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Fiscal Strategies to Tackle the Shadow Economy: A Literature Review

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ABSTRAK

The shadow economy is a significant challenge in fiscal policy management, especially in developing countries such as Indonesia. This unrecorded economic activity leads to lost tax revenue potential and disrupts the effectiveness of economic policy. This study aims to evaluate fiscal strategies that can be used to reach and tax activities in the shadow economy sector with a circulation-based approach. The method used is a literature study of more than 20 international journals and institutional reports, with SWOT analysis techniques to assess the strengths, weaknesses, opportunities, and threats of the reviewed policies. The results show that the monetary approach, particularly the Currency Demand Approach and the MIMIC Model, is effective as an indirect indicator to estimate the size of the shadow economy. Fiscal strategies such as presumptive taxation, digital payment system integration (such as QRIS), and data estimation-based tax intensification are considered complementary and have the potential to broaden the tax base. International case studies from Germany, India, and Turkey emphasise the importance of synergies between fiscal reform, digital transformation, and strong governance. The findings provide a basis for developing more adaptive, inclusive, and data-driven fiscal policies in Indonesia.

Ekonomi informal merupakan tantangan signifikan dalam pengelolaan kebijakan fiskal, terutama di negara-negara berkembang seperti Indonesia. Aktivitas ekonomi yang tidak tercatat ini menyebabkan potensi pendapatan pajak yang hilang dan mengganggu efektivitas kebijakan ekonomi. Studi ini bertujuan untuk mengevaluasi strategi fiskal yang dapat digunakan untuk menjangkau dan mengenakan pajak pada aktivitas di sektor ekonomi informal dengan pendekatan berbasis peredaran. Metode yang digunakan adalah studi literatur lebih dari 20 jurnal internasional dan laporan institusi, dengan teknik analisis SWOT untuk menilai kekuatan, kelemahan, peluang, dan ancaman dari kebijakan yang ditinjau. Hasil menunjukkan bahwa pendekatan moneter, khususnya Pendekatan Permintaan Mata Uang dan Model MIMIC, efektif sebagai indikator tidak langsung untuk memperkirakan ukuran ekonomi informal. Strategi fiskal seperti perpajakan presumptif, integrasi sistem pembayaran digital (seperti QRIS), dan intensifikasi perpajakan berbasis estimasi data dianggap saling melengkapi dan berpotensi memperluas basis pajak. Studi kasus internasional dari Jerman, India, dan Turki menekankan pentingnya sinergi antara reformasi fiskal, transformasi digital, dan tata kelola yang kuat. Temuan ini memberikan dasar untuk mengembangkan kebijakan fiskal yang lebih adaptif, inklusif, dan berbasis data di Indonesia.

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1. INTRODUCTION

1.1. Background

The shadow economy has long been a persistent challenge in the formulation of fiscal policies across countries, including Indonesia. This unrecorded economic activity encompasses both legal but unreported productive activities and illegal practices that operate entirely outside the legal and administrative system. Its impact is far-reaching, particularly in the form of lost tax potential and reduced efficiency in the allocation of economic resources (Al-Firdaus, 2023). According to the International Monetary Fund (IMF), the size of the shadow economy in developing countries can reach 39%–41% of Gross Domestic Product (GDP), reflecting the vast potential of untapped tax revenue (Schneider et al., 2010).

In Indonesia, the Central Bureau of Statistics (BPS) and the Ministry of Finance highlight that informal economic activities continue to dominate the national economy, especially in trade, services, and agriculture. However, a significant portion of these activities remains beyond the reach of the formal tax system (Hapsari et al., 2023). Despite this limitation, the Directorate General of Taxes (DGT) has consistently met or even exceeded revenue targets over the past three years. At first glance, this achievement reflects intensified tax collection through digitalization, big data utilization, and cross-border information exchange. Yet, much of this success can actually be attributed to windfall revenues from soaring global commodity prices—notably coal, palm oil, and nickel—rather than a structural broadening of the tax base (Arifbillah et al., 2023).

This condition underscores a fundamental problem: Indonesia's fiscal sustainability remains fragile. Revenue performance is vulnerable to fluctuations in commodity cycles, while large segments of economic activity—particularly micro, small, and informal enterprises—remain untaxed. Conventional intensification efforts within the formal sector cannot fully address this challenge. Therefore, some keys research problem emerges:

1. What are the characteristics of shadow economic activities that make them unreachable by the conventional tax system?
2. What fiscal strategies can be used effectively to reach and tax activities in the shadow economy?
3. To what extent can a money circulation-based approach be a relevant and accurate indicator in identifying and estimating shadow economic activity?

Answering these problem requires two interrelated objectives. First, to identify fiscal strategies that are most relevant and feasible to apply in Indonesia's current institutional and technological context in order to reach shadow economy activities**.** Second, to evaluate the relevance of a money circulation–based approach as an indirect proxy for estimating the scale of the shadow economy and as a foundation for tax policy formulation (Awasthi & Engelschalk, 2018)**.**

The contribution of this research lies in filling the gap between Indonesia's short-term fiscal achievements—driven by external windfall factors—and the need for long-term, sustainable tax base expansion. The expected benefits are both practical and academic: (1) providing actionable insights for Indonesia's tax authority to design inclusive fiscal policies that reduce dependency on commodity cycles and expand tax coverage to the informal economy, and (2) advancing scholarly discourse on integrating indirect estimation methods into fiscal strategies in developing economies.

2. THEORETICAL FRAMEWORK

2.1. Shadow Economy Concept

The shadow economy, also known as the underground economy, informal economy, or hidden economy, refers to all economic activities that legitimately produce goods and services, but are not reported to authorities to avoid taxes, regulations, or other legal obligations (Schneider et al., 2010). These activities may include informal trade, uncontracted employment, and small businesses that are not legally registered.

According to Schneider et al. (Schneider et al., 2010), the shadow economy is a part of economic activity that is outside the official statistical system, but still has a real economic contribution. They emphasise that the shadow economy is not an illegal economy in substance, but rather legal activities that are not officially reported, thus potentially disrupting the effectiveness of fiscal policy and tax collection.

Some of the main factors that drive the growth of the shadow economy include:

- High levels of tax and regulatory burdens, which encourage businesses or individuals to avoid administrative obligations (Tanzi, 1999).
- Weak institutional and bureaucratic quality, including corruption, administrative inefficiency, and distrust of government (Torgler & Schneider, 2009).

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- Lack of access to formal financial systems and social protection, especially in developing countries (Gërxhani, 2004).

Common characteristics of the shadow economy include:

- Transactions are cash-based
- No accounting records or official documentation
- Small or micro business scale
- Involvement of informal labour without legal protection.

2.1.3. The contribution or urgency of fiscal policy

The shadow economy has serious implications for fiscal policy and macroeconomic stability. In a fiscal context, unrecognised economic activity leads to a reduced tax base, hindering state revenue (Schneider et al., 2010). When potential taxes are not collected from the informal sector, the state has difficulty in funding public services, and this can widen the budget deficit. Several studies have emphasized that integrating informal economic actors into the tax system could significantly increase revenue potential. For example, Mpofu (2021) show that taxing the informal sector in developing countries could not only enhance fiscal capacity but also promote equity and improve the social contract between citizens and the state. Similarly, Aman-Rana et al (2023) argue that even a modest level of compliance from informal businesses can yield substantial revenue gains, particularly in economies where informality dominates.

In Indonesia, the Central Bureau of Statistics (BPS) estimates that the informal sector contributes more than 50% of total employment and around 30% of GDP, yet much of this activity remains untaxed (BPS, 2023). A World Bank (2018) report on Indonesia's tax policy noted that expanding taxation into the informal sector could significantly improve the tax-to-GDP ratio, which remains among the lowest in the ASEAN region. Research by Iskandar & Mulyawan (2017) further highlights that micro and small enterprises in Indonesia possess latent tax potential that, if gradually formalized, could contribute between 1–2% of GDP in additional revenue. These findings illustrate the substantial fiscal opportunity that remains untapped in Indonesia's informal economy.

In terms of macroeconomics, the shadow economy also creates distortions in economic data such as GDP, unemployment rate, and national productivity. As a result, the effectiveness of monetary and fiscal policies decreases, as economic decisions are made based on information that does not reflect real conditions. Empirical work by Torgler and Schneider (2009) further demonstrates that high levels of shadow economic activity undermine government legitimacy and weaken the credibility of fiscal institutions. In addition, the dominance of the shadow economy can reinforce corrupt practices and exacerbate economic inequality (Gokcekus et al., 2023).

2.2. Previous research (Journals and Reports)

The shadow economy has become an important topic in macroeconomics and public policy studies. Various classic studies have tried to estimate the size and understand the causes of this unrecorded economic activity. Schneider and Enste (2000) identified that high tax burdens, social security contributions, and strict government regulations are the main factors driving the growth of the shadow economy in 76 countries. In addition, corruption also contributes to the expansion of this sector, which negatively impacts official gross domestic product (GDP) growth.

A follow-up study by Medina and Schneider (2018) expanded the estimation coverage to 158 countries in the period 1991-2015. They found that the average size of the shadow economy reached 31.9% of GDP. In this study, a hybrid approach combining *Currency Demand Approach* (CDA) and *Multiple Indicators Multiple Causes* (MIMIC) was used to improve the estimation accuracy. Similar findings were also presented by Buehn and Schneider (2012), who emphasised the importance of institutional quality and law enforcement as key determinants in controlling the shadow economy.

Meanwhile, Tanzi (1999) highlighted the limitations of shadow economy estimation methods, especially the risk of misuse of data in policy making. He emphasised the importance of caution in interpreting the estimation results. Theory-based approaches have also been applied, such as by Elgin and Oztunali (2012) who used theoretical macroeconomic models and found that institutional factors play an important role in determining the size of the shadow economy in different countries.

At the country level, Dell'Anno (2007) applies the MIMIC model to the case of Portugal and shows that tax burden and complex regulations are the main drivers. Meanwhile, Gerxhani (2004) compares the characteristics of the informal sector in developed and developing countries and highlights the role of culture, government policies and labour market conditions as determinants.

Feige (1990) developed a conceptual framework based on *New Institutional Economics*, distinguishing between illegal, unreported, unrecorded and informal economies. He also evaluated various estimation methods including

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monetary approaches and field surveys. Furthermore, Alm and Martinez-Vazquez (2007) underlined the importance of local approaches in measuring the informal economy, especially in Latin America and the Caribbean.

Torgler and Schneider (2009) add that tax morale and institutional quality have a significant influence on reducing the size of the shadow economy, more so than conventional macroeconomic variables.

2.2.2 Shadow Economy in Indonesia

A number of studies have also examined the dynamics of the shadow economy in Indonesia. Setiadi and Syamsudin (2020) compared the CDA and MIMIC approaches in the Indonesian context, and found that the CDA approach produces more conservative estimates, while MIMIC is more flexible in capturing cause and effect indicators.

According to the Multiple Indicators Multiple Cause (MIMIC) model, Amin (2014) stated that the shadow economy in Indonesia had almost doubled in size from 1983 to 2012. It increased from 9.2% to 17.05%. Lately, Marhamah (2020) using CDA estimates that Indonesia's shadow economy about 17.65 % of GDP during 2016-2019. Dewi and Nasution (2022) add that the shadow economy contributes significantly to potential lost tax revenue. Therefore, more inclusive fiscal reforms are needed so that the informal sector can be integrated into the formal tax system.

Utama (2017) highlighted the challenges faced by developing countries, including Indonesia, in undertaking fiscal reforms to reduce the shadow economy. He emphasised the importance of improving tax administration, the use of information technology, and taxpayer education.

Zulkhibri and Ghazali (2015) studied the informal sector in ASEAN and showed that complex regulations, high tax burden, and limited access to formal financial services are the main causes of the informal economy. They suggested comprehensive and inclusive policies as a long-term solution.

2.2.3 Shadow Economy in Germany

In Germany, a consistent use of the MIMIC model was made by Schneider and Buehn (2016) to estimate the contribution of the shadow economy to GDP. Estimates show that in the early 2000s, the size of the shadow economy reached 15-16% of German GDP, and declined to around 10% in 2015. This decline is attributed to improvements in tax administration and digitisation of payments.

2.2.4. Shadow Economy in India

India experienced increased attention to the shadow economy after demonetisation in 2016. A currency demand approach was used to measure the impact. A study by Chakraborty and Krishnankutty (2017) noted that there was a 20-25% decline in informal transactions in the first month, but most activities returned to informal channels within 6 months. This suggests that the cash approach alone is not enough to suppress the informal sector.

2.2.5. Shadow Economy in Turkey

In Turkey, a study by Elgin and Oztunali (2012) combined MIMIC and currency demand to obtain a combined estimate. They found that the shadow economy in Turkey is around 32-35% of GDP, with the main determinants being labour regulation and tax levels. The Turkish government developed an integrated tax and payment system in response to these findings.

2.2.6. Global View of the Informal Sector

Globally, Medina and Schneider (2018) also assessed the effectiveness of night-light intensity-based approaches as a new method for detecting the shadow economy, and reviewed the strengths and weaknesses of existing methods. Meanwhile, the World Bank (2020)stated that high levels of informality are associated with lower per capita income, greater poverty, and weak productivity and investment.

OECD (2017) examines the influence of digital transformation and new technologies on the scale and character of the shadow economy. While technology opens up new avenues for informal activities, it also provides opportunities for tax authorities to improve compliance.

The United Nations Economic Commission for Europe (UNECE) also emphasises the importance of coverage of *unobserved* economic activity in national accounts to ensure comprehensive GDP estimates. Finally, a report by the Asian Development Bank (2022) shows that more than 75 per cent of jobs in some Indonesian provinces are still in the informal sector. This finding underscores the importance of labour and social protection reforms to integrate informal labour into the formal system.

2.3. Flow of Money Circulation

Money circulation is the process of moving money from one party to another in an economic system, which includes various transaction activities, both in the formal and informal sectors (Miura, 2014). The flow of money is an important

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indicator in understanding economic dynamics, including shadow economy activities that often utilise cash transactions and channels that are not officially recorded.

2.3.1. Definition and Components of Money Circulation

According to Mishkin (2019), money circulation includes all money in circulation in society, both in the form of cash (currency) and demand deposits (deposits in banks that can be used for payments). The main components of money circulation include:

- Cash: Physical currency in circulation in the community, including paper and metal banknotes.
- Chiral Money: Account balances at banks that can be used for non-cash transactions, such as transfers and electronic payments.
- Money Supply: The total amount of money available in the economy, which is often measured by

indicators such as M1, M2, and M3, depending on the definition of the money component included.

2.3.2 Money Circulation Process

The flow of money circulation can be described simply through the following cycle (Blanchard, 2017):

Table 1. Flow of Money Circulation

Stage	Process	Main Actor(s)	Output/Impact
1. Money Printing and Distribution	The central bank prints and distributes physical money to commercial banks.	Central Bank (e.g., Bank Indonesia)	Supply of money to the banking system.
2. Distribution of Money by Banks	Commercial banks channel money to the economy through credit and financing.	Commercial Banks	Loans to households, companies, and government.
3. Use of Money by Society and Companies	Money is used for transactions: purchasing goods and services, paying salaries, making investments.	Households, Companies, Government	Creation of demand, production, and investment.
4. Money in the Market	Continuous circulation of money through transactions in goods, services, and labor markets.	All economic actors	Multiplier effect and economic growth.
5. Money Collection and Deposits	Part of the money is saved in banks as deposits, then reallocated as new credit.	Households, Companies, Banks	Savings mobilization and credit creation cycle.

2.3.3. Money Circulation and Shadow Economic Activity

In the context of the shadow economy, cash circulation is more dominant than demand deposits. Informal activities often use cash to avoid transaction tracking and taxes (Schneider & Enste, 2000b). Therefore, the movement of cash in the economy becomes the main focus in estimating and monitoring hidden economic activities.

Conversely, the increasing use of digital payment systems and demand deposits can help narrow the space for the shadow economy, as transactions are recorded and can be monitored by fiscal authorities (Slemrod & Weber, 2012).

2.4. Money Circulation and Indications of Informal Activities

2.4.1. Currency Demand Approach

The currency demand approach is one of the most commonly used indirect methods to estimate the size of the shadow economy. This method was first developed by Cagan (1958) and further developed by Tanzi (1983), with the basic assumption that informal economic activities use more cash to avoid administrative and tax trails.

The model estimates the demand for cash (M0) as a function of variables such as real income, interest rate, tax burden, and regulation. The difference between actual and estimated cash demand used in the formal economy is considered as a proxy for informal economic activity.

Although this approach is relatively easy to implement and suitable for use in developing countries, it has limitations. One of the main weaknesses is the assumption that only the informal economy uses cash, whereas it is possible that the demand for cash increases for other

reasons, such as a lack of confidence in the banking system or a financial crisis (Schneider, 2005).

2.4.2. MIMIC Model (Multiple Indicators Multiple Causes) Approach

The Multiple Indicators Multiple Causes (MIMIC) model is an econometric approach that models the shadow economy as a latent variable (unobserved) that is influenced by various causes and indicated by a number of indicator variables (Buehn & Schneider, 2012). This approach is more flexible than currency demand because it incorporates various economic, social, and institutional factors.

Some commonly used causes include tax burden, labor regulation, and institutional quality. Meanwhile, indicators can include cash circulation, hours worked in the official sector, or official GDP growth. By using path analysis, this model can measure the relative influence of various variables on the shadow economy.

The advantage of the MIMIC model is its ability to capture the complexity of factors that cause the shadow economy. However, it has also been criticized because the final results still need to be calibrated using other methods, such as currency demand or surveys (Dell'Anno, 2007).

2.5. Fiscal Strategy against the Shadow Economy

Controlling and taxing the shadow economy is a major challenge for many countries, especially developing countries (Gnangnon, 2023). Various fiscal strategies have been developed to broaden the tax base and improve fiscal compliance, without overburdening informal businesses. The three main approaches widely discussed in the literature are: presumptive taxation, digital payment system integration, and estimation-based tax intensification.

2.5.1. Presumptive Taxation

Presumptive taxation is a taxation system that relies on estimates or indirect approaches to taxpayers income or turnover, especially aimed at small and informal businesses that do not have adequate financial records (Bird & Wallace, 2003). This method assumes the amount of income based on certain indicators, such as the size of the business premises, the number of employees, or the volume of raw material purchases.

One example of the success of presumptive taxation is found in African countries such as Nigeria and Kenya, which implement a turnover tax system for informal MSME actors. The purpose is not only to increase revenue, but also as a mechanism to gradually attract informal actors into the formal tax system (Joshi et al., 2014).

While practical, this approach needs to be carefully designed to avoid resistance, especially if the estimation is perceived as unfair or burdensome for micro businesses.

2.5.2. Digital Payment System Integration

Digital transformation, especially in payment systems, provides a great opportunity to reduce the dominance of cash transactions that have characterized the shadow economy. Digital payment integration helps tax authorities track transaction flows, narrow the space for informal activities, and improve fiscal transparency and efficiency (Panjaitan & Yuna, 2024).

In India, programs such as the Unified Payments Interface (UPI) have increased financial inclusion and narrowed the shadow economy space, especially after the demonetization policy (Smith, 2025). In Indonesia, Bank Indonesia and DGT have developed cashless society programs and integration of e-invoicing and e-payments to strengthen supervision and expand the tax database.

However, digital adoption requires infrastructure readiness, digital literacy, and data protection so as not to create new inequalities.

2.5.3. Intensification of Risk-Based Taxation

The estimation-based tax intensification strategy takes an analytical approach to tax potential through statistical methods and data modelling, including the use of third-party data and predictive analytics. This model relies on indirect data from various sources to estimate tax liabilities and map tax potential (Venkataraman & Kundu, 2016).

In some countries, including Turkey and Mexico, this model is used to target informal actor groups that have the greatest formal potential, by combining estimates of electricity consumption, transaction activity, and property data (IMF, 2019). Indonesia itself has started to develop compliance risk management with a data analytics-based approach, although it is still in the early stages of strengthening its data ecosystem.

This approach is considered strategic because it is able to improve compliance without the need to expand the scope of manual audits, and is a long-term solution in building a tax administration that is adaptive to the shadow economy.

2.6. Application of Fiscal Strategy to the Shadow Economy in Indonesia

Indonesia faces major challenges in controlling its vast shadow economy, especially in

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the MSME and informal sectors. The Indonesian government has adopted various fiscal strategies aligned with international concepts, aimed at broadening the tax base and improving taxpayer compliance through innovative and digital approaches.

2.6.1. Presumptive Tax and Its Application

Presumptive taxation has been implemented in Indonesia through the final Income Tax (*PPh*) scheme for MSMEs, which uses a flat rate based on a certain turnover (for example, 0.5% of turnover). This system makes it easier for micro and small businesses to comply with tax obligations without having to prepare complicated financial reports (DJP, 2020). This presumptive tax encourages MSME players from the informal sector to enter the formal system, while increasing state revenue (Adrinata, 2024).

2.6.2. Digital Payment System Integration: The Role of QRIS

One of the main innovations in encouraging transaction transparency and reducing cash transactions is the development of the Quick Response Code Indonesian Standard (QRIS) launched by Bank Indonesia since 2019. QRIS is an integrated digital payment system that combines various electronic payment service providers with one standard QR code (Bank Indonesia, 2019).

The implementation of QRIS has several positive impacts in combating the shadow economy, including:

- Increase transparency of transactions, making it easier for recording and tracking by tax authorities.
- Expanding financial inclusion, by inviting informal MSME players to enter the formal digital ecosystem.
- Simplify tax reporting, as electronic transaction data can be integrated with the DGT system.

By 2023, the use of QRIS will reach millions of merchants throughout Indonesia, especially in the MSME sector and retail trade. This shows significant progress in payment digitalization that can reduce shadow economic activities that have been dominantly using cash transactions (Bank Indonesia, 2023).

2.6.3. Tax Intensification Based on Estimation and Digital Data Utilisation

Indonesia's Directorate General of Taxes (DGT) has begun to implement a data- and information technology-based tax intensification strategy through programmes such as Data Analytics for Tax Compliance and the development of e-invoicing and e-reporting systems. By utilising digital transaction data from QRIS, e-commerce, and financial institutions, the DGT can identify potential taxpayers in the informal sector and improve compliance through a risk based compliance approach (DJP, 2022).

This combination of presumptive taxation, payment digitization, and data analysis demonstrates the synergy of fiscal strategies that are expected to narrow the space for the shadow economy in Indonesia in a sustainable manner.

2.7. Research Framework

To ensure clarity of the research flow, this study employs a structured framework that connects the theoretical foundation, analytical approach, and strategic implications. The framework is designed to guide the reader through the logical steps of the research until the final conclusions are drawn:

1. **Identification of the Problem**
   - The starting point is the fiscal challenge posed by the shadow economy in Indonesia.
   - The persistence of informal and unrecorded activities reduces the effective tax base and creates fiscal vulnerability, especially when revenue targets are temporarily met due to commodity windfalls.
2. **Literature Review and Conceptual Basis**
   - Key concepts on shadow economy, money circulation, and fiscal policy are synthesized from Scopus- and WoS-indexed journals, as well as institutional reports (IMF, World Bank, OECD, ADB).
   - Prior studies establish monetary approaches (Currency Demand Approach, MIMIC model) as credible proxies for estimating the shadow economy.
3. **Analytical Approach**
   - The study applies **SWOT analysis** to three main fiscal strategies: presumptive taxation, digital payment system integration (e.g., QRIS), and estimation-based tax intensification.
   - SWOT is used not only to list internal and external factors, but also to contextualize Indonesia’s fiscal position (low tax ratio, heavy reliance on commodities, and a large informal sector).
4. **Strategic Mapping and Implications**

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- The SWOT results are interpreted by combining SO, WO, ST, and WT strategies.
- The mapping provides insight into feasible policy paths for Indonesia, aligned with institutional capacity and technological readiness.

5. **Conclusion and Policy Recommendation**
   - Findings lead to strategic options for Indonesia's Directorate General of Taxes (DGT), emphasizing the integration of monetary-based estimation with digital fiscal strategies.
   - The framework ensures that recommendations are not generic, but grounded in both global evidence and Indonesia's fiscal structure.

3. RESEARCH METHODOLOGY

3.1. Approach and Type of Research

This research adopts a literature study approach, relying exclusively on secondary sources without primary data collection. The objective is to synthesize established knowledge on the shadow economy, money circulation, and fiscal strategies, and then critically evaluate their relevance for Indonesia.

3.2. Data Collection Technique

The literature was obtained through a systematic review of academic databases and institutional repositories. To ensure academic rigor and credibility, the following criteria were explicitly applied:

1. **Indexing and Reputation**
   - Only journals indexed in Scopus or Web of Science (WoS) were included to guarantee scholarly quality and peer-reviewed standards.
   - Examples of journals used include: *International Tax and Public Finance*, *Journal of Development Studies*, *Journal of Economic Literature*, *Journal of Applied Economics*, and *Journal of Economic Psychology*.
2. **Institutional Reports**
   - Authoritative reports from globally recognized organizations such as the IMF, World Bank, OECD, and Asian Development Bank (ADB) were included. These sources provide reliable data and international perspectives on informal economies and fiscal policy.
3. **National Contextual Sources**
   - To ground the research in Indonesia, official publications from the Directorate General of Taxes (DGT), Bank Indonesia (BI), and the Central Bureau of Statistics (BPS) were also analyzed. These documents ensure contextual alignment between global theory and local practice.
4. **Inclusion Criteria**
   The literature must explicitly discuss:
   a) estimation methods of the shadow economy (monetary/circulation-based),
   b) fiscal strategies aimed at informal or hard-to-tax sectors, or
   c) policy evaluations and case studies relevant for Indonesia or comparable developing economies.

This approach ensures that the research rests on a balanced combination of academically reputable journals and high-authority institutional reports, making it both academically credible and practically relevant.

3.3 Analysis Technique

The collected data was analysed using SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis technique. This analysis was used to evaluate the strategy of money circulation-based taxation in addressing the shadow economy by identifying:

- Strengths: Positive aspects and potential success of existing strategies
- Weaknesses: Internal barriers and shortcomings in strategy implementation
- Opportunities: External factors that can support policy development and effectiveness
- Threats: Risks and challenges from the external environment that may hinder the success of the strategy.

Analysis Framework

This research builds on two main components in the analytical framework as follows:

a. **Estimating the Size of the Shadow Economy through the Monetary Approach.**
   This analysis examines the method of estimating the shadow economy using the monetary approach, which focuses on observing the circulation of cash in the economy as an indicator of informal and hidden activities. This approach is based on the theory that an increase in the amount of cash outside official transactions reflects

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unrecorded economic activity (Medina & Schneider, 2018).

b. **Fiscal Policy Evaluation with SWOT Approach.**
The evaluation is conducted on various fiscal strategies such as presumptive tax, digital payment system integration (e.g. QRIS), and tax intensification based on estimation data. SWOT analysis is used to understand the strengths and weaknesses of the policy, as well as identify opportunities and threats that may affect the effectiveness of its implementation in Indonesia and the global context (Helms, 2006).

4. RESULTS AND DISCUSSIONS

4.1. Estimation of Shadow Economy Size through Monetary Approach

Based on the results of the literature review, monetary approaches such as the Currency Demand Approach (CDA) and the MIMIC Model are consistently used to estimate the size of shadow economic activity. The study by Amin using MIMIC model (2014) states that the Indonesia's shadow economy doubling since 1983 to 2012, while by using CDA, Indonesia was estimated it between 17.65 % of GDP during 2016-2019 (Marhamah, 2020).

The CDA approach relies on the difference between actual cash utilisation and estimated money needs in the formal sector. When cash circulation increases beyond the rational limit of the formal sector, this excess is indicated as informal economic activity. On the other hand, the MIMIC model presents a multivariate statistical framework by incorporating causal factors (e.g. tax burden, regulation) and indicators (e.g. cash use and official GDP growth).

Both approaches show that cash circulation is a key proxy in detecting shadow economy activity, although it needs to be combined with other data to improve accuracy.

4.2. Indonesia's Fiscal Position in Context

Before interpreting the SWOT analysis, it is important to place Indonesia's fiscal policy within its structural context. Three key characteristics define Indonesia's fiscal position today:

1. **Low Tax Ratio**
   - Indonesia's tax ratio remains between 10–11% of GDP, significantly below the ASEAN average of around 15% (World Bank, 2025). This reflects a limited fiscal capacity compared to peer economies and highlights the urgency of broadening the tax base.
2. **Heavy Reliance on Commodities**
   - Revenue performance in the past three years has largely been supported by windfall gains from global commodity price spikes (coal, palm oil, nickel). This reliance creates fiscal vulnerability because revenue achievements are highly dependent on external price cycles rather than structural improvements in tax collection.
3. **High Share of Informal Sector**
   - More than 50% of Indonesia's workforce is employed in the informal sector, contributing around 30% of GDP (BPS, 2023). Yet, this large segment of the economy remains largely untaxed, representing both a fiscal gap and an opportunity for policy reform.

Taken together, these characteristics suggest that Indonesia's fiscal policy operates under structural constraints: low and volatile revenue, dependence on external factors, and weak coverage of the informal economy.

Therefore, the SWOT analysis in this study is interpreted explicitly in light of Indonesia's fiscal position. The resulting strategic implications are not generic but rather tailored to Indonesia's specific challenges and opportunities in strengthening fiscal sustainability.

4.2. Evaluation of Fiscal Strategy: SWOT Analysis

This research evaluates three main fiscal strategies against the shadow economy using a SWOT approach, namely presumptive taxation, payment digitalisation (e.g. QRIS), and tax intensification based on estimated data.

a. Presumptive Tax

Strengths	Simplify tax administration for MSMEs; encourage formalisation of small businesses.
Weaknesses	Prone to inaccurate estimates; resistance from micro-enterprises.
Opportunities	Can be extended to various informal sectors; large and untapped tax base.
Threats	Potential resistance from informal taxpayers; lack of tax literacy.

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The implementation of presumptive taxation in Indonesia through the MSME final income tax scheme (0.5%) has contributed to the formalization of the informal sector (Adrinata, 2024). However, its effectiveness depends on taxpayers' trust in the government and perceptions of fiscal justice (DJP, 2020).

b. *Digital Payment System Integration (Example: QRIS)*

Strengths	Increase transparency of transactions; reduce the dominance of cash in the informal economy.
Weaknesses	Dependence on digital infrastructure; risk of digital literacy gap.
Opportunities	Improved financial inclusion and tax collection efficiency.
Threats	Privacy concerns; resistance from non-digital businesses.

QRIS, implemented by Bank Indonesia, is proven to expand the digitisation of MSME transactions. However, the success of this program is highly influenced by the willingness of businesses to adapt to the digital system and the readiness of infrastructure in the regions.

c. Estimation-based Tax Intensification

Strengths	Optimize third-party data; improve tax monitoring efficiency.
Weaknesses	Reliance on data accuracy and integration across agencies.
Opportunities	Support risk-based compliance tax policy.
Threats	Risk of estimation error and inaccurate labelling of taxpayers.

DGT has started this step through *Data Analytics for Tax Compliance* and e-invoice data integration. However, to reach the shadow economy, this system needs to be supported by national data reform and inter-agency cooperation.

4.3. Strategic Implications and Discussion

The analysis shows that a money circulation-based approach is relevant as an indicator of informal activity. Collaborative and technology-adaptive fiscal strategies are crucial in taxing the shadow economy (Marhamah, 2020). The successful integration of digital payment systems (such as QRIS) not only helps to suppress cash circulation, but also opens up opportunities to expand the tax database.

However, this strategy must consider the local context (Tano, 2024). Challenges such as low digital literacy, public trust in government, and limited access to technology should be addressed through a phased approach and positive incentives.

4.4. International Comparison and Relevance for Indonesia

Case studies from Germany, India and Turkey show that success in curbing the shadow economy does not depend on a single strategy, but rather a synergy between fiscal reforms, the use of technology and improved institutional governance.

Indonesia can take lessons from India on demonetization and digitization of payments, and from Turkey on the use of cross-sector statistical data to map tax potential.

5. Conclusions and Recommendations

This study examines the fiscal strategy in taxing the shadow economy with an approach based on money circulation analysis. Based on the literature study and SWOT analysis, the main findings are as follows:

1. Cash circulation is a key indicator of shadow economic activity, especially in developing countries such as Indonesia. An increase in cash volume that is not in line with formal economic activity may signal unrecorded growth in the informal sector.
2. Monetary approaches, such as the *Currency Demand Approach* and *the MIMIC Model*, are effectively used to estimate the size of the shadow economy. However, the estimation results are highly dependent on the quality of the data and the validity of the model assumptions.
3. The three main fiscal strategies-presumptive taxation, digital payment system integration, and estimation-based tax intensification-have their own

advantages in reaching the informal sector. They are complementary and can be strengthened through an inclusive and technology-driven approach.

4. International case studies show that successfully controlling the shadow economy requires synergies between fiscal policy, institutional reforms and the adoption of digital technology. The experiences of India, Germany and Turkey provide important lessons for Indonesia.

Thus, the strategy of taxing the shadow economy through money circulation analysis can be an important tool for policy designers, although its implementation should be tailored to the administrative capacity, socio-economic conditions, and digital readiness at the national and local levels.

Building upon this conclusion, practical measures are needed to ensure that the proposed strategy can be effectively implemented. Based on the results of the study, the recommendations that can be proposed are as follows:

1. Strengthening the Integration of Tax Data and Digital Payment System
   The government needs to accelerate the integration between the tax system (DGT) and digital payment system (Bank Indonesia, OJK, fintech providers) to detect informal activities in real time.
2. Presumptive Tax Refinement
   Estimation-based taxes should be designed in a fair and proportionate manner, taking into account the sector and capabilities of informal taxpayers. Strong socialization and appeal mechanisms should be provided.
3. Utilisation of Data Analytics Technology
   The estimation-based intensification strategy must be supported by analytics infrastructure and human resources capable of managing big data and developing a riskbased tax system.
4. Education, Incentives, and Gradual Formalisation
   Shadow economy actors should be given incentives (not just sanctions), such as initial tax exemptions, access to formal financing, and business mentoring to make the incentive to enter the formal system attractive and realistic.

7. Research Limitations and Implications

This study has several limitations, among others:

- The literature study approach is not supported by primary data or field interviews, so the analysis is theoretical and conceptual.
- The validity of the findings relies heavily on the accuracy and completeness of the secondary sources reviewed.
- International case studies are used as analogies, but are not fully generalizable to the Indonesian context which is unique in terms of culture, business structure and fiscal capacity.

This study provides important implications for fiscal policy makers and tax authorities, among others:

- The importance of inter-agency collaboration, including DGT, BI, OJK, and Ministry of Communication and Information in building a comprehensive tax data and technology ecosystem.
- The development of fiscal policies that are data-driven and adaptive to digital change is urgent to address economic activity that moves outside the official radar.
- The government needs to adopt a "soft approach" to informal actors, through incentives and facilitation, rather than a repressive or enforcement approach.

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