

Blockchain-enabled tax administration, self-assessment and SME tax compliance: evidence from a developing economy

Fintech and
Digital
Accounting
Review

Edward Nartey, Emmanuel Tetteh Asare, Richard Fosu Amankwa and
Hadija Naryie Nyante

Department of Accounting, University of Ghana Business School, Accra, Ghana

Received 9 January 2026
Revised 30 April 2026
6 September 2026
Accepted 6 September 2026

Abstract

Purpose – Although literature suggests that IT-led tax administration can enhance tax compliance through transparent, efficient and effective tax system, limited studies exist on the benefits of modern technologies, such as blockchain, for the management of taxes. The purpose of this study is to examine the impact of blockchain adoption on IT-led tax administration, self-assessment and tax compliance among small and medium-sized enterprises (SMEs). It seeks to understand the relationship between perceived usefulness and ease of use of blockchain technology, which in turn impact IT-led tax administration, self-assessment and tax compliance.

Design/methodology/approach – Five hypotheses were tested using a cross-sectional survey of 227 SMEs across the Accra-Tema industrial hub. Data were analysed using partial least squares structural equations modelling version 23.

Findings – The results underscore the significance of all five hypotheses, revealing a notable influence of perceived usefulness and perceived ease of use on blockchain adoption, which in turn, impacts IT-led tax administration, self-assessment and tax compliance.

Practical implications – Both tax administrators and taxpayers should consider blockchain adoption and self-assessment policy as crucial to enhancing tax compliance. Governments should create an enabling environment that facilitates blockchain adoption in the taxing system by emphasizing the need for tailored support for SMEs.

Originality/value – The study provides preliminary empirical evidence on the implications of blockchain adoption intentions and self-assessment on tax compliance from both taxpayers' and tax administrators' perspectives in the context of a developing economy. Literature on blockchain implications for tax compliance is underdeveloped.

Keywords IT-led tax administration, Blockchain adoption, Self-assessment, Tax compliance, Small and medium sized enterprises

Paper type Research article

1. Introduction

Globally, taxation plays a key role in every society because it is a chance for governments to collect revenues needed to satisfy their pressing obligations. However, the problem of tax noncompliance is still widespread among small and medium-sized enterprises (SMEs), especially those in developing economies (Night & Bananuka, 2020; Nartey, 2023; Al-Okaily, 2024; Gyau, Ocansey, & Yeboah, 2025). SMEs in developing countries find it significantly more expensive to comply with regulations than large companies, which calls for more SME focused research (Musa, Adenutsi, & Okyere, 2026). Umar and Masud (2020) and Asmah, Ampong, Bibi, and Ofori (2025) state that developing countries are the worst affected by tax

© Edward Nartey, Emmanuel Tetteh Asare, Richard Fosu Amankwa and Hadija Naryie Nyante. Published in *Fintech and Digital Accounting Review*. Published by Emerald Publishing Limited. This article is published under the Creative Commons Attribution (CC BY 4.0) licence. Anyone may reproduce, distribute, translate and create derivative works of this article (for both commercial and non-commercial purposes), subject to full attribution to the original publication and authors. The full terms of this licence may be seen at <http://creativecommons.org/licences/by/4.0/>

Funding: This research was supported by the University of Ghana Business School.



Fintech and Digital Accounting Review
Emerald Publishing Limited
2977-7631
DOI 10.1108/FDAR-01-2026-0002

noncompliance. [Musa *et al.* \(2026\)](#) noted that tax compliance remains a challenge for governments seeking sustainable public revenues in developing countries.

This noncompliance behaviour is partly attributed to ineffective and poor tax administration by the taxing authorities ([Kabir, 2021](#); [Belahouaoui & Attak, 2024](#); [Atadoga, Chinonyerem, Ajibade, Modinat, & Opeyemi, 2025](#)). [Belahouaoui and Attak \(2024\)](#) found that to a large extent, tax administration is responsible for ineffective and poor tax management in developing countries because it is not only non-transparent but also facilitates increases in tax evasion. In this regard, [Khawar, Pinto, and Elshandidy \(2026\)](#) argue that a robust governance framework for tax matters is essential for ensuring compliance with tax regulations and supporting tax authorities in enforcement. [Biswas and Rahman \(2018\)](#) found that the unavailability of state-of-the-art technology for tax administration and lack of transparency are the causes for inefficient and less effective tax management. Consequently, tax administrations globally are undergoing a significant digital transformation, integrating advanced technologies such as cloud computing, Internet of Things, artificial intelligence (AI) and blockchain to enhance taxpayer experiences and streamline processes ([Belahouaoui & Attak, 2024](#); [Ajibola, 2026](#)).

Studies on recent technology adoption have emphasized the need to shift from traditional governance perceptions and embrace technology-oriented public administration for effective, efficient and transparent tax administration ([Ajibola, 2026](#); [Asmah *et al.*, 2025](#); [Gyau *et al.*, 2025](#)). In addition, many international organizations [the World Bank, United States Agency for International Development (USAID), United Nations (UN), Organization for Economic Cooperation and Development (OECD), International Monetary Fund (IMF) and others] have recommended the implementation of IT-led tax administration in developing countries to increase tax revenue ([Umar & Masud, 2020](#)). However, these recommendations have not yielded positive results, and tax compliance remains unrealized ([Kabir, 2021](#); [Al-Okaily, 2024](#)). According to the [IMF \(2015\)](#), although developing countries have implemented quite a number of IT-led tax reforms over the past 30 years, attaining the goal of tax revenue adequacy remains a substantial challenge. [Umar and Masud \(2020\)](#) document that IT is constrained in addressing the noncompliance problem in developing countries. Therefore, appropriate mechanisms that can be adopted by governments of developing economies to ensure full tax compliance remain unclear ([Belahouaoui & Attak, 2024](#); [Atadoga *et al.*, 2025](#); [Musa *et al.*, 2026](#)).

Recently, Ghana adopted an IT-led tax administration with the introduction of self-assessment by taxpayers on January 1, 2021. The objective is to minimize tax noncompliance by business enterprises, especially SMEs. As stipulated in the Income Tax Act (Act 896) as amended, “with effect from January 1, 2021, taxpayers throughout the country will pay taxes to the Ghana Revenue Authority (GRA) based on their own calculations via an online platform”. The primary justification for the shift towards an IT-led delivery of taxation services is based on the belief that it holds considerable potential benefits for both tax administrators and taxpayers ([Gyau *et al.*, 2025](#); [Mansour & Alomair, 2026](#)). In addition, as governments seek to ensure the smooth flow of tax revenue, unintended heavy administrative burdens may be imposed on taxpayers, especially the informal sector ([Nartey, 2023](#); [Anomah, Ayebofoa, Aduamoah, & Agyabeng, 2024](#); [Asmah *et al.*, 2025](#)). Therefore, self-assessment was introduced to partly address the problem of administrative burdens on SMEs to ensure maximum flow of tax revenue. Using digital tax systems, tax administrators can guarantee transparency, reduce corruption and operational costs, and ensure openness in the taxing system ([Asmah *et al.*, 2025](#)).

Despite this initiative taken by the Ghanaian taxing system, the number of taxpayers using digital tax systems remains limited because the IT-led tax system is unable to process the overwhelming large numbers of operators in the informal sector, although registered taxpayers are efficiently and adequately addressed ([Suwito, Sardju, & Nuh, 2023](#)). [Umar and Masud \(2020\)](#) argue that an IT-led tax administration, as is being adopted in developing countries, is inadequate in engendering the large usage of e-filing. Thus, problems related to inaccurate

details, tax evasion, tax noncompliance, fraud, risks and communication that the online taxation systems were deployed to overcome persist (Al-Okaily, 2024). Therefore, the incorporation of some universally acceptable measures that can guard against noncompliant initiatives in the taxing system becomes crucial. Blockchain technology holds the potential to solve this challenge of an inefficient and non-transparent system where taxpayers will develop trust and confidence in the taxing environment to boost compliance (Ivashchenko & Sudak, 2019; Kabir, 2021; Atadoga *et al.*, 2025).

Blockchain has been identified to play a significant role in the conduct of SMEs' businesses based on its enhanced scope for digitalization, visibility, smart contract and data security (Kiring *et al.*, 2017). Trust and transparency can be improved by blockchain in the taxing system based on its immutability, append-only, shared, verified and agreed-upon (i.e., consensus-driven) blockchain data. Therefore, blockchain can assist in overcoming the challenges of traditional tax administration (Kabir, 2021; Atadoga *et al.*, 2025). As a technology that is immune to manipulation, blockchain can be adopted and used in public management as a new form of transparency (Anomah *et al.*, 2024). While tax administrators' use of blockchain tends to enhance fairness and transparency of the tax system, businesses, especially SMEs, also require an enabling IT environment to effectively respond to the taxing system. For example, the triple-entry function of blockchain can enhance trust in the taxing environment. Its ability to provide better planning and forecasting, greater and more accurate business insights, faster fraud detection and identifying the root causes of cost is an added advantage (Treiblmaier & Sillaber, 2020).

However, there remains a notable gap in the literature regarding the long-term impact of digital taxation on tax compliance (Belahouaoui & Attak, 2024). As identified by Ajibola (2026), Anomah *et al.* (2024) and Asmah *et al.* (2025), future research is needed to understand how e-tax services affect perceptions and taxpayer compliance. This motivates the current study, which examines the extent to which blockchain in IT-led tax administration can influence taxpayers' self-assessment and compliance behaviour, thereby addressing both technological advancements and their behavioural implications in the realm of tax compliance. Therefore, this research seeks to address the question below:

- RQ. Can blockchain adoption lead to improved IT-led tax administration, enhanced SMEs' self-assessment and tax compliance behaviour in the Ghanaian taxing system?

Drawing on the technology acceptance model (TAM) supported by institutional theory, this study sought to shed light on both the demand side (tax administrators) and supply side (SMEs taxpayers) towards blockchain's usage intentions for effective and transparent taxing system in the context of a developing economy – Ghana. The results show that the two dimensions of TAM, namely perceived usefulness and perceived ease of use statistically influence the intentions to use blockchain, which in turn, impacts tax compliance through IT-led tax administration and self-assessment. By combining several related constructs within a single empirical framework, this study extends existing knowledge on digital tax systems' adoption to a developing-country's setting. The rest of the article is organized as follows. Section 2 presents the theoretical background and hypotheses development, while the methods are presented in Section 3. The survey results are presented in section 4, while Section 5 discusses the findings. Section 6 covers the conclusions.

2. Literature review

2.1 Blockchain adoption and digital tax administration

Calls for changes in public policy in tax administration have been on the rise due to inefficient and ineffective tax management (Khawar *et al.*, 2026). IT-based solutions can play a vital role in this regard. Following practices and policy trends, the significance of IT has gained a new position in e-governance in recent times. Blockchain can be used to

expand the kind of services provided by e-governance (Atadoga *et al.*, 2025). However, the initiation and implementation of blockchain in tax administration have been on a pilot basis in many settings worldwide (Kabir, 2021). Belahouaoui and Attak (2024) state that adopting blockchain in the tax system is partially new. Therefore, full-fledged adoption is yet to take place (Anomah *et al.*, 2024).

For better management and transparency, Ivashchenko and Sudak (2019) found blockchain adoption to be useful in different administrative wings of the Ukrainian government. However, the context and stakeholders' intention to adopt blockchain largely influence its successful implementation. Treiblmaier and Sillaber (2020) used blockchain cases to show that the success of blockchain adoption in projects is significantly influenced by top management support, blockchain hype, trust among blockchain partners and the regulatory environment. The study of Belahouaoui and Attak (2024) documents a successful convergence of blockchain technology and tax administrations. The practicality of blockchain adoption for tax purposes was demonstrated by the "City of Rotterdam" which has been successfully running a project using blockchain solutions since 2018 for taxes on tourist accommodation. Similarly, the adoption of blockchain for sales tax administration is demonstrated by the "Dutch Blockchain Coalition" (Treiblmaier & Sillaber, 2020). Furthermore, the success stories of blockchain application for tax administration can be attributed to the issuance of a digital cryptographic certificate for asset values in Georgia and the pilot project of paying taxes through blockchain enabled system in the Canadian city of Innisfil. Likewise, to modernize tax management in Indonesia, blockchain has been launched. The Indonesian government took a bold initiative to increase the effectiveness and efficiency of tax administration.

Atadoga *et al.* (2025) found government policy, skill to use blockchain and infrastructure as determinants of blockchain adoption for efficient and effective tax administration in Nigeria. However, limited studies connect blockchain and tax administration (Kabir, 2021; Belahouaoui & Attak, 2024), which has created a gap to initiate this field of study. Furthermore, Belahouaoui and Attak (2024) proposed a model for tax administration and found trust to be an essential element of effective tax governance. Thus, the scope for further blockchain studies around tax administration remains. Belahouaoui and Attak (2024) noted that there is an academic need to understand how blockchain might be integrated with existing taxing systems in emerging economies given their unique technological and institutional contexts. Therefore, future research is needed to understand how blockchain affects perceptions and taxpayer compliance. This study is conducted to mitigate this gap in the Ghanaian context.

2.2 Theoretical background and hypothesis development

Several theories have been used in explaining tax compliance. The Economic Theory of Tax Compliance (Allingham & Sandmo, 1972) suggests that taxpayers weigh evasion costs against benefits, with compliance rising under higher audits and penalties (Scott, 2013). However, economic factors alone are insufficient. The Socio-Psychological Theory highlights moral duty and fair perceptions, with tax morale and social norms driving compliance. The Fiscal Exchange Theory links compliance to perceived government spending benefits, while deterrence theory, trust theory and economic psychology models of compliance behaviour explain human behaviour and intentions to comply with tax (Khawar *et al.*, 2026). This study uses TAM and institutional theory as the underlying theoretical framework.

2.3 TAM

TAM is deemed appropriate for this study because it provides a basis for beliefs or attitudes to use e-tax services and serves as a foundational framework for understanding users' beliefs and attitudes towards adopting e-tax system. TAM posits that IT systems cannot improve an outcome (tax compliance) without putting them to use (Davis, 1989). TAM, which was an

adaptation of the theory of reasoned action (TRA), was introduced by Davis (1989) and hypothesizes that the attitude of a user towards a system is a fundamental determinant of whether the user will actually use or reject the system. Specifically, TAM was meant to explain IT usage behaviour, therefore, it uses the theoretical lens of TRA to specify the causal link between perceived usefulness and perceived ease of use as well as the attitude, intentions and actual IT adoption by the user (Davis, 1989). The TAM model has demonstrated robustness and strength in elucidating user adoption patterns in e-tax filing (Ramdhony, Liebana-Cabanillas, Gunesh-Ramlugun, & Mowlabocus, 2023). Considerably, TAM is less general than TRA, but TAM has been designed to specifically apply to IT usage behaviour and is well-suited for modelling blockchain adoption. The user's attitude is influenced by two major beliefs: perceived usefulness and perceived ease of use, which are critical variables of TAM (Davis, 1989; Al-Okaily, 2024). Perceived usefulness is defined as the degree to which a person believes that using a particular system would enhance his or her job performance. In contrast, perceived ease of use is the degree to which a person believes that using a particular system would be free of effort (Davis, 1989). TAM, like the theory of planned behaviour (TPB) and TRA goal is to predict IT acceptance and adoption (Al-Okaily, 2024). According to Venkatesh, Morris, Davis, and Davis (2003), TAM has been applied by researchers globally to test the acceptance of IT, which has been confirmed to be a strong predictor of technology use. The success of any IT implementation depends on the integration of user acceptance and adoption (Al-Okaily, 2024). However, past studies focused on measuring the success of the e-tax system in terms of technology quality and benefits rather than its adoption (Al-Okaily, 2024). This study examines the ability of TAM to predict and explain user acceptance and adoption of blockchain, a research gap in Ghana's tax system.

2.4 Institutional theory

Institutional theory proposes that organizations' policies are regulated by the relevant legislative factors and shaped by various environmental factors (Scott, 2013). In tax administration, institutional theory posits that administrative effectiveness and tax compliance are shaped by formal rules (laws, regulations, enforcement) and informal norms (fairness, culture, trust) rather than just rational economic choices (Khawar *et al.*, 2026). Tax compliance is heavily influenced by the quality of formal and informal institutions. Low compliance stems from poor institutional quality – corruption, weak rule of law and perceived unfairness – which lowers tax morale (Mansour & Alomair, 2026). Thus, building trust, ensuring fair, transparent tax systems and fostering social responsibility are key to increasing voluntary compliance (Musa *et al.*, 2026). Institutional theory emphasizes that taxpayer behaviour and compliance levels result from perceived legitimacy of the tax authority and the alignment between state regulations and societal beliefs (Khawar *et al.*, 2026). Despite its theoretical and policy relevance, the role of institutional theory in digital tax literature remains underexplored, particularly from a developing-country perspective (Mansour & Alomair, 2026). The business regulatory environment in regions like Sub-Saharan Africa is crucial, where bureaucratic complexities and low institutional quality often hinder tax revenue generation. In this regard, organizations face coercive pressures to adopt digital technologies (e-taxing), which can cause “decoupling” – where the tax authority seems modernized on paper but still operates with manual, fragmented processes (Mandre & Okello, 2026). Resistance to new tax policies (e.g. electronic filing) often arises when the new approach conflicts with existing institutional norms and routines, highlighting a need for institutional entrepreneurship. In addition, organizations face mimetic pressures to copy early industry leaders or comply with pioneering public sector rollouts (such as digital tax) to stay competitive (Mansour & Alomair, 2026). Finally, the ethical and behavioural acceptance of digital tax is shaped by normative pressures. By integrating TAM with institutional theory, this study adds explanatory depth to TAM by recognizing that the presence or absence of credible, well-functioning institutions fundamentally alters how technology adoption influences tax compliance.

2.5 Perceived usefulness of blockchain

Scholars have recognized the role of perceived usefulness as an opportunity for stakeholders to adopt technology (Venkatesh *et al.*, 2003). Perceived usefulness refers to how tax administrators and SMEs' usage of technology will further improve the quality of tax-related activities. Davis *et al.* (1989) noted that perceived usefulness of technology strongly influenced peoples' intentions to use that technology. Thus, perceived usefulness is often referred to as the most critical consideration impacting the decision to introduce technology-based services (Venkatesh *et al.*, 2003). To this end, TAM posits that one's perception of the use of IT is critical to its adoption. Literature argues that TAM is an authoritative roadmap to the study of the application of technology, such as blockchain. Blockchain improves tax compliance through real-time transaction tracking, immutable ledgers and automated smart contracts that cut fraud and collection costs (Atadoga *et al.*, 2025). However, institutional theory shows that adoption depends heavily on institutional pressures from regulatory frameworks, industry standards and government trust rather than technical features alone (Mandre & Okello, 2026). This suggests that taxpayers' compliance behaviour is influenced by TAM's perceived usefulness and institutional pressures to use blockchain. Hence, the following hypothesis is formulated:

H1. Perceived usefulness has a positive influence on the intentions to use blockchain

2.6 Perceived ease of blockchain usage

Perceived ease of use depicts the extent to which an individual believes that using a particular technology would entail less work and therefore be simple to execute (Davis *et al.*, 1989). Simplicity of use then defines the word ease of use. According to Venkatesh *et al.* (2003), a very fundamental component in forecasting technology acceptance by users is perceived ease of use. Chuttur (2009) found perceived ease of use as a significant element in understanding the implementation of technology. Based on these assertions, the following hypothesis is formulated:

H2. Perceived ease of blockchain usage has a positive influence on the intentions to use blockchain

2.7 Blockchain adoption and IT-led tax administration

Literature suggests that tax administrators can adopt blockchain to facilitate effective tax systems through the achievement of fairness and transparency (Musa *et al.*, 2026). An IT-led tax administration not only facilitates the recording and calculation of tax returns but also provides proper recordkeeping. IT-led tax administration enables minimal imposition of administrative burdens on taxpayers while ensuring tax compliance. Literature establishes that effective digital tax adoption and IT-led tax administration are predominantly shaped by institutional pressures (Mandre & Okello, 2026). This suggests that blockchain adoption from an institutional framework can promote effective IT-led tax administration. However, knowledge on blockchain-related tax administration is sparse and largely underdeveloped (Kabir, 2021; Atadoga *et al.*, 2025). Based on these assertions, the following hypothesis is formulated:

H3. Intentions to use blockchain have a positive influence on IT-led tax administration

2.8 Blockchain adoption and self-assessment

The use of blockchain depicts a platform that facilitates self-assessment of tax services by taxpayers (Ivashchenko & Sudak, 2019). Self-assessment can be defined as "[...] the administration of the tax regime where the assessment of a taxpayer's tax liability is based largely on information provided voluntarily by the taxpayer" (Marshall, Smith, & Armstrong, 1997, p. 9). Blockchain enables self-registration for compliance certificate application, tax identification number and filing of tax returns. Blockchain can reduce transaction settlement

and lower costs, minimize fraud and counterpart risk, simplify operations, reconcile time and enhance capital liquidity and regulation of SMEs (Anomah *et al.*, 2024). Thus, SMEs' self-assessment with blockchain's DLT and public governance may be interrelated to improve tax compliance (Anomah *et al.*, 2024). Furthermore, SMEs can use blockchain to securely store accounting data, increase the verifiability of business data and instantly make relevant information available to relevant parties (Atadoga *et al.*, 2025). SMEs tax-related issues such as return submissions and quick record tracking can be accomplished effectively with greater transparency via blockchain (Kabir, 2021). Therefore, self-assessment is likely to improve once blockchain is embraced by taxpayers (Treiblmaier & Sillaber, 2020; Suwito *et al.*, 2023). Based on these assertions, the following hypotheses are formulated:

H4. Intentions to use blockchain have a positive influence on self-assessment

2.9 IT-led tax administration and tax compliance

Tax compliance relates to the degree of a taxpayer's compliance or failure in complying with the tax laws of his/her country or freely and completely fulfilling all tax obligations as specified by the tax laws (Al-Okaily, 2024). Calls for a change in the policies governing tax administration have been increasing over time due to low public confidence and trust in the public sector. IT-based solutions have been the alternative; however, adequate tax revenue has not been realized in developing countries (Kabir, 2021). It has been argued that the enhancement of tax compliance is facilitated through IT-based tax administration where the perception about the online tax filing is conceived as fair, transparent and simple to use with enhanced security (Suwito *et al.*, 2023). Digital tax administration transforms tax compliance through institutional forces like coercive regulations, normative education and mimetic peer benchmarking (Mandre & Okello, 2026). Formal rules, automated audits and penalties compel taxpayers to adopt digital systems (Khawar *et al.*, 2026).

In addition, tax literacy, professional training and clear guidance build voluntary compliance and trust in digital tools (Mandre & Okello, 2026). Finally, businesses copy industry peers in adopting e-invoicing and digital filing to benchmark good standing or avoid standing out (Mandre & Okello, 2026). Ajibola (2026), Atadoga *et al.* (2025) and Asmah *et al.* (2025) note that digital tax systems increase the level of accountability and authenticity of the taxation process. This suggests that an IT-based tax administration facilitates tax compliance; therefore, the following hypothesis is formulated:

H5. There is a positive association between IT-based tax administration and tax compliance

2.10 Self-assessment and tax compliance

Self-assessment has been identified as the most cost-effective tax collection system because such systems induce many taxpayers to honour their tax obligations voluntarily so that tax officials can concentrate on taxpayers who do not comply (Palil & Mustapha, 2011). The system is perceived as one that depends on the taxpayer's honesty to fulfil annual tax returns based on income declaration, adjustments, exemptions and deductions, to arrive at the tax liability (Marshall *et al.*, 1997). A self-service-oriented attitude towards taxpayers and education and assistance to meet this obligation leads to improved tax compliance (Palil & Mustapha, 2011). It assists taxpayers in tax planning strategies and strengthens their budgetary control (i.e., taking advantage of relevant tax benefits), which eventually improves compliance behaviour (Palil & Mustapha, 2011). Through self-assessment, taxpayers can eliminate financial inefficiencies such as unbudgeted and unnecessary expenses, which enhance profitability and subsequently increase tax revenue. It ensures efficient working capital management and cash flow, i.e. having knowledge of quarterly tax payments puts an SME in a better position to manage its cash flow to meet these payments as they fall due.



3. Methods

3.1 Theoretical framework

The theoretical model underpinning this study is shown in [Figure 1](#). The model consists of six variables, namely, perceived usefulness of blockchain, perceived ease of blockchain usage, intentions to adopt blockchain, IT-led tax administration, self-assessment and tax compliance. The model postulates that the introduction of blockchain improves the IT-based tax administration, self-assessment and tax compliance. Analysis of data followed the two-stage SEM approach. Estimation of the measurement model was used to establish the reliability, validity and applicability of the measurement scales for the study. This was followed by the structural model estimate to first determine the effect of perceived usefulness and perceived ease of use on blockchain usage intentions and second, blockchain usage intentions on IT-led tax administration, self-assessment and impact tax compliance. The model’s robustness with heterogeneity, endogeneity and nonlinearity tests was also examined. According to [Ramayah, Cheah, Chuah, Ting, and Memon \(2018\)](#), such robustness tests are necessary to ensure that the study’s findings get wider acceptability.

3.2 Data collection

To predict the effect of IT-led tax administration, self-assessment and blockchain adoption intention on tax compliance, a survey questionnaire was designed from the perspective of a developing economy. Both direct and postal questionnaires were used to gather data. This approach allowed wide access to taxpayers and tax administrators. Besides these two methods, a face-to-face questionnaire administration was also employed. The face-to-face approach was used to evaluate and amend the questionnaire. It was done to get more clarity on some of the responses and ensure that the reliability of the results falls within acceptable values.

3.3 Respondents of the survey

The associations among the variables/constructs were evaluated using survey data from two stakeholder groups – tax administrators and taxpayers. Tax administrators include tax policymakers, tax commissioners, tax officers, lawyers and tax consultants while taxpayers comprise SME owners and managers. The use of data from different stakeholder groups was because both tax administrator and taxpayer must have knowledge of the technology (blockchain) for effective implementation of a digital tax system ([Kabir, 2021](#); [Atadoga et al., 2025](#)). Therefore, the respondents were considered to possess practical exposure and theoretical knowledge of the questionnaire items. A total of 227 usable survey responses were received for analysis.

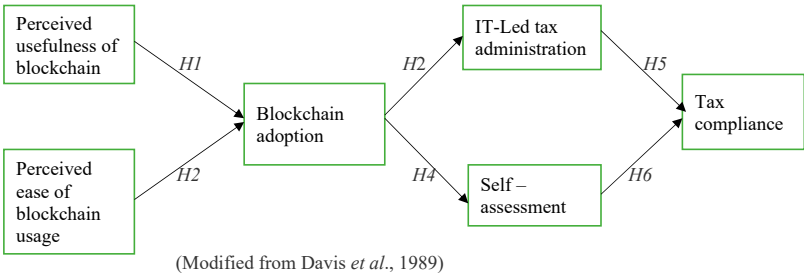


Figure 1. Theoretical framework

3.4 Measurement of variables

Measurement scales developed and used in prior literature were adapted and used in this study. The unobservable constructs and their dimensions were indirectly measured through measurement scales of several items. The measured value for each construct was determined based on participants' responses to the measurement scale items. The questionnaire items were anchored on a 7-point Likert scale from strongly disagree (1) to strongly agree (7), allowing respondents to register the degree of agreement or disagreement. The various sources of the selected variable for analysis are shown in [Table 1](#).

3.5 Analysis of the sample data

Data were analysed using Smart PLS version 2.0 of Partial Least Squares structural equations modelling (PLS-SEM). PLS-SEM is a common methodology appropriate for exploring causality. The two-step approach, where the measurement model is estimated followed by the structural model, was used. The variables were probed to determine the relationships among them. PLS-SEM can estimate small sample sizes in scenarios characterized by data that must adhere to normal distributions with the capability of mitigating multicollinearity issues. Second, it simultaneously tests multiple relationships among latent endogenous and exogenous variables and controls for measurement error. Furthermore, PLS-SEM ensures convergent validity and composite reliability (CRI) that are usually more robust. Compared with covariance-based structural equations modelling (CB-SEM), which mainly focuses on proven theory validation (i.e. explanation), PLS-SEM is mainly employed for exploratory assessment but is also useful for confirmatory analysis ([Ramayah et al., 2018](#)). Finally, PLS-SEM can be used for both reflective and formative models, whereas CB-SEM only suits reflective models. Consequently, the PLS method was used as the primary statistical analysis tool for this study.

3.6 Common method variance and non-response bias

First, using the G*power tool, the sample size adequacy was assessed by conducting "a priori" and post hoc power analysis ([Cohen, 1988](#)). Based on [Cohen \(1988\)](#) recommendations, the analysis characterized a minimum R^2 value of 0.12, a statistical power of 81% and four predictors for blockchain adoption and tax compliance constructs. The "a priori" G*Power estimation indicated a required minimum sample of 146, which is far below the 227. The minimum R^2 of 0.12 post-hoc G*Power estimation revealed that the statistical power reached 0.90, which is well above [Cohen's \(1988\)](#) recommendations. Second, the validity of the sample data was confirmed by examining the differences between early and late respondents ($N = 161$ and $N = 66$) to establish a non-response bias. No statistical difference was found to be significant. Also, common method bias (CMB) was assessed using [Harman's \(1967\)](#) one-factor test. The eigenvalue unrotated exploratory factor analysis solution revealed five factors with 35.13% single factor, which explains the highest portion of the variance. This result suggested the absence of CMB since a single factor did not produce most of the variance. Third, variance inflation factor (VIF) values were assessed to establish non-collinearity. The results showed 2.83 as the highest VIF value. According to [Henseler, Ringle, and Sarstedt \(2015\)](#), the VIFs should be less than 3.3 to establish the absence of collinearity problem.

4. Empirical results

4.1 Demographics

Of 550 distributed surveys, 257 were returned. After screening, 227 samples comprising tax administrators and SME managers/owners were determined to be complete and useful for analysis. The remaining 30 questionnaires were invalid for analysis because they were partially complete and contained unusable responses. The valid response rate was 41.27%. As

Table 1. Sources of construct items

Construct	Code	Items	Relevant sources
IT-led tax administration	ITTA1	Our office uses IT to process taxes	Kabir (2021)
	ITTA2	Our office is equipped with IT skills	
	ITTA3	Our IT network relates to the internet	
	ITTA4	Our office uses IT for all transactions	
Intention to adopt blockchain	INT1	I plan to adopt blockchain for tax purpose	Palil and Mustapha (2011), Isa (2014)
	INT2	I intend to adopt blockchain for tax purpose	
	INT3	I expect to grab the blockchain opportunity for tax purpose	
	INT3	I expect to grab the blockchain opportunity for tax purpose	
Self-Assessment	SEFA1	I can calculate the tax my business always pays	Palil and Mustapha (2011), Isa (2014)
	SEFA2	I am comfortable with the tax system	
	SEFA3	My firm's tax liability is not computed by GRA officials	
	SEFA4	Compared to the previous system, self-tax assessment is more accurate	
	SEFA5	I file my tax returns based on my own calculations	
	SEFA6	Through self- tax assessment my firm does not pay more than the fair share of taxes	
Tax Compliance	TAXC1	We always disclose all income earned for tax purposes to GRA	Kiconco, Gwokyalya, Sserwanga, and Balunywa (2019), Alshirah, Al-Shatnawi, Al-Okaily, Lutfi, and Alshirah (2020)
	TAXC2	Through IT-led tax system accurate reports are provided to GRA for assessment of our tax liability	
	TAXC3	The IT-led tax system enables us pay our tax on time	
	TAXC4	We always pay the actual tax assessment using the IT-led tax system	
	TAXC5	The IT-led tax system enables us to pay taxes on the due date	
Perceived usefulness of blockchain	PUB1	Blockchain would improve tax performance	Liébana-Cabanillas, Marinkovic, and Kalinic (2017), Kabir (2021)
	PUB2	Blockchain in the tax system would increase transparency and effectiveness	
	PUB3	Blockchain in the tax system would enable me to accomplish my task quickly	
	PUB4	Overall, blockchain would be useful for tax management	
Perceived ease of use	PEB1	Using blockchain for tax purposes would be easy	Kabir (2021)
	PEB2	Learning to use blockchain would be easy	
	PEB3	It would be easy to make blockchain do what I want it to do	
	PEB4	Blockchain is understandable and clear	

shown in [Table 2](#), 43.2% of the respondents were female, 42.7% held master's degrees and 51.6% held bachelor's degrees. The 41–50-year age range covers a significant portion of respondents (44.5%), with 20.7% and 27.8% holding positions as Chief Executive Officer and General Managers, respectively. Size of SMEs was measured using total assets. SMEs with total assets ranging from GH¢100 to GH¢200 recorded 28.7%, while the GH¢201 to GH¢300 range recorded 24.7%, making them dominant among surveyed SMEs.

Table 2. Demographic information of the respondents ($n = 227$)

Items	All responses		Early responses ($n = 161$)		Late responses ($n = 66$)		Chi-square test	
	Frequency	%	Frequency	%	Frequency	%	χ^2	p -value
<i>Sex</i>								
Male	129	56.8	85	52.8	44	66.7	0.654	0.376
Female	98	43.2	76	47.2	22	33.3		
<i>Total</i>	227	100.0	161		66			
<i>Education</i>								
High school	2	0.90	1	0.6	1	1.5	1.765	0.688
College	8	3.5	5	3.1	2	3.0		
University (Bachelor's)	117	51.6	86	53.4	46	69.7		
University (Master's)	97	42.7	67	41.6	16	24.3		
University (Doctorate)	3	1.3	2	1.3	1	1.5		
<i>Total</i>	227	100.0	161		66			
<i>Age (Years)</i>								
20–30	28	12.3	18	11.2	11	16.7	3.56	0.625
31–40	76	33.5	61	37.9	22	33.3		
41–50	101	44.5	68	42.2	27	40.9		
>50	22	9.7	14	8.7	6	9.1		
<i>Total</i>	227	100.0	161		66			
<i>Position</i>								
Chief Executive Officer	47	20.7	33	20.5	19	28.8	0.844	0.839
General Manager	63	27.8	45	27.9	26	39.4		
President	57	25.1	42	26.1	17	25.8		
Managing Director	60	26.4	41	25.5	4	6.0		
<i>Total</i>	227	100.0	161		66			
<i>Total Assets (GH¢ million)</i>								
<100	28	12.3	16	9.9	9	13.6	1.643	0.782
100–200	65	28.7	48	29.8	17	25.8		
201–300	56	24.7	43	26.7	14	21.2		
301–400	48	21.1	31	19.3	13	19.7		
401–500	13	5.7	11	6.8	5	7.6		
>500	17	7.5	12	7.5	8	12.1		
<i>Total</i>	227	100.0	161		66			

4.2 Measurement model

The fitness of the model was determined by estimating the standardized root mean square residual (SRMR), which fell within the acceptable threshold value (≤ 0.08). As indicated in Table 3, the value of the SRMR is 0.079 for both the structural model and estimated model. Based on the threshold of 0.08 (Henseler *et al.*, 2015), the SRMR is considered an appropriate fit. The reliability of each construct was determined using Dijkstra–Henseler's rho (r_A) and CRI. The CRI for each construct exceeded 0.70 hence, the measurements were accepted (Hair, Matthews, Matthews, & Sarstedt, 2017). Reliability for all the cases was also established by confirming the Cronbach alpha and Dijkstra–Henseler's rho (r_A) values to be greater than 0.7

Table 3. SRMR estimate

	Structural model	Estimated model	Threshold	Criterion met
SRMR	0.079	0.079	≤ 0.08	Yes
d_ULS	1.27	1.27	Henseler <i>et al.</i> (2015)	

(Henseler, 2015). As shown in Table 4, all other loadings are above 0.50, with an Average Variance Extracted (AVE) > 0.50. Thus, the measurements are higher and above the 0.50 threshold, which indicates that more than 50% of the indicators' variability causes its variation (Hair et al., 2017). Furthermore, the CRI for each construct is higher than 0.70 and above the AVE. After a bootstrap re-sampling test was conducted to assess the significance of the loadings (Hair et al., 2017), all measures recorded statistical significance at the 95% confidence level. This confirmed the converging validity of the model (Hair et al., 2017). As shown in Table 5, an acceptable degree of discriminant validity was achieved using Fornell–Larcker criterion (Hair et al., 2017). Henseler et al. (2015) also suggested a heterotrait–monotrait ratio for the measurement of discriminant validity with a standard of 0.90.

Table 4. Validity and reliability scores

Item code	Loading	Significance	Cronbach alpha	Dijkstra-Henseler's (r_A)	CRI	AVE
ITTA1 ← ITTA	0.944	0.000	0.911	0.966	0.871	0.606
ITTA2 ← ITTA	0.905	0.000				
ITTA3 ← ITTA	0.855	0.001				
ITTA4 ← ITTA	0.966	0.000				
INT1 ← INT	0.788	0.001	0.807	0.854	0.864	0.621
INT2 ← INT	0.797	0.001				
INT3 ← INT	0.677	0.002				
SEFA1 ← SEFA	0.833	0.000				
SEFA2 ← SEFA	0.784	0.000	0.881	0.897	0.788	0.587
SEFA3 ← SEFA	0.977	0.000				
SEFA4 ← SEFA	0.922	0.000				
SEFA5 ← SEFA	0.866	0.000				
SEFA6 ← SEFA	0.809	0.000	0.778	0.799	0.887	0.703
TAXC1 ← TAXC	0.788	0.001				
TAXC2 ← TAXC	0.698	0.002				
TAXC3 ← TAXC	0.855	0.000				
TAXC4 ← TAXC	0.912	0.000	0.877	0.905	0.907	0.749
TAXC5 ← TAXC	0.878	0.001				
PUB1 ← PUB	0.766	0.002				
PUB2 ← PUB	0.975	0.000				
PUB3 ← PUB	0.854	0.000	0.856	0.944	0.866	0.608
PUB4 ← PUB	0.892	0.000				
PEB1 ← PEB	0.975	0.000				
PEB2 ← PEB	0.864	0.001				
PEB3 ← PEB	0.811	0.001				
PEB4 ← PEB	0.711	0.001				

Table Summary			
Assessment	Index	Threshold	References
Internal consistency	Cronbach Alpha	≥0.7	Hair, Black, Babin, and Anderson (1998)
	Composite reliability	≥ 0.7 and > AVE	Hair, Anderson, Babin, and Black (2010), Hair et al. (2017)
	Dijkstra–Henseler's (r_A)	≥ 0.7	Ramayah, Cheah, Chuah, Ting, and Memon (2016)
Convergent validity	Factor loadings	≥0.5 given AVE	Vinzi, Chin, Henseler, and Wang (2010)
	AVE	≥0.5	Chin (1998), Hair, Hult, Ringle, and Sarstedt (2016), Hair et al. (2017)
	Significance	≤0.05	Hair et al. (2016)

Table 5. Fornell–Larcker criterion and heterotrait–monotrait (HTMT) ratio

Assessment		ATTA	INT	SEFA	TAXC	PUB	PUE
Fornell–Larcker criterion	ITTA	0.724					
	INT	0.679	0.824				
	SEFA	0.644	0.712	0.776			
	TAXC	0.655	0.655	0.621	0.887		
	PUB	0.578	0.682	0.609	0.534	0.758	
	PUE	0.614	0.598	0.488	0.614	0.523	0.804
Heterotrait–monotrait (HTMT)	ITTA	0.778					
	INT	0.701	0.799				
	SEFA	0.698	0.567	0.761			
	TAXC	0.745	0.708	0.782	0.745		
	PUB	0.677	0.633	0.733	0.399	0.767	
	PUE	0.713	0.487	0.673	0.608	0.755	0.746

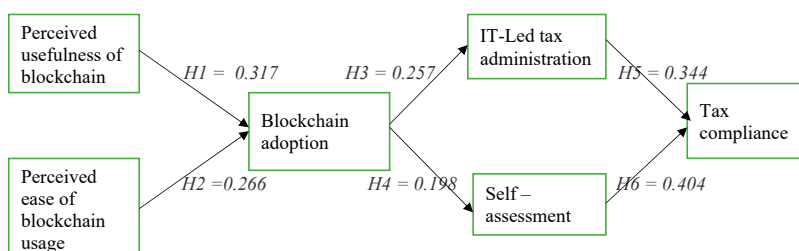
Note(s): The square root of AVE must be higher than the correlation between the construct and other constructs of the model (Hair *et al.*, 2017), ≤ 0.90 (Henseler *et al.*, 2015 ≤ 0.850)

According to Hair *et al.* (2017), this evaluation is rigorous and reliable. Accordingly, the required validity for this study is provided by the measurement values.

4.3 Structural model estimate

After meeting the underlying conditions and assumptions related to the test items and sample data, the path models were evaluated by fitting the hypothesized model to the sample data (see Figure 2). First, the presence of multicollinearity was checked by testing the collinearity of the indicators. The non-existence of relationships between the items indicated that multicollinearity was absent (Hair *et al.*, 2017).

All five hypotheses were found to be statistically significant, hence were supported (see Table 6). Perceived usefulness (PUB) was positive and statistically significant on the intentions to use blockchain technology ($\beta = 0.112$, $t = 7.238$, $p = 0.001 < 0.01$), supporting H1. Additionally, perceived ease of use (PEB) was found to be statistically significant on the intention to use blockchain ($\beta = 0.137$, $t = 5.248$, $p = 0.000 < 0.01$). Hence, H2 is supported. Similarly, intentions to use blockchain (INT) have a statistically positive influence on IT-led tax administration (ITTA) ($\beta = 0.259$, $t = 4.643$, $p = 0.002 < 0.01$) and self-assessment (SEFA) ($\beta = 0.198$, $t = 4.217$, $p = 0.012 < 0.05$) supporting H3 and H4 respectively. Finally, both ITTA and SEFA had a statistically positive relationship with tax compliance ($\beta = 0.208$, $t = 6.714$, $p = 0.000 < 0.01$) and ($\beta = 0.114$, $t = 3.277$, $p = 0.022 < 0.05$) supporting H5 and H6 respectively. The effect size r^2 which shows a predictor's variable strength that explains the



(Modified from Davis *et al.*, 1989)

Figure 2. Structural model estimate

Table 6. Structural model results

Path	β - value	t-value	p-value	f^2	q^2	2.5% CI	97.5% CI	t^2	Hypothesis
H1: INT $\leftarrow$ PUB	0.112	7.238	0.001	0.175	0.301	0.024	0.166	0.113	Supported
H2: INT $\leftarrow$ PEB	0.137	5.248	0.000	0.037	0.180	0.047	0.283	0.005	Supported
H3: ITTA $\leftarrow$ INT	0.259	4.643	0.002	0.182	0.128	0.165	0.387	0.123	Supported
H4: SEFA $\leftarrow$ INT	0.198	4.217	0.012	0.077	0.407	0.089	0.227	0.006	Supported
H5: TAXC $\leftarrow$ ITTA	0.208	6.714	0.000	0.024	0.277	0.067	0.344	0.017	Supported
H6: TAXC $\leftarrow$ SEFA	0.114	3.227	0.022	0.068	0.188	0.017	0.295	0.144	Supported

criterion variable was found to fall in the range from >0.005 to <0.144. Whether at the structural level, a predictor latent variable has large, medium or small effect can be viewed from effect size t^2 value of 0.35, 0.15 and 0.02, respectively. From Table 4, since the t^2 values of all six supported hypotheses (i.e.H1, H2, H3, H4, H5 and H6) fall in the range from >0.005 to < 0.144, it shows that they have small effect sizes.

4.4 Robustness check

The model’s robustness was undertaken by examining nonlinearity and endogeneity. The quadratic effects on the endogenous variable of all exogenous variables were evaluated in Smart-PLS 3.0 to assess possible nonlinearity. The partial regressions of PUB, PEB, INT, ITTA and SEFA on TAXC were examined at a 5% significance level. The quadratic results of the 5,000 bootstrapping samples indicate that nonlinearity association is missing in all relationships. Second, the non-normal distribution of the theoretically endogenous variables was checked by performing the Kolmogorov–Smirnov analysis with Lilliefors corrections on latent construct values of PUB, PEB, INT, ITTA and SEFA of the PLS path model. The results indicated that none of the constructs as normally distributed, thus permitting the continuation of the Gaussian Copula approach. The Gaussian Copula values were statistically insignificant for all the models at the 5% level of significance, which confirmed the absence of endogeneity. This confirms the robustness of the SEM analysis.

5. Discussion

With the continued failure by SMEs to honour their tax obligations in many emerging economies (Belahouaoui & Attak, 2024; Asmah *et al.*, 2025; Ajibola, 2026; Musa, 2026), it becomes necessary to examine the implications for modern technologies’ adoption in the taxing system of a typical developing economy – Ghana. This is evidenced in the OECD (2017) report, which underscores the impact of digitalization on tax compliance, highlighting the pivotal role of increased data availability and advanced analytics in improving compliance strategies. The study’s objective was to investigate the associations among blockchain adoption, IT-led tax administration, self-assessment and tax compliance using a survey of 227 tax administrators and taxpayers in a developing economy’s context. The empirical results as alluded to above confirmed the appropriateness of the theoretical model. The results for H1 – perceived usefulness and H2 – perceived ease of use had a statistically significant positive effect on blockchain adoption. These two predictors were taken from the original TAM. The coefficient of determination (R^2) for blockchain adoption was 54.36%. This is regarded substantial as Cohen (1988) confirms the intentions of tax administrators and taxpayers to accept blockchain for the taxing system. Furthermore, the basic concepts of TAM influence the behavioural intention of stakeholders towards blockchain adoption for effective, efficient and transparent taxing system. Stakeholders would be interested in both the usefulness and

easiness in the operations of blockchain-based taxing system (Kabir, 2021). They are anxious about the operating system of blockchain-based taxing platforms. This finding aligns with Kiring *et al.* (2017) and Putri and Saputra (2022), who found that the perception towards the easiness and the simplicity in filing an online tax system and tax compliance are positively related. However, findings of perceived ease of use contradict the findings of Kabir (2021), who found a statistically insignificant relationship between perceived ease of use and users' intention to use blockchain in Bangladesh. His findings suggested that stakeholders in Bangladesh's blockchain-based taxing system were not much concerned about the easiness in blockchain's operations and that, through advocates and tax consultants, taxpayers might have the tendency to pay the tax.

The empirical results provide evidence to support institutional theory as an explanation for blockchain adoption. Adopting blockchain in tax systems requires aligning technical capabilities with institutional pressures – coercive, mimetic and normative – to overcome regulatory friction and secure stakeholder trust. This requires navigating complex institutional pressures, regulatory landscapes and behavioural norms. Application of the three key institutional dimensions – coercive, mimetic and normative pressures helps explain how governments, SMEs and multinational corporations adopt decentralized tax solutions. This reinforces the argument that sustainable digital revenue mobilization requires coordinated reforms across institutional, economic and technological domains (Atadoga *et al.*, 2025; Khawar *et al.*, 2026; Ajibola, 2026). Furthermore, blockchain adoption had a statistically significant impact on IT-led tax administration (H3) and self-assessment (H4). This finding aligns with Anomah *et al.* (2024) and Atadoga *et al.* (2025), who found that the potential of blockchain in revolutionizing tax administration indicates that blockchain-based solutions could significantly boost tax compliance and enforcement. Both IT-led tax administration (H5) and self-assessment (H6) had a statistically positive effect on tax compliance. This suggests that tax administrators and taxpayers are likely to find blockchain useful because tax administrators can rely on it to capture all taxpayers into the tax net. On the other hand, there will be less possibility of illegal pressures and hassles for taxpayers hence they feel a relieved and comfortable environment and avoid fixing unnecessary tax audit (Treiblmaier & Sillaber, 2020; Anomah *et al.*, 2024; Asmah *et al.*, 2025). It is also observed that blockchain's presence in the taxing system will strengthen the relationships between IT-led tax administration, self-assessment and tax compliance and that the group of blockchain users for tax purposes should be recognized by tax administrators and policymakers. These findings collaborate with those of Muturi and Kiarie (2015), Ajibola (2026), Atadoga *et al.* (2025) and Gyau *et al.* (2025), who found a strong positive correlation between e-tax system usage through online tax return filing, online tax registration, online tax remittance and tax compliance. Furthermore, self-assessment and IT-led tax administration were found to be predictors of tax compliance with a beta of 0.317 and 0.287, respectively. This suggests that self-assessment policy is considered by Ghanaian SMEs as favourable in terms of being secure, timesaving, making work easier and enhancing performance in the preparation of tax returns.

6. Conclusions

This study investigated the relationships among blockchain usage intentions, IT-led tax administration, self-assessment and tax compliance in a developing economy's context. Intentions to adopt blockchain were measured by TAM's two variables: perceived usefulness and perceived ease of use and integrated with institutional theory. The results comprising 227 SME taxpayers and tax administrators showed a significant positive association among the test variables. Stakeholders have developed a positive behavioural intention towards blockchain adoption for the Ghanaian taxing system. In conclusion, the empirical evidence supports the argument that tax compliance is a function of both the effectiveness of institutional forces and available technology.

6.1 Theoretical contribution

Theoretically, our article advances three contributions as follows. First, it extends existing knowledge to a developing-country setting and combines several related constructs within a single empirical framework. It demonstrates that governance strength and blockchain adoption are distinctive factors in observing the effects of TAM and institutional pressures on tax compliance. Institutional theory suggests that SMEs that use correct e-tax tools tend to match their professional duties with good business behaviour. Therefore, SMEs must use modern digital systems as expected by accountants and tax experts in filling their tax returns. Second, the findings stipulate that taxpayers' and tax administrators' intentions to adopt blockchain are explained by TAM variables. A positive perception of usefulness of the blockchain and ease of use is likely to influence SMEs attitude towards blockchain usage and increase their intention to continue using it. When taxpayers perceived blockchain as useful and easy-to-use, it will not only lead to shaping their attitude towards its adoption, but also reduce effort, bring benefits and enhance compliance. In addition, users are more likely to continue using an e-tax system if they perceive the system as useful, enhances their capabilities, aligns with their goals and offers advantages over alternatives. Therefore, sensitizing tax collectors and taxpayers about the benefits of blockchain will result in embracing blockchain technology to improve tax compliance. Third, the findings confirm the validity of the TAM model and institutional pressures in the Ghanaian context. Positive habits and attitudes are influenced by perceived usefulness and influence the perception of switching costs, which ultimately influences the decision to sustain the usage of an e-tax system in the Ghanaian context. These two important theories can influence SMEs' taxpaying attitudes towards blockchain adoption in Ghana.

6.2 Practical implications

These research findings can guide the design, development and promotion of blockchain technology in the Ghanaian taxing system. The findings suggest that blockchain adoption ultimately relies on institutional preparedness, digital literacy and facilitating governance systems. To successfully integrate blockchain into tax administration through the lens of institutional theory, governments must align technical deployment with coercive, mimetic and normative pressures, which must be supported by complementary policy adjustment, capacity development and mass citizen engagement. Policymakers may create and modify regulatory frameworks, which involve resolving concerns about the security and transparency of digital taxing systems and smart contracts. For example, regulations may focus on safeguarding information about taxpayers while using blockchain's advantages for transparency. There should be a well-defined legal framework for the utilization of blockchain technology in tax management to be put in place by the GRA. This includes provisions addressing issues of electronic audit trails, smart contracts, data privacy and admissibility of blockchain evidence as legal evidence in tax proceedings. Governments should mandate tax authority rules and laws to compel SMEs to adopt blockchain by imposing penalties such as fines or audits that threaten SMEs that fail to adopt digital tax filing. SMEs will comply to avoid losing their right to operate.

6.3 Limitations and future research

Given that this study is cross-sectional design, it is impossible to assess changes in responses over time. Quick estimation of changes in response to any changes by the study measures is impractical. Future research could use longitudinal methods to assess any changes over time and focus on comparative cross-country analyses or investigations into moderating institutional pressures that influence blockchain adoption and tax compliance. Second, the use of quantitative methodology prevented respondents from expressing their feelings about what was being investigated. A qualitative or mixed methodology could buttress this limitation. Third, the sample may not be representative of tax administrators and taxpayers, which would reduce the study's capacity to draw sweeping conclusions.

Future studies can consider large samples. Finally, the study was conducted in Ghana; hence, future studies may consider other developing countries, which may have different blockchain usage intentions.

Declaration and statements

Participation in the study was voluntary. That is, participation was not mandatory and participants had the right to withdraw at any time without penalty. Participants were fully informed about the study's purpose, procedures and potential risks before providing their consent.

References

- Ajibola, A. A. (2026). Beyond technology: Rethinking digital tax revenue mobilization in Nigeria's global economy. *African Journal of Economic and Management*, 2040–0705. doi: [10.1108/AJEMS-09-2025-0752](https://doi.org/10.1108/AJEMS-09-2025-0752).
- Al-Okaily, M. (2024). Advancements and forecasts of digital taxation information systems usage and its impact on tax compliance: Does trust and awareness make difference?. *Journal of Financial Reporting and Accounting*, 1985–2517. doi: [10.1108/JFRA-09-2023-0567](https://doi.org/10.1108/JFRA-09-2023-0567).
- Allingham, M. G., & Sandmo, A. (1972). Income tax evasion: A theoretical analysis. *Journal of Public Economics*, 1(3-4), 323–338. doi: [10.1016/0047-2727\(72\)90010-2](https://doi.org/10.1016/0047-2727(72)90010-2).
- Alshirah, A. F., Al-Shatnawi, H. M., Al-Okaily, M., Lutfi, A., & Alshirah, M. H. (2020). Do public governance and patriotism matter? Sales tax compliance among small and medium enterprises in developing countries: Jordan evidence. *EuroMed Journal of Business*, 16(4), 431–455.
- Anomah, S., Ayebofo, B., Aduamoah, M., & Agyabeng, O. (2024). Blockchain technology integration into tax policy: Navigating challenges and unlocking opportunities for improving the taxation of Ghana's digital economy. *Scientific African*, 24, 02210. doi: [10.1016/j.sciaf.2024.e02210](https://doi.org/10.1016/j.sciaf.2024.e02210).
- Asmah, A., Ampong, K. O., Bibi, D., & Ofori, W. (2025). Exploring the drivers of digital technology adoption for enhancing domestic tax mobilization in Ghana. *International Journal of Information Management Data Insights*, 5(1), 100327. doi: [10.1016/j.jjimei.2025.100327](https://doi.org/10.1016/j.jjimei.2025.100327).
- Atadoga, S., Chinonyerem, C. A., Ajibade, S. B., Modinat, A., & Opeyemi, S. R. (2025). Blockchain and tax administration: Disruptive innovations for compliance and revenue collection. *Asian Journal of Advanced Research and Reports*, 19(11), 76–87. doi: [10.9734/ajarr/2025/v19i111198](https://doi.org/10.9734/ajarr/2025/v19i111198).
- Belahouaoui, R., & Attak, E. H. (2024). Digital taxation, artificial intelligence and tax administration 3.0: Improving tax compliance behavior—a systematic literature review using textometry (2016–2023). *Accounting Research Journal*, 37(2), 1030–9616. doi: [10.1108/ARJ-12-2023-0372](https://doi.org/10.1108/ARJ-12-2023-0372).
- Biswas, B. D., & Rahman, M. M. (2018). Major challenges of public administration in Bangladesh: Few observations and suggestions. *International Journal of Emerging Trends in Social Sciences*, 2(2), 74–93. doi: [10.20448/2001.22.74.93](https://doi.org/10.20448/2001.22.74.93).
- Chin, W. W. (1998). The partial least squares approach to structural equation modeling. *Modern Methods for Business Research*, 295(2), 295–336.
- Chuttur, M. (2009). *Overview of the technology acceptance model: origins, developments and future directions*. Association for Information Systems.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). New Jersey: Lawrence Erlbaum Associates.
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319–340. doi: [10.2307/249008](https://doi.org/10.2307/249008).
- Gyau, E. K., Ocansey, E. O., & Yeboah, K. P. (2025). Influence of tax digitalization on tax compliance in Ghana: The moderating influence of tax knowledge. *African Journal of Accounting and Finance*, 8(4), 77–103.
- Hair, J. F., Anderson, R. E., Babin, B. J., & Black, W. C. (2010). *Multivariate Data Analysis: A Global Perspective Vol. 7*.

- Hair, J. F., Jr., Black, W. C., Babin, B. J., & Anderson, R. E. (1998). *Multivariate Data Analysis with Readings*. Englewood Cliffs, NJ: Prentice-Hall.
- Hair, J. F., Jr., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2016). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*. Sage publications.
- Hair, J. F., Jr, Matthews, L. M., Matthews, R. L., & Sarstedt, M. (2017). PLS-SEM or CB-SEM: Updated guidelines on which method to use. *International Journal of Multivariate Data Analysis*, 1(2), 107–123.
- Harman, D. (1967). A single factor test of common method variance. *The Journal of Psychology*, 35, 359–378.
- Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 43(1), 115–135. doi: [10.1007/s11747-014-0403-8](https://doi.org/10.1007/s11747-014-0403-8).
- IMF (2015). *Current challenges in revenue mobilization: Improving tax compliance*. Washington, DC: International Monetary Fund.
- Isa, K. (2014). Tax complexities in the Malaysian corporate tax system: minimize to maximize. *International Journal of Law and Management*, 56(1), 50–65.
- Ivashchenko, A., & Sudak, G. (2019). Blockchain technology and key features of its possible implementation into Ukrainian tax system. *Investytsiyi: Praktyka Ta Dosvid*, 24, 67–71. doi: [10.32702/2306-6814.2019.24.67](https://doi.org/10.32702/2306-6814.2019.24.67).
- Kabir, M. R. (2021). Behavioral intention to adopt blockchain for a transparent and effective taxing system. *Journal of Global Operations and Strategic Sourcing*, 14(1), 170–201. doi: [10.1108/jgoss-08-2020-0050](https://doi.org/10.1108/jgoss-08-2020-0050).
- Khawar, M., Pinto, H., & Elshandidy, T. (2026). The impact of corporate governance on tax planning: An institutional theory perspective. *Corporate Governance*, 25(4), 871–900. doi: [10.1108/cg-09-2024-0465](https://doi.org/10.1108/cg-09-2024-0465).
- Kiconco, R. I., Gwokyalya, W., Sserwanga, A., & Balunywa, W. (2019). Tax compliance behavior of small business enterprises in Uganda. *Journal of Financial Crime*, 26(4), 1117–1132.
- Kiring, S. E., Jagongo, A., Kiio, J. M., Njuguna, I. M., Muguongo, G. K., Nganyi, M. S., . . . Qiao, Y. (2017). Impact of online tax filing on tax compliance among small and medium enterprises (MSE) in Kibwezi Sub-County in Kenya. *International Journal of Current Research*, 9(4), 45196–45206.
- Liébana-Cabanillas, F., Marinkovic, V., & Kalinic, Z. (2017). A SEM-neural network approach for predicting antecedents of m-commerce acceptance. *International Journal of Information Management*, 37(2), 14–24.
- Mandre, J., & Okello, M. O. (2026). The relationship between institutional isomorphism and digital tax stamp adoption. *International Journal of Development Issues*, 1446–8956. doi: [10.1108/IJDI-01-2026-0012](https://doi.org/10.1108/IJDI-01-2026-0012).
- Mansour, M., & Alomair, M. (2026). Institutional quality, ESG performance, and aggressive tax planning in developing countries. *Sustainability*, 18(2), 1126. doi: [10.3390/su18021126](https://doi.org/10.3390/su18021126).
- Marshall, R., Smith, M., & Armstrong, R. W. (1997). Self-assessment and the tax audit lottery: The Australian experience. *Managerial Auditing Journal*, 12(1), 9–15. doi: [10.1108/02686909710155957](https://doi.org/10.1108/02686909710155957).
- Musa, A., Adenutsi, D. E., & Okyere, B. (2026). The influence of financial literacy and perceived fairness on tax compliance behavior: Examining the mediating effect of trust in tax authorities in Ghana. *Social Sciences and Humanities Open*, 13, 102481.
- Muturi, H. M., & Kiarie, N. (2015). Effects of online tax system on tax compliance among small taxpayers in Meru County, Kenya. *International Journal of Economics, Commerce and Management*, 3(12), 280–297.
- Nartey, E. (2023). Tax compliance of small and medium scale enterprises in Ghana. *International Journal of Sociology & Social Policy*, 43(11/12), 1063–1083. doi: [10.1108/IJSSP-06-2022-0159](https://doi.org/10.1108/IJSSP-06-2022-0159).

- Night, S., & Bananuka, J. (2020). The mediating role of electronic tax system adoption in the relationship between attitude towards electronic tax system and tax compliance. *Journal of Economics, Finance and Administrative Science*, 25(49), 73–88. doi: [10.1108/jefas-07-2018-0066](https://doi.org/10.1108/jefas-07-2018-0066).
- OECD (2017). *The changing tax compliance environment and the role of audit*. Paris: OECD. doi: [10.1787/9789264282186-en](https://doi.org/10.1787/9789264282186-en).
- Palil, M. R., & Mustapha, A. F. (2011). Factors affecting tax compliance behaviour in self-assessment system. *African Journal of Business Management*, 5(33), 12864.
- Putri, P. Y. A., & Saputra, K. A. K. (2022). Use of the E-Filing system by MSME actors during the COVID-19 pandemic. *Journal of Economics, Finance and Management Studies*, 5(7), 1975–1982.
- Ramayah, T., Cheah, J. H., Chuah, F., Ting, H., & Memon, M. (2016). Partial least squares structural equations modelling (PLS – SEM) using SmartPLS 3.0: an updated and practical guide to statistical analysis. In *Pearson Malaysia Sdn Bhd Level 1, Tower 2A, Avenue 5 Bangsar South No. 8 Jalan Kerinchi 59200 Kuala Lumpur Malaysia*.
- Ramayah, T., Cheah, J., Chuah, F., Ting, H., & Memon, M. A. (2018). Partial least squares structural equation modeling (PLS-SEM) using smartPLS 3.0. In *an Updated Guide and Practical Guide to Statistical Analysis*. Pearson.
- Ramdhony, D., Liebana-Cabanillas, F., Gunesh-Ramlugun, V. D., & Mowlabocus, F. (2023). Modelling the determinants of electronic tax filing services' continuance usage intention. *Australian Journal of Public Administration*, 82(2), 194–209. doi: [10.1111/1467-8500.12559](https://doi.org/10.1111/1467-8500.12559).
- Scott, W. R. (2013). *Institutions and organizations: Ideas, interests, and identities* (4th ed.). Sage Publications.
- Suwito, S., Sardju, F., & Nuh, R. (2023). Factors affecting the usage of e-filing for individual taxpayers. *Economics, Business, Accounting and Society Review*, 2(1), 33–44. doi: [10.55980/ebasr.v2i1.55](https://doi.org/10.55980/ebasr.v2i1.55).
- Treiblmaier, H., & Sillaber, C. (2020). A case study of Blockchain-Induced digital transformation in the public sector. In *Blockchain and Distributed Ledger Technology Use Cases* (pp. 227–244). Cham: Springer.
- Umar, M. A., & Masud, A. (2020). Why information technology is constrained in tackling tax noncompliance in developing countries: Nigerian tax administrators' perspectives. *Accounting Research Journal*, 33(2), 307–322. doi: [10.1108/ARJ-11-2018-0205](https://doi.org/10.1108/ARJ-11-2018-0205).
- Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27(3), 425–478. doi: [10.2307/30036540](https://doi.org/10.2307/30036540).
- Vinzi, V. E., Chin, W. W., Henseler, J., & Wang, H. (2010). Perspectives on partial least squares. in *Handbook of Partial Least Squares*. Springer, Berlin, Heidelberg, 1-20.

Further reading

- Chen, J. V., Jubilado, R. J. M., Capistrano, E. P. S., & Yen, D. C. (2015). Factors affecting online tax filing—an application of the IS success model and trust theory. *Computers in Human Behavior*, 43, 251–262. doi: [10.1016/j.chb.2014.11.017](https://doi.org/10.1016/j.chb.2014.11.017).

Corresponding author

Edward Nartey can be contacted at: ednartey@ug.edu.gh