INFORMATION COMMUNICATION TECHNOLOGY AND FEDERAL GOVERNMENT TAX COLLECTION SYSTEM

ADEGBIE Festus Folajimi[1]
DADA Samuel Olajide[2]
ALIU Kafayat Arinola[3]
Department of Accounting
Faculty of Management Sciences
Babcock University

Corresponding Author:arinola.aliu@gmail.com

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Abstract
The Federal Government Tax Collection System (FGTCS) serves as a critical pillar of the nation's economy, generating essential revenue for public services, infrastructural development, and fiscal stability. However, Research showed that this system is plagued by low taxpayer registration, poor collection procedures, and compliance rates. Literature has shown that in a global landscape where ICT has revolutionized tax administration in developed economies, Nigeria's FGTCS lags behind, resulting in suboptimal performance. The study therefore examined the effect of ICT and FGTCS in Nigeria proxied by registration of taxpayers. The study adopted survey design. The population of the study was 1380 tax officials, administrators, and relevant stakeholders within the FIRS in south east Nigeria. Sample size of 310 was derived by employing Taro Yamane's formula while stratified sampling technique was used to select respondents from predefined strata. A structured and validated questionnaire was used to collect data. Cronbach's Alpha reliability coefficient of 0.794 was derived. Inferential (multiple linear regression) statistics were used to analyze the data. Findings revealed that ICT measures jointly explained 10.6% of the variance in FGTCS (Adj.R^2 = 0.106, F (5,294) = 8.103, $p < 0.05$) in Nigeria. E-tax remittance had the strongest positive effect ($\beta = 0.263$, $p < 0.05$), followed by e e-tax payment ($\beta = 0.197$). The study concluded that ICT adoption enhancedFGTCS. It was recommended that the FIRS should improve the design and functionality of online tax registration systems and also prioritize the continuous upgrade of e-tax filing and payment systems.

Keywords: Information communication technology, tax compliance, tax collection system, tax enforcement, tax guidelines

1.0 Introduction

There has been considerable and growing interest of tax authorities, investors and stakeholders as to tax collection. This has become worrisome over the past few years and has brought about mixed feelings and results from accounting literatures. As a result of this, it has become imperative to see how improving tax collection systems can assist in increasing the tax collection in a country towards a guaranteed sustainability into the future. The effectiveness and structure of a country's tax system can significantly influence its fiscal health and economic trajectory, making the role of tax revenue a pivotal aspect of economic policy discussions.

According to IMF (2023), tax revenue is important for funding public services, reducing inequality, addressing environmental and health objectives, combating illicit financial flows and

increasing state capacity among others. However, challenges persist in tax collection, especially in developing nations where informal economies and administrative inefficiencies hinder effective revenue mobilization (Adegbie et al., 2022).These obstacles not only limit public investment but also exacerbate poverty cycles, highlighting the urgent need for comprehensive tax reforms to enhance revenue collection and support economic growth. As governments navigate the complexities of tax policy and administration, the ongoing debates surrounding tax reform, compliance measures, and international cooperation remain central to maximizing the benefits of tax revenue for economic development.

Tax revenue collection presents significant challenges, particularly in developing countries, where tax revenues as a share of GDP are typically only 15 to 20%, compared to over 30% in upper-income countries (Pratomo et al, 2022; IMF, 2023).Global evidence from countries like Rwanda, Kenya, Cambodia, Georgia, Guyana, Liberia, and Ukraine demonstrates that targeted reforms such as ICT integration, tax code simplification, and enhanced enforcement can significantly boost revenue collection and compliance (Ridwan et al, 2023). However, Nigeria lags behind, with ongoing debates on tax reform, international cooperation, and digitalization underscoring the need for context-specific solutions (Adegbie et al., 2022).Major challenges undermining tax collection in Nigeria is the prevalence of informality within economies, evasion and compliance issues, administrative inefficiencies and governance issues, economic instability and external factors (Granfon et al., 2023).

Despite extensive prior research highlighting the transformative potential of ICT in enhancing tax collection efficiency, compliance, and revenue mobilization in various global contexts (e.g., Rwanda and Kenya's e-filing systems (Li & Li, 2020; Adan et al., 2023); general ICT benefits in developed nations (Miao et al., 2023); and African studies on taxpayer compliance (Djafri et al., 2023; Mahmoud et al., 2023), significant gaps persist, particularly in the Nigerian context. Existing studies often yield conflicting results due to varying variables and methodologies (Granfon et.al., 2023), with limited focus on Nigeria's unique challenges, such as a large informal economy, low tax-to-GDP ratio (6.3% [IMF, 2023]), administrative inefficiencies, tax evasion, and over-reliance on oil revenues. Critically, there is a dearth of empirical evidence examining the specific ICT components (e-tax filing, e-tax payment, e-governance, e-tax remittance, and online tax registration) and their direct impact on federal tax collection systems in Nigeria. Most research is either non-African, overlooks these granular ICT elements, or fails to integrate them holistically with federal-level tax administration (e.g., gaps in tax audit/ICT linkages (Hanum & Indrawati, 2023).

This study is conducted to address these voids by providing context-specific insights into how these targeted ICT components can mitigate Nigeria's systemic tax collection deficiencies, inform policy reforms (e.g., Finance Act 2023), and bridge the revenue gap for sustainable economic development and SDG alignment. Thus the following research question and hypothesis was tested:

Question: To what extent does information communication technology affect registration of taxpayers in Nigeria?

H_{01}: Information communication technology significantly affect registration of taxpayers in Nigeria.

2.0 Literature Review

Federal Government Tax Collection System

Tax collection is the core and the way to present day advancement. The requirement for governments at all levels to generate sufficient tax from internal sources to expand the continued contracting revenue from the Federation Account (in the case of Nigeria) has subsequently turned into a question of extreme desperation and significance. These needs highlight the energy with respect to governments to search for new sources of revenue or to forcefully seek policies and reforms that improve the method of collecting taxes from existing sources. The government of Nigeria, similar to others in various regions of the world, has authoritative abilities to force on its residents any type of tax and at whatever rate it considers suitable. Tax, as per Ogbada et al. (2023), is characterized as all measures of cash gotten by an administration from external sources, for instance, those originating from sale of venture.

In essence, the Federal Government Tax Collection System refers to the structured mechanisms, processes, and institutions employed by Nigeria's federal authorities primarily the Federal Inland Revenue Service (FIRS) to assess, levy, collect, and enforce taxes from individuals, corporations, and other entities across the country. As the dependent variable in this study, it represents the overall effectiveness and output of revenue mobilization through federal taxes.It demands continuous reforms to overcome compliance barriers, administrative hurdles, and global economic shifts, with ICT emerging as a transformative tool for efficiency and transparency in an interconnected world.(IMF, 2023; Sani et al., 2023). FGTCS effectiveness was measured by respondents' perceptions of registration efficiency.

Overview of Information Communication Technology (ICT)

Information communication technology can be characterized as the technology including the development, maintenance and utilization of PC systems, programming, and networks for the handling, processing and distribution of information. It is worried about the utilization of electronic technology in overseeing and handling information, particularly in huge organization. Information communication Technology (ICT) deals with the utilization of electronic PCs and PC programming to convert, store, secure, process, communicate and recover information. Rahman and Hossain (2021) characterized Information Communication Technology (ICT) as a device utilized for collection, handling, transmission and spread of information. It is an extensional term for Information Technology (IT) which focuses on the role of unified communications and incorporation of telecommunication. Mahmoud et al., (2023) characterized ICT as the computerized handling and utilization of information by the means of electronic PCs. ICT components are measured with the following.

Table 1:
Definition of ICT Components

ICT Components	Definition
E-tax filing	E-tax filing represents a digital platform enabling taxpayers to submit tax returns electronically, bypassing manual paperwork and reducing processing delays.
E-tax payment	E-tax payment facilitates secure, online transactions for settling tax liabilities, eliminating cash handling and enabling real-time tracking.

E-governance	E-governance encompasses digital government services integrating ICT into tax administration for better policy execution, stakeholder engagement, and oversight.
Online tax registration	Online tax registration allows seamless digital enrollment of taxpayers, building comprehensive databases to capture informal sectors and new entities.
E-tax remittance	E-tax remittance involves electronic transfer of withheld or collected taxes (e.g., by employers or agents) directly to government accounts, reducing intermediaries and evasion risks.

Information Communication Technology on registration of tax payers

Registration of taxpayers is the coalition, alliance, compilation, gathering and maintenance of a complete database of businesses and individuals that are required by law to register and pay taxes. It underpins key administrative processes associated with filing, assessment, payment and collection (Adan et al., 2023). In order to have an effective tax system in which all taxpayers are covered, every taxable person has to be registered (Li & Li, 2020). An efficient way of registration is in the issue of the unique tax identification Number (U-TIN) by the federal Inland Revenue Service. This will provide easy and complete access to taxpayer information nationwide, which can be achieved by the efficient use of information technology.

The effect of Information Communication Technology (ICT) on taxpayer registration represents a significant shift in tax administration, transforming how governments interact with citizens and manage tax obligations. This integration of technology has become crucial for enhancing efficiency, reducing administrative costs, and improving compliance in tax systems worldwide (Tita et al., 2022). Taxpayer registration signifies a pivotal evolution in tax administration that holds the potential to enhance compliance, improve service delivery, and strengthen public financial management. The rise of e-registration systems, biometric identification, and blockchain technology has not only modernized taxpayer registration but also strengthened the integrity of taxpayer databases, which are essential for effective revenue mobilization (Mbise & Baseka, 2022).

Despite these advancements, the integration of ICT in taxpayer registration is not without challenges. Administrative and compliance costs can disproportionately affect SMEs, while gaps in technological infrastructure may hinder the effectiveness of new systems. In Summary, Registration of taxpayers is the systematic process of identifying, recording, and maintaining a comprehensive database of individuals and businesses legally obligated to pay taxes, which is essential for effective tax administration, compliance, and revenue mobilization, particularly enhanced through the integration of information technology and unique identification systems. Thus the following hypothesis was tested:

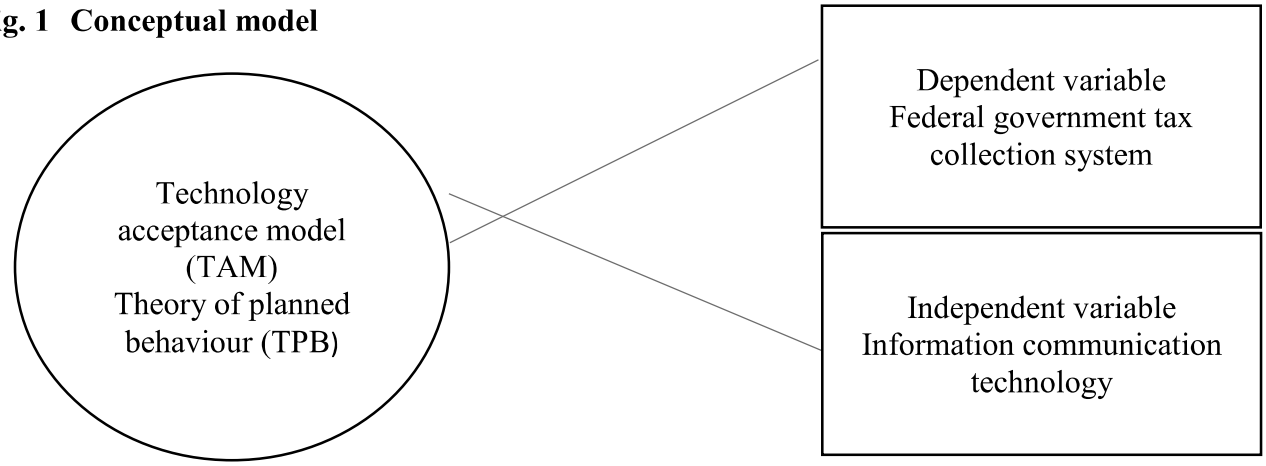
H_{02}. Information communication technology significantly affect registration of taxpayers in Nigeria.

Theoretical Framework

This study was anchored on two complementary theories: the Theory of Planned Behavior (TPB) and the Technology Acceptance Model (TAM). These theories best capture the dual dimensions of taxpayer compliance in the digital era namely, behavioural intention and technology adoption.The Theory of Planned Behavior (TPB), developed by Ajzen (1985, 1991), extends the Theory of Reasoned Action by introducing perceived behavioural control as a determinant of intention and behaviour. TPB posits that human action is driven by attitudes, subjective norms, and perceived control over performing the behaviour. The Technology Acceptance Model (TAM), introduced by Davis (1986, 1989), is widely recognised for explaining how users accept and adopt new technologies. TAM emphasises two key determinants: perceived usefulness (the extent to which technology improves performance) and perceived ease of use (the extent to which technology is free of effort). Applied to digital taxation, TAM highlights how taxpayers' perceptions of the value and simplicity of electronic tax platforms influence their willingness to adopt them.

H_{01}: Perceived usefulness and ease of use (TAM) of ICT platforms positively affect FGTCS.
H_{02}: Perceivedbehavioral control (TPB) of ICT measures positively affect FGTCS.

Fig. 1 Conceptual model



Empirical Review

The empirical review highlights several studies that investigate the relationship Information Communication Technology (ICT), and registration of taxpayers, yet significant gaps remain that this study aims to address.

Table 2:
Summary of Empirical Review

Author	Year	Country	ICT component tested	Key findings	R^2
Lanre-Jimoh et al.	2024	Nigeria	E-tax registration	E-tax registration positively and significantly affects compliance by taxpayers in Lagos state.	0.494
Wulandari & Dasman	2023	Indonesia	Online registration	Digital systems enhance compliance, but full adoption depends on taxpayers' internet literacy	0.235

Tita et al.,	2022	Indonesia	e-registration, e-filing	E-registration and e-billing strengthen tax compliance, but network issues hinder efficiency	0.108
Mbise & Baseka	2022	Tanzania	e-filing, e-governance	Findings revealed that the digital tax administration system plays an important role in compliance amongst SMEs as regression analysis produced a P value of 0.000.	0.396
Prabowo et al.,	2024	Indonesia	e-governance	Tax policy implementation influences compliance; digitalization aids tax service delivery	0.236
Appasaba et al.,	2023	India	e-filing	High awareness correlates with satisfaction and increased usage of e-filing	0.112
Salari et al.	2020	Iran	Online tax registration, e-governance	Positive relationship between perceived fairness of e-tax systems and compliance	0.200
Zaherawati	2019	Malaysia	e-tax filing	Perceived usefulness is the major factor influencing e-filing adoption	0.429
Olaoye et al.,	2023	Nigeria	E registration, e filing, e payment	Electronic tax registration and electronic filing of tax returns affect internally generated revenue in Ekiti, according to the findings. Electronic tax payments have no statistically significant effect on the state's internally generated revenue.	0.132
Ogbada et al.,	2023	Nigeria	Online registration	Digitalization shows limited positive effects on tax revenue and evasion control	-0.29

3.0 Methodology

The study adopted survey design. The population of the study was 1380 tax officials, administrators, and relevant stakeholders within the Federal inland Revenue Service (FIRS) in south east Nigeria. Sample size of 310 was derived by employing Taro Yamane's formula while stratified sampling technique was used to select respondents from predefined strata. A structured and validated questionnaire designed to gather information on ICT implementation and registration of taxpayers within FIRS was used to collect data. The questionnaire comprised 24 items measured on a 5-point Likert scale (1=Strongly Disagree to 5=Strongly Agree), covering five ICT components (4 items each) and one FGTCS components (4 items). A pilot survey was conducted on 10% of the sample size.Bowley's proportional allocation formular was used to allocate the 310 questionnairesbetween the five states. A response rate of 96.77% amounting to 300 was achieved.

Validity and Reliability of the Research Instrument

The validity of the research instrument was established through face validity, content validity, and construct validity. Face validity was ensured by presenting the questionnaire to experts, academic supervisors, and selected respondents during a pilot test. Content validity was established by aligning the instrument with theoretical models and empirical literature on ICT adoption and tax administration. Construct validity was statistically tested using the Kaiser-Meyer-Olkin (KMO) measure, Bartlett's Test of Sphericity, and Average Variance Extracted (AVE) derived from Principal Component Analysis (PCA). Following Hair et al. (2019), KMO values of 0.60 or above,

significant Bartlett's tests at $p < 0.05$, and AVE values above 0.50 were adopted as benchmarks for acceptability.

Table 3:
Validity Results (Pilot Study)

Construct	KMO	Bartlett's χ^2	Sig.	AVE	Interpretation
Registration of taxpayers (RTP)	0.712	41.121	0.000	0.639	Acceptable
E-Tax Filing (ETF)	0.546	59.801	0.000	0.650	Acceptable
E-Tax Payment (ETP)	0.695	59.043	0.000	0.708	Acceptable
E-Governance (EG)	0.658	76.135	0.000	0.761	Excellent
Online Tax Registration (OTR)	0.832	75.173	0.000	0.794	Excellent
E-Tax Remittance (ETR)	0.582	48.336	0.000	0.631	Acceptable

Source: Authors Compilation, 2026.

All construct achieved AVE values exceeding 0.50 and significant Bartlett's tests, confirming adequate construct validity.

Reliability

Reliability was tested using a pilot sample representing 10% of the study sample. Cronbach's Alpha was used, with a minimum threshold of 0.70 (Nunnally, 1978). All constructs exceeded this threshold, indicating strong internal consistency.

Table 4:
Reliability Results

Construct	Cronbach's Alpha	No. of Items	Remark
Dependent Variable: Federal Government Tax Collection System (FGTCS)			
Registration of taxpayers (RTP)	0.794	4	Acceptable reliability
Independent Variable: Information Communication Technology (ICT)			
E-Tax Filing (ETF)	0.811	4	High reliability
E-Tax Payment (ETP)	0.856	4	High reliability
E-Government (EG)	0.892	4	Excellent reliability
Online Tax Registration (OTR)	0.908	4	Excellent reliability
E-Tax Remittance (ETR)	0.780	4	Acceptable reliability

Source: Authors Compilation, 2026.

Method of Data Analysis

The study employed Diagnostic tests (multicollinearity VIF, normality, heteroscedasticity),descriptive and inferential statistical techniques at 0.05 level of significance. Descriptive statistics (frequencies, means, standard deviation) summarized respondents' background information while inferential statistics through Multiple Regression was used to analyze their perceptions of ICT implementation. Correlation analysis evaluated the strength and direction of the relationship between ICT implementation and tax collection efficiency. The hypothesis and equation that explains the relationship between the dependent and independent variables based on the hypotheses are expressed as follows:

H_{01}: Information communication technology significantly affect registration of taxpayers in Nigeria.

MODEL 1: $RTPi = \alpha 0 + \beta 1ETFi + \beta 2ETPi + \beta 3EGTi + \beta 4OTRi + \beta 5ETRi + \varepsilon i$

4.0 Results and Discussion

Data Presentation and Descriptive Analysis

Table 5:

Response Rate

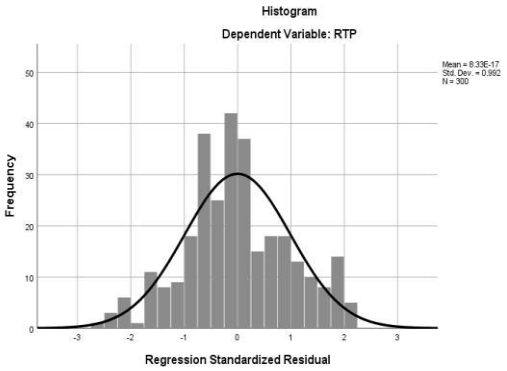
Category	Frequency (N)	Percentage (%)
Completed usable copies of questionnaire	300	96.77
Unreturned/incomplete copies of questionnaire	10	3.23
Total	**310**	**100.0**

Source: Field Survey, 2026.

The researcher distributed 310 copies of the questionnaire to the respondents. Out of these, 300 copies were duly filled and returned, resulting in a response rate of 96.77% which was used for this study.

Fig. 2 Results of Normality Test

To test for normality, the histogram was used to access the normality of the model as shown. The histogram plot was employed to assess the normality of the residuals for the regression models. The distribution exhibited an approximately bell-shaped curve, indicating that the residuals were normally distributed and that the underlying regression assumptions were not violated.



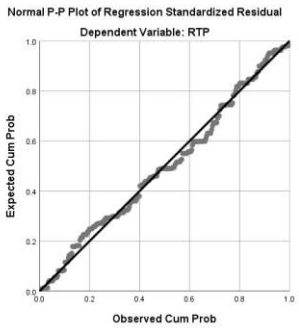


Table 6:

Linearity Test between ICT Adoption and Federal Government Tax Collection System

Independent Variable (ICT Proxies)	Dependent Variable (FGTCS)	Value	Conclusion
E-Tax Filing (ETF)	Pearson Correlation	0.233**	Linear
	Sig. (2-tailed)	0.000	Significant
	N	300	
E-Tax Payment (ETP)	Pearson Correlation	0.197**	Linear

	Sig. (2-tailed)	0.001	Significant
	N	300	
E-Governance (EG)	Pearson Correlation	0.082	Not Linear
	Sig. (2-tailed)	0.156	Not Significant
	N	300	
Online Tax Registration (OTR)	Pearson Correlation	0.029	Not Linear
	Sig. (2-tailed)	0.619	Not Significant
	N	300	
E-Tax Remittance (ETR)	Pearson Correlation	0.416**	Linear
	Sig. (2-tailed)	0.000	Significant
	N	300	

Source:**SPSS Output, Author's Computation, 2026.** ***Note: p < 0.05 indicates statistical evidence of linearity.***

The result of the Pearson correlation test in Table 6 demonstrates that three out of five ICT adoption proxies exhibit significant linear relationships with the Federal Government Tax Collection System.

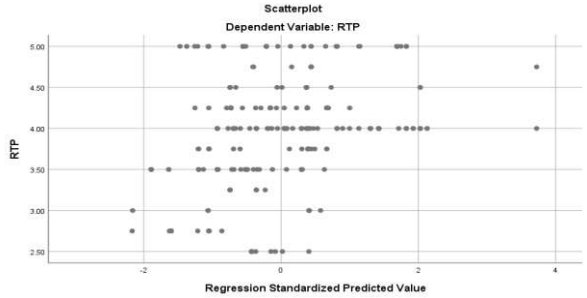
Table 7:
Variance Inflation Factor (VIF) and Tolerance for Multicollinearity Diagnosis

Independent Variable	**Tolerance**	**VIF**
E-Tax Filing (ETF)	0.434	2.305
E-Tax Payment (ETP)	0.350	2.855
E-Governance (EG)	0.297	3.362
Online Tax Registration (OTR)	0.277	3.612
E-Tax Remittance (ETR)	0.947	1.056
Average	**0.461**	**2.638**

Source:SPSS Output, Author's Computation, 2026.

Table 7 presents the results of the multicollinearity test for the ICT adoption variables. The findings indicate that all VIF values are below the critical threshold of 10 (VIF < 10), while all tolerance values are above 0.1 (Tolerance > 0.1). These results confirm the absence of multicollinearity among the independent variables.

Fig. 3 Result of Homoscedasticity Test



Homoscedasticity was assessed using scatterplots of the regression standardized predicted values for RTP. The plots show that the data points are randomly and evenly distributed across the range of predicted values, with no visible pattern.

Descriptive Analysis and Interpretation

Table 8:

Respondents' Responses on Registration of Tax Payers (RTP)

Statement	SA (%)	A (%)	U (%)	D (%)	SD (%)	M	SD
ICT has improved the efficiency of taxpayer registration in Nigeria.	40.33	46.00	10.33	3.33	0.00	4.23	0.77
Online registration platforms have simplified the registration process for taxpayers.	25.67	58.00	13.00	3.33	0.00	4.06	0.72
The use of ICT has reduced errors in taxpayer registration data.	26.00	42.67	12.33	19.00	0.00	3.76	1.04
ICT adoption has enhanced the ability of tax authorities to verify registration information.	22.33	56.67	17.67	2.00	1.33	3.97	0.78
Overall Mean / SD						**4.01**	**0.83**

Source: Field Survey, 2026.

Interpretation

Table 8 presents respondents' perceptions of the influence of ICT on the registration of taxpayers in Nigeria. The results show an overall mean of 4.01 and an overall standard deviation of 0.83, indicating a high level of agreement among respondents and relatively low variation in responses.The statement that ICT has improved the efficiency of taxpayer registration recorded the highest mean (M = 4.23) with a low SD (0.77), suggesting strong and consistent agreement. Similarly, the statement on the simplification of registration through online platforms showed a high mean (M = 4.06) and the lowest SD (0.72), indicating uniform responses.However, the statement on the reduction of errors in registration data recorded the lowest mean (M = 3.76) and the highest SD (1.04), reflecting greater variation in respondents' opinions and less consensus. Despite this, the overall mean score confirms that respondents generally perceive ICT as having a positive effect on taxpayer registration in Nigeria.

Hypothesis Testing

Table 9:

Summary of Multiple Regression between ICT Variables and Registration of Tax Payers (RTP)

N	Model	B	SE	t-stat	Sig.	ANOVA (Sig.)	R	Adj.R^2	F (5,294)
300	(Constant)	3.244	0.228	14.223	0.000	0.000	0.348	0.106	8.103
	ETF (E-tax Filing)	-0.093	0.071	-1.309	0.192				
	ETP (E-tax Payment)	0.197	0.074	2.649	0.009				
	EG (E-Governance)	-0.006	0.076	-0.073	0.942				
	OTR (Online Tax Registration)	-0.155	0.078	-1.982	0.048				
	ETR (E-tax Remittance)	0.263	0.053	4.936	0.000				

Source: Author's computation, 2026**. Note:** Dependent Variable: RTP (Registration of Tax Payers). Predictors: ETF, ETP, EG, OTR, ETR. Significance level: 5%

Interpretation

The hypothesis examined the effect of ICT on the registration of tax payers under the Federal Government Tax Collection System. Table 9 presents the multiple regression result. Findings reveal that the ICT components had both positive and negative effects on RTP, with some variables demonstrating statistically significant contributions while others were not significant. This aligns with expectation that ICT adoption strengthens tax administration processes, though the extent of impact differs across individual ICT tools.

Specifically, E-tax Payment (ETP) ($\beta = 0.197$, $p = 0.009$) and E-tax Remittance (ETR) ($\beta = 0.263$, $p = 0.000$) had positive and statistically significant effects on RTP. In contrast, E-tax Filing (ETF) ($\beta = -0.093$, $p = 0.192$) and E-Governance (EG) ($\beta = -0.006$, $p = 0.942$) had negative but statistically insignificant effects on RTP while Online Tax Registration (OTR) ($\beta = -0.155$, $p = 0.048$) had a negative and statistically significant effect. The R-value of 0.348 supports these findings, indicating a modest correlation between ICT and the registration of tax payers while Adj.$R^2 = 0.106$ explains 10.6% of the variation in RTP. This demonstrates that ICT adoption plays a role in shaping taxpayer registration, but the majority of variation (89.4%) is still explained by other factors not captured in the model.

The predictive multiple regression model can be expressed as follows:

RTP = 3.244 – 0.093(ETF) + 0.197(ETP) – 0.006(EG) – 0.155(OTR) + 0.263(ETR) …

(Equation 1: Predictive Model)

Since ETF and EG were not statistically significant, and OTR had a negative influence, the prescriptive model can be expressed as:

RTP = 3.244 + 0.197(ETP) + 0.263(ETR) … (Equation 2: Prescriptive Model)

This suggests that when holding all variables constant, the baseline level of taxpayer registration is 3.244. The results highlight that e-tax payment and e-tax remittance are the most critical ICT factors influencing registration of tax payers, while online registration systems require significant improvement to yield positive compliance outcomes. At a level of significance 0.05 and degree of freedom 5, 294, the F-Statistics is 8.103 while the p-value of the F-statistics is 0.000 which is less than the 0.05 adopted level of statistics.

Discussion of Findings

The positive and significant influence of E-tax Payment and E-tax Remittance aligns with prior evidence that digital payment infrastructures simplify tax obligations and boost formal participation. Lanre Jimoh et al. (2024) showed electronic tax registration and digital payments improved compliance among Lagos taxpayers by offering convenience and reliability. Wulandari and Dasman (2023) linked digitalisation to better compliance with adequate digital literacy, while Tita et al. (2022) noted electronic billing reduced delays and simplified processes. This current study reinforces these findings, indicating ICT tools like e-tax payment and remittance lower transaction costs, enhance transparency, and speed settlements, improving tax efficiency and participation. Mbise and Baseka (2022) found digital systems boosted SME compliance via simplified reporting. Appasaba et al. (2023) tied e-filing satisfaction to greater engagement, and Olaoye et al. (2023) showed electronic systems expanded revenue in Ekiti State.

However, the negative and significant coefficient for Online Tax Registration reveals digital platforms do not automatically improve enrolment, likely due to implementation challenges. Ogbada et al. (2023) saw limited compliance gains in Nigeria from digitalisation amid technical and bureaucratic issues. Etim et al. (2020) reported negative outcomes from infrastructure limits like poor connectivity. Ridwan et al. (2023) also noted that ICT infrastructure alone is insufficient to improve tax administration outcomes unless supported by efficient governance structures and accessible digital services.

Beyond infrastructural limitations, the findings may also reflect behavioural dynamics within the Nigerian tax environment. From an institutional perspective, tax administrators are uniquely positioned to observe practical challenges associated with the implementation of digital platforms, including system downtime, verification delays, network instability, and difficulties encountered by taxpayers when navigating online registration interfacesechoing transitional challenges in emerging economies (OECD, 2019).

Similarly, the negative but statistically insignificant coefficients of E Governance and E tax Filing suggest that these ICT components may not yet have achieved sufficient operational maturity to influence taxpayer registration outcomes, requiring reliability, awareness, and capacity (Mbise and Baseka, 2023). The mixed influence of ICT proxies observed in this study also corroborates the findings of Manabu and Andualem (2023) and Prabowo et al. (2024) who found outcomes vary by service type and institutional readiness.

From a theoretical perspective, the findings align with the Technology Acceptance Model and the Theory of Planned Behaviour. According to the Technology Acceptance Model, individuals are more likely to adopt technological systems when they perceive them as useful and easy to use (Davis, 1989). The positive significance of e tax payment and e tax remittance variables indicates that taxpayers perceive these digital channels as convenient and efficient mechanisms for fulfilling tax obligations. Conversely, the weaker effects associated with e filing, online registration, and e governance suggest that these platforms may still be perceived as complex or less reliable by users. The Theory of Planned Behaviour also provides further explanation by emphasising that behavioural intention is influenced by attitudes, social norms, and perceived behavioural control (Ajzen, 1991). Where taxpayers perceive limited technical capability or encounter operational difficulties when interacting with digital systems, their intention to adopt such platforms may remain weak.

The results therefore suggest that successful ICT integration within tax administration requires not only technological infrastructure but also taxpayer education, system reliability, and institutional support mechanisms to ensure that digital innovations translate into improved taxpayer engagement and compliance.

5.0 Conclusion and Recommendation

This study examined the impact of Information Communication Technology (ICT) on the effectiveness of the Federal Government Tax Collection System (FGTCS) in Nigeria. Drawing on empirical analysis, the findings demonstrate that ICT adoption significantly taxpayer registration albeit with varying degrees of effectiveness across tools and processes. The study recommends that FIRS should improve the design and functionality of the online tax registration system while

strengthening the operational deployment of e-tax payment and e-tax remittance platforms. Simplifying the registration process, improving system accessibility, and increasing taxpayer awareness will encourage wider adoption of digital registration and expand the taxpayer base.

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