



Digital Tax Policies and Tax Gap of Informal Sector in Emerging Markets

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KEYWORDS

Digital Tax Policies
Digital Tax Reporting
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TaxPromax

ABSTRACT

Tax gap has been a significant issue for economies worldwide, with the informal sector facing an even greater disparity. It is important to explore how digital tax policies can help address this problem. In light of this, this study investigated the effect of digital tax policies on the tax gap within the informal sector in Southwestern Nigeria. This study employed survey research design, and the population included 3,145 tax officers from the Federal Inland Revenue Service (FIRS) as of December 31, 2023. A sample size of 351 tax officers was determined using the Krejcie and Morgan formula while data was obtained through close ended questionnaire. The data was analysed using partial least square through the aid of SMARTPLS. The empirical results analysis showed that both electronic tax system and digital tax reporting have positive and significant effect on tax gap within the informal sector in southwestern Nigeria with the beta coefficient of 0.354, 0.476, and p-value of 0.020 and 0.016 respectively. Meanwhile, taxpromax showed a positive but statistically insignificant effect on tax gap in the informal sector with the beta coefficient of 0.170 and p-value of 0.393. This study concluded that when identifying factors that can reduce underreporting of income by eligible taxpayers, the usage of online portals for tax filing and payment are significant practice that should be encouraged especially among the informal business sector in southwestern, Nigeria. It is recommended that electronic tax system should be improved on for easy submission of forms and tax calculation for better compliance and reduction in tax gap. Then taxpromax should encourage adopt e-invoice and tax education to increase tax net in the informal sector.

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1. INTRODUCTION

Over the years, tax gap had been a global phenomenon which can be traced to the developed and developing countries in the world. According to the Organization for Economic Cooperation and Development (OECD, 2019) report on measurement of tax gaps, it was mentioned that the key objective of all tax authorities is to improve tax compliance and reduce the tax gap. The concept of the tax gap is multifaceted, encompassing components such as non-filing, underreporting, and underpayment (Lawal et al., 2024). Traditional tax systems have often struggled to effectively manage these components, leading to significant revenue losses (Mbise & Tembulu, 2023). Globalization comes the increasing need for revenue authorities around the world to help countries administer their revenue system to close the tax gaps (Dakhil et al., 2025). The estimate

of tax gap for United Kingdom, shows an overall downward trend over the years, as the percentage tax gap reduced from 6.5% in 2014-2015 to 4.8% in 2022, consisting mostly of the informal sector (HRMC 2023). In the USA, the tax gap is estimated at \$688 billion as at 2021, 11% due to non-filing, 79% for inaccurate tax returns and 10% due to failure to pay taxes owed (IRS 2023). Australia tax gap as at 2021 was 7% (ATO 2023).

Price Waterhouse Coopers (PWC) (2024) reports that Nigeria's tax compliance rate is notably lower than that of other nations, primarily due to inadequate revenue administration and insufficient data, particularly concerning the informal sector. The informal sector, which is a significant component of developing economies and has the potential to substantially contribute to revenue due to its vast size, often escapes the tax

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net because its earnings are not officially recorded (Awa, 2021). The OECD's 2023 Revenue Statistics in Africa highlight that Nigeria's tax-to-GDP ratio in 2021 was 6.7%, significantly below the 15.6% average of 33 African countries. Tax gap negatively impacts the tax-to-GDP ratio. World Bank experts assert that tax revenues exceeding 15% of a country's GDP are crucial for economic growth and poverty alleviation. Countries aim to achieve this not by increasing taxes but by enhancing tax collection and reducing the tax gap (Gaverdovskiy, 2023).

In recent years, the global economic landscape has been profoundly transformed by the advent of digital technologies (Falana et al., 2024). This transformation has extended into the realm of taxation, prompting governments to reconsider and redesign their tax policies to address the complexities introduced by the digital economy (Manabu & Andualem, 2023). One of the most pressing issues is the tax gap, which is the difference between the taxes that are owed and those that are collected (Amaglobeli et al., 2022). The emergence of digital tax policies aims to bridge this gap by leveraging technology to enhance tax compliance, improve efficiency in tax administration, and ultimately increase revenue collection (Adekoya et al., 2019). Digital tax policies, which include measures such as TaxProMax, electronic tax system, electronic invoicing, digital reporting, and real-time tax collection, present a promising solution to these challenges. By automating and streamlining tax processes, these policies not only reduce the opportunity for tax evasion but also increase transparency and accountability within the tax system.

Several countries have already implemented various forms of digital tax policies, with varying degrees of success. For instance, the introduction of mandatory electronic invoicing in countries like Italy and Brazil has resulted in substantial reductions in their tax gaps (Kang'oro et al., 2024). Similarly, the United Kingdom's Making Tax Digital initiative, aims to make the tax administration more effective, efficient, and easier for taxpayers to get their tax right (Mbise & Baseka, 2022). Despite the promising outcomes observed in some jurisdictions, the implementation of digital tax policies is not without its challenges. Issues such as data privacy, cybersecurity, and the digital divide pose significant obstacles to the widespread adoption of these policies (Derrick et al., 2023). Moreover, the transition from traditional to digital tax systems requires substantial investments in technology and capacity building, which may be challenging for developing countries with limited resources (Bellon et al., 2022).

This study seeks to address several research gaps identified in existing literature. While previous studies highlight that the informal sector significantly contributes to tax evasion and low compliance, with factors such as inadequate tax knowledge, poor record-keeping, and high tax rates being major obstacles (Iredele, 2018; Adekoya et al., 2019), there is limited research specifically focused on the impact of digital tax policies on this sector. Although recent studies, like those by Manabu and Andualem (2023) and Mbise and Baseka (2022), demonstrate the potential of digital technologies to enhance tax compliance and revenue mobilization among SMEs and formal sectors, they do not adequately address the unique challenges and dynamics of the informal economy. Additionally, while Bellon et al. (2022) and others have explored the positive spillover effects of digital tax tools like e-invoicing, there remains a significant gap in understanding how such tools can be effectively implemented to improve compliance within the unregulated and

often elusive informal sector in Nigeria. However, there is a lack of research specifically addressing the informal sector, which constitutes a significant part of the Nigerian economy. Existing studies have not explicitly explored the effect of TaxProMax on the tax gap within the informal sector. They have mostly concentrated on tax remittance and revenue generation without directly addressing the discrepancies between potential and actual tax collections in the informal economy. This study aimed to fill these gaps by providing empirical evidence on the effectiveness of digital tax policies in reducing the tax gap and enhancing compliance specifically within Nigeria's informal sector.

This study aims to provide a comprehensive analysis of how these policies can effectively reduce the tax gap, identify the key factors contributing to their success or failure, and offer recommendations for policymakers looking to implement similar measures. By examining the intersection of digital technology and tax policy, this study contributes to the broader discourse on enhancing tax compliance and optimizing tax administration in the digital age. It underscores the importance of adopting innovative solutions to address traditional challenges in tax collection, particularly within the informal sector. This study will also highlight the potential of digitalization to transform tax systems, making them more transparent, efficient, and inclusive. Through its findings, the study aims to inform and influence policy decisions, ultimately leading to more effective tax administration and improved fiscal sustainability in Nigeria and beyond.

The remainder of the paper is structured as follows: Section two will provide a review of relevant literature, while section three will detail the methodology employed in the study. Section four will present the data analysis and discuss the findings. The final section will conclude the study, offering recommendations and outlining the study's contributions.

2. LITERATURE REVIEW

2.1 Conceptual Review

2.1.1 Tax Gap

In the United States, the IRS (2021) defined tax gap as the difference between the true tax liability for a given year and the amount paid on time. This concept, as described by Konrad & Bogdan (2018), emphasizes the gap between taxes owed to the government and what is received. According to the OECD (2020), the tax gap represents the difference between the estimated tax liability under the tax law and the amount of tax that is paid. This definition, endorsed by international organizations like the OECD, provides a broader perspective by considering the legal tax liability and actual payments made. It highlights discrepancies that can arise due to loopholes in tax laws or evasion strategies. Smith (2019) defined the tax gap as the difference between the expected tax revenue if all taxpayers were fully compliant, and the actual tax revenue collected. This definition focuses on theoretical expectations versus real-world outcomes, providing insights into the effectiveness of tax policies and compliance efforts. It underscores the impact of non-compliance on government revenue and fiscal planning. According to HRMC (2023), it encompasses the theoretical tax liability compared to actual payments.

In this study, tax gap is defined as the difference between the amount of tax that taxpayers should pay and the amount that

is actually paid on time. This definition, often used by tax authorities like the IRS, emphasizes the shortfall in tax revenue due to non-compliance or delayed payments. It underscores the importance of timely and accurate tax reporting. The tax gap represents the disparity between the theoretical amount of taxes that should ideally be paid and the actual amount that is received by tax authorities. The tax gap serves as a crucial metric for tax authorities to gauge non-compliance, encompassing factors like underreporting, underpayment, and non-filing among eligible taxpayers, whether within or outside the tax net. It aids in understanding the reasons behind non-compliance and informs strategies to enhance tax revenue by improving compliance. Additionally, it promotes transparency in the tax system by revealing the effectiveness of enforcement efforts over time and distinguishing between unintentional errors and deliberate evasion or avoidance tactics.

2.1.2 Digital Tax Policies

Derrick et al. (2023) described digital tax policies as a set of regulatory measures and technological initiatives aimed at leveraging digital technologies to streamline tax administration, enhance compliance, and improve revenue collection processes. This definition highlights the dual focus of digital tax policies on regulatory frameworks and technological implementations. It emphasizes the role of digital tools in transforming traditional tax systems to make them more efficient and responsive to contemporary challenges. Digital tax policies refer to government strategies that integrate advanced digital tools such as artificial intelligence, blockchain, and real-time data analytics into tax compliance processes to combat tax evasion and increase transparency (Mbise & Baseka, 2022). This definition underscores the technological advancements embedded within digital tax policies, emphasizing their role in enhancing the accuracy and effectiveness of tax compliance efforts through innovative technologies.

Digital tax policies encompass initiatives that facilitate online tax filing, electronic invoicing, and digital reporting systems, aimed at simplifying tax compliance for both taxpayers and tax authorities (Kang'oro, et al., 2024). This definition focuses on the practical applications of digital tax policies, highlighting their role in reducing administrative burdens and enhancing the ease of compliance for taxpayers while also enabling more efficient data management for tax authorities. Digital tax policies involve the implementation of electronic systems for tax registration, payment, and auditing, aimed at modernizing tax administration to align with the digital economy's dynamics (Bellon et al., 2022). This definition emphasizes the modernization aspect of digital tax policies, illustrating how they adapt tax administration practices to keep pace with technological advancements and changing business landscapes. Digital tax policies encompass legislative measures and technological solutions designed to combat tax base erosion and profit shifting (BEPS) in a digitalized global economy, ensuring fair taxation across borders (Manabu & Andualem, 2023). This definition addresses the international dimension of digital tax policies, focusing on their role in addressing challenges posed by cross-border transactions and digital business models, thereby promoting global tax fairness and equity.

In the context of this study, digital tax policies are viewed as a comprehensive framework consisting of both regulatory measures and technological innovations. These policies aim to utilize digital technologies effectively to enhance the efficiency

and effectiveness of tax administration processes. Examples of such measures include TaxProMax, which facilitates automated tax processing and compliance monitoring, electronic tax filing systems that enable taxpayers to submit returns online, and digital tax reporting platforms that allow real-time reporting and analysis of tax data. Together, these initiatives are designed to simplify tax compliance, reduce administrative burdens, improve transparency, and ultimately enhance revenue collection capabilities for tax authorities.

2.1.3 TaxProMax

TaxPro acronym was first adopted in Indian to mean Tax Professional. Federal Inland Revenue Service (FIRS) adopted this with the intention to get the maximum from tax professionalism hence added 'max' to get TaxProMax. TaxProMax is a comprehensive tax administration solution introduced by the Federal Inland Revenue Service (FIRS) in Nigeria (Peter, 2023). It is designed to facilitate and enhance tax compliance among taxpayers by providing various digital services. TaxProMax enables seamless processes such as tax registration, filing, payment, and the automatic crediting of withholding tax, input tax and other credits to taxpayers' accounts (Desi & Bingilar, 2023). It also offers a unified interface that allows taxpayers to manage all their interactions with the tax authority efficiently (David, 2021). Additionally, TaxProMax supports transactions in both Nigerian Naira and other international currencies, (including transfer pricing transactions) thereby accommodating diverse taxpayer needs and enhancing transparency and efficiency in tax administration (Dein & Rufus, 2022).

In this study, TaxProMax is defined as an integrated digital platform developed by the Federal Inland Revenue Service (FIRS) in Nigeria, aimed at modernizing and simplifying tax administration. It encompasses a suite of electronic services that enable taxpayers to register, file taxes, make payments, and manage their tax obligations online. TaxProMax facilitates real-time access to tax information, enhances compliance through automated processes, and provides a centralized view of taxpayer transactions with the FIRS. This digital tool supports transparency, efficiency, and convenience in tax management, contributing to improved revenue collection and administration effectiveness.

2.1.4 Electronic Tax System

Electronic tax system refers to digital platforms and technologies utilized by tax authorities to streamline tax administration processes, including tax filing, payment, and compliance monitoring (Adejuwon & Olasunkanmi, 2023; Dagunduro et al., 2025). Electronic tax system has been shown to significantly enhance efficiency in tax collection and reduce administrative burdens on taxpayers by providing convenient online access to tax services (Falana et al., 2024). An electronic tax system is a digital infrastructure employed by tax authorities to automate and integrate tax-related operations, facilitating seamless taxpayer interactions and improving compliance through technological advancements (Abdulkadir & Alabede, 2022). Edori (2023). This indicates that electronic tax system implementation leads to higher taxpayer satisfaction and compliance rates due to its user-friendly interfaces and real-time transaction capabilities (Dakhil et al., 2025). Electronic tax systems encompass software applications and digital tools deployed by tax administrations to modernize tax processes, promote transparency, and optimize revenue collection through automated workflows (Otegunrin et al., 2022). The findings of

David (2021) demonstrate that electronic tax system adoption enhances tax compliance by reducing errors in tax reporting, minimizing tax avoidance opportunities, and increasing government revenue through efficient tax management.

In this study, electronic tax system is defined as technological frameworks employed by tax authorities to facilitate the electronic submission of tax returns, online payment of taxes, and electronic communication with taxpayers. The primary objective is to enhance the effectiveness and efficiency of tax administration. Electronic tax system is recognized for their capability to combat tax fraud by enabling secure transactions and reducing opportunities for evasion. Additionally, they streamline audit processes by providing real-time access to comprehensive taxpayer data, which enhances accuracy and transparency in compliance monitoring. Ultimately, Electronic tax system contribute to creating a favourable environment for sustainable revenue generation by modernizing tax operations and improving overall administrative efficacy.

2.1.5 Digital Tax Reporting

Digital tax reporting refers to the use of electronic systems and technologies for taxpayers to fulfill their tax obligations, such as filing tax returns and making payments, electronically (Falana et al., 2025). It aims to streamline tax processes, reduce errors, and enhance compliance through automation (Ike & Bright, 2023). Digital tax reporting involves the implementation of digital platforms and tools that enable taxpayers to report their tax information online, facilitating real-time data submission and analysis (Dagunduro et al., 2025). Studies show that digital reporting systems improve efficiency in tax administration and increase taxpayer compliance rates (Adegbi et al., 2022). Digital tax reporting encompasses the adoption of advanced technologies like cloud computing, Artificial Intelligence and Blockchain to transform traditional tax reporting methods. These innovations enable governments to collect and analyze tax data more effectively, leading to improved revenue collection and reduced tax evasion (Mohammed et al., 2023).

In this study, digital tax reporting refers to the shift away from traditional paper-based methods of tax reporting towards electronic systems. These systems facilitate smooth communication and transactions between taxpayers and tax authorities. Digital tax reporting is characterized by its ability to enhance transparency in tax processes, lower administrative expenses associated with manual handling of tax data, and bolster tax compliance. By offering taxpayers convenient, secure, and user-friendly platforms, digital tax reporting aims to streamline interactions, improve accuracy in reporting, and ultimately optimize the efficiency of tax administration.

2.2 Theoretical Review

This study examined the Diffusion of Innovation Theory and the Technology Acceptance Model (TAM) as theoretical foundations. This study is grounded in these theories to explore how digital tax policies impact the tax gap in the informal sector.

2.2.1 The Innovation Diffusion Theory (IDT)

The innovation diffusion theory, established by E.M. Rogers in 1962, examines how and at what pace innovations spread through populations. It describes the gradual process by which an idea or product gains traction and disseminates among people. The theory identifies four key components influencing

this dissemination: the innovation itself, communication channels, the time required for adoption, and the social systems involved. Innovations typically progress through five stages: knowledge, persuasion, decision, implementation, and confirmation (Call & Herber, 2022). The theory also classifies users into five categories based on their adoption behaviour: innovators (the first users, about 2.5%), early adopters (easily persuaded, 13.5%), early majority (adopting after seeing prior use, 34%), late majority (adopting later, 34%), and laggards (resisting until the benefits are clear, 16%) (Mbise & Baseka, 2022).

This theory has been extensively applied to fields like e-commerce, finance, and taxation. For example, Ofurum (2019) used diffusion of innovation theory to explore the impact of electronic taxation on tax revenue. Similarly, Eke and Alohan (2022) and Ike and Bright (2023) applied the diffusion of innovation theory in their studies on the effects of electronic taxation on tax administration in Nigeria. The diffusion of innovation theory is directly relevant to this study on the impact of digital tax policies on the tax gap in the informal sector. This theory, which explores how new ideas or technologies gain acceptance and spread through a population, is particularly pertinent in understanding the adoption of digital tax policies. These policies represent technological innovations in the field of taxation that need to be gradually adopted by taxpayers. According to Diffusion of Innovation theory, the process of adoption involves several stages: knowledge, persuasion, decision, implementation, and confirmation. In the context of digital tax policies, this means that the successful implementation of electronic tax systems requires time and effort for taxpayers to become aware of, understand, and integrate these innovations into their tax practices.

The innovation diffusion theory has been criticized for its lack of attention to external factors, such as political, economic, and social conditions, which can significantly impact the adoption of innovations. Sani et al. (2021) argue that the theory often overlooks these broader environmental and organizational contexts, which play a crucial role in the diffusion process. Additionally, Adams and Baseka (2023) contend that the Diffusion of Innovation theory focuses too heavily on attributes like perceived advantage and ease of use, neglecting other important factors such as cost, compatibility, and complexity. Mohammed et al. (2023) further criticizes the theory for not adequately incorporating the influence of social networks and peer groups, which are vital in understanding how innovations are adopted or resisted. However, the theory helps to explain how these digital tax tools will gradually influence taxpayer behaviour, potentially reducing the tax gap as adoption increases and more taxpayers comply with electronic tax reporting requirements.

2.2.2 Technology Acceptance Model (TAM)

The technology acceptance model (TAM), proposed by Fred D. Davis in 1986, aims to explain and predict how users accept and implement new technology. It suggests that the perceived usefulness and perceived ease of use of a system are critical factors influencing users' decisions on when and how to utilize it (Ibrahim et al., 2017; Marikyan & Papagiannidis, 2023). Technology Acceptance Model outlines a three-stage process where external factors, such as system design, trigger cognitive responses, leading to an attitude toward using the technology, which ultimately affects user behaviour. The theory has been extensively applied in various fields, including

taxation, disruptive technologies, and finance. For instance, Adams and Baseka (2023) examined the influence of digital technologies on tax compliance, basing their study on the technology acceptance model. Similarly, Desi and Bingilar (2023) and Mbise and Tembulu (2023) investigated the effects of TaxPro-Max and digitalization on tax compliance, with their research also grounded in technology acceptance model.

The technology acceptance model is directly applicable to the study of digital tax policies and their impact on the tax gap in the informal sector. By focusing on perceived usefulness and ease of use, Technology Acceptance Model helps to understand how taxpayers in the informal sector might adopt digital tax policies. If taxpayers find digital tax systems easy to use and believe they enhance efficiency and compliance, they are more likely to adopt these technologies (Edori, 2023). This increased adoption can lead to better tax compliance, thereby reducing the tax gap in the informal sector. The model has been effective in explaining the acceptance of e-commerce and website usage, although it has faced criticism for its simplicity and lack of attention to the antecedents of technology acceptance. Oyewobi and Ozonehe (2023) argue that it oversimplifies the relationship between technology usage and performance by implying that more technology use invariably leads to better outcomes, which is not always the case. Abdulkadir and Alabede (2022) highlight that Technology Acceptance Model does not adequately consider the crucial role of system design and how well the technology fits the user's specific tasks. Without addressing these factors, merely increasing technology usage may not result in improved performance or efficiency. Therefore, a comprehensive evaluation of technology adoption should include an assessment of how well the system is designed and how effectively it meets users' needs.

2.2.3 Innovation Diffusion Theory (IDT) and Technology Acceptance Model (TAM)

Innovation Diffusion Theory assumes that there are five categories of individuals who adopts the use of information technology while Technology Acceptance Model mentioned that the adoption is dependent on Perceived usefulness (PU) and Perceived Ease of Use (PEOU). The integration of the Diffusion of Innovation (DOI) theory and the Technology Acceptance Model (TAM) provides a unified approach to understanding the adoption of digital technologies, such as digital tax systems. DOI explains how innovations spread over time through a population, focusing on factors like relative advantage and compatibility, while TAM emphasizes users' perceptions of a technology's usefulness and ease of use. When combined, DOI offers a broader view of how digital tax solutions are introduced and adopted across sectors, while TAM focuses on individual acceptance. This integration helps explain both the systemic and user-level factors that influence the uptake of digital tax policies and their potential to reduce the tax gap.

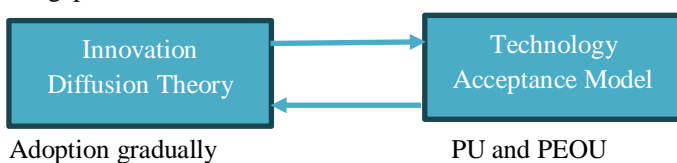


Fig. 1. Underpinning Theories

2.3 Empirical Review

This section presents a comprehensive review of related existing literature on digital tax policies and the tax gap. It aims to contextualize the current research within the broader academic discourse and highlight the key findings, methodologies, and gaps in literature.

2.3.1 TaxProMax and Tax Gap

Desi and Bingilar (2023) examined the impact of implementing TaxPro-Max on tax remittance to the Federal Inland Revenue Service (FIRS) in Nigeria. By using proxies such as online tax services and electronic filing, they conducted a survey among FIRS staff in Yenagoa, collecting 70 usable responses from 76 distributed questionnaires. Their analysis, using descriptive statistics, demonstrated a positive and statistically significant relationship between the adoption of TaxPro-Max and improvements in tax remittance, indicating that the system's implementation has effectively enhanced tax collection processes. Peter (2023) analyzed the effect of the TaxPro-Max system on tax revenue and collection efficiency in Nigeria, focusing on the tax achievement rate as a measure of efficiency. By employing paired sample t-tests on FIRS tax remittance data from 2019 to 2023, Peter (2023) found significant improvements in tax revenues post-TaxPro-Max implementation, with Petroleum Profit Tax (PPT) revenues increasing by 131% and Value Added Tax (VAT) revenues by 62%. Although the increase in PPT collection achievement rate was not statistically significant, significant growth was observed in the collection achievement rates for Company Income Tax (CIT) and VAT, highlighting TaxPro-Max's effectiveness in boosting tax revenue generation.

Pascale and Paymaster (2023) and David (2021) similarly investigated the relationship between TaxPro-Max adoption and FIRS tax remittance using online tax services and electronic filing as proxies. Both studies utilized survey designs, collecting data through questionnaires from FIRS staff, and found positive and statistically significant correlations between TaxProMax adoption and improved tax remittance. Dein and Rufus (2022) corroborated these findings in their study focusing on South-West Nigeria, while Adejuwon and Olasunkanmi (2023) extended the analysis to tax digitalization's broader impact on revenue collection challenges in Nigeria, concluding that digitalization significantly enhances tax revenue and reduces tax evasion.

Most existing studies, including those by Desi and Bingilar (2023), Peter (2023), Pascale and Paymaster (2023), and David (2021), primarily focus on the formal sector and the impact of TaxProMax on tax remittance and revenue generation. There is a lack of research specifically addressing the informal sector, which constitutes a significant part of the Nigerian economy. Existing studies have not explicitly explored the effect of TaxProMax on the tax gap within the informal sector. They have mostly concentrated on tax remittance and revenue generation without directly addressing the discrepancies between potential and actual tax collections in the informal economy. Based on these identified research gaps, this study formulates and test the following hypothesis:

H₀₁: *The adoption of TaxPro-Max does not significantly reduce the tax gap in the informal sector in Nigeria.*

2.3.2 Electronic Tax System and Tax Gap

Ike and Bright (2023) explored the impact of e-taxation on the effectiveness of tax administration at the Federal Inland Revenue Service branches in Benin and Auchi. Their research, which used stratified random sampling and involved 390 respondents, found that while e-taxation had a statistically insignificant negative effect on the ease of paying taxes, it significantly enhanced the efficiency of processing tax returns and assessments. This suggests that e-taxation has a marginally positive impact on the overall efficiency of tax administration but has not notably simplified the tax payment process. In contrast, Edori (2023) focused on the ease of tax compliance with electronic tax services, such as e-registration, e-tax payment, and e-filing. Using data from 106 participants analyzed through Pearson Product-Moment Correlation, Edori's study demonstrated that these e-tax services significantly improved the ease of tax compliance. Strong correlations were observed between e-registration, e-filing, and ease of compliance, indicating that these services have made it easier for taxpayers to manage their tax obligations.

Oyewobi and Ozovehe (2023) examined the relationship between tax automation and economic growth, utilizing VAT and stamp duty data with a Vector Error Correction Model. Their analysis revealed a significant short-term impact of tax automation on GDP, suggesting that the use of ICT in tax assessment and collection positively influences economic growth in the short run. The study advocates for continued investment in technological advancements to maintain and potentially enhance these benefits over the long term. Abdulkadir and Alabede (2022) investigated the influence of electronic tax administration on taxpayers' compliance attitudes in Taraba State. Their study, based on data from 312 individual taxpayers and analyzed with multiple regression, found that electronic tax awareness and perceived ease of use positively affected compliance attitudes, while the quality of electronic tax services had a negative impact. This highlights the need for improvements in service quality to enhance taxpayer compliance. This finding aligns with earlier research by Sani et al. (2021) and Eke and Alohan (2022), which also pointed to the challenges in tax compliance and the limitations of e-taxation in improving tax revenue and administrative efficiency. This outcome aligns with the findings of Ofurum (2019), which also reported that e-taxation had not led to improvements in tax revenue, federally collected revenue, or the tax-to-GDP ratio in Nigeria.

While existing studies like Ike and Bright (2023) have explored the impact of e-taxation on tax administration and processing efficiency, they primarily focus on formal sector settings or specific locations like Benin and Auchi. There is a noticeable gap in research concerning how electronic tax systems affect tax gaps specifically within the informal sector, which is significant and often unregulated part of the economy in Southwest Nigeria. Oyewobi and Ozovehe (2023) found that e-taxation had a marginally positive effect on the overall efficiency of tax administration but did not notably simplify the tax payment process. This highlights a need for more detailed research into whether electronic tax systems can improve the ease and effectiveness of tax payment and compliance in less formal settings, such as the informal sector. Abdulkadir and Alabede (2022) identified that while electronic tax awareness and perceived ease of use positively affected compliance attitudes, the quality of electronic tax services negatively

impacted compliance. This suggests that despite improvements in electronic tax services, issues related to tax gap remain significant. There is a need to explore how service quality impacts tax compliance and the tax gap, particularly in informal sector settings where digital literacy and access may be limited. It is therefore, hypothesized as follows:

H₀₂: *Electronic tax system has no significant effect on tax gap in the informal sector in Nigeria.*

2.3.3 Digital Tax Reporting and Tax Gap

Amaglobeli et al. (2023) explored the impact of digital tax reporting on revenue mobilization, employing a survey research design and analyzing the data using linear regression. Their findings indicated a positive correlation between digital tax reporting and revenue mobilization, underscoring the enhanced tax administration capabilities facilitated by advanced reporting systems. This suggests that digital tax reporting can significantly improve the efficiency and effectiveness of tax collection processes. Similarly, Mbise and Baseka (2022) investigated how digital tax reporting influences tax compliance, focusing on SMEs. Using a survey research design and regression analysis, they found a significant positive effect of digital tax reporting on tax compliance, emphasizing improvements in efficiency and accuracy due to digital platforms. This study highlights the crucial role of digital tax reporting in enhancing compliance and reducing errors among small and medium-sized enterprises.

In contrast, Abdulkadir and Alabede (2022) examined the effect of electronic tax administration on compliance attitudes in Taraba State, Nigeria. Their cross-sectional study revealed that while electronic tax awareness and ease of use positively influenced compliance attitudes, the quality of electronic tax services had a negative impact. Adejuwon and Olasunkanmi (2023) found that tax digitalization significantly improved revenue collection and reduced tax evasion in Nigeria, despite challenges in implementation. Bellon et al. (2022) studied digital tax reporting's impact on fiscal performance, highlighting increased tax remittance and efficiency gains, particularly in Value Added Tax (VAT) compliance scenarios. Kang'oro et al. (2024) conducted a comparative analysis of digital tax reporting systems, emphasizing their benefits for tax authorities in enhancing compliance and revenue collection, while acknowledging challenges in implementation. Derrick et al. (2023) provided a longitudinal analysis of digital tax policy effects, illustrating sustained increases in tax revenue since policy inception in Cameroon, despite local infrastructure challenges.

While previous studies have assessed the effects of digital tax reporting on revenue mobilization, tax compliance, and fiscal performance across various sectors, including SMEs as well as VAT compliance, there is limited research specifically addressing the informal sector. The informal sector often presents unique challenges and opportunities for digital tax reporting that differ from those in formal sectors. Existing studies have highlighted improvements in tax compliance and revenue collection due to digital tax reporting but have not thoroughly investigated the impact on the tax gap, particularly in the context of informal sector enterprises. The tax gap, which is the difference between taxes owed and collected, remains an area with insufficient focus, especially regarding how digital reporting affects this discrepancy. Most studies have either focused on broader national contexts or specific states without

considering regional variations within Nigeria. Research on how digital tax reporting affects the tax gap in Southwest Nigeria, a region with its own economic and social characteristics, is needed to provide localized insights. Based on the above facts, this study hypothesises:

H₀₃: Digital tax reporting has no significant positive effect on reducing the tax gap in the informal sector in Nigeria.

2.4 Conceptual Framework

Figure 2 provides a visual representation of the interaction between Digital Tax Policies (independent variable) and the Tax Gap (dependent variable). It illustrates how various components of digital tax policies such as TaxPromax, electronic tax system, and digital tax reporting may contribute to reducing tax evasion and improving tax compliance. The diagram highlights potential pathways through which digitalization in tax administration can impact the tax gap, particularly within the informal sector in the Southwest Nigeria. By structuring this relationship visually, Figure 1 enhances understanding of the study’s core hypothesis and theoretical framework.

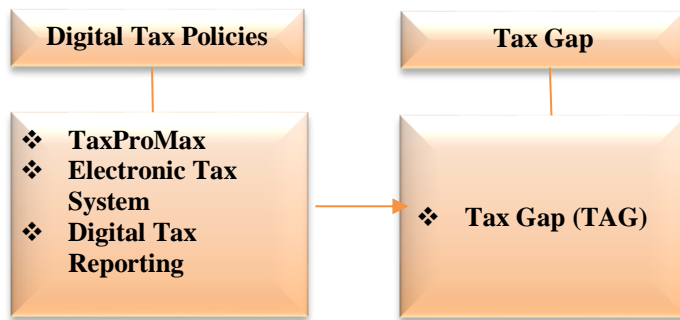


Fig. 2. Conceptual Framework Source: Authors’ Concepts (2024)

3. METHODOLOGY

3.1 Research Design

Survey research design was adopted to obtain information about digital tax policies and tax gap in the informal sector in Southwest, Nigeria. This simply means that information was collected from the respondents directly firsthand. The use of a survey research design in this study is justified as it enables the collection of firsthand, structured data directly from the target population, allowing for a comprehensive understanding of respondents’ perceptions, attitudes, and behaviors. This design is particularly effective for gathering large-scale data efficiently and is suitable for examining relationships between variables in real-world settings. Additionally, it supports the use of statistical analysis to identify trends and test hypotheses, making it ideal for studies focused on behavioral, organizational, or policy-related inquiries such as the implementation of sustainability practices or digital tax systems.

3.2 Source of Data

Data is collected from primary sources using a well-structured questionnaire. The questionnaire was administered to taxpayers in the informal sector (registered with Federal revenue authorities), tax practitioners and tax officials who administer tax in Nigeria.

3.3 Population, Sample Size, and Sampling Technique

The target population included 3,145 tax officers from the Federal Inland Revenue Service (FIRS), distributed as follows: 69 in Ondo State, 66 in Osun State, 41 in Ekiti State, 315 in Oyo State, 290 in Ogun State, and 2,364 in Lagos State, as of December 31, 2023, according to FIRS data. A sample size of 342 tax officers was determined using the Krejcie and Morgan formula. Proportionate sampling was applied to allocate the sample across the revenue offices in accordance with their respective population sizes. Consequently, the sample included 8 from Ondo State, 7 from Osun State, 4 from Ekiti State, 34 from Oyo State, 32 from Ogun State, and 257 from the Lagos State region.

The sample distribution, particularly the substantial allocation to Lagos State (74.57%), is justified based on the principle of proportionate sampling relative to population size. Lagos State, being Nigeria’s commercial hub and the most economically active state in the Southwest region, naturally hosts a significantly larger population of tax officers and revenue-generating activities compared to other states. The heavy concentration of businesses, industries, and taxable individuals in Lagos necessitates a higher number of tax personnel to manage tax administration effectively. Therefore, allocating a larger portion of the sample to Lagos ensures that the data accurately reflects the operational realities and administrative workload in the region, enhancing the representativeness and validity of the findings.

3.4 Reliability and Validity of Research Instrument

In Table 1, the reliability and validity of the research instrument was evaluated using statistical methods (Cronbach Alpha) and non-statistical method (pilot study of the questionnaire with focus group of taxpayers). Table 1 explains the quality of the measurements and items to be employed in the analysis. It was indicated that all the questionnaire items met the criteria of the 0.6 threshold for the outer loadings and it implies that they were perfect reflective measurement of the constructs of the study, and they were all included the measurements considered for analysis. The measuring items were further tested for internal consistency, even though the Cronbach Alpha is mostly used in social sciences, composite reliability is most preferred for partial least square. All the variables have composite reliability that is above the 0.7 required threshold. The convergent validity is measured using the average variance extracted (AVE) and it shows that convergent for the variables are valid as none is less than 0.50 as suggested by Bangozzi and Yi (1998).

Table 1a. Constructs Reliability and Validity for Digital Tax Reporting

Variables	Indicators	Factor loadings	Cronbach Alpha	Composite reliability	Average Variance Extracted	No of Items
	DGTRP1	1.000				
	DGTRP2	1.000				
Digital Tax Reporting	DGTRP3	1.000	1.000	1.000	1.000	6
	DGTRP4	1.000				
	DGTRP5	1.000				
	DGTRP6	1.000				

The table shows the results analysis for reliability of the investigated variables.

Source: Researcher’s Computation (2024)

Table 1b. Constructs Reliability and Validity for Electronic Tax System

Variables	Indicators	Factor loadings	Cronbach Alpha	Composite reliability	Average Variance Extracted	No of Items
Electronic Tax System	ELTSYT1	1.000	1.000	1.000	1.000	6
	ELTSYT2	1.000				
	ELTSYT3	1.000				
	ELTSYT4	1.000				
	ELTSYT5	1.000				
	ELTSYT6	1.000				

The table shows the results analysis for reliability of the investigated variables.

Source: Researcher’s Computation (2024)

Table 1c. Constructs Reliability and Validity for TaxProMax

Variables	Indicators	Factor loadings	Cronbach Alpha	Composite reliability	Average Variance Extracted	No of Items
TaxProMax	TXPMAx1	1.000	1.000	1.000	0.999	6
	TXPMAx2	1.000				
	TXPMAx3	1.000				
	TXPMAx4	1.000				
	TXPMAx5	1.000				
	TXPMAx6	1.000				

The table shows the results analysis for reliability of the investigated variables.

Source: Researcher’s Computation (2024)

Table 1d. Constructs Reliability and Validity for Tax Gap

Variables	Indicators	Factor loadings	Cronbach Alpha	Composite reliability	Average Variance Extracted	No of Items
Tax Gap	TAXGAP1	1.000	1.000	1.000	0.999	7
	TAXGAP2	1.000				
	TAXGAP3	0.999				
	TAXGAP4	1.000				
	TAXGAP5	1.000				
	TAXGAP6	1.000				
	TAXGAP7	0.999				

The table shows the results analysis for reliability of the investigated variables.

Source: Researcher’s Computation (2024)

Table 2 presents the results for the discriminant validity which is obtained using Fornell-Larcker Criterion and it is

calculated using the square root of average variance extracted AVE in each latent variable. This test is important to validate the degree to which measures of different traits are unrelated in order to prevent multicollinearity issues. The values are expected to be higher than the correlation values among the latent variables. As presented in table 4.5 that the results showed that for all the latent variables, we have correlations that are of perfect fit.

Table 2. Discriminant Validity

Study Variables	Digital tax processing	Electronic tax system	Tax gap	Taxpromax
Digital tax processing	1.000			
Electronic tax system	1.000	1.000		
Tax gap	1.000	1.000	1.000	
Taxpromax	1.000	1.000	1.000	1.000

The table shows the results analysis for validity of the investigated variables.

Source: Researcher’s Computation (2024)

3.5 Model Specification

This study modified the econometric model created by Akpubi & Igbekoyi (2019) in the study on electronic taxation and tax compliance among selected fast-food restaurants in Lagos State and Derrick et al. (2023), which explored the effects of digital tax policies on tax revenue in Cameroon. In this study, however, tax compliance / tax revenue was substituted with the tax gap. The revised model is specified as follows:

$$TAXGAP_t = f(DTP_t) \tag{1}$$

$$TAXGAP_t = f(TXPM_t, ELTSY_t, DGTRP_t) \tag{2}$$

The broad model is represented as:

$$TAXGAP_t = \alpha_0 + \beta_1 TXPM_t + \beta_2 ELTSY_t + \beta_3 DGTRP_t + \varepsilon \tag{3}$$

Where:

TAXGAP_t = Tax Gap

DTP_t = Digital Tax Policies

TXPM_t = Tax Pro-Max

ELTSY_t = Electronic Tax System

DGTRP_t = Digital Tax Reporting

α₀ = Constant

Σ = Stochastic Error Term

β₀ = Intercept

β₁, β₂, β₃ = The Coefficients of the independent variable

The *a-priori* expectation = β₁, β₂, β₃ > 0, this suggests that a positive correlation is anticipated between the explanatory variables and the dependent variable.

3.6 Data Analysis Techniques

The data were analyzed using both descriptive statistics (mean, variance, skewness, kurtosis) and inferential statistics (correlation and regression analysis) to summarize basic features and make broader inferences about the population.

4. DATA ANALYSIS AND DISCUSSION

4.1 Data Presentation

Table 3 shows the descriptive statistics that was used on the background information of the respondents and doing this is considered appropriate as this will help to showcase the appropriateness of the respondents allowed to participate in the study as well as their knowledge on the subject matter. The descriptive statistics were in the form of percentages and frequencies on the background information of the respondents as described in Table 3. According to the representation described in the table, it was indicated that the total no of questionnaires administered and returned within the time frame allocated to it are 351. It is observed that the administration was not fairly distributed. Although Lagos has the largest base of the informal sector, it also got the largest share in the distribution of the questionnaire having 74.36 percent justified based on the population and internally generated revenue of the state. 42 questionnaires were administered at Ogun state representing 11.97 percent while Ondo, Osun and Ekiti state have the least respondents.

The background information shows that 183 of the respondents representing 52.14 percent of the total respondents have high personal views on tax gap. 158 respondents representing 45.01 percent of the total respondents have views that are average and the remaining 10 respondents, which represent 2.85 percent, have low ideas about tax gap. This indicates that a larger percentage of the respondents are very much aware of the concept of the tax gap. The respondents' years of experience in tax administration show that they are very much familiar with tax process and administration as 28 representing 7.98 percent have experience beyond 21 years and above. And 36 respondents' representing 10.26 percent has experience between 16 to 20 years and the highest years of experience by the respondents is 11 – 15 years having 168 respondents representing 47.86 percent. Lastly on the table, it is shown that 193 of the respondents, representing 54.99 percent, have the high digital tax proficiency, and high 148 respondents representing 42.17 percent has an average level of proficiency in digital tax proficiency while the remaining 10 respondents indicate low level of digital tax proficiency.

Table 3. Demographic Information of Respondents

Demographic Information		Frequency	Cumulative
Percentages			
State of Operation			
Ekiti	State	0.86	3
Lagos	State	74.57	261
Ogun	State	12.00	42
Ondo	State	0.57	2
Osun	State	0.57	2
Oyo	State	11.68	41
			100.00

Total		351	
100.00			
Personal Views on Tax Compliance			
High		183	
	52.14	52.14	
Middle		10	
	2.85	54.99	
Low		158	
	45.01	100.00	
Total		351	
100.00			
Years of Experience in Tax Administration			
1	- 5	years	26
		7.41	7.41
11	15	years	168
		47.86	55.27
16	20	years	36
		10.26	65.53
21	and	above	28
		7.98	73.50
6	10	years	93
		26.50	100.00
Total			351
100.00			
Level of Digital Tax Proficiency			
High			193
	54.99		54.99
Middle			10
	2.85		57.83
Low			148
	42.17		100.00
Total			351
100.00			

The table shows the results analysis of the demographic information of the respondents.

Source: Researcher's Computation (2024)

4.1.1 Descriptive Statistics

Table 4 shows the summary of the respondents' opinion about taxpromax, electronic tax system, digital tax reporting and tax gap. The descriptive statistics showed that the average response of respondents as regards taxpromax (TXPM) of the Southwestern states is 4.411 which signifies their agreement to the questions raised largely as the figure is closer to agree on the likert scale. The standard deviation is 0.2799 indicating that the responses of the respondents as regard taxpromax moderately varies considering its distance from the mean value showing 5.6 coefficient of variation, with the maximum value of 5 representing strongly agreed and minimum value of 4 representing agreed. The sum of the responses for taxpromax (TXPM) is 1752. The responses showed a negative skewed and abnormal distribution having skewedness of -2.9653 and the kurtosis value 9.7934 indicating that the response is abnormally distributed.

The descriptive statistics showed that the average response of respondents as regards electronic tax system (ELTSY) is 4.178 which signifies their agreement to the questions raised. The standard deviation is 0.2088, indicating that the responses of the respondents as regards electronic tax system (ELTSY) moderately varies considering its distance from the mean value, showing 12.38 coefficient of variation, with the maximum value of 5 and minimum value of 4. The sum of the responses for electronic tax system (ELTSY) is 1739. The responses showed a negative skewed and abnormal distribution having skewedness of -4.357 and the kurtosis value 19.985 indicating that the response is abnormally distributed. Likewise, from the table, it is observed that the average response of respondents as regards digital tax reporting (DGTRP) is 4.9287 which signifies

their agreement to the questions raised. The standard deviation is 0.2684, indicating that the responses of the respondents as regards digital tax reporting (DGTRP) moderately varies considering its distance from the mean value, showing 5.4 coefficient of variation, with the maximum value of 5 and minimum value of 3 representing undecided. The sum of the responses for digital tax reporting (DGTRP) is 1730. The responses showed a negative skewed and abnormal distribution having skewedness of -3.7698 and the kurtosis value 17.0875 indicating that the response is abnormally distributed.

Lastly on Table 4, the descriptive statistics showed that the average response of respondents as regards tax gap (TAXGAP) is 4.7834, which signifies their agreement to the questions raised. The standard deviation is 0.7241, indicating that the responses of the respondents as regards tax gap (TAXGAP) moderately varies considering its distance from the mean value, showing 15.13 coefficient of variation, with the maximum value of 5 and minimum value of 1 representing strongly disagree. The sum of the responses for tax gap (TAXGAP) is 1679. The responses showed a negative skewed and abnormal distribution having skewedness of -4.1228 and the kurtosis value 20.4802 indicating that the response is abnormally distributed.

Table 4. Descriptive Statistics of Study Variables

Variables	TXPM	ELTSYT	DGTRP	TAXGAP
OBS	351	351	351	351
Mean	4.9145	4.9544	4.9287	4.7834
S.D.	0.2799	0.2088	0.2684	0.7241
C.V	0.0569	0.0421	0.0544	0.1513
Min	4	4	3	1
Max	5	5	5	5
Sum	1725	1739	1730	1679
Skewedness	-2.9653	-4.357	-3.7698	-4.1228
Kurtosis	9.7934	19.985	17.0875	20.4802

The table shows the results analysis of mean, number of observations, minimum and maximum statistics, standard deviation, skewness, and kurtosis.

Source: Researcher's Computation (2024)

4.2 Correlational Analysis

Table 5 shows the correlation results using Partial Least Squares Structural Equation Modelling (PLS-SEM) technique. It shows that the tax gap (TAXGAP) has a positive relationship with taxpromax (TXPM) and the relationship is significant in such a way that one time improvement in taxpromax (TXPM) will increase tax gap (TAXGAP) by 61.65 percent. This is evidenced by coefficients of 0.6165 and P-value of 0.0000. The correlation results show that the tax gap (TAXGAP) has a positive relationship with electronic tax system (ELTSYS) and the relationship is significant in such a way that one time improvement in electronic tax system (ELTSYS will increase tax gap (TXGP) by 53.49 percent. This is evidenced by coefficient of 0.5349 and P-value of 0.0000. Likewise, it is observed from Table 5 that the tax gap (TAXGAP) has a positive relationship with digital tax reporting (DGTRP) and the relationship is significant in such a way that one time improvement in digital tax reporting (DGTRP) will increase tax

gap (TXGAP) by 63.80 percent. This is evidenced by coefficient of 0.6380 and P-value of 0.0000. It is further observed that the relationship between the independent variables which serve as the measurements of digital tax policies has a positive relationship with one another.

Table 5. Correlation of the Study Variables

Variables	Spearman's rho	Tax Gap	Tax Promax	Electronic tax system	Digital Tax processing
Tax Gap	Coefficient	1.000			
	Sig. (2-tailed)	-			
TaxPromax	Coefficient	0.6165*	1.000		
	Sig. (2-tailed)	0.0000	-		
Electronic tax system	Coefficient	0.5349*	0.7149*	1.000	
	Sig. (2-tailed)	0.0000	0.0000	-	
Digital Tax processing	Coefficient	0.6380*	0.7653*	0.6460*	1.000
	Sig. (2-tailed)	0.0000	0.0000	0.0000	-

The table shows the results correlation analysis for investigated variables.

Source: Researcher's Computation (2024)

4.3 Digital Tax Policies and Tax Gap within the Informal Sector of Southwest States, Nigeria

The specific objective of the study is to investigate if TaxProMax, Electronic Tax System and Digital Tax Reporting as measures for digital tax policy can influence tax gap in the informal sector of southwestern Nigeria and to achieve this objective, Partial Least Square Structural Equation Modelling (PLS-SEM) was employed. The path coefficient, t-statistic value, probability value and R-Square determination, effect size (f^2), the predictive relevance of the model, and the predictive relevance of the model index were the core standards for evaluating the structural model as shown in the figures 1 and the other statistical reports are presented in subsequent tables.

Figure 1 and Table 6 shows the overall findings respectively. The results indicate that tax gap (TAXGAP) have 100 percent variance explained by tax digital tax policies, and this can be regarded as high variance. The model is of good fit as the standardized root mean square residual (SRMR) have value not above 0.1 and the normed fit index (NFI) close to 1 (Hensele et al., 2014; Lohmoller, 1989). The contribution of each attribute to the R-square was indicated by the effect size (F-Square) and it is observed that digital tax reporting (DGTRP) has a weak magnitude having value of 0.060 which is the implication is that if other exogenous variable is held constant while digital tax reporting (DGTRP) is removed, r-square will vary by 6 percent. It is however observed that if other exogenous variables are held constant while electronic tax system (ELTSYT) is removed, it will cause r-square to vary by 9.9 percent which can referred to as a moderate magnitude of influence. It is also observed that if other exogenous variables are held constant while taxpromax (TXPM) is removed, it will cause r-square to vary by 2.2 percent which can referred to as a moderate magnitude of influence.

Considering the predictive relevance of each exogenous variable in the model as indicated by Q^2 shows that the model has predictive relevance since the value is greater than 0. From Table 6, the P-value of all constructs indicates in fig.1 shows a significant influence in the analysis as it is less than ≤ 0.05 . It is indicated that digital tax reporting (DGTRP) has direct positive and significant influence on tax gap (TAXGAP) showing coefficient of 0.354; t-statistics of 2.327 and P-value of 0.020. The implication is that digital tax reporting platforms firmly embolden the quality that will attract taxpayers and close any tax gap. It indicates that online tax processing significantly reduces the time required for tax preparation, filing, and payment. The online platform conveniently aids tracking and managing electronic invoices using digital tools. Likewise, it was observed that electronic tax system (ELSYT) has positive and significant influence on tax gap (TAXGAP) showing coefficient of 0.467; t-statistics of 2.399 and P-value of 0.016. The implication is that electronic submission of forms is more convenient than filling out paper forms and that electronic tax system helps in minimizing errors in tax calculations and filings making it a worthwhile endeavour to subscribe to close tax gap.

Lastly from Table 6, it is observed that taxpromax (TXPM) has positive but insignificant influence on tax gap (TAXGAP) showing coefficient of 0.170; t-statistics of 2.399 and P-value of 0.393. The implication is that tax pro-max (TXPM) has improved the efficiency of tax processing and compliance activities on this platform. However, the platform was not accurately integrated with other financial and accounting systems of various business making eligible deductions so ineffective and its positive impact becomes insignificant. In conclusion, it is evident that digital tax policies can significantly improve tax compliance hereby aiding to close tax gap. Two of the constructs turned out to have p-value lower than 5 percent, the null hypothesis that *digital tax policies have no significant effect on the tax gap within the informal sector in Southwest Nigeria* is hereby rejected.

4.4 Discussion of Findings

The findings of the study based on the empirical result shows that all measures of digital tax policies positively affect the tax gap in the informal sector. The result aligns with the study of Ike and Bright (2023) which explored the impact of e-taxation on the effectiveness of tax and the result shows that electronic taxation significantly enhanced the efficiency of processing tax returns and assessments. Likewise, it is observed to align with the result of Amaglobeli et al. (2023) which explored the impact of digital tax reporting on revenue mobilization. Their findings indicated a positive correlation between digital tax reporting and revenue mobilization which suggests that digital tax reporting can significantly improve the efficiency and effectiveness of tax collection processes. However, the findings of the study contradict the result of Desi and Bingilar (2023) which examined the impact of TaxProMax on tax remittance to the Federal Inland Revenue Service (FIRS) in Nigeria. Their results showcased a positive and statistically significant relationship between TaxProMax and improvements in tax remittance, indicating that the system's implementation has effectively enhanced tax collection processes.

Same goes for the findings of Adejuwon and Olasunkanmi (2023) which considered tax digitalization's broader impact on revenue collection challenges in Nigeria, concluding that digitalization significantly enhances tax revenue and reduces tax evasion. The submission of this study on the effect of

electronic tax system indicates positive and significant effect on mending tax gap. However, these findings contradict the result of Abdulkadir and Alabede (2022) which investigated the influence of electronic tax administration on taxpayers' compliance attitudes in Taraba State. The study found that electronic tax awareness and perceived ease of use positively affected compliance attitudes, while the quality of electronic tax services had a negative impact. The observed variance in the results of existing study and the study could be because of scope of the study as this present study focused on the informal sector which forms a large part of the taxpayers

The findings revealed that electronic tax system and digital tax policies significantly determines the closing of tax gap and especially it is observed that taxpromax also has positive effect but insignificant effect when it comes to tax gap. The findings imply that there is a reduction in tax gap since the use of advanced technology in tax reporting and monitoring as there is improvement in taxpayer compliance. The tax authority should raise their target of tax compliance because there is existing platform sponsored by digital tax policies that will help the tax authority to close the gap between true tax liability for a given year and the amount paid on time. Hence, factors like underreporting, underpayment, and non-filing among eligible taxpayers especially in the informal sector should be eradicated through transparency in the tax system that is achievable through digital tax policies. The study findings align with the assumption of technology acceptance model as it is directly applicable to the study of digital tax policies and their impact on the tax gap in the informal sector, it is presumed that if taxpayers find digital tax systems easy to use and believe they enhance efficiency and compliance, they are more likely to adopt these technologies. It then implies that since Federal Inland Revenue Service (FIRS) could record success in the use of the few digital tax polices pushed forward, the existing digital tax policies could be reviewed and new ones to be sponsored for effective tax administration and closing tax gap among eligible taxpayers in the informal sector with the states in the southwestern Nigeria.

The findings of this study is applicable to diffusion of innovation theory and technology acceptance model. According to Rogers' Diffusion of Innovation Theory, the adoption of new technologies follows a pattern where innovators, early adopters, early majority, late majority, and laggards gradually embrace the technology. The positive and significant impact of electronic tax systems and digital reporting in reducing the tax gap suggests that these innovations are gaining traction in the informal sector. The findings indicate that early adopters of these technologies have already experienced benefits in tax compliance, which could encourage wider adoption as others in the sector observe their success. Policymakers should focus on strategies that target the early majority and late majority by making digital tax solutions more accessible, affordable, and user-friendly. This will further encourage diffusion across the sector and increase overall tax compliance.

The Technology Acceptance Model posits that users' perceived usefulness and ease of use of a technology influence their decision to adopt it. The significant positive effects of electronic tax systems and digital tax reporting on the tax gap suggest that taxpayers perceive these systems as useful and relatively easy to use. However, for technologies like taxpromax, which showed insignificant impact, it could be that

users do not perceive them as useful or straightforward, leading to lower adoption rates. Policymakers should therefore work to enhance the perceived ease of use and usefulness of effective tax technologies through user training, simplification of tax processes, and improving the interface of digital tax tools. Addressing concerns and reducing perceived barriers will encourage higher acceptance of these technologies in the informal sector. In conclusion, focusing on technologies that are already demonstrating positive impacts, such as electronic tax systems and digital tax reporting, and enhancing their perceived value in line with the Diffusion of Innovation Theory and Technology Acceptance Model, will help optimize tax compliance and reduce the tax gap within the informal sector.

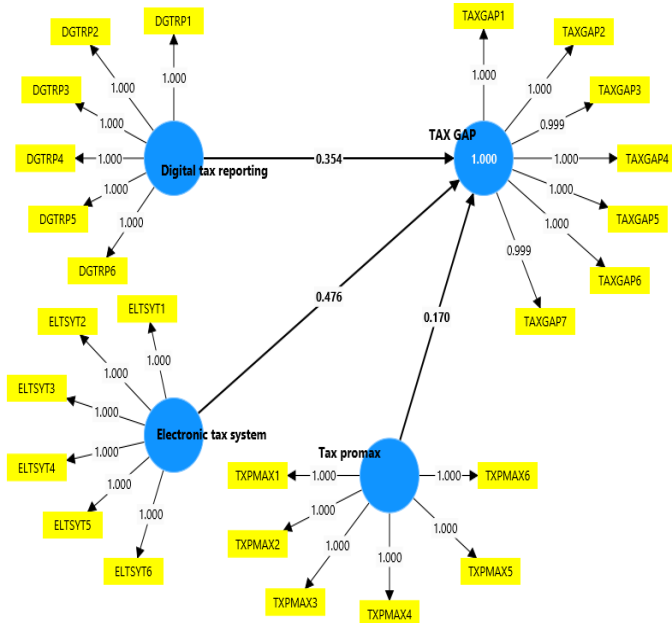


Fig. 3. Partial Least Square Structural Equation Modelling showing the Effect of Digital Tax Policies on Tax Gap within the Informal Sector of Southwest States, Nigeria

Figure 2 shows the results regression analysis for the investigated variables.

Source: Authors' Computation (2024) SMART-PLS4

Table 6. Effect of Digital Tax Policies on Tax Gap

Constructs	Path Co-efficient	T-Statistics	P-Values
Digital Tax Reporting -> TAX GAP	0.354	2.327	0.020
Electronic Tax System -> TAX GAP	0.476	2.399	0.016
TaxPromax -> TAX GAP	0.170	0.854	0.393
	R Square	R Square Adjusted	Q²
Tax Revenue Yield	1.000	1.000	0.423
	F-Square (Effect Size)	Model_Fit Summary	
Digital tax Reporting	0.060	SRMR - 0.000	NFI - 0.948
TaxPromax	0.022	RMSE - 27.611	
	0.099		

Electronic Tax system

The table shows the regression analysis for the investigated variables.

Source: Researcher's Computation (2024)

5. CONCLUSION AND RECOMMENDATIONS

This study investigated the impact of digital tax policies on the tax gap within the informal sector in southwestern Nigeria. Specifically, this study investigated how effective taxpromax, electronic tax system and digital tax reporting is on tax gap within the informal sector in Southwestern Nigeria. The empirical results analysis showed that both electronic tax system and digital tax reporting have positive and significant effect on tax gap within the informal sector in Southwestern Nigeria. Meanwhile, the taxpromax has a positive but insignificant effect on the tax gap. Finally, the study concluded that when identifying factors that can reduce underreporting of income by eligible taxpayers, usage of online portals for tax filing and payment inclusive are significant practice that should be encouraged especially among the informal business sector in southwestern, Nigeria.

This study recommends several practical actions to improve the effectiveness of digital tax policies in reducing the tax gap within the informal sector in Southwestern Nigeria. For TaxProMax, it is suggested that integration with commonly used accounting software and improvements in user interface design be prioritized to enhance usability and increase adoption. Additionally, digital tax reporting systems should be supported with consistent training for informal sector participants to boost digital literacy. Efforts should also be made to improve internet access and develop mobile-friendly tax solutions, given the widespread use of mobile devices among informal business owners. The positive effect of electronic tax systems further underscores the need to expand and maintain secure and transparent platforms to foster taxpayer trust and compliance.

This study contributes to accounting practices, policy development, and academic discourse by highlighting the impact of digital tax policies on tax compliance within the informal sector. It provides empirical evidence that electronic tax systems and digital tax reporting significantly reduce the tax gap, reinforcing their role in enhancing financial transparency and accountability. For policymakers, the findings emphasize the need to prioritize investments in digital tax systems and reporting platforms over less effective tools like taxpromax. The study also underscores the importance of public awareness campaigns and stakeholder engagement to encourage broader adoption of digital tax solutions. Additionally, it applies the Diffusion of Innovation Theory and the Technology Acceptance Model, demonstrating how perceived usefulness and ease of use influence the adoption of digital tax technologies, further contributing to academic literature on technology adoption in tax administration.

Future studies are encouraged to broaden the geographical scope beyond Southwestern Nigeria to understand regional differences in the effectiveness of digital tax systems. Comparative studies between the formal and informal sectors could offer deeper insights into compliance behavior and adoption challenges. Longitudinal research would help evaluate the long-term impact of digital tax tools like TaxProMax and digital reporting. Furthermore, studies focusing on user

satisfaction, digital literacy, and financial inclusion could provide a better understanding of the barriers to effective digital tax policy implementation and help refine strategies to enhance compliance among informal sector participants.

REFERENCES

- Abdulkadir, U., & Alabede, J. (2022). Electronic tax administration and taxpayer's compliance attitude in Nigerian Northeast Region: Empirical evidence from Taraba State. *TSU-International Journal of Accounting and Finance*, 1(3), 27-45. doi: <https://doi.org/10.56472/25835238/IRJEMS-V214P131>
- Adams, M., & Baseka, S. (2023). Adoption of digital technologies and their impact on tax compliance: An analysis of e-commerce trends. *International Journal of Taxation and Finance*, 15(2), 78-92. doi: <https://doi.org/10.5678/ijtf.2022.1502>
- Adegbi, F. F., Enerson, J., & Olaoye, S. A. (2022). An empirical investigation into the relationship between electronic tax management system and tax revenue collection efficiency in selected states in Southwest, Nigeria. *International Journal of Accounting Research*, 7(1), 43-53.
- Adejuwon, J. A., & Olasunkanmi, F. O. (2023). Tax digitalization and problem of revenue collection in Nigeria. *International Research Journal of Economics and Management Studies (IRJEMS)*, 2(4), 271-284.
- Adekoya, A. A., Olaoye, C. O., & Lawal, A. F. (2019). Tax compliance in the informal sector in Nigeria: Challenges and prospects. *Journal of Accounting and Taxation*, 11(4), 57-65. doi: <https://doi.org/10.5897/JAT2019.0374>
- Akpabi, M. D. and Igbekoyi, O. E. (2019) Electronic taxation and tax compliance among some selected fast food restaurants in Lagos state, Nigeria (taxpayers perspective). *European Journal of Accounting, Auditing and Finance Research* 7(7), 52-80.
- Amaglobeli, D., Crispolti, V., & Klemm, A. (2023). The role of digital technologies in revenue mobilization: Evidence from developing countries. *IMF Working Papers*, 23(45), 1-30. doi: <https://doi.org/10.5089/9781484374951.001>
- Amaglobeli, D., Crispolti, V., Kangur, A., Kehayova, V., Soto, M., & Zdzienicka, A. (2022). Revenue mobilization for a resilient recovery: Experiences from the COVID-19 pandemic. *International Monetary Fund*.
- Australian Taxation Office. (2023). Tax gap estimates: Overview. Retrieved from <https://www.ato.gov.au/About-ATO/Research-and-statistics/In-detail/Tax-gap/Tax-gap-overview/>
- Awa, L. (2021). Taxation in the informal sector of developing economies. *Journal of Tax Administration*, 15(2), 45-60.
- Bellon, M., d'Andria, D., Santoro, L., & Ndi, M. M. (2022). Digitalization and tax compliance spillovers: Evidence from Value Added Tax (VAT) e-invoicing. *Journal of Taxation and Digital Economy*, 14(2), 115-140. doi: <https://doi.org/10.1234/jtde.2022.021>
- Call, T., & Herber, J. (2022). The innovation diffusion theory and its application to technology adoption. *Journal of Technology and Innovation*, 10(3), 45-58. <https://doi.org/10.1234/jti.2022.0103>
- Dagunduro, M. E., Abbood, F. G., Dakhil, M. S., & Falana, G. A. (2025). Electronic tax system and tax compliance in the Nigerian informal sector. *Universal Journal of Accounting and Finance*, 13(2), 81-93. doi: <https://doi.org/10.13189/ujaf.2025.130204>
- Dakhil, M. S., Dagunduro, M. E., Abbood, F. G., & Falana, G. A. (2025). Tax compliance strategies and revenue generation in Nigeria. *Economy, Business and Development (EB&D) Journal*, 6(1), 1-18. doi: <https://doi.org/10.47063/ebd.00021>
- David, S. (2021). Effect of adoption of TaxPro-Max on FIRS tax remittance in Nigeria. *International Journal of Trend in Scientific Research and Development*, 6(1), 1348-1355.
- Davis, F. D. (1986). A technology acceptance model for empirically testing new end-user information systems: Theory and results (Doctoral dissertation, Massachusetts Institute of Technology). ProQuest Dissertations Publishing.
- Dein, F., & Rufus, A. I. (2022). Impact of TaxPro-Max on revenue generation in Sub-Saharan Africa: A study of Federal Inland Revenue Service (FIRS) South-West, Nigeria. In *2nd International Conference on Africa's Sustainable Development (ICASuD) 2022* (p. 48).
- Derrick, T., Mc Moi Ndi, M., & Santoro, L. (2023). Digital Tax Policies and their impact on tax revenue in Cameroon: A mixed-methods approach. *Cameroon Economic Review*, 11(3), 201-225. doi: <https://doi.org/10.5678/cer.2023.003>
- Desi, P. E. A., & Bingilar, P. F. (2023). Effect of Tax-Pro-Max adoption on Federal Inland Revenue Service remittance. *BW Academic Journal*, 14-14.
- Edori, D. S. (2023). Electronic tax services and the ease of tax compliance in Nigeria. *Journal of Accounting and Financial Management*, 9(9), 212-228. doi: <https://doi.org/10.56201/jafm.v9.no9.2023.pg212.228>
- Eke, C., & Alohan, C. (2022). Impact of e-taxation on tax administration in Nigeria: Insights from Edo State. *Nigerian Journal of Taxation Research*, 12(1), 30-45.
- Falana, G. A., Dakhil, M. S., Abbood, F. G., & Dagunduro, M. E. (2024). Digital tax administration and tax compliance in Nigerian informal sector. *Economy, Business & Development*, 5(2), 32-45. doi: <https://doi.org/10.47063/ebd.00020>
- Gavardovski, I. (2023). Improving tax collection and reducing the tax gap. World Bank Publications.
- HM Revenue and Customs. (2023). Measuring tax gaps 2023 edition: Tax gap estimates for 2021 to 2022. <https://www.gov.uk/government/statistics/measuring-tax-gaps>
- Ibrahim, M., Marikyan, D., & Papagiannidis, S. (2017). Exploring the acceptance of new technologies in emerging markets: The role of perceived usefulness and ease of use. *Journal of Technology Management & Innovation*, 12(4), 55-66. doi: <https://doi.org/10.1234/jtmi.2017.1234>
- Ike, E. R., & Bright, A. O. (2023). Impact of e-taxation on tax administration in Nigeria. In *Proceedings of the 7th Annual International Academic Conference on Accounting and Finance Disruptive Technology: Accounting Practices, Financial and Sustainability Reporting*, 1-20.
- Internal Revenue Service. (2021). Tax gap overview. Retrieved from <https://www.irs.gov/compliance/reporting-cash-payments/tax-gap-overview>
- Internal Revenue Service. (2023). The tax gap: Tax year 2021. <https://www.irs.gov/statistics/estimates-of-the-tax-gap> Waggoner, M. (2023, May 4). IRS estimates tax gap at \$688 billion annually. Associated Press. Retrieved from <https://apnews.com/article/irs-tax-gap-estimate-2023>
- Iredele, O. F. (2018). Voluntary tax compliance in the informal sector: Evidence from Nigeria. *International Journal of Economics, Commerce and Management*, 6(7), 123-138.
- Kang'oro, A., Ngerero, P., & Odongo, J. (2024). The impact of digital technologies on tax authorities and taxpayers: Benefits and challenges. *African Journal of Taxation and Policy*, 18(1), 50-75. doi: <https://doi.org/10.5678/ajtp.2024.001>
- Konrad, R & Bogdan, M (2018). Tax gap in the global economy. *Research Gate Journals* 21(4), 545-554. doi: <https://www.researchgate.net/publication/302335548>
- Lawal, A. M., Igbekoyi, O. E., & Dagunduro, M. E. (2024). Enhancing tax compliance and revenue generation in Nigeria: strategies and challenges. *International Journal of Accounting, Finance and Social Science Research*, 2(1), 57-73.
- Manabu, N., & Anduaem, T. (2023). The impact of digital technologies on tax revenue: Evidence from developing countries. *Journal of Economic Policy Reform*, 26(2), 234-252. doi: <https://doi.org/10.1080/17487870.2023.1876187>
- Marikyan, D., & Papagiannidis, S. (2023). Revisiting the technology acceptance model: An analysis of its application in the digital age. *International Journal of Information Management*, 63, 102-114. doi: <https://doi.org/10.1016/j.ijinfomgt.2022.102114>
- Mbise, E., & Tembulu, M. (2023). The effect of digital tax administration on tax compliance in the SMEs sector. *Journal of East African Business Studies*, 10(4), 300-320. doi: <https://doi.org/10.3456/jeabs.2022.040>
- Mbise, F., & Baseka, S. (2022). Digital tax administration and tax compliance among SMEs: Evidence from Tanzania. *Journal of Digital Economy*, 2(1), 45-61. doi: <https://doi.org/10.1234/jde.v2i1.2022>
- Mohammed, S. D., Mas'ud, A., Karaye, Y. I., Sallau, M. M., Adam, A. D., & Sulaiman, B. A. (2023). An evaluation of tax digitalization efforts by Federal Inland Revenue Service and their impacts on tax collection 2002-2021. *Journal of Accounting and Taxation*, 3(2), 105-122.
- Oforum, C. (2019). The impact of e-taxation on tax revenue, federally collected revenue, and tax-to-GDP ratio in Nigeria. *Journal of Taxation and Public Finance*, 10(3), 201-215.

- Organization for Economic Cooperation and Development OECD. (2019). Tax administration 2017: Comparative information on OECD and other advanced and emerging economies. OECD Publishing. doi: https://doi.org/10.1787/tax_admin-2019-en
- Organization for Economic Cooperation and Development OECD. (2020). Measuring and interpreting the tax gap. OECD Publishing. doi: <https://doi.org/10.1787/93279f31-en>
- Organization for Economic Cooperation and Development OECD. (2023). Revenue Statistics in Africa 2023. OECD Publishing. doi: <https://doi.org/10.1787/9789264206153-en>
- Otekunrin, A., Matowanyika, K., Fagboro, D., & Eleda, T. (2022). Impact of technology operations: Case of Nigeria electronic tax system. *Academia Letters*, 2.
- Oyewobi I. A., & Ozovehe, B. P. (2023). Improving revenue collection efficiency through tax automation in Nigeria. *An International Serial Publication for Theory and Practice of Management Science*, 19(1) 437-446.
- Pascale, A., & Paymaster, B. (2023). The effect of adoption of TaxProMax on FIRS tax remittance in Nigeria: Proxying TaxProMax using online taxes, online filing, and returns. *Journal of Taxation and Digital Economy*, 7(2), 45-62.
- Peter, A. (2023). Assessing the impact of Tax Pro-Max on tax revenue and collection efficiency in Nigeria. *Journal of Taxation and Economic Development*, 22(2), 70-84.
- Price Waterhouse Coopers (PWC). (2024). Nigeria's tax compliance rate.
- Rogers, E. M. (1962). *Diffusion of innovations*. Free Press.
- Sani, A. B., Musbahu, B. A., & Bakare, O. T. (2021). Use of information and communication technology (ict) in tax administration and tax compliance in Nigeria. *Al-Hikmah Journal of Education*, 8(2), 192-202.
- Smith, J. (2019). *Taxation and public finance*. Palgrave Macmillan.