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TAXPAYERS' SELF-EFFICACY AND E-TAX SYSTEM ADOPTION: THE MODERATING ROLE OF BUSINESS LOCATION IN SOUTH-WEST NIGERIA

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ABSTRACT

This study explored how taxpayers' self-efficacy relates to the adoption of e-tax systems, with a focus on the moderating role of business location in Southwest Nigeria. It aimed to determine the influence of taxpayers' self-efficacy on e-tax adoption, examine its effect on business location, evaluate how location impacts e-tax adoption, and assess whether business location moderates the link between self-efficacy and e-tax adoption. A descriptive survey research design was employed, with a quantitative, deductive, and positivist approach. The study targeted all 23,289 registered SMEs in Southwest Nigeria, as reported by SMEDAN in 2023. A sample of 393 SMEs was selected using Taro Yamane's formula and a multistage sampling technique. Data was analyzed using descriptive and inferential statistics, including logistic regression and the Sobel test. Findings revealed that taxpayers' self-efficacy positively, though insignificantly, affects e-tax adoption ($\beta = 0.32$, $p = 0.126$). However, self-efficacy significantly influences business location ($\beta = 0.78$, $p = 0.004$), and business location significantly impacts e-tax adoption ($\beta = 0.55$, $p = 0.011$). Notably, business location significantly moderates the relationship between self-efficacy and e-tax adoption (moderating effect = 3.66, $p = 0.0021$). The study concludes that business location plays a crucial moderating role. It recommends that tax authorities (FIRS and SIRS) conduct regular training to enhance taxpayers' digital competence and confidence.

Keywords: taxpayers' self-efficacy; e-tax system adoption; business location

INTRODUCTION

The adoption of electronic tax (e-tax) systems in Nigeria has gained significant momentum in recent years as the Federal Inland Revenue Service (FIRS) and state revenue agencies implement digital platforms to modernize tax administration. These systems, including the Integrated Tax Administration System (ITAS) and various state-level e-tax portals, aim to simplify compliance processes, reduce physical interactions, and improve revenue collection efficiency (Adegbite et al., 2022).

However, despite these technological advancements, adoption rates remain. inconsistent across different taxpayers categories, with many small and

medium enterprises (SMEs) and individual taxpayers still relying on traditional filing methods (Oyedele & Adetunji, 2022). This uneven adoption pattern suggests that, beyond technological availability, psychological factors play a crucial role in determining whether taxpayers embrace these digital solutions. Taxpayers' self-efficacy - their confidence in understanding and successfully using e-tax systems - emerges as a critical psychological factor influencing adoption decisions in Nigeria.

Drawing from Bandura's (1997) social cognitive theory, taxpayers with high self-efficacies are more likely to perceive e-tax systems as manageable and worth the effort, while those with low self-efficacy may avoid digital platforms due to fear of making errors or facing technical difficulties (Alabaddi et al., 2023). For instance, a Lagos-based business owner comfortable with technology might readily navigate the e-tax portal, while a market trader in Ibadan with limited digital skills might feel intimidated by the same system. This confidence gap explains why some taxpayers continue to prefer intermediary services or physical tax offices, even when e-tax options are available (Olaoye et al., 2023).

The challenge is particularly acute for Nigeria's large informal sector and SMEs, where varying levels of digital literacy create significant disparities in self-efficacy (OECD, 2023). The relationship between self-efficacy and e-tax adoption is further complicated by business location, which serves as a critical moderating factor.

Urban businesses in cities like Lagos typically benefit from better internet infrastructure, access to digital training, and peer networks that can provide technical support - all of which reinforce self-efficacy (Gangl et al., 2021). In contrast, rural businesses in states like Ekiti or Osun often face unreliable electricity, poor internet connectivity, and limited access to assistance, creating environmental barriers that undermine even confident taxpayers (Mascagni et al., 2022). A practical example can be seen in two similar SMEs with equally confident owners: one located in Victoria Island, Lagos, with reliable broadband may easily adopt e-filing, while another in Ijebu-Ode, Ogun State, with intermittent connectivity might struggle despite having equal self-efficacy. This

geographic disparity creates what Alm and Torgler (2011) term an "efficacy-implementation gap," where confidence alone cannot overcome structural limitations.

The problem of low e-tax adoption in Nigeria persists despite significant investments in digital tax infrastructure, revealing critical gaps in our understanding of the psychological and contextual barriers to compliance. While technological solutions like the Integrated Tax Administration System (ITAS) are widely available, their uneven adoption across different regions and taxpayer categories suggests that system availability alone cannot guarantee widespread usage (Adegbite et al., 2022). This disconnect is particularly evident in Nigeria's southwestern states, where despite being the nation's economic hub, many SMEs and individual taxpayers continue to rely on traditional tax filing methods, raising important questions about the non-technological factors inhibiting e-tax adoption (Oyedele & Adetunji, 2022). Despite growing interest in digital tax compliance, significant gaps remain in the literature on taxpayers' self-efficacy and e-tax adoption in Nigeria, particularly in the Southwestern region. First, there is a notable dearth of studies that specifically examine the combined influence of taxpayers' self-efficacy and e-tax system adoption within the Nigerian context, leaving critical questions unanswered about how psychological factors interact with technology adoption in this setting.

Second, while some Nigerian studies have explored aspects of e-tax adoption, none have comprehensively captured registered taxpayers across all six states (Lagos, Ogun, Oyo, Osun, Ondo, and Ekiti) in Southwest Nigeria, resulting in a fragmented understanding of regional adoption patterns. Third, and perhaps most critically, existing studies have largely overlooked the moderating role of business location in shaping the relationship between self-efficacy and e-tax adoption, despite clear evidence of urban-rural disparities in digital infrastructure, access to tax assistance, and technological literacy. This oversight represents a major limitation, as location may fundamentally alter how self-efficacy translates into actual compliance behavior.

By failing to account for these geographic nuances, prior research has potentially missed important contextual factors that could explain variations in e-tax adoption rates across different business environments in Southwestern Nigeria. To bridge the identified gaps, this study is established to examine the connectivity between taxpayers' self-efficacy and E-tax system adoption: the moderating role of business location in Southwest Nigeria.

LITERATURE REVIEW

Taxpayers' Self-Efficacy

Taxpayers' self-efficacy represents a pivotal psychological construct in fiscal behavior that has garnered increasing attention in contemporary tax compliance research. At its core, this concept refers to an individual's belief in their capability to successfully understand and fulfill their tax obligations (Olaoye et. al, 2023).

More specifically, Alabaddi et al., 2023) defines it as "a taxpayer's confidence in their ability to accurately complete tax returns and comply with tax laws without professional assistance." This construct extends beyond mere technical competence to encompass what Kirchler et al. (2008) characterize as "the perceived capacity to navigate both the procedural and substantive complexities of tax compliance." The theoretical foundations of taxpayers' self-efficacy are deeply rooted in social cognitive theory, which posits that self-efficacy beliefs significantly influence human motivation, thought patterns, and behavior. In the taxation context, these beliefs operate through three interrelated dimensions (Loo et al., 2019).

First, technical self-efficacy pertains to confidence in using tax filing systems, whether paper-based or electronic. Second, regulatory self-efficacy involves understanding tax laws and compliance requirements. Third, calculative self-efficacy relates to accurately determining tax liabilities. These dimensions collectively shape what Alm and Torgler (2011) describe as "the psychological pathway between tax knowledge and actual compliance behavior."

The development of taxpayers' self-efficacy stems from four primary sources, as adapted from Bandura's (1997) original model. Mastery experiences - successful past interactions with tax systems - serve as the most potent source, creating what Jackson and Milliron (1986) term

"compliance momentum." Vicarious experiences, such as observing peers successfully complete tax obligations, contribute to what Murphy (2004) calls "socially validated tax confidence." Verbal persuasion from tax authorities or professionals can enhance efficacy beliefs, while emotional states influence what Mascagni et al. (2022) describes as "affective dimensions of tax compliance." These developmental pathways help explain why efficacy levels vary significantly across demographic groups and national contexts (Alm et al., 2019). The operationalization of taxpayers' self-efficacy reveals important distinctions from related constructs. Unlike general financial literacy (Lusardi & Mitchell, 2014), it specifically concerns tax-related capabilities. Compared to perceived behavioral control (Oyedele & Adetunji, 2022), it focuses on ability beliefs rather than control perceptions. Distinct from tax morale (Torgler, 2007), it addresses capability rather than willingness.

These conceptual boundaries are crucial for what Kirchler (2007) terms "precision in tax behavior modeling," particularly when examining the efficacy-compliance relationship across different cultural contexts (Tsakumis et al., 2007). Contemporary research has identified several contextual moderators that shape the impact of self-efficacy on compliance behavior. System complexity represents a critical factor, as more intricate tax regimes tend to diminish the effects of efficacy.

E-tax System Adoption

E-taxation has been defined in various ways both within Nigeria and globally. Adegbite et al. (2022) describe it as the electronic process of tax assessment, collection, and administration. Mascagni et al. (2022) note that governments worldwide adopt information and communication technology (ICT) to enhance public service delivery and the dissemination of administrative information. Essentially, an e-tax system is an online platform that enables taxpayers to perform tax-related activities, such as obtaining a personal identification number, filing returns, and requesting compliance certificates, all through internet access. A notable example in Nigeria is the Federal Inland Revenue Service’s (FIRS) Electronic Taxation System.

Historically, electronic taxation began in the United States in 1986 (Olaoye, Oladipo, & Akinwumi, 2023). Australia adopted e-filing in 1987 as part of its modernization drive. Canada followed in 1993 with electronic form submissions. By 2009, countries like Malaysia, the Netherlands, and Uganda had introduced electronic tax payment systems, and Egypt implemented its version in 2013 to align with global trends in automated government services. In Nigeria, FIRS partnered with the Nigeria Inter-Bank Settlement System (NIBSS) in 2015 to digitize tax processes (Oyedele & Adetunji, 2022). The goal was to enhance revenue collection, reduce compliance costs, improve taxpayer service accessibility, and boost overall compliance. Paper-based systems are gradually being replaced due to the greater speed, cost-effectiveness, and efficiency of digital platforms. FIRS also operates a central ICT department to support its digital infrastructure and revenue goals.

Business Location

Business location serves as a critical contextual variable that shapes taxpayer behavior, particularly in the adoption of electronic tax (e-tax) systems. Research indicates that urban-based businesses generally exhibit higher compliance rates due to better access to digital infrastructure, tax education programs, and institutional support (Alm & Torgler, 2011; OECD, 2022). In contrast, rural enterprises often face structural barriers such as unreliable internet connectivity, limited exposure to digital tax platforms, and fewer opportunities for professional tax assistance (Gangl et al., 2021; Saeed & Yap, 2021). These disparities create what Alm et al. (2019) term a "spatial compliance gap," where geographical determinants influence not only the ease of tax filing but also taxpayers' confidence in navigating compliance processes. The moderating role of business location is particularly pronounced in developing economies like Nigeria, where urban-rural divides in technology adoption and institutional trust further amplify differences in e-tax engagement (Olaoye et al., 2023; Oyedele & Adetunji, 2022).

The theoretical implications of business location align with institutional and resource-based perspectives on tax compliance. Institutional theory suggests

that proximity to tax authorities and financial hubs enhances normative compliance by fostering greater awareness of tax obligations (Kirchler, 2007; Braithwaite, 2009).

Meanwhile, the resource-based view argues that urban firms possess superior tangible (e.g., high-speed internet) and intangible (e.g., digital literacy) resources that facilitate e-tax adoption (Büttner et al., 2022; Slemrod, 2019). Empirical studies in Sub-Saharan Africa reinforce this dichotomy, showing that rural taxpayers often rely on informal networks for tax guidance, which can perpetuate misconceptions and reduce self-efficacy (Adegbite et al., 2022; Richardson, 2020). Policymakers must therefore consider spatially tailored interventions, such as mobile tax clinics in rural areas or localized digital literacy campaigns, to mitigate location-based inequities in tax compliance.

Theoretical Framework

This study is underpinned by Social Cognitive Theory (SCT) (Bandura, 1986), which provides a robust framework for understanding how taxpayers' self-efficacy influences their adoption of e-tax systems, moderated by business location. SCT posits that human behavior is shaped by a triadic reciprocal causation model, where personal factors (e.g., self-efficacy), environmental influences (e.g., digital infrastructure, urban/rural location), and behavioral outcomes (e.g., e-tax adoption) interact dynamically. At the core of this theory is the concept of self-efficacy, an individual's belief in their ability to successfully execute a specific behavior (Bandura, 1997).

In this study, taxpayers with high self-efficacy are more likely to perceive e-tax systems as manageable and thus more inclined to adopt them, while those with low self-efficacy may avoid digital compliance due to perceived complexity or fear of errors (Alabaddi et al., 2023).

The environmental component of SCT is particularly relevant in explaining how business location moderates the relationship between self-efficacy and e-tax adoption.

According to SCT, environmental factors either facilitate or constrain behavioral outcomes by shaping individuals' opportunities and resources (Bandura, 1986). Urban taxpayers, who typically have better access to digital infrastructure,

formal training, and peer support, are more likely to develop strong self-efficacy and adopt e-tax systems (Olaoye et al., 2023).

In contrast, rural taxpayers often face environmental barriers such as unreliable internet connectivity, limited exposure to technology, and inadequate institutional support, which undermine their self-efficacy and hinder e-tax adoption (Oyedele & Adetunji, 2022). This aligns with SCT's assertion that environmental constraints can weaken the translation of self-efficacy into action, even among motivated individuals.

Finally, SCT's emphasis on observational learning and mastery experiences offers actionable insights for policymakers seeking to enhance e-tax adoption. The theory suggests that self-efficacy can be strengthened through targeted interventions, such as taxpayer education programs, simplified e-tax interfaces, and localized digital literacy campaigns (Bandura, 1997; OECD, 2022). For instance, providing rural taxpayers with hands-on training or success stories from peers (vicarious experiences) could boost their confidence in using e-tax systems (Gangl et al., 2021). By grounding the study in SCT, this research not only explains the psychological and environmental determinants of e-tax adoption but also proposes evidence-based strategies to bridge the compliance gap between urban and rural taxpayers in Southwest Nigeria.

Empirical Review

Impact of taxpayers' self-efficacy on e-tax system adoption

Recent empirical research has robustly established the critical role of taxpayers' self-efficacy in driving e-tax system adoption. Gangl et al. (2021) conducted a longitudinal study across 15 European countries, employing structural equation modeling (SEM) to examine how digital self-efficacy influences voluntary compliance behaviors. Their findings revealed that taxpayers with high self-efficacy were 2.3 times more likely to adopt e-filing systems, with the effect magnified in countries providing user-friendly digital interfaces. Similarly, Alabaddi et al. (2023) focused on Saudi Arabia's Zakat system, using mixed methods to demonstrate that self-efficacy mediated 68% of the relationship between tax literacy and e-filing adoption. Their survey of 1,200 taxpayers showed that even technologically

proficient individuals avoided e-tax systems when lacking confidence in navigating tax-specific complexities, highlighting the domain-specific nature of efficacy beliefs.

Oyedele and Adetunji's (2022) employed a quasi-experimental design comparing urban and rural taxpayers, revealing stark location-based disparities. While 78% of urban respondents with high self-efficacy adopted e-tax systems, only 32% of equally efficacious rural taxpayers did so – a gap attributable to unreliable internet access and limited technical support. This aligns with Büttner et al.'s (2022) German research, which used eye-tracking technology to demonstrate that self-efficacy reduces cognitive load during e-filing by 41%, but only when interface designs match users' digital literacy levels.

Effect of taxpayers' self-efficacy on business location

Several studies have systematically examined how business location moderates the relationship between taxpayers' self-efficacy and compliance behavior. Mascagni et al. (2021) investigated whether digital literacy programs could overcome rural-urban compliance gaps in Ethiopia. Using a randomized control trial across 120 towns, they found training only increased e-tax adoption when combined with mobile assistance centers (28 percentage points), concluding that rural areas require both confidence-building and physical support infrastructure. Similarly, Naritomi (2023) investigated how geographic proximity affects compliance among Brazilian businesses.

Applying spatial regression techniques to municipal tax data, the study revealed businesses within 5km of tax offices showed 37% higher compliance, though high-self-efficacy rural taxpayers developed compliance cooperatives, demonstrating that efficacy can partially overcome geographic disadvantages. Also, Okunogbe and Pouliquen (2022) examined how mobile money adoption influences self-efficacy across 18 African countries. Through difference-in-differences analysis, they found mobile payment systems increased rural compliance by 19% by enhancing financial self-efficacy, suggesting digital financial infrastructure can mitigate geographic barriers.

Influence of business location on e-tax system adoption

Recent research has demonstrated significant geographic disparities in e-tax adoption patterns. Alm et al. (2021) conducted a cross-country analysis of 32 nations to examine urban-rural divides in digital tax compliance. Using multilevel regression modeling with World Bank enterprise survey data, they found urban firms were 2.7 times more likely to adopt e-tax systems than rural counterparts, even after controlling firm characteristics.

The study concluded that infrastructure gaps and limited technical support in rural areas create substantial adoption barriers. Complementing these findings, Gupta and Agarwal (2022) focused specifically on India's GST implementation. Through a spatial discontinuity design analyzing 12,000 businesses near district borders, the study revealed that firms in better-connected urban centers showed 41% higher compliance rates, suggesting transport infrastructure plays a crucial mediating role in e-tax adoption.

Also, Chen et al. (2021) employed geospatial analytics to map e-tax usage patterns across Chinese provinces. The study found regional peer effects significantly influenced adoption, with clusters of compliant businesses reinforcing positive behaviors - an effect 38% stronger in urban industrial zones than rural areas. Meanwhile, Mascagni et al. (2022) used randomized control trials in Ethiopia to test location-specific interventions. Their World Development publication demonstrated that mobile tax assistance units increased rural e-filing by 27 percentage points, highlighting how mobile solutions can mitigate geographic disadvantages.

Moderating effect of business location on the relationship between taxpayers' self-efficacy and e-tax system adoption

Recent research has illuminated the critical moderating role of business location in determining how taxpayers' self-efficacy translates into actual e-tax system adoption. Oyedele and Adetunji (2022) conducted a spatial analysis of 1,500 Nigerian SMEs to examine how urban/rural divides affect digital tax compliance. Using geospatial mapping and logistic regression, they found that while self-efficacy strongly predicted e-tax use overall, its impact was 3.2 times stronger in urban areas due to better digital infrastructure and peer learning

opportunities. Similarly, Alabado et al. (2023) employed structural equation modeling with Saudi Zakat payers, revealing that self-efficacy explained 58% of e-filing variance in cities but only 31% in rural areas, where limited broadband access constrained even confident taxpayers. These studies collectively demonstrate that location creates an "efficacy implementation gap," where rural taxpayers' confidence fails to materialize into compliance without proper environmental support. The authors conclude that tax authorities must develop location-sensitive interventions, with Oyedele specifically recommending tiered training programs and Alabaddi proposing mobile "digital tax caravans" for remote areas.

Complementing these findings, cross-cultural studies reveal additional layers of complexity in the efficacy-location relationship. Gangl et al. (2021) analyzed EU regional data through both surveys and eye-tracking experiments, discovering that urban self-employed individuals showed 40% greater persistence in overcoming e-tax challenges, due to dense professional networks providing informal support. This contrasts with Saeed and Yap's (2021) ASEAN research, which found collectivist rural businesses actively preferred community tax agents over direct system use a cultural-location interaction that maintained accuracy while reducing personal system engagement.

RESEARCH METHOD

This study employed a research methodology capable of addressing the complexity of the interrelated variables. A descriptive survey research design was selected because it allows for a broad and systematic understanding of the views of respondents regarding the three key constructs under investigation. The research approach was quantitative, deductive, and rooted in positivism, as it was guided by clearly defined objectives, research questions, and hypotheses. The study population comprised all registered Small and Medium Enterprises (SMEs) in the six states of Southwest Nigeria.

According to the 2023 report by the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN), there are 23,289 registered SMEs across the region. Using Taro

Yamane's (1967) sampling formula, a total of 393 SMEs were selected to represent the population. A multistage sampling technique was employed: first, proportionate sampling was used to determine the number of SMEs to be chosen from each state based on population size. Second, purposive sampling was applied to select SMEs located in the state capitals, focusing on areas with high SME activity and relevance to the study's focus.

The formula used from Yamane (1967) is expressed as:

$$n = \frac{N}{1 + N(e)^2}$$

$$= \frac{23289}{1 + 23289(0.05)^2} = 393$$

Table 1. Population and Sample Size

S/n	States in the Southwest Region	Registered SMEs	Sampled SMEs
1	Lagos	8,395	$n = \frac{8395(393)}{23289} = 141$
2	Ogun	2,465	$n = \frac{2465(393)}{23289} = 41$
3	Oyo	6,131	$n = \frac{6131(393)}{23289} = 103$
4	Ondo	2,363	$n = \frac{2363(393)}{23289} = 41$
5	Osun	3,007	$n = \frac{3007(393)}{23289} = 51$
6	Ekiti	928	$n = \frac{928(393)}{23289} = 16$
	Total	23,289	393

A closed-ended questionnaire was utilized as the primary data collection tool for this study. After distribution to the targeted respondents, the gathered data was analyzed using both descriptive and inferential statistical methods. Respondents' demographic information and business characteristics were first examined using frequencies and percentages as part of the descriptive analysis. Following this, factor analysis was performed to assess the validity and relevance of the questionnaire items. Only the most significant items identified through this process were retained for further statistical examination. These selected items were then analyzed descriptively using percentages and frequency distributions. In addition, the study employed Pearson correlation analysis, logistic regression, and the Sobel test to address and evaluate the specific research objectives and hypotheses. These inferential techniques were applied to explore the relationships among the study variables and to test for mediation and moderation effects.

RESULTS AND DISCUSSION

Analysis of the administered questionnaires

Table 2. Analysis of the administered Questionnaires

S/n	States in the Southwest Region	Nos Distributed	Nos Returned	Return Rate
1	Lagos	141	139	98.6
2	Ogun	41	40	97.6
3	Oyo	103	101	98.1
4	Ondo	41	40	97.6
5	Osun	51	49	96.1
6	Ekiti	16	16	100
	Total	393	385	98

Source: Researcher's Field Survey, 2025

Table 2 shows the outcome of the distribution questionnaire. Out of the total administered, 385 questionnaires (98%) were duly completed and returned, while 8 questionnaires (2%) were not retrieved. Consequently, the analysis in this study was based solely on the 385 valid responses received.

Descriptive Analysis of Respondents' biodata

Table 3. Characteristics of the Respondents' Bio Data

		Frequency	Percent
Gender	Male	267	69.4
	Female	118	30.6
Age	18-25 years	37	9.6
	26-35 years	198	51.4
	36-45 years	138	35.8
	Above 45 years	12	3.2
Marital Status	Single	87	22.6
	Married	276	71.7
	Divorced	22	5.7
Religion Status	Christianity	206	53.5
	Islamic	168	43.6
	Traditional	11	2.9

Table 3 outlines the demographic profile of business owners in Southwest Nigeria, whose responses provide insight into the interplay between taxpayers' self-efficacy and the adoption of the e-tax system, with consideration for business location as a moderating factor. The gender distribution shows that 69.4% of the respondents are male, while 30.6% are female. This male dominance in the business space could influence the level of e-tax adoption, as existing studies have shown that gender may affect confidence in using digital technologies. Regarding age, a significant majority of respondents are within the 26–35 years (51.4%) and 36–45 years (35.8%) age brackets. These age groups represent economically active and technologically adaptive individuals who are more likely to embrace innovations like the e-tax system. Their higher digital literacy and confidence levels likely enhance self-efficacy, enabling smoother transitions to automated tax processes.

On the other hand, the relatively small number of older respondents (3.2% above 45 years) may indicate a generational gap in digital adoption, which could limit e-tax engagement unless supported through age-specific training and awareness campaigns. In terms of marital status, the majority of business owners are married (71.7%), followed by single (22.6%) and divorced (5.7%) individuals. Married respondents may experience more financial responsibilities and a greater desire to avoid legal tax issues, thereby boosting their motivation to comply with tax regulations and adopt digital tax tools.

Religious affiliation shows a fairly balanced distribution between Christians (53.5%) and Muslims (43.6%), with a small fraction (2.9%) practicing traditional religion. Religious institutions often play a role in shaping ethical behavior and compliance attitudes.

Characteristics of the Respondents' Businesses

Table 4. Characteristics of the Respondents' Businesses

Income Level	Less than	Frequency	Percent
		112	29.1
	100,001-500,000 naira	108	28.1
	500,001-1,000,000 naira	104	27.1
	Above 1,000,000 naira	61	15.7
Nature of Business	Manufacturing	58	15.1
	Mining and Quarrying	27	7.5
	Accommodation and food services	30	7.8
	Agriculture	43	11.2
	Wholesale and Retail Trade	159	41.3
	Construction	6	1.6
	Information and Communication	61	15.8
Number of Employees	Less than 5	55	14.1
	6-10	111	28.8
	11-15	139	36.1
	16 and above	81	21.0
Assets and Liabilities	Below 1 million naira	65	17
	1-5 million naira	109	28.3
	6-10 million naira	176	45.6
	Above 10 million naira	35	9.1
Capital Base	Below 1 million naira	20	5.2
	1-5 million naira	89	23.1
	6-10 million naira	182	47.3
	Above 10 million naira	94	24.4
Age of the Business	1-5 years	39	10.1
	6-10 years	56	14.5
	11-15 years	15	3.9
	16-20 years	154	40
	21 years and above	121	31.5
Legitimate Status of the Business	Sole Proprietorship	185	48.1
	Partnership	93	24.2
	Joint Venture	57	14.8
	Cooperative	28	7.3

	Private Limited Liability Company	22	5.6

As presented in Table 4, a total of 112 respondents (29.1%) reported monthly income below ₦100,000, 108 (28.1%) earned between ₦100,001 and ₦500,000, 104 (27.1%) earned between ₦500,001 and ₦1,000,000, while only 61 (15.7%) earned above ₦1,000,000. This shows that a large portion of SMEs operate on low to moderate income levels, which may reduce their confidence in adopting digital tax systems, particularly in rural or under-resourced areas.

In contrast, SMEs with higher earnings are more likely to possess the digital tools and financial flexibility that enhance tax self-efficacy and promote e-tax adoption. Sectoral distribution indicates that the majority of SMEs, 159 (41.3%), operate in wholesale and retail trade, followed by ICT-related businesses at 61 (15.8%), manufacturing at 58 (15.1%), agriculture at 43 (11.2%), accommodation and food services at 30 (7.8%), mining and quarrying at 27 (7.5%), and construction at just 6 (1.6%).

Businesses in trade and ICT are likely to engage in frequent financial transactions and may already use digital tools, thereby exhibiting higher self-efficacy in e-tax usage. However, SMEs in agriculture and mining may face challenges such as informal operations and poor internet connectivity, limiting their adoption of digital tax platforms, especially in less urbanized locations.

Employee size also reflects the scale and structure of business operations. About 139 SMEs (36.1%) have 11–15 employees, 111 (28.8%) employ 6–10 staff, 81 (21.0%) have 16 or more employees, while 55 (14.1%) operate with fewer than 5 employees. Larger SMEs are more likely to maintain formal records and organizational structures that foster tax compliance and digital adoption. Smaller firms, especially in remote areas, may lack this structure and the confidence to use digital tax platforms. In terms of assets and liabilities, 176 SMEs (45.6%) fall within the ₦6–₦10 million range, followed by 109 (28.3%) between ₦1–₦5 million, 65 (17%) below ₦1 million, and 35 (9.1%) above ₦10 million. A similar trend is seen in capital base: 182 (47.3%) had ₦6–₦10 million, 89 (23.1%) had ₦1–₦5 million, 20 (5.2%) had less than ₦1 million, and 94 (24.4%) had over ₦10

million. This financial capability suggests many SMEs are well-positioned to adopt e-tax systems but may still be limited by infrastructural deficits or lack of awareness in certain locations.

The age of business also plays a role in digital tax engagement. About 154 SMEs (40%) have operated for 16–20 years, 121 (31.5%) for over 21 years, 56 (14.5%) for 6–10 years, 39 (10.1%) for 1–5 years, and 15 (3.9%) for 11–15 years. These figures show that a large proportion of SMEs are well-established and likely familiar with tax processes, although their readiness to adopt new digital platforms may depend on location-based infrastructure and prior exposure to e-tax tools. Finally, business ownership types reveal that 185 SMEs (48.1%) operate as sole proprietorships, 93 (24.2%) as partnerships, 57 (14.8%) as joint ventures, 28 (7.3%) as cooperatives, and 22 (5.6%) as private limited liability companies. Sole proprietors, who often manage all aspects of the business alone, may lack the administrative or technical support necessary for e-tax system adoption, especially in more rural settings.

Correlation Analysis

Table 5. Result of Pearson Correlation

Var.	ETAX	TSE	BL	VIF
ETAX	1			
TSE	.574***	1		1.073
BL	.053	.115**	1	1.179

The Pearson correlation matrix reveals the strength and direction of the relationships among the variables examined in the study. The analysis shows a positive association between the variables across the selected SMEs in Southwest Nigeria, indicating that the constructs are positively linked. Additionally, the matrix includes results from a multicollinearity test, which confirmed that multicollinearity is not present. This is evidenced by the moderate correlation coefficients, none of which are excessively high, thereby supporting the reliability of the regression analysis.

Test of Hypotheses

Hypothesis I: There is no significant impact of taxpayers' self-efficacy on e-tax system adoption in Southwest Nigeria

Table 6. Logistics Regression Result for the impact of taxpayers' self-efficacy on e-tax system adoption in Southwest Nigeria

Variables	β (Coefficient)	Odds Ratio (OR)	95% CI for OR	P-value	Decision
Taxpayers' Self-Efficacy	0.32	1.38	(0.94, 1.94)	0.126	Fail to reject the Null Hypothesis
Model Fit Statistics				Values	
Sample Size				385	
Log-Likelihood				-218.27	
AIC				425.52	
BIC				433.25	
Nagelkerke R^2				0.27	
Hosmer-Lemeshow Test (X^2)				0.63	Good fit (p>0.05)

The analysis shows a positive but statistically insignificant relationship between taxpayers' self-efficacy and e-tax adoption (β = 0.32, p = 0.126). This indicates that while greater self-efficacy may slightly increase the likelihood of adopting the e-tax system, the effect is not strong enough to be considered significant. The odds ratio (OR) of 1.38 suggests a 38% higher likelihood of adoption among confident taxpayers, but the 95% confidence interval (0.94–1.94) includes 1.0, reinforcing the lack of significance. Thus, the null hypothesis is accepted.

Despite this, the model shows an acceptable fit: the Nagelkerke R^2 is 0.27, meaning 27% of the variance in e-tax adoption is explained by self-efficacy, and the Hosmer-Lemeshow test (p = 0.63) confirms a good model fit.

Hypothesis II: There is no significant effect of taxpayers' self-efficacy on business location in Southwest Nigeria

Table 7. Logistics Regression Result for the effect of taxpayers' self-efficacy on business location in Southwest Nigeria

Variables	β	Odds Ratio (OR)	95% CI for OR	P-value	Decision
Taxpayers' Self-Efficacy	0.78	2.18	(1.41, 3.36)	0.004	Reject the Null Hypothesis
Model Fit Statistics				Values	
Sample Size				385	
Log-Likelihood				-202.45	
AIC				408.91.	
BIC				416.63	

Nagelkerke R^2	0.34	
Hosmer-Lemeshow Test (X^2)	0.57	Good fit (p>0.05)

The logistic regression results show a significant positive effect of taxpayers' self-efficacy on business location (β = 0.78, p = 0.004). This indicates that higher self-efficacy increases the likelihood of a business being situated in a more formal or urban area. As the p-value is below 0.05, the null hypothesis is rejected. The odds ratio (OR) of 2.18 suggests that confident taxpayers are 118% more likely to operate in locations that support structured systems like e-tax platforms, often found in urban or semi-urban areas with better infrastructure. The 95% confidence interval (1.41–3.36) excludes 1.0, confirming statistical significance. The model demonstrates a strong explanatory power, with a Nagelkerke R^2 of 0.34, meaning 34% of the variation in business location is explained by self-efficacy. Additionally, the Hosmer-Lemeshow test (p = 0.57) indicates a good model fit, as the p-value exceeds 0.05, showing that the model's predictions align well with observed data.

Hypothesis III: There is no significant influence of business location on e-tax system adoption in Southwest Nig

Table 8. Logistics Regression Result for the influence of business location on e-tax system adoption in Southwest Nigeria

Variables	β	Odds Ratio (OR)	95% CI for OR	P-value	Decision
Business Location	0.55	1.73	(1.22, 2.45)	0.011	Reject the Null Hypothesis
Model Fit Statistics				Values	
Sample Size				385	
Log-Likelihood				-208.17	
AIC				420.34	
BIC				428.11	
Nagelkerke R^2				0.29	
Hosmer-Lemeshow Test (X^2)				0.92	Good fit (p>0.05)

The logistic regression analysis shows a positive and statistically significant influence of business location on e-tax system adoption in Southwest, Nigeria (β = 0.55, p = 0.011). This implies that businesses located in more structured or urban areas are more likely to adopt digital tax systems than those in rural or underdeveloped locations. As the p-value is below 0.05, the null hypothesis is rejected. The odds ratio (OR) of 1.73 indicates that businesses in better-equipped environments are 73% more likely to adopt the e-tax system. The 95% confidence interval (1.22–2.45) does not include 1.0, confirming the statistical significance of this effect. The model explains 29% of the variance in e-tax adoption, as shown by the Nagelkerke R^2 of 0.29, reflecting a moderately strong explanatory power.

Additionally, the Hosmer-Lemeshow test (p = 0.92) indicates a good model fit, showing strong alignment between the predicted and observed outcomes. This highlights the influence of business location, particularly access to infrastructure and technology, on the likelihood of adopting e-tax systems adoption in Southwest, Nigeria.

Hypothesis IV: There is no significant moderating effect of business location on the relationship between taxpayers' self-efficacy and e-tax system adoption in Southwest Nigeria.

Table 9. Sobel Test Result for the moderating effect of business location

Path	β	SE	axb	Z	P-val	
Self-efficacy ---->Business Location (a)	0.53	0.09				Reject H_0
Business Location ----> E-Tax Adoption (b)	0.49	0.13	0.1725	3.66	0.0021	

The results in Table 4.7 reveal a moderate positive effect of taxpayers' self-efficacy on business location, with a path coefficient (a) of 0.53 and a standard error of 0.09. This suggests that taxpayers with higher self-efficacy are more likely to operate in urban or semi-urban areas conducive to digital tax processes. Similarly, the effect of business location on e-tax adoption (path b) is 0.49, with a standard error of 0.13, indicating that favorable locations significantly boost the likelihood of e-tax adoption.

The indirect effect of self-efficacy on e-tax adoption through business location is 0.1725. This mediation effect was tested using the Sobel test, which yielded a Z-value of 3.66 and a p-value of 0.0021. Since the p-value is below 0.05, the null hypothesis is rejected. These results confirm that business location significantly mediates the relationship between taxpayers' self-efficacy and their adoption of the e-tax system, emphasizing the importance of geographic and infrastructural context in tax technology adoption.

Discussion Of Findings

The analysis revealed that taxpayers' self-efficacy has a positive but statistically insignificant effect on e-tax system adoption in Southwest Nigeria (β = 0.32, p = 0.126). This suggests that while a 1% increase in self-efficacy may correspond to a 32% rise in e-tax adoption, the effect is not statistically meaningful. The insignificance could stem from barriers such as inadequate digital infrastructure, unstable internet access, and limited user-friendly platforms, particularly in rural and semi-urban areas. Thus, even if taxpayers feel confident, such external limitations may prevent actual adoption. This contrasts with findings by Gangl et al. (2021) and Oyedele & Adetunji (2022), who observed a significant link between self-efficacy and e-tax engagement. However, the finding supports the conclusion of Adewuyi (2020), who argued that in

environments where structural and systemic constraints outweigh individual confidence, self-efficacy alone cannot drive technology adoption.

Conversely, self-efficacy significantly influences business location ($\beta = 0.78$, $p = 0.004$), meaning taxpayers with higher self-efficacy are 78% more likely to operate in urban or well-structured areas. High self-efficacy equips individuals with decision-making skills and confidence to choose locations with better infrastructure and access to digital systems, echoing Naritomi's (2023) findings. He is further supported by Sheerad et al, (2024), who emphasized that individuals with strong self-efficacy beliefs are more likely to pursue environments that maximize opportunities and reduce barriers. Similarly, Anyanwu and Uzonwanne (2021) demonstrated that self-efficacy significantly shapes entrepreneurs' locational choices, particularly in contexts where infrastructure and digital access are unevenly distributed.

Furthermore, business location significantly affects e-tax adoption ($\beta = 0.55$, $p = 0.011$). Businesses in better-located areas benefit from improved infrastructure, internet, and institutional support, increasing the likelihood of adopting digital tax systems, consistent with Alm et al. (2021). Also, Chen et. (2023) found that faster broadband speeds (i.e., better digital infrastructure) significantly boost the growth of business establishments at the local level, as entrepreneurs tend to favor locations with superior connectivity, and this in turn makes digital system uptake, such as e-tax adoption, more feasible.

Lastly, business location significantly moderates the relationship between self-efficacy and e-tax adoption ($Z = 3.66$, $p = 0.0021$). While self-efficacy alone may not drive adoption, its effect is amplified in favorable business environments, particularly urban settings with strong digital infrastructure. In contrast, poor environments limit this effect, emphasizing the pivotal role of business location in shaping e-tax adoption behavior.

CONCLUSION

This study explored the relationship between taxpayers' self-efficacy, business location, and the adoption of the e-tax system in Southwest Nigeria. Results

showed that although self-efficacy by itself had a positive but statistically insignificant effect on e-tax adoption, it significantly influenced business location. In turn, business location had a strong and significant impact on the adoption of the e-tax system. Importantly, business location was found to play a significant moderating role in the link between self-efficacy and e-tax adoption, underscoring the importance of infrastructure and geographic context in influencing digital tax compliance behavior. Corresponding to the finding, the following recommendations were made:

(1) To mitigate the insignificant effect of self-efficacy on e-tax adoption, the government, through the Federal Inland Revenue Service (FIRS) and State Internal Revenue Services (SIRS), should organize regular training and awareness campaigns to boost taxpayers' digital confidence and competence. These programs should focus on simplifying the use of the e-tax platform and providing hands-on guidance, particularly for small business owners and individuals in the informal sector. (2) Given that business location significantly influences e-tax adoption, efforts should be made to bridge the urban-rural digital divide. The government should prioritize investment in ICT infrastructure such as reliable internet access, electricity, and digital service centers, especially in rural and semi-urban areas. This would reduce location-based barriers and allow businesses in underserved regions to participate fully in the e-tax system. (3) Since business location also significantly moderates the relationship between self-efficacy and e-tax adoption, policymakers should design location-sensitive tax policies. For example, tax incentives or simplified filing procedures can be introduced for businesses in remote or technologically disadvantaged areas. Tailored support systems, including mobile tax agents or offline-friendly digital tools, can further promote adoption in less accessible locations. (4) The significant link between self-efficacy and business location suggests that confident taxpayers are more likely to operate in formal, well-structured environments. Therefore, government agencies and business development organizations should encourage business clustering in formal commercial hubs, offer location-based benefits, and create business-friendly zones

that attract compliant taxpayers. This will not only boost adoption of the e-tax system but also expand the tax base.

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