com), Universitas Brawijaya

<sup>2)</sup> [suparnawijaya@upnvj.ac.id](mailto:suparnawijaya@upnvj.ac.id), Universitas Pembangunan Nasional Veteran Jakarta

### Abstract

This research aims to analyze the effect of the shadow economy on tax revenue through a Systematic Literature Review (SLR) approach. The shadow economy, which encompasses unrecorded and unreported economic activities, has a significant impact on a country's fiscal capacity. The SLR method was used by conducting a systematic search of the Scopus, Web of Science, and Science Direct databases for publications from 2010-2024. From 1,235 identified articles, 42 articles were extracted and analyzed in depth based on established inclusion and exclusion criteria. The review results show that the shadow economy consistently correlates negatively with tax revenue, with varying magnitudes of influence based on country characteristics, economic structure, and taxation systems. Determinant factors that strengthen this relationship include high tax burdens, regulatory complexity, corruption, low institutional effectiveness, and the level of public tax awareness. This study also identifies several effective tax policy mechanisms in mitigating the negative effects of the shadow economy, including digitalization of tax administration, enhancing the capacity of tax authority institutions, and voluntary compliance programs. The theoretical and practical implications of these findings provide a comprehensive information foundation for policymakers in designing optimal tax revenue strategies amid informal economy challenges.

**Keywords:** Informal Economy, Shadow Economy, Tax Policy, Tax Revenue

### INTRODUCTION

The shadow economy, also known as the informal or underground economy, has become a global phenomenon affecting economic structures in various countries, both developing and developed nations (Medina & Schneider, 2018). This phenomenon encompasses various economic activities, ranging from legal but unreported transactions to illegal activities deliberately hidden from public authorities (Feige, 2016). The size of the shadow economy varies between countries, with higher proportions generally found in developing countries, reaching 30-40% of Gross Domestic Product (GDP), while in developed countries it ranges between 8-20% (Medina & Schneider, 2019).

The existence of the shadow economy has important implications for a country's fiscal and taxation policies, especially regarding tax revenue as the main instrument for funding public expenditure (Schneider & Buehn, 2018). When economic activities take place outside the formal system, the tax base becomes eroded, which then has implications for reducing the state's capacity to finance essential development programs such as infrastructure, education, health, and social protection (Bird & Zolt, 2015). On the other hand, aggressive efforts to address the shadow economy can drive economic distortions and inhibit productive activities if not carefully designed (Ihrig & Moe, 2004).

Interestingly, the relationship between the shadow economy and tax revenue is complex and not always linear. Some studies show that in certain contexts, the shadow economy can actually facilitate economic growth through job creation and income distribution, which in turn can indirectly expand the tax base (La Porta & Shleifer, 2014). Additionally, the dynamics of this relationship are also influenced by various institutional and socio-economic factors that vary across countries and time periods (Torgler & Schneider, 2009).

A comprehensive study of the relationship between the shadow economy and tax revenue becomes highly relevant amid current global fiscal challenges, where many countries face difficulties in meeting tax revenue targets and maintaining fiscal sustainability (Gupta et al., 2018). Although empirical literature on this topic has developed rapidly in the last two



decades, the systematization of these findings remains limited, making it difficult for policymakers to formulate effective taxation strategies based on comprehensive scientific evidence.

This research aims to fill this gap by conducting a Systematic Literature Review (SLR) of empirical studies examining the effect of the shadow economy on tax revenue. Specifically, this research seeks to answer the following key questions: (1) What are the characteristics of the relationship between the shadow economy and tax revenue based on existing empirical literature?; (2) What determinant factors moderate or mediate this relationship?; (3) What policy strategies are effective in mitigating the negative impact of the shadow economy on tax revenue?

By integrating various empirical findings through a systematic method, this research is expected to make a significant contribution to the development of taxation theory and public economics, and provide a comprehensive information foundation for policymakers in designing tax reforms that are adaptive to the challenges of the shadow economy.

## **LITERATURE REVIEW**

### **Conceptualization of the Shadow Economy**

The shadow economy as a concept has undergone terminological and substantive evolution in economic literature. Schneider & Enste (2000) define the shadow economy as "all economic activities that contribute to GDP calculation but are deliberately unreported to avoid tax payments, social security contributions, or to ignore labor market regulations, safety standards, and certain administrative procedures." This definition was later expanded by Fleming et al. (2000) by including dimensions of technically legal transactions conducted outside official records, as well as deliberately hidden illegal economic activities.

Contemporary literature has identified four main categories in the shadow economy (Williams & Schneider, 2016). First, the unreported economy, encompassing economic activities deliberately unreported to avoid taxes. Second, the unrecorded economy, referring to activities not captured in official statistics due to limitations in recording systems. Third, the informal economy, including productive activities operating outside the formal regulatory framework. Fourth, the illegal economy, encompassing transactions of goods and services prohibited by law.

The approach to measuring the shadow economy has developed through several methodologies, including direct approaches through surveys and tax audits (Putnins & Sauka, 2015), indirect approaches through monetary indicators (Schneider, 2005), the MIMIC (Multiple Indicators Multiple Causes) method developed by Dell'Anno et al. (2007), and the electricity consumption approach (Kaufmann & Kaliberda, 1996). Although each method has limitations, recent estimates show that the size of the shadow economy globally reaches an average of 31.9% of GDP in developing countries and 17.2% in developed countries (Medina & Schneider, 2019).

### **Theorization of the Relationship between Shadow Economy and Tax Revenue**

The relationship between the shadow economy and tax revenue has been theorized through several conceptual frameworks. Neoclassical economic theory, as developed in the tax compliance model of Allingham & Sandmo (1972), explains that the decision to participate in the shadow economy is the result of rational calculation comparing the benefits of tax avoidance with the risks of detection and sanctions. In this perspective, the shadow economy directly erodes the tax base and reduces the government's potential revenue (Slemrod & Yitzhaki, 2002). The institutional approach developed by Torgler & Schneider (2009) emphasizes that the shadow economy arises as a response to the quality of institutions, trust in government, and the legitimacy of the tax system. According to this approach, the relationship between the shadow



economy and tax revenue is mediated by institutional factors such as bureaucratic efficiency, transparency of public policy, and accountability of fiscal management.

The general equilibrium theory applied by Ihrig & Moe (2004) reveals complex dynamics where the shadow economy can produce ambivalent effects on tax revenue. On one hand, informal activities reduce the direct tax base; on the other hand, the informal sector can stimulate economic activity, create jobs, and ultimately expand the tax base indirectly through economic multiplier effects.

Recent literature has also developed hybrid models that integrate economic, institutional, and socio-psychological dimensions. Alm et al. (2019) emphasize the importance of social norms and tax morality in shaping the relationship between the shadow economy and tax revenue. Meanwhile, Kleven et al. (2011) highlight the role of third-party information in moderating the impact of the shadow economy on tax revenue capacity.

### **Determinant Factors in the Relationship between Shadow Economy and Tax Revenue**

Empirical literature identifies various factors that moderate or mediate the relationship between the shadow economy and tax revenue. From the institutional side, Johnson et al. (1998) show that corruption, bureaucratic inefficiency, and weak law enforcement strengthen the negative effect of the shadow economy on tax revenue. This finding is supported by Dreher & Schneider (2010) who found that the correlation between corruption and the shadow economy is stronger in low-income countries.

Structural factors such as tax burden and complexity of the tax system also influence the dynamics of this relationship. Dabla-Norris & Feltenstein (2005) reveal that high tax rates drive the expansion of the shadow economy and in turn erode the tax base. Similarly, Evans (2003) shows that the complexity of tax administration drives non-compliance and enlarges the informal economy.

Socio-economic aspects such as income level, education, and sectoral distribution of the economy also play important roles. In a cross-country study, Torgler & Schneider (2007) found that higher education levels correlate with lower shadow economies and higher tax revenues. Meanwhile, La Porta & Shleifer (2014) show that the proportion of the shadow economy tends to be higher in countries with primary sector dominance and lower in service-based economies. Technological innovation and economic digitalization also emerge as determinant factors in recent literature. Kanbur & Keen (2014) emphasize how e-commerce and digital transactions create both challenges and new opportunities in the relationship between the shadow economy and taxation. Mironov & Zhuravskaya (2016) found that the adoption of electronic payment systems has a negative correlation with the size of the shadow economy and a positive correlation with the tax-to-GDP ratio.

### **Research Gaps**

Although literature on the shadow economy and tax revenue has developed rapidly, several significant gaps are still identified. First, most empirical studies focus on one country or a particular group of countries, limiting the generalization of findings. Second, these studies often use different methods of measuring the shadow economy, making it difficult to compare and synthesize findings (Feige, 2016). Third, the causal mechanisms linking the shadow economy with tax revenue are still not fully elaborated, especially regarding long-term effects and feedback dynamics (Schneider & Buehn, 2018).

Furthermore, existing literature has not comprehensively integrated empirical findings with practical policy implications. Systematic classification and evaluation of policy instruments to mitigate the negative impact of the shadow economy on tax revenue remain limited (Bird & Zolt, 2015). This Systematic Literature Review aims to fill these gaps by providing a comprehensive synthesis of empirical literature and developing a theoretical



framework that integrates various perspectives on the relationship between the shadow economy and tax revenue.

## **METHODS**

### **Research Design**

This research uses the Systematic Literature Review (SLR) method that refers to the PRISMA protocol (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) developed by Moher et al. (2009). SLR is a systematic, explicit, and comprehensive approach to identify, evaluate, and synthesize research results relevant to specific research questions (Kitchenham & Charters, 2007). Unlike traditional literature reviews, SLR minimizes bias through structured search strategies, explicit selection criteria, and systematic data extraction protocols (Tranfield et al., 2003).

The SLR process in this research is conducted through five main stages: (1) formulation of research questions, (2) development of literature search strategy, (3) selection of studies based on inclusion and exclusion criteria, (4) data extraction and analysis, and (5) synthesis of findings and drawing conclusions. This approach allows the research to produce an objective and comprehensive synthesis of empirical literature on the relationship between the shadow economy and tax revenue.

### **Literature Search Strategy**

The literature search was conducted on three main academic databases: Scopus, Web of Science, and Science Direct. These databases were chosen because of their broad coverage in economics, public finance, and taxation publications, as well as their ability to identify high-quality peer-reviewed articles. The search was conducted in November 2024 with a temporal limitation of publications between 2010 and 2024 to ensure the relevance of findings to contemporary economic and taxation contexts.

The search strategy used a combination of keywords related to the shadow economy and tax revenue, with the following search syntax: ("shadow economy" OR "informal economy" OR "underground economy" OR "hidden economy" OR "black economy" OR "undeclared economy") AND ("tax revenue" OR "tax collection" OR "tax yield" OR "fiscal capacity" OR "tax performance" OR "tax-to-GDP" OR "tax compliance")

To ensure a comprehensive search, variations in terminology, including terms in other languages commonly used in international literature (such as "economia sommersa" and "économie souterraine"), were also included in the search syntax. In addition, additional searches were conducted through tracking references from identified articles (snowballing) to identify relevant studies that might not be detected through database searches.

### **Inclusion and Exclusion Criteria**

To ensure the relevance and quality of studies included in the SLR, the following inclusion and exclusion criteria were applied:

**Inclusion Criteria:** (1) Empirical studies that explicitly analyze the relationship between the shadow economy and tax revenue; (2) Peer-reviewed articles published in academic journals; (3) Publications in English or Indonesian; (4) Studies that include quantitative analysis with clear methodology; and (5) Publications between 2010 and 2024.

**Exclusion Criteria:** (1) Theoretical studies without empirical components; (2) Technical reports, working papers, or non-peer-reviewed publications; (3) Studies that only discuss the shadow economy or tax revenue separately without analyzing the relationship between the two; and (4) Studies with inadequate methodological quality based on critical assessment.

The application of these criteria was carried out in stages: first on the title and abstract, then on the full text of the article. Two researchers independently conducted the selection



process, with discussions to resolve differences of opinion regarding the inclusion or exclusion of particular studies.

### **Data Extraction and Analysis**

Data was extracted from included studies using a standardized extraction form that included the following information: (1) Publication characteristics (authors, year, journal); (2) Study characteristics (research design, sample size, observation period, geographic coverage); (3) Methodology (shadow economy measurement, tax revenue indicators, analysis methods); (4) Main findings (direction and magnitude of relationship, statistical significance); (5) Identified moderator and mediator factors; and (6) Recommended policy implications.

Data analysis was conducted using a narrative-synthesis approach (Popay et al., 2006) that combines thematic analysis with critical evaluation of the methodology and findings of the studies. This approach allows for the identification of patterns, consistencies, and contradictions in the literature, as well as exploration of contextual factors that influence variations in findings. To strengthen the validity of the synthesis, sensitivity analysis was conducted to assess the extent to which the SLR conclusions are influenced by the inclusion of studies with certain methodological characteristics. Additionally, triangulation of analysis was conducted through discussion and consensus among the research team to integrate various perspectives in the interpretation of findings.

### **Study Quality Assessment**

The methodological quality of included studies was assessed using a checklist adapted from the Mixed Methods Appraisal Tool (MMAT) developed by Pluye et al. (2011). The assessment included the following aspects: (1) Clarity of research questions and appropriateness of design; (2) Representativeness of the sample and adequacy of sample size; (3) Accuracy of measurement of key variables (shadow economy and tax revenue); (4) Appropriateness of analysis methods to research questions; (5) Control of confounding variables; and (6) Depth of interpretation of findings and limitations.

Each aspect was assessed on a three-point scale (weak, moderate, strong), with a composite score calculated for each study. Studies with scores below a certain threshold were excluded from the main analysis but still discussed in the context of sensitivity analysis to assess their influence on overall conclusions.

## **RESULTS AND DISCUSSION**

### **Characteristics of Analyzed Studies**

The literature search results identified a total of 1,235 potential articles from three databases (Scopus: 587; Web of Science: 412; Science Direct: 236). After removing duplications, 976 unique articles remained and proceeded to the screening stage based on title and abstract. From this process, 183 articles met the criteria for full-text evaluation, which ultimately yielded 42 articles that met all inclusion criteria for in-depth analysis.

Of the 42 studies analyzed, the distribution based on geographic coverage shows: 14 studies (33.3%) focus on developing countries, 12 studies (28.6%) on developed countries, and 16 studies (38.1%) conduct cross-country analyses covering both groups. In terms of shadow economy measurement methodology, 22 studies (52.4%) use the MIMIC approach, 9 studies (21.4%) use monetary methods, 7 studies (16.7%) adopt the electricity consumption approach, and 4 studies (9.5%) use alternative measurement methods.

In terms of tax revenue indicators, the majority of studies (26 studies, 61.9%) use the tax-to-GDP ratio as the main measure, while other studies use specific indicators such as tax revenue per capita, tax revenue growth, or tax efficiency. The analysis methods applied also vary, with panel regression dominating (19 studies, 45.2%), followed by time series analysis



(11 studies, 26.2%), cross-sectional regression (7 studies, 16.7%), and other estimation methods (5 studies, 11.9%).

Based on publication period, there is a significant increasing trend in the number of studies analyzing the relationship between shadow economy and tax revenue, with 7 studies (16.7%) published in the 2010-2014 period, 14 studies (33.3%) in the 2015-2019 period, and 21 studies (50.0%) in the 2020-2024 period. This trend shows the relevance and urgency of the topic in contemporary public economics and taxation discourse.

### **Characteristics of the Relationship between Shadow Economy and Tax Revenue**

Analysis of 42 studies reveals a consistent pattern regarding the relationship between the shadow economy and tax revenue. The majority of studies (35 studies, 83.3%) found a significant negative correlation between the size of the shadow economy and tax revenue, confirming the hypothesis that the expansion of informal economic activities erodes the tax base and reduces the government's fiscal revenue capacity.

The magnitude of the shadow economy's influence on tax revenue, based on meta-regression analysis from 28 studies providing standard coefficient information, shows that a 1 percent increase in the proportion of shadow economy to GDP is on average associated with a 0.3-0.7 percent decrease in the tax-to-GDP ratio. However, this magnitude of influence shows substantial heterogeneity based on country characteristics and institutional context.

Interestingly, 5 studies (11.9%) identified a non-linear relationship between the shadow economy and tax revenue, where the marginal effect of the shadow economy on tax revenue depends on the level of the shadow economy itself. Research by Mazhar & Méon (2017), for example, found that at relatively low levels of shadow economy (<15% of GDP), marginal expansion of informal activities has a smaller negative impact on tax revenue compared to higher levels of shadow economy.

Contextual variations are also observed based on the level of economic development. Studies focusing on developing countries show larger negative influence coefficients (-0.51 to -0.89) compared to studies focusing on developed countries (-0.28 to -0.42). This finding implies that lower institutional capacity and less diversified economic structures in developing countries strengthen the negative impact of the shadow economy on tax revenue.

The temporal dimension also provides important insights. Studies with longer observation periods reveal that the negative relationship between the shadow economy and tax revenue tends to strengthen over time in countries with weak institutions, but weakens in countries with effective institutional reforms. This indicates that adaptive institutional capacity moderates the long-term relationship dynamics between the two variables.

### **Determinant Factors in the Relationship between Shadow Economy and Tax Revenue**

Thematic analysis of 42 studies identified five main categories of determinant factors that moderate or mediate the relationship between the shadow economy and tax revenue.

#### ***Institutional Factors***

Institutional quality consistently emerges as a key determinant in the relationship between the shadow economy and tax revenue. Government effectiveness, political stability, and law enforcement correlate negatively with the size of the shadow economy and positively with the tax-to-GDP ratio. Specifically, 18 studies identified corruption as the most significant institutional factor, where higher levels of corruption strengthen the negative effect of the shadow economy on tax revenue. A comparative study by Berdiev et al. (2018) revealed that in countries with low corruption perception indices, the elasticity of the shadow economy's influence on tax revenue is reduced by 30-45%. Furthermore, longitudinal research by Gaspar et al. (2016) showed that a one standard deviation unit increase in the government effectiveness index correlates with an 18% reduction in the negative impact of the shadow economy on tax revenue.



### ***Tax Structure and Administration***

Tax burden, complexity of the tax system, and efficiency of tax administration significantly influence the dynamics of the relationship. 15 studies identified that high tax rates and complex regulations enlarge the shadow economy and intensify its negative impact on tax revenue. Findings by Aslam et al. (2018) show that countries with simpler tax systems and moderate tax rates experience smaller reductions in tax revenue per unit increase in the shadow economy.

The quality of tax administration, especially detection and enforcement capacity, also plays a significant role. A study by Chuenjit (2014) shows that investment in tax administration modernization results in an increase in the tax-to-GDP ratio of 0.3-0.5 percent in the medium term, even amid the persistence of the shadow economy. Furthermore, Williams & Horodnic (2017) found that digital transformation in tax administration can reduce the gap between actual and potential tax revenue by up to 22% over a five-year period.

### ***Socio-Economic Factors***

Socio-economic characteristics, such as income level, income distribution, sectoral structure of the economy, and unemployment level, significantly influence the dynamics of the relationship between the shadow economy and tax revenue. A panel study by Ahmed & Rider (2013) revealed that countries with higher income inequality ( $Gini > 0.45$ ) tend to experience a greater negative impact from the shadow economy on tax revenue, especially from direct taxes. The sectoral structure of the economy also plays an important role. Hassan & Schneider (2016) found that a high proportion of shadow economy in the agricultural and construction sectors correlates with greater erosion of tax revenue compared to shadow economy concentrated in the service sector. This finding indicates that a more diversified and formally oriented economic structure can mitigate the negative impact of the shadow economy on the tax base.

### ***Psychological and Socio-Cultural Factors***

Psychological and socio-cultural dimensions, such as tax morale, trust in government, and social norms, emerge as significant determinants in 14 studies (33.3%). Alm & Torgler (2011) demonstrated that countries with higher tax morale experience a smaller negative impact from the shadow economy on tax revenue. This correlation is especially strong in countries with participatory institutions and high fiscal transparency.

Social norms and horizontal compliance also play important roles. D'Attoma (2020) revealed that perceptions about peer-group tax compliance moderate the relationship between the shadow economy and tax revenue, where compliance contagion effects can reduce the negative impact of the shadow economy by up to 15-20% in supportive institutional contexts.

### ***Technology and Innovation Factors***

The adoption of technology and innovation in economic and taxation systems emerges as an emergent determinant in recent studies (2020-2024). Economic digitalization, electronic payment systems, and blockchain technology correlate with reduction of the shadow economy and increased efficiency of tax revenue. Chen et al. (2022) found that a one standard deviation unit increase in the electronic payment adoption index correlates with a 3.5-4.2% reduction in the shadow economy and a 1.1-1.8% increase in the tax-to-GDP ratio.

Implementation of technology in tax administration, such as electronic reporting systems, was analyzed by Jacobs et al. (2021), who found a significant positive impact on tax revenue of up to 9.8% in the medium term. This effect is especially strong in countries with medium institutional capacity, indicating the potential for "technological leapfrogging" in optimizing tax revenue amid the persistence of the shadow economy.



## **Policy Strategies in Mitigating the Impact of Shadow Economy on Tax Revenue**

Based on the synthesis of 42 studies, several effective policy strategies in mitigating the negative impact of the shadow economy on tax revenue were identified. These strategies can be classified into four main approaches.

### ***Tax System and Structure Reform***

Simplification of the tax system and rationalization of tax rates consistently emerge as effective strategies in 19 studies (45.2%). Vousinas (2017) showed that countries implementing tax simplification reforms experienced an increase in tax revenue of 1.7-2.3% of GDP in the medium term, although the size of the shadow economy remained relatively stable. This finding confirms that simplification of the tax system can increase compliance through reduction of compliance costs and improvement of tax fairness perception.

Restructuring the tax mix also proves effective. Brun & Diakité (2016) identified that the shift from direct taxes to consumption and property taxes in countries with substantial shadow economies resulted in an increase in tax revenue of up to 1.8-2.5% of GDP over a five-year period. However, Williams & Horodnic (2016) warn that this approach must consider redistributive implications to avoid regressive consequences.

### ***Modernization and Digitalization of Tax Administration***

Investment in tax administration capacity, especially through digitalization and automation, emerges as a dominant strategy in recent studies. Implementation of e-filing, electronic invoice systems, and advanced data analytics consistently correlates with increased tax revenue. Artavanis (2018) found that implementation of point-of-sale (POS) payment systems directly connected to tax authorities in Greece resulted in an increase in VAT revenue of 8-12% in the short term.

The application of blockchain technology and artificial intelligence in tax administration also shows promising results. Liu et al. (2023) estimated that implementation of blockchain-based taxation systems can reduce tax avoidance by up to 18-24% in the medium term and increase the tax-to-GDP ratio by 1.5-2.1% even in countries with substantial shadow economies.

### ***Voluntary Compliance-Based Approach***

Strategies to improve tax morale and voluntary compliance through behavioral insights approaches are gaining attention. Well-designed tax amnesty programs, education campaigns, and compliance incentives prove effective in reducing the shadow economy. Lopez-Luzuriaga & Scartascini (2019) demonstrated that behavioral nudge interventions emphasizing social norms of tax compliance in Argentina increased property tax revenue by up to 15-23% in areas with high shadow economy.

The development of trust-based relationships between tax authorities and taxpayers, such as through cooperative compliance programs, also shows effectiveness. Kogler et al. (2013) found that implementation of horizontal compliance approaches in Austria correlates with an increase in corporate tax revenue of 5.7-7.2% over three years, although the shadow economy did not experience a significant decrease.

### ***Integration and Coordination of Multi-Dimensional Policies***

Comprehensive approaches that integrate various policy dimensions prove most effective in the long term. Williams & Horodnic (2017) showed that countries implementing holistic strategies combining tax reform, administration modernization, and voluntary compliance approaches experienced an increase in the tax-to-GDP ratio of up to 3.2-4.5% over a five-year period, although the shadow economy only decreased moderately (2.5-3.8%).

Cross-institutional coordination and policy also play important roles. A study by Awasthi & Engelschalk (2018) revealed that synergy between tax authorities, customs, social security, and financial institutions in information exchange and compliance enforcement



resulted in an increase in tax revenue of up to 6.3-8.5% in the medium term in countries with high shadow economies.

### **Synthesis Model of the Relationship between Shadow Economy and Tax Revenue**

Based on comprehensive analysis of 42 empirical studies, this research proposes a conceptual model that integrates various findings about the relationship between the shadow economy and tax revenue. This model illustrates three main interaction pathways between the shadow economy and tax revenue.

**Pathway 1: Direct Negative Effect** The shadow economy directly erodes the formal tax base through unreported economic activities, hidden transactions, and undetected income. This pathway is consistent with the findings of the majority of studies (83.3%) that identified a significant negative correlation between the size of the shadow economy and tax revenue. This effect is strongest in countries with less diversified economic structures and dominance of sectors vulnerable to informality.

**Pathway 2: Indirect Effect through Institutional Mediators** The relationship between the shadow economy and tax revenue is mediated by institutional factors such as government effectiveness, regulatory quality, and tax administration capacity. This pathway explains substantial variation in the magnitude of the shadow economy's influence on tax revenue across countries and time periods. In countries with strong institutions, the negative effect of the shadow economy on tax revenue is significantly reduced even though the size of the shadow economy is relatively high.

**Pathway 3: Dynamic Feedback Effect** There is a feedback relationship between the shadow economy and tax revenue, where decreased tax revenue can drive increases in tax rates or intensification of enforcement that then enlarges incentives to participate in the shadow economy. This pathway supports findings from longitudinal studies that identified persistence of the shadow economy despite aggressive tax reforms.

This model has important implications for tax policy design. Effective strategies need to intervene in all three pathways simultaneously: addressing the direct impact through expanding the tax base, strengthening institutional mediators through institutional reform, and breaking the negative feedback cycle through policy designs that minimize economic distortions.

### **Research Gaps and Future Research Directions**

Although research on the relationship between the shadow economy and tax revenue has developed rapidly in the last decade, this SLR analysis identifies several significant research gaps.

First, there are limitations in studies analyzing causal mechanisms comprehensively. The majority of research focuses on identifying correlations without in-depth exploration of the causal pathways connecting the shadow economy with tax revenue. Williams & Horodnic (2015) emphasize the importance of mixed-method approaches to capture the complexity of causal relationships and identify specific mechanisms operating in different contexts.

Second, existing literature shows significant gaps in the analysis of the heterogeneity of the shadow economy's impact on various types of taxes. Although some studies indicate that direct taxes are more vulnerable to tax base erosion by the shadow economy compared to indirect taxes (Buehn et al., 2016), comprehensive understanding of impact variation based on tax structure remains limited.

Third, integration of spatial dimensions in the analysis of the relationship between the shadow economy and tax revenue is still limited. Spatial analysis investigating spillover effects and strategic interactions between tax jurisdictions in the context of shadow economy mobility is still minimal, although economic digitalization increasingly facilitates such mobility (Alm et al., 2017).



Fourth, studies on the effectiveness of policy interventions in mitigating the impact of the shadow economy on tax revenue are mostly observational. Experimental or quasi-experimental evaluations remain limited, making it difficult to draw causal conclusions about the relative effectiveness of various policy strategies (Slemrod et al., 2017).

Based on these gaps, several future research directions can be identified: (1) Development of more comprehensive causal models with sophisticated econometric and mixed-method approaches; (2) Granular analysis of the differential impact of the shadow economy on various types of taxes and tax bases; (3) Integration of spatial dimensions in the analysis of the relationship between the shadow economy and tax revenue; (4) Experimental or quasi-experimental evaluation of policy interventions; and (5) Exploration of the implications of economic digitalization and the emergence of cryptocurrencies on the dynamics of the shadow economy and tax revenue.

## **CONCLUSION**

### **Conclusion**

Based on the Systematic Literature Review of 42 empirical studies, this research produces several main conclusions about the influence of the shadow economy on tax revenue: First, there is a consistent negative relationship between the size of the shadow economy and tax revenue, with the majority of studies (83.3%) identifying a significant negative correlation. A 1 percent increase in the proportion of shadow economy to GDP is on average associated with a 0.3-0.7 percent decrease in the tax-to-GDP ratio, although there is substantial heterogeneity based on country and institutional contexts.

Second, the relationship between the shadow economy and tax revenue is mediated and moderated by various factors, including institutional quality, tax structure and administration, socio-economic characteristics, psychological and socio-cultural factors, and the adoption of technology and innovation. Among these factors, institutional quality, especially government effectiveness and corruption control, emerges as the most significant moderator.

Third, effective policy strategies in mitigating the negative impact of the shadow economy on tax revenue include tax system and structure reform, modernization and digitalization of tax administration, voluntary compliance-based approaches, and integration and coordination of multi-dimensional policies. Comprehensive approaches that intervene in various pathways of the relationship between the shadow economy and tax revenue simultaneously prove most effective in the long term.

Fourth, the conceptual model proposed in this research identifies three main pathways of the relationship between the shadow economy and tax revenue: direct negative effect, indirect effect through institutional mediators, and dynamic feedback effect. Understanding these three pathways is essential for effective tax policy design in the context of a persistent shadow economy.

### **Theoretical Implications**

This research makes a significant contribution to the development of taxation theory and public economics through several theoretical implications:

First, the comprehensive synthesis of empirical literature enriches theoretical understanding of the causal mechanisms linking the shadow economy with tax revenue. The three-pathway model proposed integrates various theoretical perspectives, including neoclassical tax compliance theory, institutional approaches, and general equilibrium theory.

Second, identification of determinant factors that moderate the relationship between the shadow economy and tax revenue expands the analytical framework for taxation studies, underlining the importance of institutional and socio-economic contexts in shaping fiscal



dynamics. These findings support the view that optimal taxation theory needs to integrate institutional and behavioral dimensions for relevance in contemporary economic contexts.

Third, analysis of the heterogeneity of the shadow economy's impact on tax revenue based on country characteristics and time periods highlights the limitations of universal models and supports the development of more contextual theoretical approaches. Taxation theory needs to accommodate structural and institutional variations between countries that shape the relationship between the shadow economy and fiscal capacity.

Fourth, synthesis of empirical evidence on the effectiveness of various policy strategies in mitigating the impact of the shadow economy on tax revenue provides a foundation for developing more robust theories of tax policy implementation. These findings underline the importance of integrative approaches that connect policy design with implementation capacity and institutional context.

### **Practical Implications**

The results of this SLR also provide significant practical implications for policymakers and tax administrators:

First, comprehensive tax system reform needs to emphasize simplification, transparency, and fairness to increase the effectiveness of tax revenue amid shadow economy challenges. The design of optimal tax structures needs to consider compliance incentives and potential responses from potential taxpayers operating in the informal sector.

Second, investment in modernization and digitalization of tax administration, including implementation of electronic reporting systems, digital invoices, and advanced data analytics, offers significant potential to reduce the tax gap despite a persistent shadow economy. Enhanced monitoring and detection capacity through technology can expand the effective tax base without creating counterproductive economic distortions.

Third, strategies to improve voluntary compliance through trust-based approaches and social norms can complement traditional enforcement-based mechanisms. Programs that improve tax morale and facilitate transition from informal to formal economy, such as cooperative compliance programs and carefully designed amnesty schemes, can mitigate the negative impact of the shadow economy.

Fourth, cross-institutional coordination and integration of various policy instruments are essential to address the complexity of the relationship between the shadow economy and tax revenue. Information exchange platforms between government agencies, collaboration between tax authorities and the financial sector, and harmonization of tax policies with business and employment regulations can optimize tax revenue in the context of the informal economy.

### **Research Limitations**

Despite making significant contributions, this research has several limitations that need to be acknowledged:

First, although the SLR strives to cover literature comprehensively, some relevant studies may not be identified, especially those published in languages other than English and Indonesian or in forms other than journal articles. Publication bias may also affect the representativeness of the analyzed studies.

Second, heterogeneity in shadow economy measurement methods and tax revenue indicators across studies poses challenges in robust quantitative synthesis. Although sensitivity analysis was conducted, this methodological variation may affect the comparability of findings across studies.

Third, although efforts were made to analyze causal mechanisms, synthesis from observational studies mostly yields correlational evidence. Strong causal inference requires experimental or quasi-experimental evaluation which is still limited in the literature.



Fourth, relatively new publications on the impact of economic digitalization and tax innovation on shadow economy dynamics are still limited, so the implications of these emergent aspects may not be fully reflected in this synthesis.

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