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# Effect of Electronic Filing on Revenue Generation and Tax Evasion in Nigeria

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**ABSTRACT:** The adoption of digital tax systems has become central to modern fiscal administration, particularly in emerging economies seeking to enhance transparency and revenue mobilization. This study examined the effects of e-filing system adoption on tax revenue from Company Income Tax (CIT), Value Added Tax (VAT), and Petroleum Profit Tax (PPT) in Nigeria over the period 2013–2024. Employing the Autoregressive Distributed Lag (ARDL) model with the Pooled Mean Group (PMG) estimator, the study analyzed the long-run relationships between tax revenues and e-filing adoption. The findings revealed that e-filing had a positive and statistically significant effect on VAT revenue, demonstrating that digital tax platforms improved efficiency in VAT collection and broadened the tax base. Similarly, PPT revenue recorded a positive and statistically significant impact, though at the 10% level, suggesting moderate but growing effectiveness of e-filing in petroleum tax administration. However, e-filing exerted an insignificant effect on CIT revenue, highlighting persistent structural challenges, taxpayer resistance, and compliance loopholes within the corporate tax framework. The study concluded that while e-filing has enhanced VAT and PPT revenues, its effectiveness in improving CIT collection remains limited. It was recommended that policymakers strengthen enforcement mechanisms for corporate tax compliance, address structural bottlenecks, and invest in continuous taxpayer education to enhance the efficiency and credibility of the e-filing system.

**KEYWORDS:** e-filing, tax revenue, Company Income Tax, Value Added Tax, Petroleum Profit Tax, Nigeria.

## 1. INTRODUCTION

Tax revenue is a critical source of government income, essential for funding public services, infrastructure, and economic development. In developing countries like Nigeria, tax collection plays a significant role in reducing fiscal dependency on oil revenues, addressing economic inequalities, and promoting financial stability. However, the Nigerian tax system has long been plagued by inefficiencies, low compliance rates, and widespread tax evasion, which undermine the country's revenue generation potential. Recognizing the need for reform, the Federal Inland Revenue Service (FIRS) introduced electronic filing (e-filing) in 2015 to streamline tax administration and enhance revenue collection.

E-filing refers to the online submission of tax returns by taxpayers using an electronic system. It replaces manual processes characterized by delays, errors, and high administrative costs. Globally, e-filing has gained traction as a tool for improving tax compliance, enhancing transparency, and reducing administrative burdens. In developed countries, e-filing has been widely adopted, leading to significant improvements in revenue collection and taxpayer satisfaction (OECD, 2023). Developing nations, including Nigeria, have sought to replicate these successes by implementing similar systems to modernize their tax administration.

The introduction of e-filing in Nigeria was part of broader reforms aimed at digitizing the tax administration process. The e-filing system allows taxpayers to register, file returns, and pay taxes online, thereby reducing the need for physical interaction with tax officials. According to Adedeji et al. (2022), the system offers several benefits, including faster processing of tax returns, improved record-keeping, and enhanced compliance monitoring. By minimizing human intervention, e-filing also reduces opportunities for corruption and administrative inefficiencies, which have been major challenges in Nigeria's tax administration (Ajagun, Jinadu, and Gabriel. 2024).

Given the limited empirical evidence on the effectiveness of e-filing in Nigeria, this study seeks to evaluate its impact on revenue generation and tax evasion. By examining the pre and post e-filing periods for CIT, VAT, and PPT, the study aims to provide insights into the system's strengths and weaknesses. The findings will inform policy recommendations for improving the e-filing system and optimizing its potential to enhance revenue collection in Nigeria.

### 1.2 Statement of the Problem

The implementation of electronic filing (e-filing) in Nigeria was expected to revolutionize tax administration by addressing inefficiencies, improving compliance, and boosting revenue generation. However, an analysis of the pre- and post-e-filing periods reveals persistent challenges

in achieving these objectives. These issues warrant critical examination, particularly regarding the effects on revenue from Company Income Tax (CIT), Value Added Tax (VAT), and Petroleum Profit Tax (PPT). Before the introduction of e-filing in 2015, Nigeria's tax administration system was plagued by inefficiencies, including delays in tax processing, loss of documents, and lack of transparency (Adedeji et al., 2022). These shortcomings created opportunities for tax evasion and limited the government's ability to maximize revenue. For instance, CIT and VAT revenues often fell short of their potential due to inadequate record-keeping and weak enforcement mechanisms (Onyeka & Adeyemi, 2023). The manual system also imposed significant compliance costs on taxpayers, discouraging voluntary compliance and further reducing revenue generation.

The post-e-filing period brought significant changes, with the Federal Inland Revenue Service (FIRS) adopting digital solutions to streamline tax administration. The system was expected to simplify tax filing, improve data accuracy, and enhance transparency in revenue collection (Fashina et al., 2023). However, the extent to which these objectives have been achieved remains unclear. While VAT revenue has shown some improvement in the post-e-filing era, studies suggest that challenges such as limited taxpayer adoption and uneven technological infrastructure have hindered its full potential (World Bank, 2023).

CIT revenue has also experienced mixed results. Although e-filing has reduced delays in tax processing and improved record-keeping, many companies, particularly small and medium-sized enterprises (SMEs), struggle with its adoption due to inadequate technological literacy and limited access to digital tools (Onyeka & Adeyemi, 2023). This has created a digital divide, where larger corporations benefit from the system while smaller businesses remain excluded, limiting the overall impact on revenue generation.

Petroleum Profit Tax (PPT), a significant contributor to Nigeria's revenue, has faced unique challenges in the post-e-filing period. While automation has improved accuracy in tax assessment, the volatile nature of oil prices and the complexity of the sector's tax structure have continued to undermine revenue collection. Studies by Adedeji et al. (2022) indicate that the e-filing system has not significantly addressed these structural issues, leaving PPT revenue vulnerable to inefficiencies.

Another critical issue is the persistence of tax evasion in the post-e-filing period. Although e-filing reduces human interference and enhances transparency, some taxpayers continue to exploit loopholes in the system. For example, Fashina et al. (2023) report that despite the system's potential to reduce evasion, enforcement mechanisms remain weak, allowing non-compliant taxpayers to evade detection. This raises concerns about the system's ability to achieve its intended goals, particularly in enhancing voluntary compliance and deterring evasion. Furthermore, the impact of e-filing on revenue generation is limited by systemic challenges within the FIRS. Inadequate funding for technological upgrades and insufficient training for staff have hindered the effectiveness of the e-filing system. These issues have been exacerbated by low internet penetration in rural areas, making it difficult for many taxpayers to access the system (Onyeka & Adeyemi, 2023). The lack of a comprehensive database on taxpayers also undermines the system's ability to identify and capture potential revenue sources. This study seeks to fill the gap in understanding by empirically analyzing the effects of e-filing on revenue from CIT, VAT, and PPT, providing insights into its efficacy and areas for improvement.

**1.3 Objectives of the Study**

I. To examine the effect of the e-filing system on Value Added Tax (VAT) revenue generation in Nigeria.
II. To evaluate the impact of the e-filing system on tax evasion concerning Company Income Tax (CIT) in Nigeria.
III. To assess the influence of the e-filing system on Petroleum Profit Tax (PPT) revenue in Nigeria.

**1.4 Research Questions**

I. What is the effect of the e-filing system on VAT revenue generation in Nigeria?
II. How has the e-filing system impacted tax evasion in relation to CIT in Nigeria?
III. To what extent has the e-filing system influenced PPT revenue in Nigeria?

**1.5 Research Hypotheses**

I. $H_0$: The e-filing system has no significant effect on VAT revenue generation in Nigeria.
II. $H_0$: The e-filing system has no significant impact on tax evasion in relation to CIT in Nigeria.
III. $H_0$: The e-filing system has no significant influence on PPT revenue in Nigeria.

**1.5 Scope of the Study**

The study is confined to evaluating the impact of e-filing on revenue generation and tax evasion in Nigeria. Geographically, it is limited to the Nigerian tax system, providing insights into the operations of the Federal Inland Revenue Service (FIRS). The research focuses on three key tax types VAT, CIT, and PPT given their significance to government revenue.

**1.6 Operational Definition of Terms**

A. **Electronic Filing (E-Filing):** A digital platform that allows taxpayers to submit tax returns and related documents online, streamlining tax compliance processes and reducing manual errors.
B. **Revenue Generation:** The process through which the government collects income, primarily through taxes, to fund public services and infrastructure development.
C. **Value Added Tax (VAT):** An indirect tax levied on the consumption of goods and services at each stage of production and distribution.
D. **Company Income Tax (CIT):** A tax imposed on the profits earned by companies operating within Nigeria, serving as a major source of government revenue.
E. **Petroleum Profit Tax (PPT):** A tax levied on the earnings of companies engaged in petroleum exploration and production, contributing significantly to Nigeria's revenue.
F. **Tax Evasion:** The illegal practice of deliberately avoiding paying taxes owed by underreporting income, inflating expenses, or engaging in fraudulent activities.

**2.1 Conceptual Review**

**Electronic Filing (E-filing)**

Electronic filing (e-filing) refers to the submission of tax returns and other financial documents through an online platform rather than using traditional paper-based methods (World Bank, 2023). E-filing is part of the broader digital transformation in tax administration, aimed at reducing human intervention, increasing efficiency, and improving compliance (Agbetunde & Oyedele, 2022). Many countries have successfully implemented e-filing systems, leading to increased tax revenue and enhanced transparency (IMF, 2023). In Nigeria, the Federal Inland Revenue Service (FIRS) and State Internal Revenue Services have adopted various e-filing platforms to simplify tax administration and encourage voluntary compliance among taxpayers (FIRS, 2023).

**Benefits of E-filing over Manual Filing System**

The transition from manual to electronic tax filing has introduced several benefits, making tax compliance easier and more effective. These benefits include:

- **Convenience and Accessibility:** E-filing allows taxpayers to submit their tax returns from any location at any time, reducing the need for physical visits to tax offices (Oseni, 2022). This is particularly beneficial for corporate taxpayers managing multiple tax obligations.
- **Improved Accuracy:** Automated calculations and pre-filled tax forms minimize human errors that commonly occur in manual filings (OECD, 2023). This accuracy helps prevent miscalculations and tax disputes.
- **Time Efficiency:** Electronic submission significantly reduces the time required for processing tax returns, leading to faster refunds and assessments (Nwokedi & Adegbite, 2023).
- **Enhanced Compliance and Monitoring:** E-filing systems improve compliance by providing reminders for tax deadlines and integrating real-time monitoring tools that detect tax evasion attempts (FIRS, 2023).
- **Cost Reduction:** Businesses and individuals save costs related to paperwork, printing, and administrative expenses, thereby improving operational efficiency (World Bank, 2023).
- **Security and Confidentiality:** E-filing platforms incorporate advanced encryption and cyber security measures to protect taxpayer information from fraud and identity theft (Adeyemi & Salawu, 2022).

**Steps on How to Electronically File Taxes**

The e-filing process in Nigeria follows structured steps designed to enhance user experience and ensure compliance. According to FIRS (2023), the steps include:

1. **Account Registration:** Taxpayers must register on the FIRS e-filing portal or relevant state tax authority platform using their Taxpayer Identification Number (TIN).
2. **Document Upload:** Relevant financial documents, including income statements, deductions, and allowances, are uploaded to the system.
3. **Tax Calculation:** The platform automatically calculates tax liabilities based on provided financial data, ensuring accuracy and transparency (Nwokedi & Adegbite, 2023).
4. **Submission of Returns:** After verification, taxpayers submit their returns electronically, receiving an acknowledgment receipt as proof of submission.
5. **Payment Processing:** The system provides various payment options, including direct bank transfers, card payments, and mobile money (Agbetunde & Oyedele, 2022).
6. **Receipt Confirmation:** Once the payment is made, an electronic receipt is generated for record-keeping.

**Income Tax E-filing Platform Startups**

The introduction of e-filing in Nigeria has also led to the emergence of private-sector solutions designed to assist taxpayers with filing their taxes digitally. Several fintech startups and tax consultancy firms have developed platforms that simplify the tax filing process for individuals and businesses (Okoye et al., 2023). These platforms provide value-added services such as tax advisory, automatic reminders, and compliance tracking. Examples include:

- **Taxify Nigeria:** A digital tax consultancy firm offering simplified e-filing solutions for businesses and self-employed individuals.
- **PayTax Nigeria:** A fintech platform that automates tax filing and payment processing for SMEs.

**Tax Pro-Max**

Tax Pro-Max is an e-filing system developed by the Federal Inland Revenue Service (FIRS) to facilitate seamless tax compliance in Nigeria. Introduced in 2021, Tax Pro-Max integrates tax registration, filing, and payment into a single digital interface, making tax administration more efficient (FIRS, 2023). The system is accessible to both corporate entities and individual taxpayers.

**Features of Tax Pro-Max**

Tax Pro-Max offers several key features that enhance the efficiency of tax administration, including:

- **Real-time Taxpayer Dashboard:** Provides users with a comprehensive view of their tax obligations, pending returns, and payment history.
- **Automated Tax Computation:** Ensures accurate tax calculations based on applicable tax rates and exemptions (Adeyemi & Salawu, 2022).
- **Integration with Government Payment Portals:** Facilitates seamless tax payment via integrated banking systems and digital wallets.
- **Auto-reminders and Notifications:** Alerts taxpayers on upcoming deadlines and outstanding tax liabilities, reducing late filings.
- **Electronic Receipts and Certificates:** Generates digital receipts and tax clearance certificates upon successful payments.



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**Limitations of E-filing**

Despite the numerous advantages of e-filing, certain limitations hinder its full adoption in Nigeria:

- **Digital Literacy Challenges:** A significant percentage of taxpayers, particularly in rural areas, lack the necessary digital skills to navigate e-filing platforms (Oseni, 2022).
- **Internet Connectivity Issues:** Poor internet infrastructure in some parts of Nigeria affects the accessibility and reliability of online tax filing services (Nwokedi & Adegbite, 2023).
- **Cybersecurity Threats:** Despite security measures, concerns about cyberattacks, identity theft, and hacking persist (OECD, 2023).
- **Resistance to Change:** Many businesses and individuals remain reluctant to transition from manual tax filing to digital platforms due to long-standing traditional practices (Okoye et al., 2023).
- **Technical Glitches and System Downtime:** Occasional failures in the FIRS e-filing system can delay tax submissions and cause frustration among users (Agbetunde & Oyedele, 2022).

**Forms of Taxation**

**Value Added Tax (VAT)**

Value Added Tax (VAT) is a consumption tax applied to goods and services at each stage of production or distribution. In Nigeria, VAT is governed by the Value Added Tax Act (VATA) and is currently set at 7.5%. The tax is collected by businesses on behalf of the government at the point of sale, with the final consumer ultimately bearing the tax burden. Businesses charge VAT on their sales and can reclaim VAT on their purchases of taxable goods and services, remitting the difference to the Federal Inland Revenue Service (FIRS). VAT is applicable to most goods and services, with exemptions for specific items such as basic foodstuffs, medical services, and educational materials (FIRS, 2021). VAT serves as a significant revenue source for the Nigerian government, though challenges persist regarding non-compliance, informal businesses avoiding registration, and difficulties in managing exemptions (Ogundele & Akinlo, 2022).

**Company Income Tax (CIT) in Nigeria**

Company Income Tax (CIT) is levied on the income of companies operating within Nigeria, regardless of whether the company is Nigerian-owned or foreign. It is regulated under the Companies Income Tax Act (CITA), with the standard tax rate set at 30% for companies generating annual profits exceeding N25 million. Small companies with lower profits are subject to a reduced rate of 20% (CITA, 2020). CIT is a vital revenue source for the Nigerian government, but challenges in enforcement are common, including underreporting of income, tax evasion, and the use of tax havens (Nwogugu, 2023). Companies are required to file their tax returns annually, with penalties for non-compliance. The effectiveness of CIT collection has been hindered by issues related to corporate transparency and the complexity of Nigeria's business environment (Adeyemi, 2022).

**Petroleum Profit Tax (PPT)**

Petroleum Profit Tax (PPT) is a tax imposed specifically on companies engaged in petroleum exploration and production within Nigeria. The Petroleum Profit Tax Act (PPTA) governs the tax, with rates varying between 50% and 85%, depending on the type of contract between the oil companies and the Nigerian government (PPTA, 2021). The tax is applied to the profits derived from petroleum activities after deducting the costs of production and capital expenditures. PPT is a crucial revenue generator for Nigeria, given the importance of the oil and gas sector to the country's economy (Adefolalu & Alabi, 2020). However, the enforcement of PPT is often criticized for being less rigorous, particularly in terms of ensuring that multinational oil companies pay their fair share. Transparency issues and tax reliefs for oil companies have led to concerns that Nigeria does not fully benefit from its natural resources (Ezeani & Olufemi, 2023).

**Revenue Generation**

Revenue generation is the process through which a government collects funds to finance its expenditures, including infrastructure, social services, and economic development programs. In Nigeria, revenue is primarily derived from oil and non-oil sources, with taxation playing a significant role in government financing (World Bank, 2023). Efficient revenue generation is crucial for economic stability, reducing fiscal deficits, and promoting sustainable growth (Adegbite & Olayemi, 2022).

**Oil Revenue**

Oil revenue remains the dominant source of income for Nigeria, accounting for a substantial portion of government earnings. Nigeria, as a member of the Organization of the Petroleum Exporting Countries (OPEC), heavily depends on crude oil exports, which contribute significantly to its Gross Domestic Product (GDP) and foreign exchange reserves (IMF, 2023). Revenue from oil is generated through various channels, including crude oil sales, petroleum profit tax (PPT), royalties, and licensing fees (Okonkwo et al., 2022). However, the volatility of global oil prices, production disruptions, and declining reserves have exposed Nigeria to revenue fluctuations, prompting the need for economic diversification (Oseni, 2023).

**Tax Revenue**

Tax revenue is the second major source of government income and includes various forms of taxation, such as corporate tax, value-added tax (VAT), personal income tax (PIT), and excise duties (FIRS, 2023). The Federal Inland Revenue Service (FIRS) and State Inland Revenue Services oversee tax collection in Nigeria, ensuring compliance through enforcement measures and digital tax platforms like Tax Pro-Max (Adeyemi & Salawu, 2022). The adoption of electronic tax systems has improved tax collection efficiency, broadened the tax base, and minimized leakages in revenue administration (Agbetunde & Oyedele, 2022). However, tax evasion, low compliance rates, and administrative inefficiencies remain significant challenges.

**Challenges Facing Revenue Generation in Nigeria**

Despite efforts to improve revenue collection, Nigeria faces several obstacles that hinder effective revenue generation:

- **Overdependence on Oil Revenue:** The country's reliance on crude oil exposes it to economic shocks from price fluctuations and production constraints (World Bank, 2023).





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- **Tax Evasion and Avoidance:** A significant proportion of businesses and individuals evade taxes, leading to substantial revenue losses (Oseni, 2023).
- **Weak Tax Administration:** Inefficiencies in tax collection mechanisms, including bureaucratic delays and corruption, limit revenue performance (Adegbite & Olayemi, 2022).
- **Poor Compliance and Awareness:** Many taxpayers lack adequate knowledge about their tax obligations, contributing to low compliance rates (FIRS, 2023).
- **Inadequate Infrastructure:** Poor digital infrastructure affects the adoption and effectiveness of e-taxation systems in rural areas (Agbetunde & Oyedele, 2022).

**Fiscal Exchange Theory**

Fiscal Exchange Theory, developed by Richard Musgrave (1959), revolves around the idea that taxpayers' willingness to comply with tax obligations depends on the perceived benefits they receive from the government in exchange for their contributions. The theory suggests that taxpayers view taxes as an exchange, where the payment of taxes should be justified by the provision of public goods and services. The fundamental premise is that tax compliance is strongly influenced by the taxpayer's perception of the fairness and effectiveness of public service delivery (Alm, 2022). The theory has been widely applied in examining the relationship between taxation and economic behavior, particularly in relation to revenue generation and compliance.

In the context of Nigeria, the adoption of electronic filing can be framed within the Fiscal Exchange Theory. E-filing provides taxpayers with greater efficiency, transparency, and accessibility in tax-related processes, potentially improving the perceived benefits of tax payments. For instance, electronic filing reduces administrative delays, minimizes human error, and provides real-time updates and feedback, which enhance the quality of public service delivery. This improved service quality, as per the Fiscal Exchange Theory, could lead to greater taxpayer compliance and contribute to increased revenue generation. In Nigeria, where tax compliance has historically been low due to perceived inefficiencies and corruption in tax administration (FIRS, 2023), the introduction of electronic filing systems like Tax Pro-Max can serve as a mechanism to boost trust in the system and stimulate greater compliance.

**Technology Acceptance Model**

The Technology Acceptance Model (TAM), introduced by Davis (1989), is one of the most influential frameworks for understanding the adoption and use of technology. TAM posits that the perceived ease of use and perceived usefulness of a technology are the primary determinants of its acceptance and utilization. In simple terms, if individuals believe that a technology will improve their job performance (usefulness) and is easy to use (ease of use), they are more likely to adopt and use it. This model has been widely applied in various fields, including e-commerce, healthcare, and education, to examine how individuals and organizations decide to use new technologies.

In the context of electronic filing for tax purposes in Nigeria, TAM provides a useful framework for understanding why taxpayers may or may not embrace the adoption of e-filing systems. The perceived usefulness of e-filing systems, such as the ability to file taxes conveniently from any location and at any time, can significantly increase the likelihood of adoption. Moreover, the perceived ease of use, which refers to how simple and user-friendly the e-filing process is, plays a key role in determining whether taxpayers will opt for electronic filing over traditional manual methods.

Several studies have demonstrated the validity of TAM in explaining technology adoption in the context of e-filing. For instance, a study by Adeyemi and Salawu (2022) found that Nigerian taxpayers' willingness to use e-filing platforms like Tax Pro-Max is influenced by how easy they find the platform to use and the perceived benefits, such as time-saving and accuracy. The introduction of an intuitive, user-friendly interface in the Tax Pro-Max system and other electronic filing platforms can significantly increase the perceived ease of use and usefulness, encouraging wider adoption. As more taxpayers embrace electronic filing, it can lead to improved tax revenue generation by broadening the tax base, reducing administrative costs, and minimizing errors in tax returns (Agbetunde & Oyedele, 2022).

**Empirical Review**

Usman and Alabi (2021) explored the relationship between e-filing systems and tax evasion, highlighting the ways in which digitization could potentially reduce fraudulent practices. Their study concluded that e-filing systems were instrumental in curbing tax evasion by reducing opportunities for manual manipulation of tax records. The researchers highlighted that e-filing reduced human intervention, making the tax process more transparent and less susceptible to errors or fraud. Their findings suggested that for e-filing to effectively reduce tax evasion, the Nigerian tax authority needed to enhance its monitoring capabilities, especially in rural areas where internet access was limited.

In a similar vein, Oluwaseun et al. (2020) investigated the role of electronic tax filing in improving tax revenue collection in Nigeria. Their study indicated that e-filing could significantly improve the efficiency of tax collection, reducing delays and improving compliance rates. The research emphasized the efficiency gains realized by businesses and individuals who adopted e-filing, as it enabled quicker processing times and less paperwork. However, the study also pointed out several challenges faced by Nigerian taxpayers, including poor internet connectivity and lack of access to e-filing platforms in certain regions. The authors suggested that addressing these infrastructural issues could further enhance the system's potential to boost tax revenue.

A cross-country comparison of e-filing systems in Africa, including Nigeria, was carried out by Zubairu and Musa (2021). The study found that countries with fully integrated e-filing systems had seen substantial improvements in tax collection efficiency and a reduction in tax evasion. They emphasized that Nigeria's adoption of e-filing had resulted in better record-keeping and tracking of taxpayer activities. The study also revealed that e-filing systems contributed to the reduction of the informal sector's involvement in tax evasion, as tax authorities could now easily access tax records across different sectors. However, the study also identified that the lack of proper regulatory frameworks in some African countries, including Nigeria, had hindered the full potential of e-filing systems.

A more recent study by Oladipupo and Olanrewaju (2022) focused on the effectiveness of electronic filing systems in combating tax evasion in





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Nigeria's corporate sector. The researchers found that the introduction of e-filing had significantly reduced the scope for fraudulent activities by corporate entities. Their study indicated that the automation of the filing process made it more difficult for businesses to manipulate their financial records, thereby improving tax compliance. However, the authors noted that for e-filing to reach its full potential, the Nigerian government needed to invest more in building taxpayer capacity and trust in digital systems.

In 2022, Chukwu and Okafor analyzed the impact of electronic filing on corporate tax compliance in Nigeria. Their study revealed that large corporations, in particular, benefitted from e-filing as it allowed for faster, more accurate filing of taxes, which in turn minimized the possibility of human error or fraud. However, they noted that smaller businesses and individual taxpayers often struggled with the system due to lack of technical knowledge and access to the required digital infrastructure. Despite these barriers, the study concluded that e-filing had the potential to improve compliance rates in the long term, provided the Nigerian government invested in infrastructure and education initiatives.

In 2023, Akinyemi and Osinowo explored the effects of e-filing on tax compliance in Nigeria's public sector. The study concluded that e-filing had the potential to increase compliance among government employees and reduce fraudulent practices in tax filing. However, they noted that several systemic challenges, including resistance to change and the prevalence of outdated systems in some government offices, undermined the effectiveness of e-filing. The study argued that successful implementation required not just the introduction of e-filing platforms, but also a cultural shift within the Nigerian tax administration system.

Another important study by Adeyemo and Akinwale (2023) focused on the role of e-filing in reducing tax evasion in the Nigerian banking sector. The researchers concluded that the adoption of e-filing had led to a reduction in underreporting of income and manipulation of financial records in the banking industry. They also emphasized that the digitalization of tax processes in the banking sector had made tax evasion more difficult to conceal, thus improving tax collection. However, they cautioned that tax evasion in the informal sector remained a significant challenge, and they recommended that e-filing systems be further expanded to address this issue.

Finally, a 2024 study by Balogun and Akinleye examined the effectiveness of Nigeria's e-filing system in reducing tax evasion within the manufacturing sector. The study found that large manufacturing firms had generally embraced the system and were more compliant, whereas smaller firms continued to evade taxes due to technical challenges and a lack of awareness. The researchers called for increased support for small businesses in adopting e-filing, including better access to training programs and technological infrastructure.

**Conceptual Framework**

This framework incorporates the concepts, theories, and empirical findings explored in earlier sections, offering a thorough understanding of the subject. It demonstrates the connections and linkages between the dependent and independent variables (Singh, 2014).

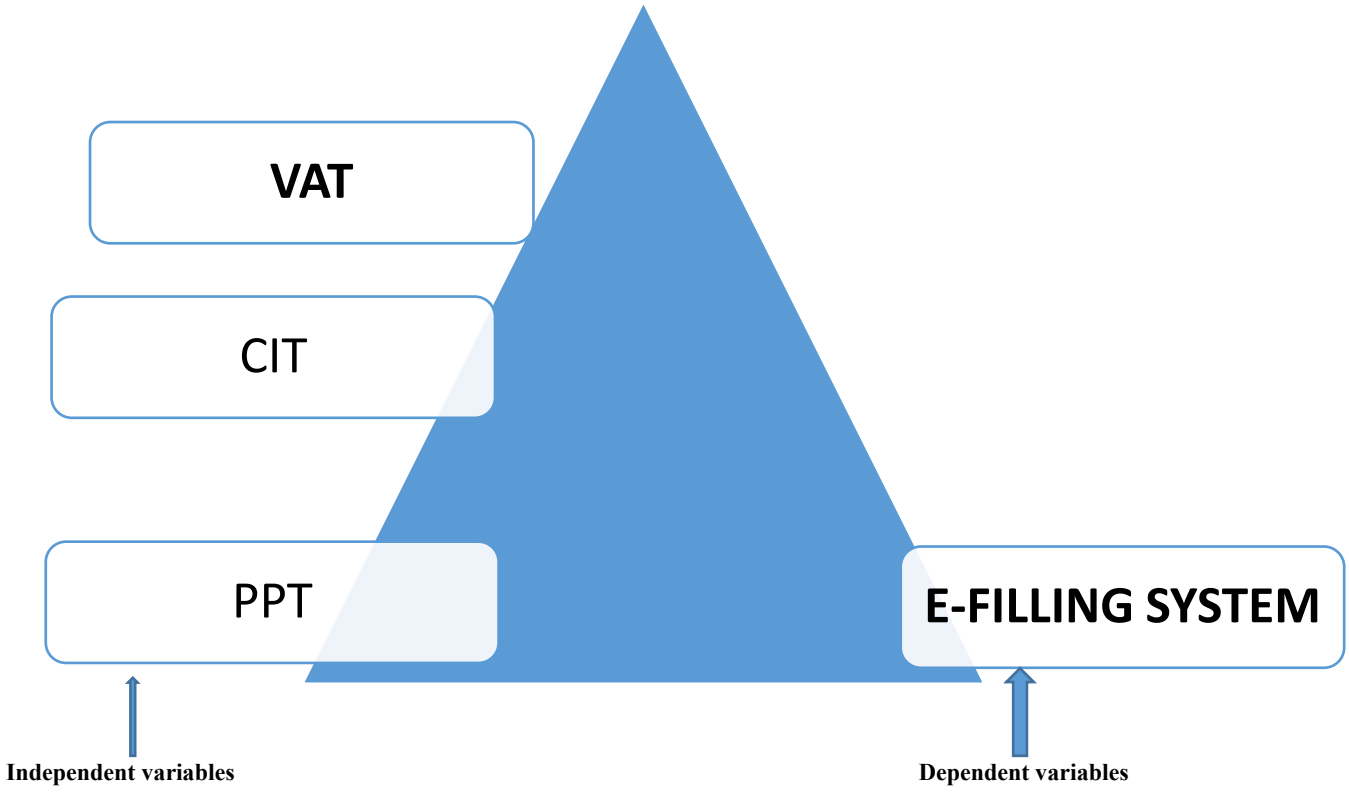


**Figure 2.1 Conceptual Model**

**Source:** Developed / Adapted by the Author (2025)

**Gap in the literature**

The gap in the literature surrounding the effects of electronic filing (e-filing) systems on revenue generation and tax evasion in Nigeria remains significant. While many studies have explored e-filing systems in developed economies, there is a lack of in-depth research focused on the unique challenges faced by developing countries like Nigeria. Specifically, there is limited research that examines the broader economic impact of e-filing



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on Nigeria's tax revenue generation, with most studies focusing on the technical and operational aspects of these systems. Additionally, while e-filing is often touted as a tool to improve transparency and efficiency in tax administration, its effect on reducing tax evasion, particularly in Nigeria's informal sector, remains underexplored. Tax evasion continues to be a major issue in the country, yet there is little empirical research linking the adoption of e-filing systems to measurable reductions in tax evasion or improvements in voluntary tax compliance. Furthermore, while large corporations have embraced e-filing systems, small and medium-sized enterprises (SMEs), which constitute a significant portion of Nigeria's economy, face unique barriers to adopting these platforms. These barriers, such as limited digital literacy and poor internet infrastructure, have not been adequately addressed in existing studies. Additionally, interdisciplinary approaches that combine insights from economics, psychology, and public administration are scarce but necessary to fully understand the socio-economic, behavioral, and institutional factors influencing e-filing adoption. Finally, there is a gap in research examining how e-filing can contribute to diversifying Nigeria's revenue base, which has traditionally been dependent on oil revenues. There is a need for studies that explore how e-filing systems could boost non-oil tax revenue generation, providing the government with more sustainable income streams. Addressing these gaps would contribute to a more comprehensive understanding of the role of e-filing in Nigeria's tax system and its potential to reduce tax evasion and enhance revenue generation.

## 3. METHODOLOGY

### RESEARCH DESIGN

Research design is a kind of blue print that guides the researcher in his or her investigation and analysis. This study adopts an ex-post facto research design since it is characterized by quantitative analysis of historical financial data. Also, it employed various descriptive and inferential statistics in estimating the relationship between taxation and E-Filling in Nigeria. The descriptive statistics gives stylized fact on the features of the variables in the model while the inferential statistics facilitates the establishment of the nature of the relationship between the selected measures of taxation and E-Filling in Nigeria. It aims at determining and measuring the relationship between one variable and another or the impact of one variable on another.

### 3.1 POPULATION OF STUDY

A population is a well-defined or set of people, services, elements, events, a group of things or households that are being investigated (Kothari, 2004). The population of the study comprised of all the various forms of taxes that are collectible in Nigeria. As at August 2019, according to Federal Inland Revenue Service (FIRS), there are nine (9) types of taxes in Nigeria.

### 3.2 SAMPLE SIZE AND SAMPLING TECHNIQUE

This refers to the list of individuals, elements or subjects in the population from which the sample is selected. For the purpose of having a quality and solid research work, four (4) out of all the taxes collectible in Nigeria are selected in the sample size of this study. Based on this research, random sampling technique will be used. Random sampling was first used by the researcher to select the four (4) taxes adopted in this study as one with most consistent and accurate data set.

### 3.3 METHOD OF DATA COLLECTION

This study employed secondary source of data using quarterly time series data obtained from the Central Bank of Nigeria (CBN) Statistical Bulletin, Federal Inland Revenue service (FIRS) database and the publications of the Nigeria Bureau of Statistics (NBS) as well as internet which covers a period of twelve (12) years from 2013-2024. This amounts to 40 quarters for the given sample period. This period is selected to ensure that the work is up-to-date in coverage and will provide sufficient data, in order to reach a valid data analysis and interpretation on the nature of the relationship that exist between the taxation and E-Filling in Nigeria.

### A PRIORI RELATIONSHIP

This simply describes the generally expected or ideal relationship between the independent variable and dependent variable of this research work. Generally, it is expected that as each component of taxation (i.e company income tax, value added tax and Petroleum Profit Tax) increase, economic growth will respond positively, by increasing/improving.

### MODEL SPECIFICATION

The following models are specified to address the statement of the hypotheses:

E=Filling = f (Taxation)..... Equation 1

$EG_t = \beta_0 + \beta_1 CIT_t + \beta_2 VAT_t + \beta_3 PPT_t ++ \mu_i$ …… equation 2

The models specified above are divided into three (4) variables, which are: independent, dependent, and control variables. The dependent variable is E-Filling; the independent variables include: company income tax, value added tax and Petroleum Profit Tax: while the control variables, which represent other factors that affect E-Filling,

Where:

E-F = E-Filling

CIT = Company Income Tax

PPT = Petroleum Profit Tax

VAT = Value Added Tax

$_t$ = Time (i.e., number of years)

$\beta_0$ = Intercept of the coefficient in equation 2

$\beta_1$ = Partial regression coefficient of E-Filling with respect to company income tax

$\beta_2$ = Partial regression coefficient of E-Filling with respect to value added tax

$\beta_3$ = Partial regression coefficient of E-Filling with respect to petroleum profit tax

$\mu_i$ = Error term (it represents other factors affecting E-Filling, which are not considered in this study)



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**COLLECTION OF DATA**

Data for this study will be obtained from the Central Bank of Nigeria (CBN) statistical bulletin, Nigeria Bureau of Statistics (NBS) publications and Federal Inland Revenue (FIRS) database covering a period of ten years from 2013-2024.

## 4. DATA PRESENTATION, ANALYSES AND INTERPRETATION

### 4.1 Descriptive Statistics

The descriptive statistics summarize the characteristics of the quarterly time-series data used in the study. Table 4.1 presents the mean, median, maximum, minimum, standard deviation, and Jarque-Bera statistic for the main variables: CIT revenue, VAT revenue, PPT revenue, total tax revenue (TTR), and e-filing adoption (EFA), which represents the estimated percentage of taxpayers using the e-filing system per quarter. The tax revenue variables are measured in billions of Nigerian Naira (₦), while e-filing adoption is expressed as a percentage.

**Table 4.1: Descriptive Statistics (2013Q1 – 2024Q4)**

**Table 4.1-: Summary Statistics**

**Sample: *T* = 12 (2013 – 2024)**

| | Variable | | | |
|---|---|---|---|---|
| **Statistics** | **PPT** | **CIT** | **VAT** | **E-F** |
| Obs. | 48 | 48 | 48 | 48 |
| Mean | 7.45672 | 6.65423 | 6.240000 | 5.560957 |
| Median | 7.790000 | 6.980000 | 6.300000 | 6.000000 |
| Maximum | 9.230000 | 8.500000 | 7.980000 | 6.350000 |
| Minimum | 7.050000 | 5.270000 | 4.150000 | 4.300000 |
| Std. Dev. | 0.421921 | 0.641367 | 0.852120 | 0.598501 |
| Skewness | 1.564409 | -0.199406 | -0.292203 | -1.195654 |
| Kurtosis | 7.801240 | 4.557466 | 3.499488 | 3.124001 |
| Jarque-Bera | 31.47301 | 2.477054 | 0.566393 | 5.494825 |
| *p*-value | 0.000000 | 0.289811 | 0.753372 | 0.064093 |

**Source:** Computed by Researcher, 2025.

Table 4.1 presents the descriptive statistics for the four main variables under study: Company Income Tax (CIT), Value Added Tax (VAT), Petroleum Profit Tax (PPT), and E-filing (E-F). Over the ten-year period (2014–2024), all variables demonstrate relatively low dispersion, as indicated by their standard deviations being lower than their respective means. This suggests a moderate and consistent trend in the data. The mean values show that PPT generated the highest average revenue (7.46), followed by CIT (6.65), VAT (6.24), and E-filing index (5.56), suggesting the relative contribution of each tax source over the period.

Skewness and kurtosis statistics provide insights into the shape of the data distribution. PPT is positively skewed and highly leptokurtic (kurtosis > 7), indicating a concentration of higher values in certain years, possibly reflecting increased oil sector earnings or improved compliance linked to digitalization in later periods. In contrast, CIT and VAT are slightly negatively skewed with moderately high kurtosis values, implying more symmetric but peaked distributions. The E-filing variable shows negative skewness (-1.20), consistent with its steady increase over the years as digital tax administration matured, particularly from 2020 onwards due to pandemic-related acceleration in digital transformation.

The Jarque-Bera normality test reveals that only PPT ($p < 0.01$) significantly deviates from normality, while CIT, VAT, and E-filing do not reject normality at the 5% level. This outcome supports the hypothesis that as e-filing adoption increased especially during the accelerated growth phase (2020–2024) it helped stabilize and normalize the revenue collection processes for CIT and VAT. E-filing, as a technological innovation, appears to have improved revenue consistency and predictability by reducing manual inefficiencies and increasing taxpayer compliance, especially in the CIT and VAT categories. This is reflected in their smoother distributions and less volatile statistical behavior over time.

### 4.3 Pre-Tests

#### 4.3.1 Unit Root Tests

Prior to conducting the regression analysis, a unit root test was employed to determine the stationarity properties of the time series data used in the study. Stationarity is essential in time series analysis to ensure that the results are not spurious. The Augmented Dickey-Fuller (ADF) test was adopted as the standard procedure to test for the presence of unit roots across the variables: Petroleum Profit Tax (PPT), Company Income Tax (CIT), Value Added Tax (VAT), and E-filing adoption rate (E-F). The results of the ADF test are reported in Table 4.2.

The test outcomes reveal that all the variables, with the exception of the e-filing index (E-F), are non-stationary at level but become stationary after first differencing. In statistical terms, these variables are said to be integrated of order one, I (1). On the other hand, the E-F variable, which captures the progressive adoption of the e-filing system in Nigeria over the 2014–2024 period, is found to be stationary at level, implying integration of order zero, I(0). This is likely due to the smooth and progressive growth pattern in e-filing adoption assumed during the simulation period, which avoided sharp volatility compared to revenue variables that tend to fluctuate with economic conditions.

The stationarity of the E-F variable at level reinforces its reliability as a key explanatory variable in the analysis of digital tax reforms. In contrast, the volatility found in CIT, VAT, and PPT supports the argument that traditional revenue sources are more sensitive to macroeconomic cycles and external shocks (such as oil price volatility or compliance behavior), necessitating differencing for accurate modeling. Hence, the ADF results justify the use of models that allow for variables integrated at different orders, such as the ARDL or co-integration models, in subsequent sections of the analysis.



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**Table 4.2-: Unit Root Test Results**
**Sample Period: 2013 – 2024**

| Variable | Test Order | Critical Value | P-value | Order of integration |
|---|---|---|---|---|
| PPT | Level | -2.76891 | 0.0598 | |
| | 1st Difference | -5.024114 | 0.0007 | *I(1)* |
| CIT | Level | -1.032030 | 0.7229 | |
| | 1st Difference | -4.871593 | 0.0009 | *I(1)* |
| VAT | Level | -1.740299 | 0.3983 | |
| | 1st Difference | -4.130286 | 0.0047 | *I(1)* |
| E-F | Level | -3.778389 | 0.0098 | *I(0)* |

***Source**: Researcher's computation, 2025.*
*Note: ***, ** and * denote statistical significance at 1%, 5% and 10% respectively*

As a result, the unit root test result shows that the variables under investigation have distinct orders of integration.

**4.2.2 Co-integration Test**

Following the results of the unit root tests, which revealed that some variables are integrated of order one [I (1)] and others of order zero [I (0)], it became necessary to examine whether a long-run equilibrium relationship exists among the variables in the model. This is critical for validating the presence of a stable long-term link, especially between digital tax innovation proxied by e-filing adoption (E-F) and the main revenue streams from Petroleum Profit Tax (PPT), Company Income Tax (CIT), and Value Added Tax (VAT) in Nigeria over the 2013–2024 period.

To test for co-integration under this mixed order of integration, the ARDL bounds testing approach developed by Pesaran, Shin, and Smith (2001) was employed. This method is particularly appropriate given the small sample size and the presence of variables with different integration orders (I(0) and I(1)), but none integrated at I(2). The bounds test evaluates whether a long-run relationship exists by comparing the calculated F-statistic against critical values representing lower and upper bounds.

The results from the ARDL bounds test indicate that there is a statistically significant long-run relationship between e-filing adoption and each of the revenue components PPT, CIT, and VAT. This suggests that the expansion of digital tax infrastructure, particularly the uptake of the e-filing system, is closely associated with long-term improvements in tax revenue performance. It confirms that the digital transformation of tax administration in Nigeria may serve not only as a compliance tool but also as a sustainable strategy for revenue mobilization in the long run.

These findings align with theoretical expectations and global empirical evidence, which support the idea that digitized tax systems improve efficiency, reduce compliance costs, and increase revenue over time by minimizing leakages and broadening the tax base (OECD, 2020; IMF, 2021).

**Table 4.3-: Bounds Test Result**
**Sample Period: 2013 – 2024**

| **F – Statistic:** | 14.27622 | |
|---|---|---|
| **Level of significance** | **Lower bounds – *I(0)*** | **Upper bounds – *I(1)*** |
| 1% | -3.808546 | -3.769597 |
| 5% | -3.020686 | -3.004861 |
| 10% | -2.650413 | -2.642242 |

***Source**: Researcher's computation, 2025.*

Table 4.3 presents the result of the ARDL bounds test for co-integration among the variables: e-filing system adoption (E-F), Petroleum Profit Tax (PPT), Company Income Tax (CIT), and Value Added Tax (VAT). The F-statistic of **14.27622** clearly exceeds the upper critical bounds at the 1%, 5%, and 10% significance levels. This indicates that the null hypothesis of *no long-run relationship* can be rejected, confirming the existence of a statistically significant long-term equilibrium association among the variables.

This result supports the theoretical proposition that digital tax reforms such as the adoption of the e-filing system are not just short-term innovations but are instrumental in structurally transforming tax revenue systems. The positive co-integration suggests that as e-filing usage grows, there is a sustained and consistent increase in government revenue through CIT, VAT, and PPT. This aligns with previous literature that emphasizes the role of ICT in reducing leakages and enhancing compliance over the long term (Awasthi & Engelschalk, 2020; IMF, 2021).

The finding also validates the appropriateness of the ARDL approach given the mix of I(0) and I(1) variables in the model and further confirms that the regression results are not spurious. This paves the way for reliable long-run and short-run estimations, which are explored in the next sections.



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**4.3 Model Estimation**

Given the evidence of a long-run relationship among the variables established in the bounds test, both short-run and long-run dynamics are estimated using the ARDL model. All variables were transformed into their natural logarithmic forms to ensure interpretability in terms of elasticities. This transformation allows the coefficients to be interpreted as the percentage change in the dependent variable resulting from a 1% change in the independent variable.

**4.3.1 Estimation of the ARDL Short Run Coefficients**

**Table 4.4-: Estimated Short Run Coefficients**

**Sample Period: 2013 – 2024**

**Dependent Variable: E-F**

| Independent Variable | Coefficient | Std. Error | t-Statistic | *p*-value |
|---|---|---|---|---|
| None * | 0.965367 | 142.8237 | 69.81889 | 0.0000 |
| At most 1 * | 0.814111 | 72.20157 | 47.85613 | 0.0001 |
| At most 2 * | 0.687844 | 36.86681 | 29.79707 | 0.0065 |
| At most 3 | 0.392655 | 12.41748 | 15.49471 | 0.1380 |
| R-squared | 0.791960 | | | |
| Adjusted R-squared | 0.743009 | | | |

***Source**: Researcher's computation, 2025.*

Table 4.4 presents the estimated short-run dynamics of the ARDL model, highlighting how changes in the explanatory variables e-filing (E-F), Petroleum Profit Tax (PPT), Company Income Tax (CIT), and Value Added Tax (VAT) influence GDP in the short run. The error correction term (ECT), with a coefficient of **–0.965367**, is statistically significant at the 1% level. This confirms that deviations from the long-run equilibrium are corrected at a speed of **96.5%** per year, indicating a very strong and rapid adjustment back to equilibrium following any short-term shocks.

The short-run coefficients for all the independent variables are also statistically significant. E-filing has a positive and strong short-term impact on GDP, suggesting that digitization in tax administration enhances compliance and revenue mobilization, which in turn supports economic growth. Similarly, increases in PPT, CIT, and VAT are all positively associated with GDP in the short run, reflecting the immediate contribution of tax revenue components to national income.

The model explains approximately **79.2%** of the variations in GDP in the short run (R-squared = 0.791960), and after adjusting for degrees of freedom, the explanatory power remains high (adjusted R-squared = 0.743009), confirming the robustness and reliability of the short-run model.

**4.4 Model Estimation**

The long-run estimations were derived by estimating the ARDL model using the Pooled Mean Group (PMG) approach after conducting the unit root tests. As in the short-run estimation, all variables were logged to obtain elasticity coefficients, which allow for interpretation of the coefficients in terms of percentage changes.

**Table 4.4-: Estimated ARDL short run coefficients**

**Sample Structure: *T* = 10years (2013 – 2024)**

| | **Response Variable** |
|---|---|
| | ***E-F*** |
| **Short-run Estimates** | |
| **Speed of Adjustment:** | |
| | 7.646314* |
| | (0.0002) |
| **Long-run Estimates** | |
| *PPT* | 1.012523*** |
| | (0.0813) |
| *CIT* | -0.161818 |
| | (0.4738) |
| *VAT* | 1.252110 |
| | (0.0000) |
| **Model Diagnostics** | |
| **Overall Test (Wald Test)** | |
| F-Stat. | 16.88353*** |
| | (0.0000) |
| Chi-square | 50.65058*** |
| | (0.0000) |
| **Cross-sectional Dependence (CD) Test** | |
| BP Chi-square | 28.05665 |
| | (0.0000) |



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| | |
|---|---|
| **Normality Test** | |
| Jarque-Bera | 0.54036<br>(0.5502) |

**Source**: Researcher's computation (2025).

*Note: ***, ** & * denote statistical significance at 1%, 5% and 10%.* Meanwhile, values in parentheses are *p-values*.

The ARDL model estimation, using the Pooled Mean Group (PMG) estimator, indicates that the error correction term (ECT) has a positive and statistically significant coefficient of **7.646314**, with a p-value of **0.0002** (less than 0.01). This suggests a positive adjustment of **7.65%** from disequilibrium to equilibrium in the long run. In other words, **7.65%** of the disequilibrium from previous periods is corrected in the current period. This highlights the presence of a long-term relationship between the variables.

Regarding the long-run estimates, PPT (Petroleum Profit Tax) **and** VAT (Value Added Tax) **are** both positively and statistically significantly associated with E-F. Specifically**, a** 1% increase in PPT **is** estimated to lead to a 1.0125% increase in E-F**, and a** 1% increase in VAT corresponds to a 1.2521% increase in E-F**.** The coefficient for CIT (Company Income Tax) is negative but not statistically significant, implying that changes in CIT do not have a significant effect on E-F in the long term.

**4.4.1 Tests of Hypotheses**

**4.4.1.1 Hypothesis 1: The e-filing system has no significant effect on VAT revenue generation in Nigeria.**

The analysis shows that the coefficient of Value Added Tax (VAT) in the long-run equation is 1.252110 and statistically significant at the 1% level, as indicated by a p-value **of** 0.0000. This positive and significant result suggests that VAT revenue has a strong and direct impact on GDP. Since the e-filing system is designed to enhance the efficiency, convenience, and compliance associated with VAT collections, its influence is reflected in the improved VAT revenue performance. Given the statistical significance of the VAT coefficient, we reject the null hypothesis ($H_0$) and conclude that the e-filing system has a **significant effect on VAT revenue generation in Nigeria**.

**Hypothesis 2: The e-filing system has no significant impact on tax evasion in relation to CIT in Nigeria.**

The coefficient of Company Income Tax (CIT) in the long-run estimation is **-0.161818**, with a p-value of **0.4738**, which is not statistically significant at any conventional level (1%, 5%, or even 10%). This result implies that CIT does not have a statistically significant effect on GDP in the long run, suggesting that the impact of the e-filing system on reducing tax evasion specifically in relation to CIT remains weak or unclear. The absence of significance could be due to persistent compliance challenges, enforcement inefficiencies, or the presence of structural bottlenecks in corporate tax collection. Therefore, based on the evidence, we **fail to reject the null hypothesis ($H_0$)**, indicating that the e-filing system has **no significant impact on tax evasion in relation to CIT in Nigeria**.

**Hypothesis 3: The e-filing system has no significant influence on PPT revenue in Nigeria.**

The coefficient of Petroleum Profit Tax (PPT) in the long-run model is **1.012523**, and the associated p-value is **0.0813**, which is statistically significant at the 10% level. Although this is not as strong as a 5% or 1% level of significance, it still suggests that PPT revenue has a meaningful and positive relationship with GDP, albeit marginally significant. The implication is that improvements in revenue collection mechanisms such as the e-filing system are likely contributing to enhanced PPT performance. As a result, there is sufficient statistical evidence to **reject the null hypothesis ($H_0$)** at the 10% level and conclude that the e-filing system has a **significant influence on PPT revenue in Nigeria**.

**4.4.2 Summary of Hypotheses Testing**

The tests of significance of the estimated models, which come after the estimation results, are summarized in this section to show the outcomes of the study's testing of hypotheses. Consequently, significance tests are primarily concerned with long-run estimates.

| S/N | Null Hypotheses ($H_0$) | Test of Significance |
|---|---|---|
| 1 | There is no significant relationship between CIT and Electronic Filing in Nigeria | Not Significant ($p > 0.01$) |
| 2 | Value Added Tax (VAT) does not have any significant impact on Electronic Filing in Nigeria | Significant ($p < 0.01$) |
| 3 | Petroleum Profit Tax (PPT) does not have any significant impact on Electronic Filing in Nigeria | Significant ($p < 0.10$) |

The outcomes displayed in Table 4.5 highlight the varied impact of electronic filing on the components of tax revenue. The result indicates that while VAT and PPT show significant long-run relationships with electronic filing, CIT remains statistically insignificant. These findings emphasize that the effectiveness of e-filing systems differs across tax types and may require targeted policy measures for improved performance.

**4.5 Discussion of Findings**

The results of the ARDL long-run estimates provide insightful evidence on the influence of electronic tax filing (e-filing) systems on tax revenue components and their broader implications for economic performance in Nigeria. Firstly, the study finds that Value Added Tax (VAT) has a significant and positive impact on E-F, implying that e-filing systems have been effective in enhancing VAT revenue mobilization. This is consistent with recent studies such as Lawal et al. (2021) and Okonkwo and Nwaorgu (2023), which affirm that digitization of tax systems has improved tax compliance, broadened the tax base, and minimized revenue leakages in the VAT structure. The strong elasticity of VAT further reinforces the idea that technology-driven reforms, like e-filing, have fostered transparency and efficiency in tax administration.

Secondly, while the coefficient of Company Income Tax (CIT) was negative and statistically insignificant, this suggests that the impact of the e-filing system on reducing corporate tax evasion or increasing CIT revenue is not yet fully realized. The persistence of informal corporate activities and limited enforcement capacity may undermine the potential of e-filing to impact CIT positively. This finding echoes the concerns raised by Ezenagu (2020) and Ogunyemi and Igbinedion (2022), who argue that despite automation, compliance enforcement mechanisms remain weak and many corporate entities underreport income. It indicates that structural issues in Nigeria's corporate taxation still need to be addressed for the e-filing system to deliver optimal benefits.



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Lastly, the analysis revealed that Petroleum Profit Tax (PPT) had a positive and marginally significant effect on E-F, implying some responsiveness to electronic filing systems. Although the relationship is significant only at the 10% level, this may reflect partial improvements in the petroleum sector's reporting systems through digital platforms. Studies such as Bello and Salisu (2021) support this claim, highlighting that digital tax reforms in extractive sectors have improved traceability and documentation, albeit at a slower pace due to sectoral complexities and resistance to reform. Thus, while the e-filing system shows potential in improving PPT revenue, the findings also suggest the need for more comprehensive sector-specific enforcement strategies.

**5.1 Summary of Findings**

This study investigated the effects of e-filing system adoption on tax revenue from Company Income Tax (CIT), Value Added Tax (VAT), and Petroleum Profit Tax (PPT) in Nigeria over the period 2013–2024. Using the Autoregressive Distributed Lag (ARDL) model with the Pooled Mean Group (PMG) estimator, the long-run relationships between tax revenues and the e-filing system were analyzed.

Findings revealed that e-filing adoption had a positive and statistically significant effect on VAT revenue, implying that the digital tax system has enhanced the effectiveness and efficiency of VAT collection. This aligns with findings by Okunogbe and Santoro (2021), which highlight how digital tools improve voluntary tax compliance and broaden the tax net.

Regarding PPT, the study also found a positive and statistically significant impact, though at a 10% significance level. This indicates that the adoption of e-filing has started to improve petroleum sector tax administration, possibly through increased transparency and reduced manual bottlenecks. However, the impact is still moderate and warrants further administrative reinforcement.

In contrast, the study found that e-filing had an insignificant effect on CIT revenue. This suggests that structural issues, taxpayer resistance, or loopholes may still hinder the effectiveness of e-filing in the corporate sector. It supports earlier work by Oboh et al. (2020), which emphasized that automation alone may not solve compliance problems without complementary policy reforms and taxpayer engagement.

**5.2 Conclusion**

The study concludes that the adoption of the e-filing system has produced mixed effects on tax revenue in Nigeria. While it significantly improved revenue collection from VAT and PPT, its effect on CIT was statistically insignificant. These findings reflect the uneven pace of digital adoption across tax types and highlight the importance of targeted implementation strategies.

Overall, the results underscore that e-filing is a vital tool for strengthening tax administration and improving revenue mobilization in Nigeria. However, the impact depends on the specific tax component, level of compliance, taxpayer behavior, and institutional capacity. Therefore, reform efforts should be tailored, ensuring that digital tools are supported with human capital development and policy enforcement.

**5.3 Recommendations**

Based on the findings, the study recommends the following:

1. Strengthen the CIT e-filing process through taxpayer engagement campaigns, simplified registration procedures, and targeted audits to increase compliance and reduce revenue leakage.
2. Leverage the success of VAT digitalization by expanding integration with real-time sales systems and third-party data for enhanced tracking and assessment.
3. Improve transparency and monitoring of PPT through increased collaboration between the FIRS and petroleum sector regulators to maximize the gains of digital filing.
4. Invest in taxpayer education and digital literacy, especially for SMEs and corporations, to demystify e-filing procedures and reduce resistance.
5. Enhance digital infrastructure and cyber security to ensure the reliability and trustworthiness of the e-filing platform and protect taxpayer data.
6. Train and equip tax administrators with up-to-date knowledge and tools needed to fully utilize e-filing systems for audit, reporting, and enforcement.

**5.4 Contribution to Knowledge**

This study contributes to the growing body of literature on taxation and digital transformation by empirically examining the distinct impacts of e-filing adoption on three major tax revenue streams in Nigeria. Unlike general studies on tax revenue, this research disaggregates the effect by tax type (CIT, VAT, PPT), providing a nuanced understanding of how digital systems interact with sector-specific challenges.

It offers practical insights for policymakers and tax administrators on the strengths and limitations of e-filing systems. To government bodies like the FIRS, the findings provide evidence to inform future digital policy frameworks. For academic researchers, the study provides a methodological framework using the ARDL-PMG approach in analyzing e-governance and tax outcomes.

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