Tax Digitalisation and Revenue Tax Compliance: The Empirical Approach

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Abstract

This paper investigated the effect of tax digitalisation dimensions on revenue tax compliance of Federal Inland Revenue Service (FIRS), Abuja, Nigeria. A cross-sectional survey research design was implemented in retrieving data from 603 employees of the Federal Inland Revenue Service in Abuja, Nigeria. The simple random sampling technique was applied. Also, reliability and validated tests were conducted on the adapted questionnaire before using it for the study. The multiple regression analysis results revealed that tax digitalisation dimensions had a positive and significant effect on revenue tax compliance [(Adj. $R^2 = 0.733$, $F(4, 598) = 415.220$, $p<0.05$)] with electronic reporting as the best predictor on revenue tax compliance. Management of FIRS should encourage submitting tax returns online, accept payment online, and ensure electronic reporting sharing of up-to-date information to improve revenue tax compliance.

Keywords:
Electronic Audit, Electronic Tax Filing, Online Payment System, Electronic Reporting, Tax Compliance, Digitalisation

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Background to the Study

Globally, the significance of revenue generation becomes evident when the statistics associated with non-compliance is considered. For instance, the International Monetary Fund (IMF, 2021), reported that the annual cost of non-compliance with individual income taxes is estimated to be approximately $319 billion in the United States of America (USA) (Internal Revenue Service, 2016). Also, in the USA, the tax gap report published in 2016 revealed that the tax gap (which accounts for late payments made either voluntarily or as a result of enforcement action) averaged $406 billion per year from 2008-2010, showing that about 16 percent of taxes went unpaid (Gale & Krupkin, 2019). This was equivalent to 2.8 percent of annual gross domestic product (GDP) and 18 percent of annual federal revenues during that period. If the tax gap stayed constant relative to GDP since then, it would have reached $560 billion by 2018. For perspective, the federal budget deficit in 2018 was $779 billion, so the tax gap could plausibly have been 70-80 percent as large as the entire budget deficit in 2018 (Gale & Krupkin, 2019). Moreover, according to the Burean of Labor Statistics (2022), an estimated 72.5 million individuals avoided payment of federal income taxes for tax year 2022 depicting a substantial decline from the 59.3% who paid no federal income taxes in 2020 and from the 56% in 2021. In Nigeria, several reports have shown that revenue tax compliance in organisations over the years have been relatively low (FIRS, 2020; KPMG, 2021; Revenue Statistics in Africa, 2021). According to the Heritage Foundation (2018), the ratio of tax revenue to GDP in Nigeria is only 6.1%. In addition, Nigeria's tax-to-GDP ratio in 2019 (6.0%) was lower than the average of the 30 African countries in Revenue Statistics in Africa 2021 (16.6%) by 10.7 percentage points. This figure has remained in the lower regions (Revenue Statistics in Africa, 2021; World Bank, 2022). Interestingly, businesses depend on remittance from individuals, but compliance is also low.

According to the Nigerian Bureau of Statistics (NBS, 2019) Nigeria's population of employed persons at 69.5 million people as of September 2018. However, the individual tax-paying population is estimated as 19 million, indicating that about 50.5 million employed Nigerians operate outside the tax net. In 2018, the 36 states of the federation and the Federal Capital Territory (FCT) generated total tax revenue of 669 billion naira, resulting in an average of 35,211 naira per registered taxpayer and a paltry 6,021 naira per economically active person. Evidently, the level of revenue tax compliance is dismal, and this accounts for the low ratio of tax revenue to the country's gross domestic product (NBS, 2019). These figures have continued to drop even in 2020 and 2021 (NBS, 2022). Data regarding non-compliance is supported by scholars (Adedayo, 2021; Alabede et al., 2011; Kupoluyi et al., 2022) position that a major problem faced by all tax authorities is that it has never been easy to persuade all taxpayers to comply with the regulations of a tax system regardless of time, place, or industry-type. The level of non-compliance could have been made worse as evidence indicate electronic fiscal devices (EFDs) deployed to improve value-added tax (VAT) collection and compliance in some African countries has encountered substantial challenges such as significant levels of non-compliance among VAT-payers and potential VAT-payers, inability of Government to employ ICT in identifying VAT-payers and potential VAT-payers (Eilu, 2018), and poor database and
tax touting are some of the issues impeding compliance by individuals and corporate entities (Chartered Institute of Taxation of Nigeria (CITN), 2021).

Tax digitalisation, according to KPMG (2023), has remained an enormous debate since it means different things to many people. Nevertheless, from any angle, digitization has been changing all aspects of taxation for some time; from revenue tax collection and compliance down to the tax base itself. The European Union (EU) (2021) had adopted new rules (7th version or the 6th amendment) to the European Council Directive on Administrative Cooperation and Automatic Exchange of Information in the Field of Taxation (DAC7) under which, from 2023 onwards, member states' tax authorities will automatically exchange information on income earned by sellers on digital platforms. More so, a report by Binder (UK), Dijker (Netherlands) and Otte (Germany) (BDO Global) (2023), claimed that in 2021, 137 out of the 141 countries in the OECD/G20 Inclusive Framework on Base Erosion and Profit Shifting (IF) reached a landmark agreement on a two-pillar solution to reform the international tax framework in response to the challenges relating to taxation of the digital economy; although, not all countries have reached agreement on the implementation of digital taxation (KPMG, 2023).

In light of these discussions, extant studies have examined the effect of tax digitalisation, revenue tax compliance, and tax revenue (Eilu, 2018; Felix, & Cyrus, 2020; Klaus & Holger, 2019; Shagari et al., 2017; Zayol & Gberindyer, 2018). Felix and Cyrus (2020) empirically examined electronic cargo tracking system and its effects on revenue realization; Zayol and Gberindyer (2018), worked on information communication technology (ICT) on tax and revenue collection. Eilu (2018) on adoption of electronic fiscal devices (EFDs) for Value-Added Tax (VAT) collection. While Klaus and Holger (2019) studied innovation, automation, and inequality in the race against the machine. These studies found a link between the predictor variables and outcome variables. However, majority of these works were conducted in developed countries while some were qualitative studies. Also, scholarly review revealed a dearth in academic literature as regards the influence of tax digitalisation on compliance as identified by Tijani and Ilugbemi (2015), Suparna and Aghnia (2020), Olurankinse and Oladeji (2018). The researchers' recommended for these identified gaps to be filled and this paper will be filling these gaps within the Internal Revenue Service sector. Consequently, the need to determine the effect of tax digitalisation on revenue tax compliance of Internal Revenue Service in Abuja, Nigeria becomes necessary. The formulated hypothesis for this paper is stated as:

H: Tax digitalisation dimensions have no significant effect on revenue tax compliance of Internal Revenue Service in Abuja, Nigeria.

**Literature Review**

**Revenue Tax Compliance**

It is imperative to understand compliance before conceptualizing revenue tax compliance hence, while on the one hand, Sadress and Juma (2020) defined compliance as
the individual or business decision to comply with the laws in a given country; Suparna and Aghnia (2020) referred to compliance as generally associated with people's readiness to behave according to the regulations and administration without having to wait for law enforcement activities. On the other hand, John-Akamelu and Iyidiobi (2019) defined revenue tax compliance as an accurate and timely reporting of tax obligations in line with the tax laws in effect when tax returns are filed. The definition suggests that a person must disclose the correct amount of income, deduct the correct amount from the allowable expenses, and then pay the correct amount of tax by the deadline to comply with the law (Smith, 2018). Mukuwa and Phiri (2020) added that tax compliance connotes paying taxes on time and timely reporting of correct tax information; hence tax compliance means seeking to pay the right amount of tax in the right place at the right time.

Further, tax compliance represents the degree to which a taxpayer complies with the prevailing tax rules and regulations (Hayat et al., 2022; Youde & Lim, 2019). Taxpayers' compliance with the tax rules and procedures is vital for the progress of a nation and the government's effort to provide social support to the poor of the country (Musimenta, 2020). Ghani et al. (2020) stressed that more so, the tax revenue system helps generate financial resources to develop the economic conditions and redistribute the resources from the rich to the poor. Other scholars (Yu, 2023; Umar et al., 2019) claimed that tax compliance is a long-standing goal for the government to raise tax revenues, which is also an important factor in determining the government's capacity. As such, tax compliance is a deterrence based on tax awareness, tax penalties, tax audits, and tax rates hence, paying tax liabilities based on deterrence outperforms avoiding tax audits, penalties, or compliance due to fear (Noor Azmi et al., 2020; Oladele, 2021).

**Tax Digitalisation**

Tax digitalization or digitization of tax is an enormous concept that means different things to many people; but from any angle, digitization has been changing all aspects of taxation for some time (KPMG, 2023). Ajala and Adegbie (2020) referred to tax digitalization as a process through which governments use information communication and technologies to obtain more accurate and timely information on taxpayer operations. Harrison and Nahashon (2015) inferred that tax digitalisation is a process where tax documents or tax returns are submitted through the internet, usually without the need to submit any paper return; it encompasses the use of internet technology.

Tax digitalisation has become necessary for the proper creation and dissemination of information between taxpayers and the government (Irefe-Esema & Akinmade, 2020). The main goal of these digitalisation policies is to improve tax revenue collection by taking advantage of the increasing rate of ICT penetration in the region (Zayol & Gberindyer, 2018). As a result, the implementation of tax digitalisation is advantageous to the efficiency and effectiveness of revenue tax collection system (Awai & Oboh, 2020). In contrast, digitization of tax administration is a difficult task that requires radical changes in the way it is organized and delivered to its intended users (Okundaye et al., 2019). Digital technology is a powerful tool of management, but tax administration's encounter
with this mode of work has often proved to be complex, sometimes unsuccessful (Adeyeye, 2019). The problem is that tax administration, like any other sector, often wants to create its own electronic management and information system, and a lot of money, effort and technology is spent (Karxhner & Somare, 2017). Thus, this paper investigated tax digitalisation through the lenses of electronic audit, electronic tax filing, online payment system and electronic reporting as discussed briefly.

**Electronic Audit**

Electronic audit (E-Audit) is a technology based autonomous assessment of records, tax returns, tax installments and different records of a taxpayer to affirm compliance with tax laws, rules and regulations and precision of tax paid and adhering to relevant accounting standards and norms. Similarly, Damerji (2020) indicated that electronic audit can be regarded as a technological process or system of examination of an individual or organisation's tax report by the relevant tax authorities in order to ascertain compliance with applicable tax laws and regulations of state. This is aided by some form of computer software that allows for an easy process delineated of human computations. Schultz and Tropmann-Frick (2020) aligned further that tax audit that are programmed in a computer software tries to confirm the numbers that have been put on an individual or organisation's tax return.

**Electronic Tax Filing**

Electronic tax filing is the process of submitting tax returns and related documents to tax authorities using electronic means, typically over the Internet (Cornelli et al., 2020). Electronic tax filing allows taxpayers to digitally complete and transmit their tax forms, calculations, and supporting documentation for the purpose of compliance with tax regulations and the assessment of tax liability (Ammirato et al. 2020). Electronic tax filing (ETF) is the process of filing tax returns electronically, through the internet or other electronic means, rather than on paper (Apeti & Edoh 2023). ETF is becoming increasingly popular because it is more convenient, efficient, and accurate than traditional paper filing (Bokhari & Myeong 2022). Electronic filing (e-filing) is the process of submitting your individual income tax return to the IRS using electronic means (Chun-Liang et al. 2021).

**Online Payment System**

An online payment system is a software application that allows merchants to accept payments from customers over the internet (Adeyemi & Adeduro 2020). It is also a computerized system that allows users to make and receive payments online (Peek, 2020). Additionally, an online payment system allows users to make payments over the internet (Cornelli et al., 2020). William et al. (2019) and Adegboyo et al. (2021) opined that it is a method of payment that allows users to make payments over the internet. More so, online payment systems typically use a secure digital connection to transfer funds between buyers and sellers (Shahzad et al., 2021) and makes financial transactions electronically through the internet (Owolabi et al., 2020; Zayol & Gberindyer, 2018).
Electronic Reporting

Electronic reporting refers to bringing users relevant useful information in a timely way, without the users having to seek out the information for themselves (Syed et al., 2017). To Gotthardt et al. (2020), electronic reporting is the process through which reports are automatically refreshed on a regular basis. Once designed, electronic reporting brings users exactly what they need in a relevant and timely way, thus, removing the need for users to go looking for the information, or for a single reports guy (Rotich & David, 2018). Thus, Tahar et al. (2020) added that electronic reporting involves management tool used to create and share organisational reports at a specific time interval without the need to update the information each time.

Tax Digitalisation Dimensions and Revenue Tax Compliance

Previous studies have been conducted on tax digitalisation and revenue tax compliance with divergent results. Etim et al. (2020) examined the effect of the digitalisation of the economy on revenue tax compliance in Nigeria. The finding suggested that the digitalisation of the economy had a negative effect on revenue tax compliance in Nigeria due to the lack of modern technology in curbing tax evasion as well as the absence of a legal framework to checkmate non-compliance, especially the NRCs. In addition, Komolafe and Chukwuani (2020) revealed that the enactment of the Nigeria Finance Act 2020 does not only address the controversy surrounding taxing the digital economy in the nation, but a paradigm shift for a new regime. This has become necessary to address the loopholes in digital assessment through yearly amendments to the Finance Act to meet emerging challenges therefrom. Similarly, Hanindyari (2018) reported that electronic reporting had a significant effect on compliance. The finding indicated further that the impact on taxpayer awareness and quality of e-tax services are closely related to e-filing taxpayer applications and revenue tax compliance. Also, Harrison and Nahashon (2015) focused on small taxpayers and revealed that online tax system does affect revenue tax compliance level.

The study of Irefe-Esema and Akinmade (2020) revealed that automation significantly increased tax registration and payment compliance. Similarly, Awai and Oboh (2020) showed that electronic tax dimension process together with the appropriate implementation of technology as tax administration approach can result in changes in Nigeria tax-to-GDP ratio, voluntary revenue tax compliance and collection, data storage of taxpayer information, revenue generation system, and ease of paying Taxes. Further, Guillermo et al. (2013) in their study demonstrated that the use of information technology for tax administration results in reduction in administration and compliance costs. In the same vein, Sadress and Juma (2020) revealed that there is a positive significant relationship between attitude towards electronic tax system and revenue tax compliance. Further, results indicated that there is a positive significant relationship between adoption of the e-tax system and revenue tax compliance. The relationship between attitude and revenue tax compliance is partially mediated by the adoption of an e-tax system.
Additionally, Syed et al. (2017) indicated that perceived ease of use and perceived usefulness have a positive impact on user satisfaction and higher user satisfaction is linked to higher intentions of adopting online tax filing and compliance. Likewise, Tahar et al. (2020) demonstrated that perceived ease-of-use and perceived security had a positive effect on the use of e-Filing, while perceived usefulness has no effect on the use of e-Filing. In addition, readiness of information technology did not mediate the relationships among the perceived ease-of-use, perceived usefulness, and perceived security on the use of e-Filing. Further, the study of Suparna and Aghnia (2020) showed that the attitude about the electronic tax system affects the revenue tax compliance of MSMEs. Also, adoption of the electronic tax system affects the revenue tax compliance.

On the contrary, Bari et al. (2022) demonstrated that although ICT readiness reports a positive association with tax revenue, it is not statistically significant, and ICT usage is a major tax revenue mobilization enhancer. In addition, the authors stated that ICT use increases direct tax revenues through personal income tax and indirect tax revenues through VAT, and that the pass-through effect is evident through three channels: corruption control, government effectiveness, and revenue tax compliance. Also, Etim et al. (2020) suggested that revenue tax compliance is negatively influenced when economy is digitalized. The study revealed that digitalisation of economy had negative effect on revenue tax compliance in Nigeria as a result of issues surrounding its introduction and application. Similarly, Nkote and Luwugge (2019) revealed that automation was negatively and significantly related with tax clearance time.

In congruence with the findings of Bari et al. (2022), Etim et al (2020), and Nkote and Luwugge (2019), the studies of Richard and Eric (2008) showed that advances in technology clearly changed the tax environment in developing countries by changing the underlying economy. Further, the study of Irefe-Esena and Akinmade (2020) revealed that filing and reporting compliance showed no positive response as, though participants confirmed the presence of e-filing but displayed much displeasure with the platform describing it as poor, horrible, and not pleasant as it has hindered e-filing as the preferences for taxpayers. Also, Tahar et al. (2020) demonstrated that perceived usefulness has no effect on the use of e-Filing. In addition, readiness of information technology did not mediate the relationships among the perceived ease-of-use, perceived usefulness, and perceived security on the use of e-Filing.

Theoretical framework
This study will be anchored on the Technology Acceptance Model (TAM) developed by Davis (1989). Wang et al. (2023) theorized that, TAM is a significant research model of information systems and information technology acceptance for predicting persons' desire to use and accept information systems and technology. There are two factors in the Technology Acceptance Model, including perceived ease of use and perceived usefulness. Perceived usefulness is the extent to which a person believes that utilizing a specific information system or information technology would improve his or her job or life performance. Perceived ease of use is the degree to which an individual believes that
utilizing a specific information system or information technology would be effortless. Perceived ease of use and perceived usefulness have a favourable influence on attitudes about an information system, as well as on individuals' intents to use and acceptance of the system (Mishra et al., 2023).

Additionally, perceived ease of use influences perceived utility in a favourable manner, and both perceived ease of use and perceived usefulness are influenced by external variables. The following are the proposed technology acceptance model measurement items. Typically, perceived ease of use is measured using at least three items; name of information system or information technology is easy for me to use. Typically, perceived usefulness is measured with at least three items; using name of information system or information technology would increase my effectiveness for work, study, life tasks. Typically, at least three items were used to measure an individual's attitude; an example item: It is prudent to utilize name of information system or information technology. Typically, behavioural intention is measured with at least three items; aim to use name of information system or information technology as often as necessary. Consequently, the significance of electronic audit [EA] ($x_1$), electronic tax filing [ETF] ($x_2$), online payment system [OPS] ($x_3$), and Electronic Reporting [ER] ($x_4$), as dimensions of tax digitalisation [TD] ($X$) on revenue tax compliance [RTC] ($Y$) in Federal Inland Revenue Service (FIRS), Abuja, Nigeria cannot be exaggerated. This phenomenon is thus expressed mathematically as: $RTC = \beta_0 + \beta_{EA}x_1 + \beta_{ETF}x_2 + \beta_{OPS}x_3 + \beta_{ER}x_4 + \mu_i$

Research Methodology
The study applied the cross-sectional survey research design to broaden the understanding of a specific population at a particular time and determine behavioral patterns (Zikmund et al., 2012). The selection of the survey design is consistent with the works of Akyuz et al. (2019) on impact of bank verification number on corrupt business practices in United Bank for Africa in Abuja. Also, Apriyantopo and Aprianingsih (2020) worked on information communication and technology (ICT) adoption in Asian countries: An empirical evidence of economic and socio-cultural factors. Likewise, Odukwu et al. (2023) studied tax compliance and economic growth of Nigeria: The moderating effect of tax morale. While, Sadress and Juma (2020) worked on, the mediating role of adoption of an electronic tax system in the relationship between attitude towards electronic tax system and revenue tax compliance. The study population was 10,342 employees of the Federal Inland Revenue Service (FIRS) in Abuja, Nigeria Abuja has been selected because it is the headquarters of the Federal Inland Revenue Services where innovations are decided, approved, and authorised. Abuja is also the Federal Capital Territory of Nigeria. The paper applied the Cochran's sample size formula (1977) at 95 percent confidence level and 5percent margin error. Consequently, a sample size of seven hundred and thirty-seven (737) which included an additional 30% sample size to reduce the number of either unreturned data or missing data (Zikmund et al., 2015), constituted the sample size.
The paper adopted the simple random sampling technique, while a well-structured questionnaire was used as the research instrument with items adapted. The questionnaire was administered in person. A pilot test was conducted on the questionnaire along with validity and reliability test to confirm the instrument could measure what it was projected to measure in the paper taking into reflection how well the concept was defined by the measure(s). A result of 0.7 and higher was achieved in the pilot test. Likewise, based on the result of the outcome from the pilot study, the factor analysis was applied to eliminate question items that either reduced the suitability of the data (Kaiser-Meyer-Olkin [KMO]) and or strength of the association among the variables (Bartlett test). Also, the content, criterion, and construct validity were established to verify the validity of the instrument. The validated reliability result through Cronbach's alpha coefficients from the internal consistency test showed; Revenue Tax Compliance (α) = 0.898 and Tax Digitalisation Dimensions ranged 0.802 - 0.907. Primary data sourced from the sampled Federal Inland Revenue Service (FIRS) were used in this paper while the multiple regression analysis was applied to study the effect through Statistical Package for Service Solutions SPSS 27.0. Accordingly, the multiple regression equation was established based on the dimensions of tax digitalisation. Therefore, the model was formulated regarding the research objective:

\[ Y = f(X)^* \text{ that is:} \]
\[ Y = f(x_1, x_2, x_3) \]
\[ Y = \alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_i x_i + \mu_i \] ………………………………………………………….. eq. 1

Where:  
Y = Revenue Tax Compliance (RTC)  
X = Tax Digitalisation Dimensions (TDD)

Where:
\[ x_1 = \text{Electronic Audit (EA)} \]  
\[ x_2 = \text{Electronic Tax Filing (ETF)} \]  
\[ x_3 = \text{Online Payment System (OPS)} \]  
\[ x_i = \text{Electronic Reporting (ER)} \]

The functional relationship of the model is presented as:

\[ \sum (EA + ETF + OPS + ER) = \text{TDD} \]

Hence:
\[ \text{TDD} = a_0 + \beta_1 EA + \beta_2 ETF + \beta_3 OPS + \beta_i ER + \mu_i \] …………………………………………………………..equ. 2

Where:
\[ \beta_0 = \text{Constant term} \]
\[ \beta_1 = \text{Coefficient of electronic audit} \]
\[ \beta_2 = \text{Coefficient of electronic tax filing} \]
\[ \beta_3 = \text{Coefficient of online payment system} \]
\( \beta_i \) = Coefficient of electronic reporting
\( \mu \) = Error term (Stochastic variable).

Using the multiple regression statistical analysis, the hypothesis was tested at a 95% confidence interval. The study expects that a positive and significant effect will be observed from tax digitalisation dimensions on revenue tax compliance. The study adhered strictly to ethics of research regarding anonymity, respect for human dignity, confidentiality, and non-falsification of data, non-data manipulation was applied in the data collection and collation process. Similarly, materials gotten from the studies of other scholars were duly acknowledged.

**Results**
To investigate whether tax digitalisation dimensions have no significant effect on revenue tax compliance of Federal Inland Revenue Service (FIRS), Abuja, Nigeria, the researchers applied multiple regression analysis. The independent variable used in the study was tax digitalisation dimensions, while the dependent variable was revenue tax compliance. The results of the analysis and parameter estimates obtained were presented in Table 1.

**Table 1:** Summary of Multiple Regression Analysis for effect of tax digitalisation dimensions on revenue tax compliance of Federal Inland Revenue Service, Abuja, Nigeria

<table>
<thead>
<tr>
<th>N</th>
<th>Model</th>
<th>B</th>
<th>T</th>
<th>Sig.</th>
<th>ANOVA (Sig.)</th>
<th>R</th>
<th>Adjusted R²</th>
<th>F (4, 598)</th>
</tr>
</thead>
<tbody>
<tr>
<td>603</td>
<td>(Constant)</td>
<td>4.129</td>
<td>8.272</td>
<td>0.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Electronic Audit</td>
<td>0.069</td>
<td>2.137</td>
<td>0.033</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Electronic Tax Filing</td>
<td>0.193</td>
<td>5.713</td>
<td>0.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Online Payment System</td>
<td>0.273</td>
<td>7.293</td>
<td>0.000</td>
<td>0.001b</td>
<td>0.857a</td>
<td>0.733</td>
<td>415.220</td>
</tr>
<tr>
<td></td>
<td>Electronic Reporting</td>
<td>0.288</td>
<td>7.998</td>
<td>0.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*a. Dependent Variable: Revenue Tax Compliance
*b. Predictors: (Constant), Electronic Reporting, Electronic Audit, Electronic Tax Filing, Online Payment System

**Source:** Researcher’s Field Survey, 2024
*See appendix 1 for the multiple regression analysis output*

**Interpretation**
Table 1 showed the multiple regression analysis results for the effect of tax digitalisation on revenue tax compliance of FIRs, Abuja, Nigeria. The results showed that electronic audit (\( \beta = 0.069, t = 2.137, p<0.05 \)), electronic tax filing (\( \beta = 0.193, t = 5.713, p<0.05 \)), online payment system (\( \beta = 0.273, t = 7.293, p<0.05 \)) and electronic reporting (\( \beta = 0.288, t = 7.998, \)
all have positive and significant effects on revenue tax compliance of FIRs in Abuja Nigeria. The results of the analysis revealed that all dimensions of tax digitalisation (electronic reporting, electronic audit, electronic tax filing and online payment system) have significant effect on revenue tax compliance of FIRs in Abuja Nigeria. This implies that, electronic reporting, electronic audit, electronic tax filing, and online payment system are important predictors of revenue tax compliance of Federal Inland Revenue Service in Abuja Nigeria. It also revealed that out of the dimensions, electronic reporting was the best predictor on revenue tax compliance.

The correlation $R$ value of 0.857 supports this result and it indicated that tax digitalisation has a strong and positive effect on the revenue tax compliance of FIRs in Abuja Nigeria. The coefficient of multiple determination $Adj. R^2 = 0.733$ indicates that 73.3% variance in revenue tax compliance of FIRs in Abuja Nigeria can be accounted for by the proxies of tax digitalisation while the remaining 26.7% changes that occurs is accounted for by other variables not captured in the model. The predictive and prescriptive multiple regression models are thus expressed:

\[
RTCO= 4.129 + 0.069EA+0.193ETF+0.273OPS+0.188ER + U\quad----Eqn i\quad(Predictive Model)
\]

\[
RTCO= 4.129 +0.069EA+0.193ETF+0.273OPS+0.188ER + U_i \quad----Eqn i\quad(Prescriptive Model)
\]

Where:
- $RTCO =$ Revenue Tax Compliance
- $EA =$ Electronic Audit
- $ETF =$ Electronic Tax Filling
- $OPS =$ Online Payment system
- $ER =$ Electronic Reporting

The regression model indicated that if tax digitalization dimensions were held constant at zero, revenue tax compliance of FIRs in Abuja Nigeria would be 4.129 indicating a positive trend. From the predictive model, all the four dimensions of the tax digitalisation (electronic audit, electronic tax filing, online payment system and electronic reporting) have significant effect on the revenue tax compliance of the FIRs in Abuja Nigeria and contributed significantly to the prediction. From the prescriptive model, it is observed that statistically when tax digitalisation, particularly online payment system, electronic reporting and electronic tax filing dimensions of tax digitalisation are improved by one unit, revenue tax compliance would also increase by 0.069, 0.139, 0.273, and 0.188 units respectively. The results suggested that tax digitalisation, electronic audit, online payment system, electronic reporting and electronic tax filing play a significant role in determining revenue tax compliance. Therefore, FIRs should prioritize implementing electronic audit, online payment system, electronic reporting, and electronic tax filing of their tax system to enhance their revenue tax compliance.
Further, the $F$-statistics ($df = 4, 598) = 415.220 at $p<0.05$) indicated that the overall model is statistically significant for predicting the effect of tax digitalisation on revenue tax compliance. This implies that the regression model is a good fit for forecasting the effect of tax digitalisation (FIRS) on revenue tax compliance of (FIRS) in Abuja Nigeria. This means that the variables included in the model (electronic audit, electronic tax filing, online payment system, and electronic reporting) are all significant in explaining the variability in revenue tax compliance with electronic reporting as the best predictor on revenue tax compliance. Therefore, the model can be used to make accurate predictions about the effect of changes in these variables on revenue tax compliance. This information could be useful for decision-makers in the Tax regulatory board, as it provides insights on which tax digitalisation to prioritize to enhance their revenue tax compliance. Therefore, the null hypothesis one ($H_0$) which states that Tax digitalisation dimensions have no significant effect on revenue tax compliance is rejected.

**Discussion of Findings**

The overall result of the hypothesis showed that tax digitalisation dimensions have a positive and significant effect on revenue tax compliance of Federal Inland Revenue Service (FIRS) in Abuja Nigeria. Moreover, all tax digitalisation dimensions (electronic audit, electronic tax filing, online payment system, and electronic reporting) were positive and significant on revenue tax compliance with electronic reporting as the best individual predictor on revenue tax compliance. This study results supports the conceptual position of KPMG (2023) that the digitization of tax has remained an enormous debate since it means different things to many people. Nevertheless, from any angle, digitization has been changing all aspects of taxation for some time; from revenue tax collection and compliance down to the tax base itself. According to Ajala and Adegbie (2020) and Bassongui and Houngbédji (2023) tax digitalization enables governments to use information communication and technologies to obtain more accurate and timely information on taxpayer operations.

In addition, this new tool of tax systems e-governance improves service delivery by reducing the time and cost of tax declarations to citizens and compliance (Bassongui & Houngbédji, 2023). Also, Hanrahan (2021) opined that while on the one hand, tax digitization is broadly acknowledged that it could also have a positive link with tax revenues through direct and indirect channels. On the other hand, digitalization improves the performance of tax authorities through better software, online tax return filing, and better record keeping, improving both compliance on the part of taxpayers and more efficient tax collection (IMF 2018). This role can indirectly improve revenue-raising capabilities of government as digitalization is associated with economic growth, productivity, inward foreign direct investment, and international trade (Csonto et al., 2019; Hadzhieva, 2019; Hanrahan, 2021). Okafor (2023) stressed that the expansion of the digital economy in most African countries has raised concerns on the ability and preparedness of tax regimes in these countries to address the new and fundamental phenomenon. The movement from the conventional bricks and mortar commercial setting to an economy that is electronically and informational driven presents substantial
and daunting challenges for governments and their tax authorities (Bunn et al., 2020; Kelbesa, 2020; Mpotú & Tankiso, 2022; Rukundo, 2020). Nevertheless, in line with this study’s results Awai and Oboh (2020) claimed that the implementation of tax digitalisation is advantageous to the efficiency and effectiveness of revenue tax collection system and compliance.

Empirically, the result from this study corroborates the work of Etim et al. (2020) who found that there is a significant effect of the digitalisation of the economy on revenue tax compliance in Nigeria. Although, in the work of Etim et al. (2020) the digitalisation of the economy had a negative effect on revenue tax compliance in Nigeria due to the lack of modern technology in curbing tax evasion as well as the absence of a legal framework to checkmate non-compliance. In addition, Komolafe and Chukwuani (2020) revealed that the enactment of the Nigeria Finance Act 2020 does not only address the controversy surrounding taxing the digital economy in the nation, but a paradigm shift for a new regime. This has become necessary to address the loopholes in digital assessment through yearly amendments to the Finance Act to meet emerging challenges therefrom. Similarly, Hanindyari (2018) reported that electronic reporting had a significant effect on compliance. Also, Harrison and Nahashon (2015) focused on small taxpayers and revealed that online tax system does affect revenue tax compliance level.

Moreover, the study of Irefe-Esema and Akinmade (2020) revealed that automation significantly increased tax registration and payment compliance. Likewise, Awai and Oboh (2020) found that electronic tax dimension process together with the appropriate implementation of technology as tax administration approach can result in changes in Nigeria tax-to-GDP ratio, voluntary revenue tax compliance and collection, data storage of taxpayer information, revenue generation system, and ease of paying Taxes. In the same vein, Sadress and Juma (2020) found that there is a positive significant relationship between attitude towards electronic tax system and revenue tax compliance. Further, results indicated that there is a positive significant relationship between adoption of the e-tax system and revenue tax compliance. Likewise, Tahar et al. (2020) demonstrated that perceived ease-of-use and perceived security had a positive effect on the use of e-Filing, while perceived usefulness has no effect on the use of e-Filing. Further, the study of Suparna and Aghnia (2020) also found that the attitude about the electronic tax system affects the revenue tax compliance. Also, adoption of the electronic tax system affects the revenue tax compliance.

On the contrary, Bari et al. (2022) demonstrated that although ICT readiness reports a positive association with tax revenue, it is not statistically significant, and ICT usage is a major tax revenue mobilization enhancer. In addition, the authors stated that ICT use increases direct tax revenues through personal income tax and indirect tax revenues through VAT, and that the pass-through effect is evident through three channels: corruption control, government effectiveness, and revenue tax compliance. Similarly, Nkote and Luwugge (2019) found that automation was negatively and significantly related with tax clearance time. In congruence with the findings of Bari et al. (2022) and
Nkote and Luwugge (2019), an earlier study by Richard and Eric (2008) revealed that advances in technology clearly changed the tax environment in developing countries by changing the underlying economy.

Further, the study of Irefe-Esema and Akinmade (2020) revealed that filing and reporting compliance showed no positive response as, though participants confirmed the presence of e-filling but displayed much displeasure with the platform describing it as poor, horrible, and not pleasant as it has hindered e-filing as the preferences for taxpayers. Also, Tahar et al. (2020) demonstrated that perceived usefulness has no effect on the use of e-Filing. In addition, readiness of information technology did not mediate the relationships among the perceived ease-of-use, perceived usefulness, and perceived security on the use of e-Filing. Interestingly, the divergent results in previous works as against this present study could be related to industry-specifics, geographical location, scope, and methodology applied. Thus, studies on tax digitalisation and compliance have shown diverse results (Etim et al., 2020; Nkote & Luwugge, 2019; Suparna & Aghnia, 2020; Syed et al., 2017; Tahar et al., 2020).

Interesting the fact that this study results found electronic reporting as the best individual predictor on revenue tax compliance supports the position of Gotthardt et al. (2020) that electronic reporting automatically refreshes on a regular basis, brings users exactly what they need in a relevant and timely way (Rotich & David, 2018), and create and share organisational reports at a specific time interval without the need to update the information each time (Tahar et al., 2020). As such, electronic reporting tells the user what has happened and how different areas of a business are performing (Adegbite et al., 2019) and saves a considerable amount of time for the user as against the manual data wrangling processes (McCluskey & Huang, 2018). However, on the contrary, automation technologies/electronic reporting raise productivity but disrupt labor markets, displacing workers and lowering their earnings (Acemoglu & Restrepo, 2022; Humlum, 2019).

Theoretically, the results support the Technology Acceptance Model (TAM) by Davis (1989). Wang et al. (2023) theorized that, TAM is a significant research model of information systems and information technology acceptance for predicting persons' desire to use and accept information systems and technology. In support of this theory, Nawawi and Salin (2018) indicated that voluntary revenue tax compliance will be achieved if Taxpayers possess positive behavior to the tax refund reporting and payment of tax payable. The behavior of Taxpayer to self-assessment should be promoted to achieve the improved level of revenue tax compliance (Nawawi & Salin, 2018). According to Khaddafi et al. (2018), the implementation of electronic tax system will rely on the perception of ease of use of system tax, intensity behavior and user satisfaction. This implies that Taxpayers should be pleased and motivated to use electronic tax system, however the tax system must also be easy to use.
In summary, the researchers findings strengthens the positions of previous scholars (Khaddafi et al., 2018; Nawawi & Salin, 2018; Syed et al., 2017; Wang et al., 2023) and the Technology Acceptance Model (TAM) by Davis (1989) that though digitalisation of taxes could affect compliance rates but perceived ease of use and perceived usefulness of digitalisation systems have a positive impact on user satisfaction as, higher user satisfaction is linked to higher intentions of adopting online tax filing and compliance. Consequently, on the premise of the overall multiple regression results, the the null hypothesis (H$_0$) which states that tax digitalisation dimensions have no significant effect on revenue tax compliance of FIRS in Abuja Nigeria is rejected.

**Conclusion**

From the empirical findings of this study, the researcher concluded that that tax digitalisation dimensions (electronic audit, electronic tax filing, online payment systems, and electronic reporting) had positive and significant effect on revenue tax compliance in Federal Inland Revenue Service (FIRS), Abuja, Nigeria. This study recommends that management of First Inland Revenue Service (FIRS) should encourage submitting tax returns online, accept payment online, and electronic reporting sharing of up-to-date information to improve revenue tax compliance. More electronic reporting could enhance revenue tax compliance. As such to improve tax compliance there is the need to ensure that there is synergy between perceived ease of use and usefulness of the digitalisation system by taxpayers.

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References


Rotich, B., & David, K. (2018). *Information communication technology considerations and revenue collection in Nairobi City County, Kenya* (Masters Dissertation) to Business Administration (Management Information Systems), Kenyatta University


Zayol, P. I., & Gberindyer, A. C. (2018). Firm characteristics and corporate environmental disclosure by less-sensitive listed companies in Nigeria. *Ae-Funai Journal of Accounting Business and Finance (FJABAF), 8*(1), 14-34.
Appendix I

**Model Summary**

<table>
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<th>Model</th>
<th>R</th>
<th>Adj. R Square</th>
<th>Std. Error of Estimate</th>
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<tr>
<td>1</td>
<td>.857*</td>
<td>.735</td>
<td>.733</td>
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</table>

a. Predictors: (Constant), Electronic Reporting, Electronic Audit, Electronic Tax Filing, Online Payment System

**ANOVA**

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<tr>
<th>Model</th>
<th>Sum of Squares</th>
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<th>Mean Square</th>
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<th>Sig.</th>
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<tr>
<td>Regression</td>
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<td>4</td>
<td>1533.988</td>
<td>425.220</td>
<td>.000*</td>
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<tr>
<td>Residual</td>
<td>2212.132</td>
<td>598</td>
<td>3.699</td>
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<tr>
<td>Total</td>
<td>8356.083</td>
<td>602</td>
<td></td>
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</table>

a. Dependent Variable: Revenue Tax Compliance

b. Predictors: (Constant), Electronic Reporting, Electronic Audit, Electronic Tax Filing, Online Payment System

**Coefficients**

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<th>Model</th>
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<th>Standardized Coefficients</th>
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<th>Sig.</th>
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<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
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<tr>
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<td>(Constant)</td>
<td>4.129</td>
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<td>8.272</td>
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<td></td>
<td>Electronic Audit</td>
<td>.069</td>
<td>.032</td>
<td>.068</td>
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<td></td>
<td>Electronic Tax Filing</td>
<td>.193</td>
<td>.034</td>
<td>.235</td>
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<tr>
<td></td>
<td>Online Payment System</td>
<td>.273</td>
<td>.037</td>
<td>.311</td>
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<tr>
<td></td>
<td>Electronic Reporting</td>
<td>.288</td>
<td>.036</td>
<td>.316</td>
</tr>
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a. Dependent Variable: Revenue Tax Compliance

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