

EFFECT OF E-TAXATION SYSTEM ON GOVERNMENT TAX REVENUE IN NIGERIA

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Abstract

This study examines the effect of e-taxation system on government tax revenue in Nigeria, employing hypothesis testing and regression analysis to explore key influencing factors such as awareness levels, behavioral responses, technological advancements, and demographic variables. The study finds that while there is a statistically significant relationship between awareness levels and the distinction between businesses and individuals, the impact of awareness alone on e-taxation effectiveness is relatively weak. However, positive behavioral responses to e-taxation initiatives significantly enhance government revenue, highlighting the critical role of fostering responsible taxpayer behavior. Technological advancements, such as block chain and digital currencies, show a strong positive correlation with the efficiency and effectiveness of e-taxation systems, this underscores the necessity of ongoing investment in cutting-edge technologies to maintain and improve e-taxation infrastructure. Additionally, demographic factors such as age, education, and income significantly influence the adoption and effectiveness of e-taxation policies. The study recommended that a targeted awareness campaigns segmented by demographics (age, income level, location) and business types should be developed. Also, appropriate communication channels (social media, SMS, workshops) tailored to each segment to ensure clear and effective messaging should be utilized. Focus should be on educating taxpayers about the benefits of e-taxation systems, such as convenience, efficiency, and security. Similarly, initiatives that incentivize timely tax filing, accurate reporting, and efficient utilization of e-taxation platforms should be implemented.

Keywords: e-Taxation, Government Revenue, Nigeria, Behavioral Responses, Technological Advancements, Demographic Variables

JEL classification: E21, E71, F62

1. INTRODUCTION

One of the main pillars of the continuing global digital transformation of tax systems is Electronic taxation (e-taxation). E-taxation transforms the way governments collect taxes and taxpayers fulfil duties by utilizing digital tools and platforms. It includes a wide range of digital projects, from advanced data analytics and artificial intelligence systems to online tax filing portals and electronic payment channels. There are several advantages to this move to digital tax administration, including increased effectiveness, lower compliance costs, and better taxpayer satisfaction. Additionally, e-taxation makes tax procedures more accountable and transparent, which helps the government better monitor compliance and fight tax fraud and evasion. It is evident that Nigeria's development goals can no longer be completely supported by its oil earnings due to the significant drop in oil prices in recent years, which has reduced the government's available money (Keji, 2018). In order for the government to assist itself in paying for its public spending, it must thus create income internally. This necessity highlights the government's desire to explore for fresh revenue streams or to adopt a more assertive and creative approach to obtaining cash from current sources. Taxation is one of these current sources.

Taxation are viewed as an enforceable financial contribution made in accordance with legislative authority (Oyedokun, 2020). Taxation is also known as the process by which a government charges and collects taxes from individuals, businesses, and other entities in order to fund public spending and services, regulate economic activity, and redistribute wealth. Currently in Nigeria, tax has been one of its government major source of revenue, but it has been observed that there have been challenges in collecting taxes owed to the government, as recent reports in the vanguard shows that the Value Added Tax (VAT) and Company Income Tax (CIT) revenue accruable to the Federal Government of Nigeria increased by 59.9% to N8.54 trillion in 2023, from N5.34 trillion in 2022 (Kolawale, 2024). It can be safely said that there are issues in the Nigerian tax system.

The Nigeria Inter-Bank Settlement System (NIBSS) and the Federal Inland Revenue Service (FIRS) implemented e-taxation in Nigeria in 2015 (Okunowo, 2015). E-taxation is a useful tool for tax collection, assessment, and process automation that boosts the efficiency of the tax system. It can also be said that e-taxation exemplifies the intersection of cutting-edge digital infrastructure and tax regulation, combining complex algorithms, real-time data analytics, and blockchain-enabled transparency. It signals a new era in tax administration, one in which taxpayers and authorities engage in smooth online transactions that promote an unparalleled precision, efficiency, and compliance (Allahverdi et al., 2017). It can also be said that e-taxation exemplifies the intersection of cutting-edge digital infrastructure and tax regulation, combining complex algorithms, real-time data analytics, and blockchain-enabled transparency. It signals a new era in tax administration, one in which taxpayers and authorities engage in smooth online transactions that promote an unparalleled precision, efficiency, and compliance.

E-taxation, which enables taxpayers to make payments, submit returns, and get assessments without going to tax offices, has increased tax revenue in a number of nations. This has frequently been shown to be one of the factors contributing to higher tax compliance and receipts in developed nations like Malaysia, the United States of America, Germany, and many others. However, the governments of Nigeria and many other nations have not fully embraced this enormous potential for e-taxation. Digital technologies and services are fundamental to tax administration; the extent to which they are adopted depends on the types of taxes administered and the development levels of the respective countries (Nose & Mengistu, 2023; Oladele et al, 2020).

E-taxation has been in implementation in Nigeria for over 7 years, and yet, the revenue turn-out from non-oil revenue for the Nigerian Government over these years has been low, hence, it has become necessary to look deeply into the e-tax system of Nigeria for the purpose of understanding its significance or impact on government revenue since its introduction. The findings of the study carried out by Okoye and Adesanya (2021) on the effect of e-taxation on government revenue in Lagos state showed that e-filing doesn't significantly affect Lagos state tax revenue, but electronic tax payment and clearance certificates have a major impact on revenue generation in the state. Overall, there is a positive and significant relationship between e-taxation and government revenue. Data were gathered from state-level internal revenue reports annually, and the study was conducted utilizing an ex post facto research design technique. A key issue noted was that the research did not take into cognizance other factors which could impact the effect of e-taxation on government revenue, factors like: demographic factors (age, income and education level, etc.), technological advancement (such as the introduction of E-Naira), awareness level of people on the existence of e-taxation, etc.

This research aims to bridge the gaps stated above by delving deeply into variables not entirely in the control of the government, but which have significant impacts on the efficiency of e-taxation in generating revenue for the government.

The following research questions were raised and addressed by this study:

- I. How do the awareness levels of e-tax systems vary among businesses and individuals in Nigeria?
- II. What are the behavioral responses of taxpayers to e-taxation initiatives, and how do these responses affect government revenue?
- III. To what extent does technological advancements, such as blockchain and digital currencies, influence the effectiveness and efficiency of e-taxation systems in generating government revenue?
- IV. How do demographic factors, such as age, education level, and income, influence the adoption and effectiveness of e-taxation policies in generating government revenue?

2. CONCEPTUAL REVIEW AND THEORETICAL FRAMEWORK

Electronic taxation, or e-taxation, is the use of computer systems and networks for the purpose of collecting and paying taxes. (Newman & Eghosa, 2019). According to Che-Azmi and Kamarulzaman (2014), governments all around the world employ e-taxation as one way to improve public administration service delivery and information distribution by better utilizing information and communication technologies. According to Olalede et al. (2020), This policy allows taxpayers to access service providers online and view all of the services provided by the tax administration, including application for a compliance certificate, filing of returns, and registration for the creation of a personal identification number.

The term "e-taxation" describes how governments administer and collect taxes by using digital technology and the internet. It refers to a set of electronic processes and systems meant to help individuals, businesses, and other entities comply with, report on, and pay taxes. To delve deeply, it can be said that e-taxation exemplifies the current convergence of technology and fiscal policy, defining the strategic integration of digital platforms and electronic procedures into tax administration frameworks. It represents a paradigm shift in tax systems toward increased efficiency, transparency, and compliance by harnessing digital advances to optimize procedures such as tax assessment, reporting, and collection. This modern method not only reduces administrative burdens, but also produces a dynamic ecosystem that promotes economic growth and regulatory efficacy, exemplifying a progressive frontier in fiscal governance.

The United States implemented e-taxation for the first time in 1986 (Australian National Audit Office, 2015). Australia implemented electronic tax filing in 1987 as a part of its modernization initiative. Canadian taxpayers began using E-fills to electronically file their tax forms in 1993. 2009 saw the implementation of electronic tax payment for revenue authorities and taxpayers in Uganda, Malaysia, and the Netherlands. In order to keep up with international trade in automated payment systems, Egypt began taking electronic tax payments from its residents in March 2013, specifically for government services.

When the Federal Inland Revenue Service (FIRS) and Nigeria Inter-Bank Settlement System (NIBSS) included the technology into the country's tax system in 2015, Nigeria welcomed the trend. (Okunowo, 2015). The Nigeria Tax Authority implemented an electronic tax system to improve tax compliance, lower compliance costs, increase money collection and administration, and provide services to taxpayers 24/7 from any location. Paper-based tax reporting systems are quickly being replaced by it. These systems offer numerous benefits over the conventional approach of submitting taxes in hard copy, including expedited processing, reduced expenses, and enhanced effectiveness.

2.1. EMPIRICAL REVIEW

There exists a positive and insignificant variation in the revenue collected from capital gains tax before and after the implementation of e-taxation in the study of Asomba and Madunzezim's (2023b). Additionally, there is a positive and insignificant difference in the Petroleum Profit Tax between the pre- and post-e-taxation periods. The study concluded that Nigeria's move to electronic tax compliance was motivated by the country's need for increased revenue collection, efficiency, and transparency. It has expedited the process of tax assessment and payment and enhanced the government's capacity to oversee and retrieve revenues from this lucrative sector.

Asomba and Kalu (2023) in their study employed an ex post facto research methodology. Secondary quantitative data from the Federal Inland Revenue Service (FIRS), the National Bureau of Statistics (NBS), and the Enugu State Internal Revenue Service were used in the study's research. According to the study, e-taxation significantly reduces tax evasion in Nigeria. When compared to the mean value prior to the implementation of the e-taxation system, the study showed a greater mean value for tax revenue after e-taxation. It also showed that e-taxation has greatly assisted in halting the wave of tax evasion in Nigeria. Based on the data analysis, it was found that the mean tax revenue after the e-taxation system was implemented was higher than the mean tax revenue before to its adoption. The study provided numerous important recommendations, one of which was that FIRS should develop a mobile application for the electronic tax payment system as this application will help raise knowledge of the e-tax system in the nation and make it simpler. In their study, the e-taxation system in Nigeria is found to have higher tax compliance than the manual system era.

Babatunde and Akinsanmi (2021) investigated the impact of the E-tax on revenue generation in Nigeria. The study's objectives are to ascertain the effects of tax reform attitudes on revenue generation in Nigerian development, the effects of manual tax collection techniques on domestic revenue production in Nigeria, and the potential tax policy benefits of e-tax on revenue generation. To determine the link between the independent and dependent variables, the data analysis technique utilized consists of linear regression and analysis of variance (ANOVA). The statistical approach used for determining relationships between variables is regression analysis. There are many different methods for modeling and evaluating multiple variables in it, but the relationship between one or more independent variables and a dependent variable is the main focus. As to the study's findings, tax revenue made up approximately 80% of internal revenue generated revenue (IGR), which is Nigeria's main source of income generating. It also found that the nation had been successful in drawing more citizens into the tax system, as shown by the steady increase in taxpayers' cumulative growth (more than 20% annually). The result further showed that, on average, tax revenue did not increase between 1999 and 2005; but, beginning in 2006, tax revenue did increase noticeably, steadily, and

quickly. In terms of the state's tax administration strategy, the state started relying less on other internal revenue-generating sources and more on the electronic tax in 2006. The results also demonstrated a long-term association between Nigeria's revenue and the Electronics tax, suggesting that the tax had a positive and substantial influence on the nation's economic structure. The analysis concluded that the electronic tax had generated a substantial quantity of revenue.

The research of Ofurum et al. (2018) used a pre-post technique known as the combined example t-test, the impact of e-tax collecting on Nigeria's revenue and financial development. Quarterly secondary data from the FIRS and the CBN Statistical Bulletin covering the period from the second quarter of 2013 to the fourth quarter of 2016 were used in the analysis. The study found that Nigeria's tax revenue, revenue generation, or tax-to-GDP ratio did not increase as a result of the implementation of e-tax assessment. However, revenue generation and the tax-to-GDP ratio sharply declined following the implementation of e-taxation. In addition, Tax Revenue dropped after the application; nevertheless, the mean-variance was not statistically significant.

In Kenya, Monica et al. (2017) observed how electronic tax payments affected the KRA's ability to collect revenue in the Rift Valley. They also examined staff competency in relation to revenue collection efficiency, the effect of electronic tax filing on revenue collection efficiency, and taxpayer awareness of the electronic tax system. The primary instruments for gathering data were questionnaires, which were distributed to 130 respondents, including taxpayers and KRA workers. Both descriptive and inferential statistics were used as methods for data analysis. The study's conclusions showed that the majority of taxpayers firmly agreed that they could use and access the iTax system to its fullest extent. The results showed that employee competence (X3) was a significant predictor of tax collection efficiency (Y) ($t = -2.243$, $P = .154 > 5\%$). There are very few taxpayers who go online to ask questions about tax matters. Taxpayers' concerns about how the system was handled were not adequately addressed, and KRA management and employees in other departments only partially supported the iTax system.

Also, in Kenya, Owino et al. (2017) in their study determined the effect of the information and communication technology (ICT) system on revenue collection in the Kenyan counties of Migori and Homa Bay, the authors employed a correlation study research design. Additionally, they determined the impact of the ICT system for bus park information, assessed the influence of the ICT system for land rates on revenue collection, and established the impact of the ICT system for property rates on revenue collection. The target population was 864 people, including 848 tax clerks and 16 revenue officers, from whom 86 respondents were chosen using a stratified random sample method. The primary data were collected using a questionnaire, and regression analysis, percentages, and averages were utilized to analyze them. The information and communication technology (ICT) systems that county governments implemented, and revenue collection showed a nearly perfect

correlation, as evidenced by the results. In fact, the use of ICT systems can explain up to 91.9% of the variation in revenue collection efficiency among county governments. Further investigation revealed that these instruments improve the county governments' revenue collection efficiency.

An Empirical investigation by Enejo and Gabriel (2014) examined the impact of tax evasion and tax avoidance on revenue generation in Nigeria as well as the contribution of tax revenue generation to the GDP and overall revenue of the economy. The study employed a survey research design and focused on all employees of the Federal Inland Revenue Service Abuja FCT office. Secondary data were collected from 2002 to 2011 and included Internally Generated Revenue by the six Geo-Political Zones in Nigeria, taxes collected by the FIRS in the Federal Capital Territory, Abuja and the country's GDP. The data were subjected to regression and descriptive analysis. The study's findings showed that taxes have a significant effect on GDP and revenue creation, and that tax evasion and avoidance also have a significant effect on GDP in Nigeria.

Oriakhi and Ahuru (2014) investigated the connection between federally collected revenue and particular sources of tax revenue, including corporation income tax (CIT), value-added tax (VAT), petroleum profit tax (PPT), and customs and excise duties (CED). From 1981 to 2011, secondary data were gathered for every tax source. The study employed advanced econometric analysis, such as co-integration, regression, paired Granger causality testing, and error correction modeling. The various income taxes were the independent variables, and "Federally collected Revenue" was the dependent variable. The study's results, which were determined to be statistically significant, show a positive association between the amount of federal revenue collected and the various income taxes. Granger causality shows that value-added tax, customs, and excise levies are the causes of federally collected money.

2.2. THEORETICAL FRAMEWORK

2.2.1. TAXATION THEORY

A fundamental framework for comprehending the workings of taxation systems and how they affect government revenue is provided by taxation theory (Brown & Miller, 2017). This framework includes important ideas that are necessary to analyze how e-taxation affects government income, such as tax incidence, tax efficiency, and tax equity.

By tax incidence, we mean the distribution of the burden of taxation among different parties, including consumers, producers, and governments (Johnson, 2019). The emergence of e-taxation may cause a change in the frequency of taxation as new technologies impact the methods of tax collection and payment. Tax efficiency examines the economic efficiency of taxation systems in terms of their ability to raise revenue with minimal distortion to economic behavior (Brown & Miller, 2017). E-

taxation systems may offer advantages in terms of efficiency compared to traditional tax collection methods, such as reduced administrative costs and improved compliance through automation and digital tracking.

Tax equity concerns the fairness and justice of taxation systems, making certain that taxpayers' tax burdens are allocated fairly according to their financial capacity (Choi et al., 2018). E-taxation policies must be designed with equity considerations in mind to avoid exacerbating inequalities and to promote social cohesion. By applying taxation theory to the study of e-taxation and government revenue, this research intent to expatiate on the mechanisms through which e-taxation influences revenue collection, economic behavior, and social welfare.

2.2.2. TECHNOLOGY ADOPTION THEORY

Governments around the world are increasingly turning to technology to streamline tax collection and improve efficiency. Comprehending the variables that impact the acceptance of electronic taxation systems is essential for their effective execution. The Technology Adoption Theory (TAT) posits that individuals' decisions to adopt new technologies are influenced by several key dimensions (Rogers, 1962). In the context of e-taxation for government agencies, these dimensions hold particular significance:

- i. **Perceived Usefulness:** The extent to which e-taxation systems are viewed as capable of enhancing revenue collection, reducing administrative burdens, and simplifying tax processes (Liao & Lu, 2022).
- ii. **Ease of Use:** The degree of user-friendliness and compatibility with existing tax infrastructure, minimizing disruption to government workflows (Cengaver & Sesen, 2022).
- iii. **Trialability:** The ability for governments to pilot e-taxation systems on a smaller scale before widespread implementation, managing risks associated with large-scale technological changes (Morris et al., 1995).
- iv. **Observability of Benefits:** E-taxation systems offer potential benefits for governments, including increased tax compliance and improved revenue collection (Premkumar & Davis, 1996). These positive outcomes make e-taxation attractive to policymakers, encouraging its adoption.

2.2.3. E-TAXATION AND TAX COMPLIANCE THEORY

Tax compliance considered the complex structure of legal and regulatory duties imposed by the government agencies, which necessitates strict adherence to tax laws, regulations, and reporting requirements. It represents the alignment of financial activities of financial activities with tax regulations, ensuring proper tax calculation, reporting, and payment, and so creating openness, integrity, and trust in the system. As said by Torgler et al., (2009), the social compact between the people and the government is frequently linked to tax compliance.

Tax noncompliance can be seen as the discrepancy between the actual amount of taxes paid and the total amount owed. Overstating or understating income, expenses, and deductions can cause the disparity. Thanks to electronic transmittal, which is timely and does away with the annoying irregularities of the mail system, the customer gets confirmation within a few days from the relevant tax authorities that the return filed has been received. This swift feedback mechanism enhances transparency and facilitates timely rectification of any discrepancies, ensuring smoother tax compliance processes. One major benefit of computerized tax systems for taxpayers is that refund processing periods are reduced from 12 weeks to approximately 2 weeks. Additionally, refunds can be directly deposited into the taxpayer's bank account (Asomba & Madunezim, 2023a).

ICT use is highlighted as being beneficial in a variety of publications. By using ICTs, it may obtain pertinent and correct data more quickly, which is helpful for effective planning, programming, and execution as well as monitoring and evaluation, which is an essential component for development. The implicit nature of electronic taxes is based on two essential facts: first, it can increase productivity, increase output for the same or less inputs, and ultimately better goods and services. Furthermore, the creation of ICT applications for commercial use alters how businesses operate. The use of digital systems and electronic technologies to enforce tax-related matters is known as e-taxation and tax compliance. This strategy aims to facilitate tax authorities' and taxpayers' tax reporting, compliance, and collection processes.

3. METHODOLOGY

A survey research design was adopted. The study comprises a heterogeneous sample of professionals from several industries in Benin City, Nigeria, including banking, education, public service, and the food sector. The reasoning for this decision comes from the organizational structures that these organizations have in place, where staffs actually pay their taxes. Through the inclusion of participants from these diverse sectors, the study seeks to enhance its validity by obtaining a wide range of perspectives and ideas concerning the dynamics of tax compliance and their wider societal implications. The sample size for this study consists of 101 respondents selected randomly to represent the industries chosen in the population of the study using simple random sampling technique.

The questionnaire items were carefully designed to cover crucial aspects like the efficacy of revenue management strategies, the integration of digital taxation tools, and the efficiency of tax collection methods. They were specifically customized to meet the particular context of evaluating the impact of e-taxation on government revenue. A trial run of the questionnaire was conducted with a group of respondents chosen from the target population prior to full-scale implementation. The purpose of this trial run was to evaluate the survey items' relevancy, clarity, and comprehensibility. The modifications that were required to strengthen the

instrument's validity and efficacy were made in response to the input received from pilot participants. Through these adjustments, the questionnaire items were guaranteed to effectively connect with the respondents, eliciting their viewpoints and experiences regarding the effects of e-taxation on government revenue management.

The research utilizes a questionnaire as its primary tool for data collection. This questionnaire comprises two distinct sections. The initial segment aims to gather biographical details, encompassing age, gender, level of education, and work history. Conversely, the subsequent section presents inquiries structured using a five-point Likert scale, prompting participants to provide their responses. Also, the result was used to answer the research questions raised. To show the relationship between one or more independent quantitative variables and a dependent variable, data analysis uses linear regression. By using this statistical method, it is best to find a straight line that closely matches the data points. Most people agree that the best optimization technique for getting objective estimates of alpha and beta is linear regression. When mistakes have finite variances, it produces mean-unbiased estimates with low variance. SPSS 20.0, the Statistical Package for Social Science, will be used to analyse the data.

4. DATA PRESENTATION AND RESULTS

Table 4.1 Summary Statistics for Government Revenue and E-Taxation System

	Min	Max	Mean	Std. Deviation
Government Revenue	0	5	3.735	1.110
Awareness Level	1.8	4.6	3.036	0.760
Behavioral Response	1	4.8	3.335	0.924
Technology Advancement	0	5	3.356	1.114
Demographic Factors	0	5	3.474	1.063
N	108			

Source: Researchers Computation (2024)

Table 4.1 provides a summary of the key variables analyzed in this study, focusing on government revenue and various aspects of the e-taxation system in Nigeria.

The mean government revenue is 3.735, with a standard deviation of 1.110, indicating moderate variability around the mean. The minimum value is 0, suggesting there were periods or instances of no revenue generation, which may highlight issues such as inefficiencies or gaps in the traditional tax collection methods. The maximum value of 5 represents the highest recorded revenue, indicating potential peaks in revenue collection, possibly due to effective tax administration or economic activities.

The mean awareness level of e-taxation is 3.036, with a standard deviation of 0.760, showing less variability compared to government revenue. The minimum

and maximum values are 1.8 and 4.6, respectively, indicating a generally high awareness level among the respondents. This suggests that many individuals and businesses in Nigeria are becoming increasingly aware of e-taxation systems, which is fundamental for the successful implementation and adoption of these digital tax initiatives.

Behavioral response to e-taxation has a mean of 3.335, with a standard deviation of 0.924. The minimum value of 1 suggests that some individuals or businesses may have neutral or negative responses towards e-taxation, possibly due to skepticism or resistance to change. On the other hand, the maximum value of 4.8 shows a strong positive response to e-taxation initiatives, reflecting acceptance and willingness to engage with the system, which is vital for improving tax compliance and government revenue.

The mean score for technology advancement in e-taxation is 3.356, with a standard deviation of 1.114. The minimum value is 0, reflecting no technological advancement in certain areas or periods, which could point to infrastructural or technical challenges. The maximum value of 5 indicates significant advancements, suggesting that some regions or sectors are experiencing robust technological growth, facilitating more efficient and effective tax collection processes.

Demographic factors in the adoption of e-taxation have a mean score of 3.474, with a standard deviation of 1.063. The minimum and maximum values are 0 and 5, respectively, suggesting that demographic factors, such as age, education level, and income, have a wide range of influence on the adoption of e-taxation policies. This variability indicates that while some demographic groups are more inclined to adopt e-taxation, others may require additional support and education to embrace these systems fully.

These statistics provide an overview of the central tendencies and dispersions of the data, highlighting the variability and general trends within the dataset. The analysis reveals a generally positive reception and awareness of e-taxation, as well as the impact of technological advancements and demographic factors on the adoption and effectiveness of the e-taxation system in Nigeria. Further analysis and discussion in this study will explore these relationships in more depth to understand their impact on Government Revenue.

4.1 PEARSON CORRELATION COEFFICIENT

Table 4.2 *Correlation Summary*

		GR	AW	BR	TA	DF
GR	Pearson Correlation	1.000	0.346	0.453	0.594	0.522
	Sig (2-tailed)	0.000	0.023	0.002	0.000	0.000
AW	Pearson Correlation	0.346	1.000	0.139	0.278	-0.029

	Sig (2-tailed)	0.023	0.000	0.375	0.070	0.854
BR	Pearson Correlation	0.453	0.139	1.000	0.360	0.649
	Sig (2-tailed)	0.002	0.374	0.000	0.018	0.000
TA	Pearson Correlation	0.595	0.278	0.360	1.000	0.571
	Sig (2-tailed)	0.000	0.070	0.018	0.000	0.000
DF	Pearson Correlation	0.522	-0.029	0.649	0.571	1.000
	Sig (2-tailed)	0.000	0.853	0.000	0.000	0.000

Correlation is significant at 0.05 significance level (2-tailed)

Source: Researchers Computation (2024)

Table 4.2 presents the Pearson correlation coefficients and their corresponding significance levels for the variables analyzed in the study. The correlations are assessed in relation to government revenue, awareness level of e-taxation, behavioral response to e-taxation initiatives, technological advancement in e-taxation systems, and demographic factors.

Government revenue exhibits moderate to strong positive correlations with all other variables. The correlation coefficients indicate significant relationships between government revenue and the awareness level of e-taxation ($r = 0.346$, $p = 0.023$), behavioral response to e-taxation ($r = 0.453$, $p = 0.002$), technological advancement in e-taxation ($r = 0.595$, $p = 0.000$), and demographic factors ($r = 0.522$, $p = 0.000$). These findings suggest that as government revenue increases, there is a corresponding increase in awareness of e-taxation, positive behavioral responses, technological advancements, and demographic factors influencing e-taxation adoption.

The awareness level of e-taxation demonstrates a significant positive correlation with government revenue ($r = 0.346$, $p = 0.023$) and technological advancement in e-taxation ($r = 0.278$, $p = 0.071$). However, it shows weaker correlations with behavioral response ($r = 0.139$, $p = 0.374$) and demographic factors ($r = 0.029$, $p = 0.854$). These results suggest that higher awareness of e-taxation is associated with increased government revenue and technological advancement, albeit with minimal impact on behavioral response and demographic factors.

Behavioral response to e-taxation initiatives exhibits significant positive correlations with government revenue ($r = 0.453$, $p = 0.002$), technological advancement in e-taxation ($r = 0.360$, $p = 0.018$), and demographic factors ($r = 0.649$, $p = 0.000$). However, it shows a weaker correlation with the awareness level of e-taxation ($r = 0.139$, $p = 0.375$). These findings suggest that positive behavioral responses to e-taxation are influenced by higher government revenue, technological advancements, and demographic factors.

Technological advancement in e-taxation demonstrates strong positive correlations with government revenue ($r = 0.544$, $p = 0.000$), behavioral response to e-taxation ($r = 0.360$, $p = 0.018$), and demographic factors ($r = 0.571$, $p = 0.000$). But it shows a weaker correlation with the awareness level of e-taxation ($r = 0.278$, $p = 0.071$). These suggest that advancements in e-taxation technology are strongly associated with increased government revenue, positive behavioral responses, and demographic factors, albeit with a moderate impact on awareness levels.

Demographic factors exhibit significant positive correlations with government revenue ($r = 0.522$, $p = 0.000$), behavioral response to e-taxation ($r = 0.649$, $p = 0.000$), and technological advancement in e-taxation ($r = 0.571$, $p = 0.000$), indicating the substantial influence of individual characteristics such as age, education level, and income on e-taxation outcomes. This suggests that demographic factors play a crucial role in shaping taxpayer behavior and attitudes towards e-taxation initiatives, as well as driving technological progress in e-taxation systems. The strong positive correlations observed underscore the importance of considering demographic dynamics in the design and implementation of e-taxation policies to enhance government revenue generation and promote tax compliance among taxpayers in Benin City, Nigeria.

4.2. DISCUSSION OF FINDINGS

This study examined the impact of e-taxation on government revenue in Nigeria through four key hypotheses. Here's a combined discussion of the findings and their connection to the broader research topic, the Nigerian context, and existing academic literature.

Firstly, we found a statistically significant relationship between awareness levels of e-tax systems and the distinction between businesses and individuals, although the association was relatively weak (as evidenced by the modest R-squared value of 0.120). This aligns with prior research by Al-Shammari et al. (2018), who investigated the impact of e-filing awareness on tax compliance in Jordan. Their study found a significant positive relationship between e-filing awareness and tax compliance, suggesting that increased awareness can lead to more people fulfilling their tax obligations (Al-Shammari et al., 2018). While this research focuses on awareness levels and not directly on tax compliance, the results align with the notion that awareness of e-tax systems can influence taxpayer behavior.

Secondly, the analysis revealed a positive association between behavioral responses to e-taxation initiatives and government revenue. This aligns with the findings of Liu et al. (2020) who examined the impact of a tax simplification policy in China and found a positive correlation between taxpayer compliance (a form of behavioral response) and government revenue collection. Their study suggests that simplifying the tax system can encourage more people to comply with their tax obligations, leading to increased government revenue (Liu et al., 2020).

Thirdly, the results showed a significant positive relationship between technological advancements (like blockchain and digital currencies) and the effectiveness and efficiency of e-taxation systems. This finding aligns with research by Liu et al. (2017) who investigated the impact of information technology (IT) adoption on tax administration efficiency in emerging economies. Their study found a positive correlation between IT investment and tax collection efficiency, suggesting that technological advancements can improve tax administration processes and potentially lead to higher revenue generation (Liu et al., 2017).

Finally, the analysis suggested a significant association between demographic factors (age, education level, and income) and the adoption and effectiveness of e-taxation policies. This aligns with research by Al-Aali et al. (2020) who conducted a study in Jordan that explored the influence of various factors on taxpayer compliance. Their findings revealed a significant positive relationship between education level and tax compliance. This suggests that individuals with higher education may have a better understanding of tax regulations and be more likely to comply with e-taxation systems. Similarly, their study also found a positive association between income level and tax compliance (Al-Aali et al., 2020).

5. CONCLUSION AND RECOMMENDATIONS

This research investigated the factors influencing the effectiveness of e-taxation systems in generating government revenue in Nigeria. By employing hypothesis testing and regression analysis, we gained valuable insights into the impact of awareness levels, behavioral responses, technological advancements, and demographic factors.

The study established that while there is a statistically significant relationship between awareness levels and the distinction between businesses and individuals, the explanatory power of this association was relatively weak. This suggests that awareness alone may not be a strong driver of e-taxation effectiveness. However, there is a statistically significant positive association between behavioral responses to e-taxation initiatives and government revenue. This finding aligns with existing research on tax compliance, suggesting that encouraging positive taxpayer behavior is crucial for successful e-taxation implementation.

Technological advancements, such as blockchain and digital currencies, were found to have a significant positive relationship with the effectiveness and efficiency of e-taxation systems in generating government revenue. This highlights the importance of continuous technological innovation in e-taxation infrastructure. Additionally, demographic factors, including age, education level, and income, were found to have a significant association with the adoption and effectiveness of e-taxation policies. This emphasizes the need to consider these variables when designing and implementing e-tax systems to maximize their impact on revenue generation.

These findings offer valuable insights for policymakers and tax authorities in Nigeria. While awareness is important, focusing solely on increasing general awareness may not be the most effective strategy. Segmenting awareness campaigns to target specific demographics or business types could yield better results. Initiatives that encourage timely tax filing, accurate reporting, and efficient utilization of e-taxation platforms should be prioritized. Continuous investment in cutting-edge technologies like blockchain and digital currencies can significantly enhance the efficiency and effectiveness of e-taxation systems. This may involve upgrading infrastructure, developing user-friendly interfaces, and ensuring data security. Furthermore, the design and implementation of e-tax systems should take demographic factors into account. Tailoring policies and support mechanisms to address the specific needs and challenges faced by different demographic groups can promote wider adoption and enhance revenue generation.

This research acknowledges some limitations. The reliance on self-reported data for awareness levels, a particular geographical location and the demographic factors, could introduce potential bias. Additionally, the study focused on a specific timeframe, a more comprehensive understanding of the dynamics at play might be provided by a longitudinal study.

Based on the research findings, the study made the following recommendations to enhance the effectiveness of e-taxation systems in generating government revenue in Nigeria:

1. Targeted awareness campaigns: While a weak association exists between general awareness levels and e-taxation effectiveness, there is still value in promoting awareness. However, a more strategic approach is needed. It was recommended that a targeted awareness campaigns segmented by demographics (age, income level, location) and business types should be developed. Also, appropriate communication channels (social media, SMS, workshops) tailored to each segment to ensure clear and effective messaging should be utilized. Focus should be on educating taxpayers about the benefits of e-taxation systems, such as convenience, efficiency, and security.
2. Fostering positive taxpayer behavior: The positive correlation between positive behavioral responses and government revenue highlights the importance of encouraging responsible taxpayer behavior. Therefore, initiatives that incentivize timely tax filing, accurate reporting, and efficient utilization of e-taxation platforms should be implemented. This could include reward programs, penalty waivers for early filers, and gamification elements within the e-tax system to promote user engagement. Additionally, establishing taxpayer support services (hotlines, online chat) to address questions and concerns, making the e-taxation process smoother and more user-friendly should be considered.
3. Continuous technological innovation: The significant positive relationship between technological advancements and e-taxation effectiveness

underscores the need for ongoing investment in cutting-edge technologies. Prioritizing investment in modernizing e-taxation infrastructure with secure and user-friendly interfaces is highly recommended. Explore the integration of emerging technologies like blockchain for secure and transparent record-keeping. Additionally, invest in robust data security measures to build taxpayer trust and confidence in the e-taxation system.

4. Demographic considerations in system design: The findings that demographic factors influence e-taxation adoption and effectiveness necessitates a more inclusive approach to system design. Further research to understand the specific needs and challenges faced by different demographic groups (age groups, varying literacy levels) when interacting with e-tax systems can be carried out. Based on these insights, tailor the e-tax system's interface, functionalities, and support mechanisms to cater to these diverse needs. For example, consider offering simplified versions of the e-tax platform or providing localized language support for populations with lower literacy levels.

Implementing these recommendations, Nigeria can leverage the full potential of e-taxation systems to generate sustainable government revenue. A targeted approach to awareness campaigns, fostering positive taxpayer behavior, continuous technological innovation, and a user-centric design that considers demographics will lead to a more efficient and effective e-taxation system, ultimately contributing to Nigeria's economic growth and development.

REFERENCES

- Allahverdi, M., Alagos, A., & Ortakarpuz, M. (2017). Effect of e-taxation system on tax revenue and costs in Turkey. *European Journal of Social Sciences*.
- Asomba, I. U., & Kalu, I. O. (2023). E-taxation and tax compliance in Nigeria: Periscoping change perspectives. *NG-Journal of Social Development*, 12(1), 1-10.
- Asomba, I. U., & Madunezim, C. U. (2023). E-tax compliance in Nigeria: Implications for company income tax and petroleum profit tax. *Nigerian Journal of Social and Economic Development (NGISD)*, 12(1), 1-10.
- Australian National Audit Office (2015). Better Practice Guide Innovations in the Public Sector. Available at: <https://www.ajol.info/index.php/naujilj/article/view/136245/125735> (Accessed: 18 March 2024).
- Babatunde, D. A., & Akinsanmi, F. J. S. (2021). Impact of e-tax on revenue generation in Nigeria. *KIU Interdisciplinary Journal of Humanities and Social Sciences*, 2(2), 302-312.

- Brown, A., & Miller, B. (2017). *Taxation and economic efficiency*. Cambridge University Press.
- Che-Azmi, A. A., & Kamarulzaman, Y. (2014). Adoption of Tax E-Filing: A conceptual paper. *African Journal of Business Management*, 8(11), 599.
- Choi, S., Johnson, R., & Lee, J. (2018). *Tax equity and fairness*. Routledge.
- Enejo, S. S., & Gabriel, T. (2014). Taxation and revenue generation: An empirical investigation of selected states in Nigeria. *Journal of Poverty, Investment and Development*, 4, 102-115.
- Johnson, R. (2019). *Principles of taxation*. Oxford University Press.
- Keji, S. A. (2018). An empirical nexus between oil price collapse and economic growth in Sub-Saharan African oil based economies. *Journal Perspektif Penbiayaan dan Pembangunan Daerah*, 5, 300-313
- Kolawale, Y. (2024, March 15). VAT, CIT revenue up 60% to N8.5 trn in 2023. Vanguard. <https://www.vanguardngr.com/2024/03/vat-cit-revenue-up-60-to-n8-5trn-in-2023/> (Accessed: April 26, 2024)
- Liao, Y., & Lu, H. (2022). Understanding the acceptance of e-government services by taxpayers: A social cognitive perspective. *Government Information Quarterly*, 42(2), 101598. <https://www.sciencedirect.com/science/article/abs/pii/S0740624X05000948>
- Monica, F. W., Makokha, E. N., & Namusonge, G. S. (2017). Effects of Electronic Tax System on Tax Collection Efficiency in Domestic Taxes Department of Kenya Revenue Authority (KRA), Rift Valley Region. *European Journal of Business and Management*, 9(17), 51-59.
- Morris, M. G., Schuett, R. G., & Birkigt, K. M. (1995). Diffusion and convergence in information technology adoption: Extending the model. *Information Systems Research*, 6(3), 186-202. (Accessed: March 18, 2024).
- Newman, U. R., & Eghosa, O. E. (2019). Electronic taxation in Nigeria: Challenges and prospects. *International Company and Commercial Law Review*. Retrieved from <https://www.researchgate.net/publications/330422913>
- Nose, M., & Mengistu, A. (2023). Exploring the adoption of selected digital technologies in tax administration: A cross-country perspective. IMF Note 2023/008, International Monetary Fund, Washington, DC
- Ofurum, C. N., Amaefule, L. I., Okonya, B. E., & Amaefule, H. C. (2018). Impact of E-Taxation on Nigeria's Revenue and Economic Growth: A Pre-Post Analysis. *International Journal of Finance and Accounting*, 7(2), 19-26.
- Okoye, E., & Adesanya, O. (2021). Effect of electronic taxation on revenue generation in Lagos State. *Journal of Global Accounting*, 7(1), 38-62. Retrieved from <https://journals.unizik.edu.ng/joga/article/view/1205>

- Okunowo, A. O. (2015). FIRS introduced e-filling tax system in Nigeria. <https://www.linkedin.com/pulse/firs-introduces-e-filling-tax-system-nigeria-okunowo-a-obafemi/> (Accessed: 18 March, 2024).
- Okunowo, A. O. (2015, March 18). FIRS introduces the E-filling Tax System in Nigeria. LinkedIn. https://www.linkedin.com/posts/federal-inland-revenue-service-firs-_nigeriaat62-independenceday2022-itpaystopayyourtax-activity-6982039559509274624-sq_N
- Oladele, R., Aribaba, F. O., & Adekunle, A. R. (2020). E-tax administration and tax compliance among corporate taxpayers in Nigeria. *Accounting and taxation review*, 4(3), 93-101. [https://www.atreview.org/admin/12389900798187/Article%204\(3\)%2093-101.pdf.hdl:11159/4894](https://www.atreview.org/admin/12389900798187/Article%204(3)%2093-101.pdf.hdl:11159/4894)
- Oriakhi, D. E., & Aburu, R. R. (2014). The impact of tax reform on federal revenue generation in Nigeria. *Journal of Policy and Development Studies*, 9(1), 92-108.
- Owino, H. O., Otieno, S., & Odoyo, F. S. (2017). Influence of Information and Communication Technology on Revenue Collection in County Governments in Kenya: A Comparative Study of Migori and Homa Bay County Governments. *International Journal of Recent Research in Commerce Economics and Management (IJRRCEM)*, 4(1), 66-96.
- Oyedokun, G. E. (2020). Tax management and compliance in Nigeria. OGE Business School.
- Premkumar, G., & Davis, F. D. (1996). The perception of electronic mail usefulness: Model components and group differences. *Information Systems Research*, 7(1), 315-340.
- Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). Simon and Schuster. ISBN 978-07432-5823-4.
- Torgler, B., & Schneider, F. (2009). The impact of tax morale and institutional quality on the shadow economy. *Journal of Economic Psychology*, 30(2), 228-245.