Innovations

The Long and Short-Run Nexus Between Electronic Tax Systems and Revenue Generation in Nigeria

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Abstract: *This study examined the long and short-run nexus between electronic tax systems and revenue generation in Nigeria. The study examines the relationship between value-added tax, company income tax, petroleum profit tax, and company gain tax and total electronictax revenues in Nigeria. The study adopted a correlational research design. The target population includes all tax types collected by the Federal Inland Revenue Service (FIRS) and the total revenue collected by the government of Nigeria. The non-probability sampling technique was used to select four types of taxes thatwere used and deemed fit in this study. To the researcher's knowledge, these taxes are the country's most well-known and collected taxes. The Autoregressive Distributed Lag (ARDL) Bounds test approach was adopted to examine the study's objective. The findings of this study show that the Value-added tax has a negative and significant relationship with the aggregate revenue generated. Petroleum profit tax and company gain tax showed a positive but non-significant relationship with the aggregate revenue generated in Nigeria for the period under study. Hence, this study recommendsthat the government critically evaluate the VAT collection process, eliminate bureaucratic procedures, and improve transparency. Tax administrators need to enlightenthe general public on the need to queue into the electronic tax system to remit VAT. Tax authorities should encourage companies by creating awareness of paying taxes to improve the aggregate revenue generated, which the companies would also benefit from. All companies can be mandated to fully automate their tax payment by completing their e-registration and e-filing. This will reduce the incidences of tax avoidance, increase tax revenue collected via electronic filing and increase the aggregate revenue collected.*

Keywords: *Electronic tax system, Revenue generation, Autoregressive Distributed Lag (ARDL) Bounds test, Federal Inland Revenue Service (FIRS) and long and short-run nexus*

1. Introduction

Technology is profoundly impacting companies universally, and Nigerian industries are no exception. The impact of Information and Communication Technology (ICT)

advancements on revenue generation is particularly evident in various economic sectors, including banking, education, health care, transportation, and communication (Sani & Usman, 2019). The taxing service is not excluded. Any nation that wants to grow must make bold investments in automating and integrating technology and its applications across all sectors of the economy. All taxing authorities now find it fundamentally essential and concerning to use information and communication technology concepts, techniques, policies, and implementation strategies for all taxing services (Patnaik, Ipseeta, & Mesele, 2019).

The world is becoming more automated, and tax administration needs to be improved. Due to its inability to facilitate an audit trail of the effectiveness of revenue collection received by the tax authorities (Federal Inland Revenue Service (FIRS) and State Internal Revenue Services (SIRS), the manual system of tax revenue collection has been criticised (Adegbie, Enerson, & Olaoye, 2022). Over the past 30 years, computer technology has advanced to such an unprecedented degree that computers are now replacing many of the jobs humans once held (Adegbie, Enerson, & Olaoye, 2022). Since then, a large number of people, companies, government parastatals, and government agencies have incorporated computer systems and the Internet into their company operations to stay competitive and lessen the amount of labour-intensive work that is typically done by humans (Adegbie, Enerson, & Olaoye, 2022).

Taxation is one of the earliest methods of financing the expense of providing essential services to most people residing in a particular area (Olaoye, Ayeni-Agbaje, Adebayo & Adesodun 2022). Since the emphasis has switched frombeing heavily dependent on oil revenue, it is one of Nigeria's primary government income sources. All across the world, governments are tasked with raising money through taxes to fulfil their spending commitments, which are necessary to achieve economic stabilisation, income redistribution, and the provision of public goods. The significance of a robust tax system for revenue collection efficiency cannot be overstated (Almustapha & Abdullahi, 2023).

The Relevant Tax Authority (RTA) administers several types of taxes using manual procedures, which makes the system cumbersome and prone to inefficiencies. Technology-based tax introduction becomes unavoidable. One way to reduce the difficulties associated with manual tax administration is to use tax technology to facilitate communication between taxpayers and tax authorities. This allows officials to check for dishonest behaviour and streamline corporate operations. A well-designed tax system helps the government generate substantial revenue to cover capital and recurrent expenditures. When put into place correctly, the systems will serve as one of the most effective means for a state or country to generate internal

revenue and enable the government to raise more money to fulfil its existing obligations.

The new technological advancements present fresh opportunities and challenges for tax systems in emerging nations(Patnaik, Ipseeta, & Mesele, 2019). Nigeria's introduction of an electronic taxing system is no exception. The laborious, manual, and prone-to-error offline approach has been replaced with an effective, safe, and nearly error-free online delivery system known as e-taxation (Amaefule, Okonya & Amaefule, 2012). While the electronic tax management system has many advantages, there has been increased anxiety that these targets will not be met (Adegbie, Enerson & Olaoye, 2022).

The tax administration system in Nigeria is inadequate (Ugwu, Eleghe, & Ukwueze, 2020). As a remedy, the Federal Inland Revenue Service (FIRS) embarked on digitising its services for improved and straightforward revenue collection to address the difficulties in tax administration and lessen the heaviest reliance on oil and gas revenues (Federal Inland Revenue Service, 2022a). It integrated information technology into its administration, which comes in the form of E-tax, known as electronic taxation.

However, several obstacles have prevented Nigeria's tax system from achieving these alleged goals. To put it briefly, the ratio of tax revenue to GDP and the low proportion of tax revenues to total federally collected revenue in Nigeria is alarming. On the other hand, a considerable amount of the overall revenue and GDP of other African nations, such as Ghana, Tunisia, Morocco, and so forth, comes from taxation. Compared to these nations, Nigeria, the continent's largest country, has a notably lower tax-to-GDP ratio. Nigeria's tax collection as a percentage of GDP is comparatively low, according to Awodipe (2018), when compared to other African nations like Ghana (16%), Egypt (16%), Morocco (22%), and South Africa (27%). Index Mundi (2016) relayed that Nigeria's highest tax-to-GDP ratio value over the past ten years was 9.7% in 2011.

In response to these threats, the Nigerian government worked through the tax boards to reorganise the tax system into a well-coordinated and structured. Electronic taxation is anticipated to result in a notable increase in tax collections. This, in turn, will impact the overall amount of federally collected taxes and overall economic growth, as observed in other nations. The e-tax system is expected to reduce leakages in the Nigerian tax system and encourage efficiency, accountability, and compliance.

Since the implementation of e-taxation in Nigeria in 2015 (Okunowo, 2015), empirical studies have been on the increase to establish the quantitative assessment of the effect of e-taxation on revenue productivity in the country (Olaoye, Ayeni-Agbaje, Adebayo, & Adesodun, 2022).These studies are geared towards establishing the effectiveness of e-taxation on the economy's progressive growth, approaching it from different dimensions. For example, Olaoye et al. (2022), andNnubia et al. (2020) conducted a comparative analysis of revenue productivity in Nigeria before and after e-taxation was implemented. Adegbie, Enerson, and Olaoye (2022) used questionnaires to investigate the effectiveness of e-tax revenue collection in a few states in South West Nigeria and found a considerable impact of e-tax on revenue generated. Adeniyi and Adesunloro (2017) investigated tax evasion and electronic taxation in Nigeria; Atilola and Olaoye (2018) also conducted a complementary study on electronic taxation.

Few studies related to the discourse of e-taxation focused on the influence of e-taxation on revenue generation in Nigeria. For example, Maurie and John (2019) and Chukwuma, Leonard, and Uche (2022) have shown a positive and significant impact of e-taxation on revenue generation. In keeping with the conversation, Clement and Oluseyi (2018), Olaoye, Opefolu, Alade (2018), and Yunus (2023) found that e-taxation had an insignificant impact on revenue generation. John-Akamelu and Iyidiobi (2019) demonstrated a significant effect of e-tax on revenue generation in the state of Anambra using primary data. However, Ajayi and Oyeniyi (2021) found inconsistent results for the variables examined. As previously said, the literature on electronic taxation and revenue generation has shown conflicting results. Consequently, more research in this field is required. Furthermore, the purpose of this study is distinct. This study aimed to establish the long and short-run relationship between e-tax and revenue generation since its inception in 2015.

Additionally, a perceived methodology gap calls for developing a model framework that accurately captures e-tax in quantitative measures within the context of Nigeria. This is because the current literature provides only a limited number of statistical estimations and projections of the actual economic reality of how tax reforms affect government revenue. The autoregressive distributed lag (ARDL) co-integration method was the foundation for the dynamic model used in this investigation. Considering the gap that has been identified, this studyinvestigated the relationship between Nigeria's income generation and its electronic tax system from 2015 to 2023; this becomes the void that our research hasfilled.

2. Review of Related Literature

Electronic Taxation

Electronic taxation (e-taxation) is the process of automating the collection and payment of taxes. It refers to advancing computer networks and systems for administering, collecting, and assessing taxes. Ajape, Afara & Uthman (2017) state that E-taxation permits taxpayers to electronically file tax returns, pay taxes, and generate tax clearance certificates. The idea facilitates seamless contact between tax administrators and taxpayers while improving compliance through an online platform. E-taxation uses ICT by economists worldwide to enhance public information transmission and public service delivery (Umenweke & Ifediora, 2016). The Internal Revenue Service (IRS) originally implemented the electronic taxation system in the United States in 1986. A year later, the technology was also implemented in Australia. With the US passing the IRS Restructuring and Reform Act of 1998, the system gained momentum. It was refined to the point where, by 2012, all electronically prepared forms were being filed electronically (Richards & Echarto, 2019).

Following a three-year visit by a team from the International Monetary Fund (IMF) Fiscal Affairs Division in 2004–2006, Nigeria began implementing e-taxation in 2006. The visiting team advised the installation of an Integrated Tax Administration System (ITAS). The Federal Executive Council (FEC) approved the Federal Inland Revenue Services (FIRS) in December 2010 to purchase, install, and operate the ITAS as a result of this development (Richards & Echarto, 2019). The Nigerian Interbank Settlement System (NIBBS) and the Federal Inland Revenue Services (FIRS) collaborated to develop the automated process in 2015 to implement an electronic tax system to facilitate online tax payments in Nigeria's major cities. The goal of e-taxation integration into the tax system in Nigeria is to address issues associated with the cumbersome traditional manual taxation system. The system offers simplified, effective procedures facilitating communication between the service and other stakeholders, increasing the FIRS's responsiveness to taxpayer demands (Onuiri, Faroun, Erhinyeme & Jegede, 2015). This system makes Nigerian taxpayers feel more welcome and enhances voluntary tax compliance. In addition, for accountability and good stewardship, the system guarantees more openness in the acts and procedures of tax authorities.

Taxpayers only need to complete three steps to complete their returns: electronic registration, Tax Identification Number (TIN) verification and issuance, and electronic return filing. These steps may be completed in a matter of minutes. Once the amount of tax due has been determined, the taxpayer can pay electronically or manually using the revenue authority's chosen bank. The tax authority receives an alert from the bank upon payment confirmation, and the tax authority then generates an

electronic invoice. The tax authority sends the taxpayer an electronic invoice as proof of tax payment after receiving notification from the designated collecting bank that the taxpayer has made payment. When a taxpayer files a complaint, and the tax authority confirms that the taxpayer paid more than the amount owed in taxes, the taxpayer either receives an electronic refund from his bank or, at the tax authority's request, the excess payment is held by the designated collecting bank and deducted from the next due tax payment.

As part of a nationwide restructuring of the electronic tax system to effectively comply with the rules outlined above, six (6) tax electronic services were introduced on the FIRS portal in June 2017. Electronic tax clearing certificates (e-TCCs), electronic receipts, electronic tax payments, electronic registration, and stamp duty are among the e-services offered. The taxpayer uses these links from the point of online registration to electronic receipt printing (Sani & Usman, 2019).

Revenue Generation

Revenue generation has been a major concern for many countries (Okauru,2011) as the government uses revenue to provide citizens with public goods (IMF, 2010). According to Enahoro (2012), revenue generation refers to the methods used by the government to raise funds for both capital and current expenditures. Seera (2005) states that the government obtains funding for its expenditures primarily from capital receipts, non-tax sources, and tax sources. Taxation is the most significant of these three sources since tax income determines how much the government spends, and the tax administration's capacity and effectiveness determine how much money is collected from taxes (Bird, 2005). The tax source that is the subject of this study is the total amount of money that the government receives from all applicable tax components in a nation (Okafor, 2012). Tax revenue collection as a concept defines the proportionof tax money generated in the country relative to other types of revenue. One direct method used by governments to raise money is taxation. According to Bird (2015), a nation's ability to collect enough tax revenue depends partly on how competent and efficient its tax administration is.

Because taxes play a significant role in government finances, raising tax revenue is essential to managing public finances. When the nation's low tax revenue is tied to productivity, the government will find it more difficult to provide basic infrastructure and social amenities like stadiums, electricity, museums, hospitals, pipe-borne water, roads, and quality youth education (Oriakhi & Osemwengie, 2013).

In addition to more conventional measures, it is impossible to overstate the significance of institutional elements like governance and institutional quality in

revenue production conversation. Because of their role in tax evasion, inappropriate tax exemptions, and lax tax administration, these factors are thought to impact tax revenue in one way or another (Tanzi & Davoodi, 1997). This is a factor in the Nigerian instance where a few elites and political godfathers may pull strings to guarantee that certain corporations benefit from exemptions. This is another explanation for why some businesses typically include a few of these well-known figures on their board of directors. In cases where some revenue collection agency employees collude with taxpayers to obtain a lower amount than what is legally required of the person or business in exchange for a "settlement."

According to Bird (2004), any effective tax reform to resolve these issues needs to be backed by a strong political will to reform, which includes making the institutions withstand criticism from certain influential political and business figures in the community. Additionally, Bird, Martinez-Vazquez, and Torgler (2006) contended that political leadership capable of upholding the rule of law and effectively controlling corruption inside its borders is necessary to achieve successful revenue production through proper tax collection.

Theoretical Framework (Technology Acceptance Model)

As established in the work of Avci-Yucel and Gulbahar (2013), perceived ease of use and perceived usefulness are two predictors in the acceptance of information technology, and they bring the most influential variables and also present a deeper insight for clarifying behaviours that taxpayers envisage while using technology. Accordingly, a person's opinion regarding using a system is determined by their perception of its usefulness (PU). Additionally, a user's skewed likelihood of using a particular application arrangement will increase the system's perceived usefulness (PEOU) and recital, leading the user to expect the system to be effortless. According to Davis (1989) in Olushola and Abiola (2017), TAM assumes that perceived usefulness (PU) and ease of use (PEOU) are the two main important factors in explaining and predicting system usage; it offers a concise basis for understanding the potential impact that external variables may have on internal beliefs, attitudes, and intentions. Odusola (2006) argues that to allow for the use of TAM in revenue collecting, the tax system needs to be reevaluated to make more room for technological innovation in the sector, and the nation as a whole needs to see greater priority. Additionally, Monica, Makokha, and Namusonge (2017) contend that when utilising TAM, beliefs moderate the impacts of external variables on behavioural intention (BI), and that the TAM portrayal may be useful for analysing user groups and their applications both inside and between enterprises when forecasting usage. One of the main elements that encouraged the adoption of technological innovation was the perception and attitude toward electronic filing (Mandola, 2013).

The performance risk can be reduced by fine-tuning to a simple e-filing system, but this should only be done when taxpayers perceive the system to be user-friendly. Additionally, this will lessen taxpayers' perception of systemic risk. Not all tax stakeholders, especially tax agents and experts, consider adopting an e-filing system simple or widely accepted (Kamarulzaman, 2010). Before attempting to use the new technology, users typically try to learn how to use it. Bagozzi, Davis, and Warshaw (2007) in Karimi, Kimani, and Kinyua (2017) argued that new technologies, like personal computers, are complex and that decision-makers have a vague notion about their successful adoption. People also form attitudes and intentions toward TAM, drawing attention away from other critical issues and giving the impression that knowledge is being gathered more quickly. Stated differently, e-tax systems should be evaluated based on their usability, design, and performance and factors including download time, navigability, site content, interaction, responsiveness, user happiness, frequency of usage and return time to the website.

Therefore, the Technology Acceptance Model (TAM) is relevant to this study because the theoretical framework considers the successful execution of e-tax greatly dependent on the adopter's positive or negative behaviour regarding new technology. As a result, this study is anchored on the theory of TAM.

2.1. Empirical Review

2.1.1. Value-added Tax and Total Electronic Tax Revenues

Obadiaru, Okon, and Ayeni's (2024) study sought to determine how tax revenue affected Nigeria's economic growth between 1991 and 2021. GDP was used as the dependent variable to represent the Nigerian economy. In contrast, personal income tax (PIT), corporate income tax (CIT), and value-added tax (VAT) were used as proxies for tax revenue. The statistical method used for data analysis was the Autoregressive Distributed Lag (ARDL) approach. Value-added tax (VAT) and personal income tax (PIT) were found to have a negative influence on GDP using the ARDL test; however, corporate income tax (CIT) had a positive impact. Thus, the study concluded that tax income and the expansion of the Nigerian economy are positively and significantly correlated.

Nnubia et al. (2020) looked into how Nigerian income generation was affected by e-tax assessment. Revenue generated is the dependent variable; company income tax, value-added tax, and capital gain tax are the independent variables. For the data analysis, the Ordinary Least Squares Method was used. The results showed that pre-e-tax company income tax and value-added tax positively and significantly impacted

income production in Nigeria. It concluded that Nigeria's revenue base has not been increased considerably by e-taxation.

Tyokoso, Onho, and Musa (2021) looked at Tax Identification Numbers (TINs) and Tax Revenue Performance in Nigeria, with a particular emphasis on how TINs affect tax collections from the generation of petroleum profit taxes (PPT), company income taxes (CIT), value-added tax (VAT), and customs and excise duties (CED). Regression analysis was used to examine the collected data using a paired sample t-test. The study's findings showed that implementing TIN significantly improved VAT, CIT, CED, and PPT methods.Thus, empirical data suggests that using TIN as a digital identity has improved tax revenue collection as part of the Nigerian tax administration's digitalisation efforts.

Edewusi and Ajayi (2019) investigated the relationship between tax income and economic growth in Nigeria. The dependent variable under study was Nigeria's economic growth, and the variables of interest were PPT, CIT, and VAT as explanatory variables. The results showed that the VAT, CIT, and PPT significantly and positively impacted the economy. According to the report, the government should improve the nation's tax structure to curtail activities that make it more challenging to raise the necessary funds, which would alter how quickly the economy grows. Iheduru and Ajaero (2018) conducted a comparative analysis of pre-and post-TIN data to examine TIN's impact on non-oil tax income empirically. The researcher used pairwise t-tests and descriptive statistical approaches for their studies, using CIT, VAT, and TET as the independent variables and total non-oil tax revenue as the dependent variable. The results showed that implementing TIN has significantly increased total non-oil tax income. Furthermore, after TIN was implemented, revenue from CIT and TET increased dramatically.

Olaoye and Atilola (2018) investigated how e-tax payments impacted Nigeria's income generation. Trend analysis, paired sampled t-test, and descriptive statistics of mean and standard deviation were used in the analysis. The results showed an insignificant positive difference between pre and post-value-added tax revenue; this implies that e-tax payment has an insignificantly positive impact on VAT collections in Nigeria. Furthermore, a positive but not statistically significant difference in revenue was seen during the pre-and post-CIT periods.Therefore, the payment of e-tax has an insignificant negative effect on VAT revenue.

Alade (2018) investigated how Nigeria's adoption of e-tax will affect the country's ability to generate income.The quarterly data spans six (6) years. While the post-e-tax period ran from 2015q2 to 2018q2, the pre-e-tax period ran from 2012q1 to

2015q1. But just to be clear, the variables are VAT and CIT. The paired sample t-test analysis revealed a positive, insignificant difference between pre- and post-CIT and pre- and post-VAT revenue. The conclusion reached was that Nigeria's revenue generation has not been greatly aided by e-tax. In line with the review above, our first hypothesis is formed:

Ho: Value-added tax has no significant positive relationship with total electronic tax revenues in Nigeria

2.5.3. Petroleum Profit Tax and Total Electronic Tax Revenues

Tyokoso, Onho, and Musa (2021) looked at Tax Identification Numbers (TINs) and Tax Revenue Performance in Nigeria, with a particular emphasis on how TINs affect tax collections from the generation of petroleum profit taxes (PPT), company income taxes (CIT), value-added tax (VAT), and customs and excise duties (CED). Regression analysis was used to examine the collected data using a paired sample t-test. The study showed that implementing TIN significantly improved VAT, CIT, CED, and PPT methods.Thus, empirical data suggests that using TIN as a digital identity has improved tax revenue collection as part of the Nigerian tax administration's digitalisation efforts.

Inimino, Abuo, and Bosco (2018) investigated how tax revenue affected Nigeria's economic growth. It made use of the co-integration and ECM econometrics techniques. The co-integration result demonstrated that the variables have a long-term relationship. According to the Parsimonious Error Correction finding, there is a positive and substantial correlation between Nigeria's economic growth and CIT, customs, and excise duties. PPT has, however, had a limited effect on Nigeria's economic growth. It concluded that the government should ensure that tax money and other funds are used effectively to fund national security, housing, transportation, power, education, and agriculture spending.

Tijani (2017) researched to determine the connection between tax income and Nigeria's economic development and growth. It started using Microsoft Excel to analyse data using Multiple Linear Regression. The results demonstrated that whereas custom excise and tariffs had a negative but significant impact on the relationship between tax income and Nigeria's economic growth, PPT, CIT, and VAT had a favourable impact. It is advised that people be made aware of the significance of paying taxes to the national government andthat tax administration be left to only qualified, reputable, and professional personnel. Thus, our second hypothesis is stated as follows:

Ho: There is a positive and significant relationship between petroleum profit tax and total electronic tax revenues in Nigeria

2.5.4. Capital Gain Tax and Total Electronic-Tax Revenues

The impact of e-tax payments on revenue collection in Nigeria was studied by Onuselogu and Onuora (2021). Owing to the datasets' characteristics, time series data from 2012q1–2018q2 were categorised as pre- and post-tax periods. The data was analysed using the Ordinary Least Squares method. The findings showed that e-company income tax payment has an insignificant positive impact on Nigerian revenue generation. On the other hand, the payment of the e-capital gain tax negatively impacted revenue generation and was not statistically significant at the 5% significance level. Dauda and Dauda (2020) researched the assessment of the extent of the contribution of capital gain tax to the internally generated revenue (IGR) profile of Nasarawa State, Nigeria. Both parametric and non-parametric statistics, including mean and basic linear regression, were used to analyse the data. The analysis's findings showed that, during the study period, the capital gain tax revenue's contribution to the state's overall IGR was statistically insignificant.

Ngu (2020) investigated how the capital gains tax affected Nigeria's economic development and overall tax collections. The study used E-views to analyse the provided data using the simple regression technique. Its conclusions showed a weakly positive correlation between Nigeria's economic growth and total tax income from capital gains taxes. The analysis concluded convincingly that the capital gains tax has not substantially impacted Nigeria's economic development and total tax income.

Olaoye and Atilola (2018) investigated how e-tax payments impacted Nigeria's income generation. Trend analysis, paired sample t-test, and descriptive statistics of mean and standard deviation were used in the analysis. The results showed an insignificant positive difference between pre- and post-value-added tax revenue; this implies that e-tax payment has an insignificantly positive impact on VAT collections in Nigeria. Furthermore, a positive but not statistically significant difference in revenue was seen during the pre-and post-CIT periods.Additionally, it demonstrated that the income before and after the CGT differed positively but not statistically significantly. In other words, the payment of e-taxes has an insignificant but positive impact on CIT in Nigeria. Thus, it was determined that e-tax payments had not influenced the generation of CGT, VAT, and CIT in Nigeria. based on the argument above, our third hypothesis is stated as follows:

Ho: Company gain tax has no positive and significant relationship with total electronic tax revenues in Nigeria.

3. Methodology

This study empirically examines the relationship between electronic taxation, the tax revenue generated from different tax sources, and revenue generation in Nigeria from 2015 to 2023. The study uses the correlational research design, which is often used to determine the relationship among variables in a research study.This study focused on secondary data that were extracted quarterly from the Federal Inland Revenue Service (FIRS), the Central Bank of Nigeria (CBN) Statistical Bulletin, and the National Bureau of Statistics (NBS). The total number of quarters for the study period is 36, comprising four quarters from each year of 2015, the year the electronic tax system started in Nigeria, to 2023 (Q1 2015 through Q4 2023). The target population includes all tax types collected by the Federal Inland Revenue Service (FIRS) and the total revenue collected by the government of Nigeria.The sample size comprised the tax types in the NBS and FIRS. This study adopts non-probability sampling techniques. Judgmentally, the study selected four different types of tax to be used as deemed fit in this study. To the researcher's knowledge, these taxes are the country's most well-known and collected taxes. These taxes are value-added tax (VAT), petroleum profit tax (PPT), and capital gains tax (CGT).

The independent variables in this study will be the post-electronictax revenues collected from the different tax sources, which are the revenue generated after implementing the electronic tax system. Various types of taxes, such as value-added tax (VAT), petroleum profit tax (PPT), and capital gains tax (CGT), were used as proxies for post-electronictax revenues.The dependent variable is revenue generated. This is proxiedby the aggregate revenue generated by the federal government.

Table 1: Variables Measurement

Variables	**Prox (ies)**	**Abbreviation**	**Measurement**
Independent Variable: post-electronictax revenues	value-added tax	VAT	Amount of federally collected value-added tax
	petroleum profit tax	PPT	Amount of federally collected petroleum profit tax
	Capital Gains Tax	CGT	Amount of federally collected capital gain tax

Dependent Variable Revenue Generated	Aggregate revenue generated by the federal government	ARG	Aggregate amounts generated by the federal government are quarterly.

Source: Researchers Compilation

Model Specification

The dependent variable for the study is aggregate revenue generated by the federal government, modelled as a function of the independent variable, post-electronic-tax revenues collected from the different tax sources. When the variables in equations (or hypotheses) 1and 4 were tested for co-integration, the variables in equations 1 and 3 were found to be co-integrated. In contrast, equation 3 did not co-integrate. Thus, the long-run model was specified in econometric terms for hypotheses 1 and 4, while the short-run model was specified for hypothesis 2. Following Pesaran et al. (2001), this study's model is expressed as follows:

$$\Delta ARG_t = a_{oi} + \sum^{p}_{i=1} a_{1i}\Delta \text{ ARG } t\text{-}i + \sum^{p}_{i=1} a_{2i}\Delta VAT_{t-i} + \sum^{p}_{i=1} a_{3i}\Delta CIT_{t-i} + \sum^{p}_{i=1} a_{4i}\Delta CGT_{t-i} + \sum^{p}_{i=1} a_{5i}\Delta PPT_{t-i} + \lambda clb + e_{it} \quad 1$$

Where: clb represents the residual generated

Δ signifies change

Specifically:

Hypothesis One

Hypothesis one states that Value-added tax has no positive or significant relationship with total electronic tax revenues in Nigeria. The long-run equation is stated as follows;

$$ARGt = aoi + b_{1i}\, ARGt\text{-}i + b2iVATt\text{-}i + e_{it} \quad 2$$

To estimate the long-run model (ECM), the residue must be extracted and plugged into the error correction model. Considering the appropriate lag (1,1 and 2), the ECM for the test of hypotheses 1,2 and 4 is specified below:

ECM for Hypothesis One

$$\Delta ARG_t = a_{oi} + \sum^{p}_{i=1} a_{1i}\Delta \text{ ARG } t\text{-}i + \sum^{p}_{i=1} a_{2i}\Delta VAT_{t-i} + \lambda ecm1 + e_{it} \quad 3$$

Hypothesis Two

Hypothesis two states a positive and significant relationship exists between petroleum profit tax and total electronic tax revenues in Nigeria. It is stated as follows;

$$\Delta ARG_t = a_{oi} + \sum^{p}_{i=1} a_{1i}\Delta \text{ ARG } t\text{-}i + \sum^{p}_{i=1} a_{4i}\Delta PPT_{t-i} + e_{it} \quad 4$$

Hypothesis Three

Hypothesis three states that there is no positive and significant relationship between capital gain tax and total electronic tax revenues in Nigeria. It is stated as follows;

$$ARGt = aoi + b_{1i} ARGt\text{-}i + b2iCGTt\text{-}i + e_{it} \quad 5$$

ECM for Hypothesis Three

$$\Delta ARG_t = a_{oi} + \sum^{p}_{i=1} a_{1i}\Delta\ ARG\ t\text{-}i + \sum^{p}_{i=1} a_{2i}\ \Delta CGT_{t\text{-}i} + \Lambda ecm4 + e_{it} \quad 6$$

Technique for Data Analysis

The Autoregressive Distributed Lag (ARDL) Bounds test approach was adopted to examine the study's objective. In a co-integration regression analysis, where the variables are not all 1(0) or 1(1) but a mix of 1(0) and 1(1), it can be employed (Pesaran et al., 2001). The ARDL Bounds test assumes that the variables are stationary at order I(0) or I(1). To apply this test, we determined the order of integration for all variables using the unit root tests. The objective is to ensure that the variables are not stationary at order two I(2). In the presence of variables integrated with order 1(2), we cannot interpret the values of F statistics provided by Pesaran et al. (2001).

The Bounds test model extends the ARDL co-integration technique as a general VAR model of order P in Z_t, where Z_t is a column vector of n variables. Bounds test modelling uses the F-statistic to test the significance of the lagged levels of the variables in a univariate equilibrium correction system (error correction model) when it is unclear if the data-generating process underlying a time series is a trend or first difference stationary (Omoniyi and Olawale, 2015). It uses OLS estimation of a conditional unrestricted ECM for co-integration analysis developed by Pesaran et al. (2001) before the bounds test. The model tests for the existence (absence) of a long-run co-integrating relation and estimates the coefficients of the study's long-run and short-run.Based on the bond test, hypotheses one and two were tested using the error correction model (ECM). In contrast, hypothesis three was tested using the Autoregressive Distributed Lags (ARDL).

Justification of Methods

Since this study aims to test the relationship between the variables, analysing the data using the error correction model (ECM) and ARDL model will be the best method because the model is a valuable tool in time series analysis, particularly for examining co-integrating relationships. The objective is to forecast and analyse relationships between variables.

4. Results

Data Presentation

In this section, data for the study, sourced from the Federal Inland Revenue Service (FIRS) in Nigeria, were presented, tested and analysed. The data were collected from the FIRS web page and organised in tabular form, specifying the period under study. The data were used to test the hypotheses, results were interpreted, and findings and conclusions were obtained from the analysis.

Table 2: Data used for the analysis of all the Variables used in this study

Quarters	ARG (Billion)	VAT(Billion)	CGT(Billion)	PPT(Billion)
2015Q1	782.368	193.3893	0.2502	391.037
2015Q2	1,188.12	196.9737	12.0074	306.1417
2015Q3	980.4829	193.5206	4.2449	325.8656
2015Q4	790.7817	183.4499	0.2995	266.9164
2016Q1	563.8697	198.7343	0.228	176.7478
2016Q2	994.9165	197.7765	72.5931	328.0916
2016Q3	992.2869	207.214	24.1888	323.579
2016Q4	756.3883	224.4743	2.3935	329.3897
2017Q1	778.1935	221.3805	0.1106	338.299
2017Q2	1004.1757	246.3033	0.8258	297.8715
2017Q3	1115.3287	250.5607	1.8449	390.7045
2017Q4	1130.2473	254.1039	0.399	493.6067
2018Q1	1173.6139	269.7938	0.3142	644.7751
2018Q2	1334.2444	266.7317	6.1663	523.8523
2018Q3	1380.4174	273.5041	5.8435	626.3839
2018Q4	1432.6157	298.0105	0.2707	672.5694
2019Q1	1046.8898	293.0394	0.0964	493.219
2019Q2	1400.6086	311.943	0.9752	502.9935
2019Q3	1564.5687	275.1161	1.2986	592.5475
2019Q4	1249.8492	309.8826	3.6068	525.5075
2020Q1	1,175.08	324.5791	0.6433	522.334
2020Q2	1,288.36	327.1954	0.6174	440.3014
2020Q3	1,419.95	424.7081	1.7837	353.1125
2020Q4	1,068.84	454.6883	0.4742	201.2455
2021Q1	1,285.86	496.39	0.75	327.23
2021Q2	1,476.60	512.25	15.55	316.91
2021Q3	1,430.38	500.49	0.01	305.14
2021Q4	2,209.86	563.72	1.2	1,059.17
2022Q1	1,846.17	588.5989	1.0839	646.12
2022Q2	2,466.31	600.1516	22.3005	991.44
2022Q3	3,186.22	625.3884	1.7839	1476.44

2022Q4	2,680.64	697.3789	20.4039	1095.01
2023Q1	2517.77	709.59	3.96	1249.09
2023Q2	3425.8	781.35	3.47	914.62
2023Q3	3641.1	948.07	7.8	278.25
2023Q4	2753	1,200.30	3.85	273.25

Source: Federal Inland Revenue Service Web page. **Note:** ARG: Aggregate revenue generated; VAT: Value added tax; CGT: Capital gain tax; and PPT: Petroleum profit tax

4.1. Data Analysis and Results

A series of tests was conducted to determine the long and short-run relationship between electronic tax systems and revenue generation in Nigeria's economy. The pre-test comes first, followed by the main test. This is necessary since the outcome can be paramount to the Nigerian economy.

4.1.1. Pre-test

Table 3: Descriptive Statistics

	ARG	**VAT**	**CGT**	**PPT**
Mean	1542.53	406.13	6.19	527.77
Maximum	3641.01	1200.30	72.59	1476.44
Minimum	563.87	183.45	0.01	176.75
Std. Dev.	56099.37	2881.79	3519.43	4846.99
Skewness	789.81	238.75	13.09	311.17
Kurtosis	1.27	1.47	3.912	1.44
Observations	36	36	36	36

Source: Author's Computation via E-views (2024)

Measures of central tendency and measures of dispersion are both measures of descriptive statistics. It displays the mean, maximum, minimum, standard deviation, skewness, and kurtosis.

The study's descriptive statistics result is shown in Table 3. It shows 36 observations in all the data extracted from the FIRS. Our result showed that VAT, CGT, and PPT contributed 406.13, 6.19, and 527.77 on average to the aggregate revenue generated. PPT remitted the maximum amount of 1476.44 billion to aggregate revenue generated, while CGT remitted the lowest, a minimum amount of 0.01 billion to aggregate revenue generated. The standard deviations of 2881.79, 3519.42 and 4846.99,

respectively, show a significant dispersion of the variables from the average mean. This outcome suggests that, on average, the selected taxes have contributed significantly to the aggregate revenue generated.

All variables show a positive value for kurtosis. This shows the degree of departure from the mean. The variables also show a positive value for skewness. These revealed that the degree of tailedness of all variables used within the period of this study has a heavier tail, called a leptokurtic distribution.

Table 4: Pearson's correlation matrix among the variables

	ARG	**VAT**	**CGT**	**PPT**
ARG	1.000			
VAT	0.875	1.000		
CIT	0.914	0.823		
CGT	0.023	-0.043	1.000	
PPT	0.630	0.362	-0.011	1.000

Source: Author's Computation via E-views (2024)

Table 4 shows all the variables' degrees and directions of linear association. It can be inferred that positive and negative correlations exist among all the variables. The result showed that our variables, apart from VAT, are not highly correlated. This is shown in Table 4, as most of the variables are positive and far apart.

4.2. Unit Root Test

To ensure and avoid spurious results, the unit root test is conducted. This ensures we don't end up with spurious estimation results because studies done with non-stationary series produced spurious results. Again, it is also necessary to conduct the unit root test to determine the order of integration of the series, which will aid in choosing the appropriate estimation method. The hypothesis is as follows:

H_0: The null hypothesis states that there is a unit root.

H_1: The alternative hypothesis states that there is no unit root.

Decision Rule

The ADF Stat (T-stat) must be more negative than the critical value, and the probability of all variables must be at a 5% level of significance to reject the H_0 and accept H_1.

Table 5: Augmented Dickey-Fuller Unit Root Test

S/N	Variables	ADF Stat	Critical Values			Order of Integration
			1%	5%	10%	
1	ARG	-8.348503 **PV** (0.0000)	-4.263***	-3.553***	-3.209***	1(1)
2	VAT	-5.602999 **PV** (0.0103)	-4.253***	-3.548***	-3.207***	1(1)
3	CGT	-5.046313 **PV** (0.0013)	-4.244***	-3.544***	-3.205***	1(0)
4	PPT	-3.522634 **PV (0.0010)**	-2.653***	-1.954***	1.609***	1(0)

Source: Author's Computation via E-views (2024); **Note**: *** Suggests Stationarity at the given significance level (0.05)

The stationary characteristics of the series are displayed in Table 5 following the application of the augmented Dickey-Fuller (ADF) framework. The results reported above indicate that the T-statistics are more negative than the critical values. The series are stationary at different orders of integration. The dataset shows a combination of 1(0) and 1 (1), which provides necessary theoretical support for the adoption of the ARDL estimation approach as proposed by Pesaran, Shin, and Smith (2001) to test for the co-integrating relationship.

4.3. The Long-run Model (ECM) and the short-run model; the Autoregression Distributed Lag (ARDL)

Since the series are integrated in a different order, performing a co-integration test is necessary to establish a long–run relationship. The appropriate co-integration test is the bound test by Pesaran Shin and Smith (2001) to test for co-integrating relationships.

The hypothesis is stated as follows:

Ho: no co-integration equation

H_1: Ho is not true

Decision Criteria for the Bound Test:

i. Rejection at the 10%, 5%, 1% level

ii. If the calculated F-statistic is greater than the critical value for the upper bound, 1(1), we can conclude that there is co-integration. This implies a long-run relationship, so the null hypothesis is rejected, and the co-integration test is

conducted. In this case, the long-run model, which is the Error Correction Model (ECM), is estimated.

iii. If the F-statistic is lower than the critical value for the lower bound 1(0), we conclude that there is no co-integration; hence, there is no long-run relationship, so the null hypothesis is accepted. Therefore, there is no need to perform the co-integration test as there is no long-run relationship. The short-run Autoregression Distributed Lag (ARDL) model is estimated in this case. Table 6 below shows the outcome of the Bounds Test conducted for all hypotheses:

Table 6: Summary of Bound Test Results

Dependent Variable	**F-Statistics**	**Significant Level**	**Lower Bound Limit 1(0)**	**Upper Bound limit 1(1)**	**Co-integration**	**What Next???**
ARG (Hypothesis One)	$\mathbf{F_{STAT}}$ = 12.279537	10%	4.225	5.050		
		5%	5.290	6.175		
		1%	7.870	8.960	Yes	Estimate the Error Correction Model (ECM) (Long-run model)
ARG (Hypothesis Two)	$\mathbf{F_{STAT}}$ = 2.794074	10%	3.223	3.757		
		5%	5.763	6.480		
		1%	5.763	6.480	No	Estimate the ARDL (Short-run model)
ARG (Hypothesis Three)	$\mathbf{F_{STAT}}$ = 9.799181	10%	3.223	3.757		
		5%	3.957	4.530		
		1%	5.763	6.480	Yes	Estimate the Error Correction Model (ECM) (Long-run model)

Source: Author's Computation via E-views (2024)

From the result in Table 6, the t-statistic results for hypotheses one and three are greater than the critical value for the upper bound, 1(1), so we can conclude that there is co-integration, which implies a long-run relationship. So, the null hypothesis

is rejected, the co-integration test is conducted, and the long-run model, which is the Error Correction Model (ECM), is estimated. On the other hand, thef-statistic result for hypothesis two is lower than the critical values at the lower bound limit 1(0). The bound test result for the hypothesis shows a short-run relationship. Based on the result, the short-run model ARDL was applied for hypothesis two.

To perform the analysis for all hypotheses, it is appropriate to determine an appropriate lag length to be used for the analysis. Below is Table 4.6, showing the appropriate lag length for each hypothesis:

Table 7: Appropriate Lag Length for all Three Hypotheses

Hypothesis	**Appropriate Lag**
Hypothesis One	1
HypothesisTwo	3
Hypothesis Three	2

Source: Author's Computation via E-views (2024)

4.4. Model Estimation and Test of Hypotheses

4.4.1. Hypothesis One

Value-added tax has no positive or significant relationship with total electronic tax revenues in Nigeria.

Table 8: Summary of the ECM Result for the Test of Hypothesis One
Dependent Variable: D(ARG)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	133.5623	67.81783	1.969428	0.0582
D(ARG(-1))	0.063780	0.211431	0.301658	0.7650
D(VAT(-1))	-3.544681	1.617975	-2.190814	0.0364
ECM1(-1)	-0.392412	0.213160	-1.840927	0.0355
R-squared	0.284313			
Adjusted R-squared	0.212745			
F-statistic	3.972592			
Prob(F-statistic)	0.016974			
Durbin-Watson stat	1.708243			

Source: Author's Computation via E-views (2024)

Table 8 above summarises the ECM result for the test of hypothesis one. From the table, VAT showed a significant negative effect (at a 5% significance level) on the aggregate revenue generated in Nigeria for the period under study. These imply that a one percentage point increase in VAT results in a negative 3.544681 percentage decrease in ARG, although the extent of the reduction is non-significant. The residual ECM1 of the error correction model is negative (-0.392412) as expected, statistically significant at a 5% level of significance and has the approximate value of 39.2%. Vat has a negative relationship with total revenue geThis result implies that a change in value-added tax has not led to increased tax revenues generated in Nigeria for the period. However, this negativity can adjust at a speed of 39.2% in the long run. The finding is substantiated by Olaoye and Atilola (2018), who investigated how e-tax payments impacted Nigeria's income generation. Their results showed an insignificant difference between pre and post-value-added tax revenue; this implies that e-tax payment has an insignificant impact on VAT collections in Nigeria for the study period. The study findings also support the conclusions of Obadiaru, Okon, and Ayeni (2024), who found that value-added tax (VAT) negatively influenced growth during the period studied. The study discovered that value-added tax negatively affects the GDP.

The result of the diagnostic test supported the absence of an auto-correlation problem; the Breusch-Godfrey Serial Correlation (LM) test (see Table 9 below), shows that the model is not suffering from serial correlation (F-stat. = 0.1503> 0.05); therefore the result is suitable for a meaningful analysis.Therefore, the study upholds that the Value-added tax though negative can adjust at a speed of 39.2% in the long run.

Table 9: Diagnostic Test **(**Breusch-Godfrey Serial Correlation LM Test)

	F-statistic	Obs*R-squared
Hypothesis One	0.1503	0.1152

Source: Author's Computation via E-views (2024); see appendix vi for full result

4.4.2. Hypothesis Two

There is a positive and significant relationship between petroleum profit tax and total electronic -tax revenues in Nigeria.

Table 10: Summary of the ARDL Result for the Test of Hypothesis Two
Dependent Variable: D(ARG)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	39.94264	62.99414	0.634069	0.5310
D(ARG(-3))	-0.000417	0.314378	-0.001325	0.9990
D(PPT(-3))	0.798075	0.460091	1.734605	0.0934
C	39.94264	62.99414	0.634069	0.5310
R-squared	0.205318			
Adjusted R-squared	0.150512			
F-statistic	3.746290			
Prob(F-statistic)	0.035711			
Durbin-Watson stat	2.235630			

Source: Author's Computation via E-views (2024); see appendix vi for full result

Table 10 above summarises the ARDL result for the test of hypothesis two. From the table, PPT showed a positive and non-significant effect (at a 5% significant level) on the aggregate revenue generated in Nigeria for the period under study. These implied that one percentage increase in PPT results in a 0.798075 increase in ARG, although the extent of the reduction is not significant. This finding implies that changes in PPT tax revenue collected have not significantly increased aggregate revenue collected for the period. This may change in the long-run, as indicated by the positive nature of our findings. The finding supports the outcome of Okolo, Ideh, and Emengini (2021), who investigated the correlation between corporation tax, total federally collected tax revenues, and economic growth and Ngerebo-A & Orji (2019). They established an insignificant relationship between the variables used. The finding contradicts the results of Uzoka and Chiedu (2018),whose findings revealed that PPT significantly impacts economic growth in Nigeria.

The R^2 of 20% showed the goodness of fit of the regression. The exogenous variables are jointly responsible for a 20% variation in the endogenous variable, with an unexplained variation of 80%. This implies that variables other than the explanatory variables are also responsible for the change in the endogenous variable, which is not accounted for by our model. Testing the overall significance of the model, the F-stat of 3.746290 and the Durbin-Watson stat of 2.235630 with a corresponding probability value of 0.035711 affirm the statistically significant relationship between petroleum profit tax and total electronic tax revenues. The Durbin-Watson Statistics of 2 rule out all possibility of suspicion of first-order positive autocorrelation. The result

of the diagnostic test further supported the absence of an autocorrelation problem; the Breusch-Godfrey Serial Correlation (LM) test (see Table 11 below) shows that the model is not suffering from serial correlation (F-stat. = 0.1962> 0.05); therefore, the result is suitable for a meaningful analysis.

Therefore, hypothesis two is accepted, and the study upholds that the company income tax is positive, thoughthe positivity is not significant.

Table 11: Diagnostic Test **(**Breusch-Godfrey Serial Correlation LM Test)

	F-statistic	Obs*R-squared
Hypothesis One	0.1962	0.1633

Source: Author's Computation via E-views (2024)

4.4.3. Hypothesis Three

Company gain tax has no positive and significant relationship with total electronic tax revenues in Nigeria.

Table 12: Summary of the ECM Result for the Test of Hypothesis Four
Dependent Variable: D(ARG)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	88.12006	67.94616	1.296910	0.2049
D(ARG(-2))	-0.525503	0.200798	-2.617078	0.0139
D(CGT(-2))	1.840108	3.450227	0.533330	0.5979
ECM4(-2)	-0.069238	0.202131	-0.342543	0.0344
R-squared	0.251554			
Adjusted R-squared	0.174128			
F-statistic	3.248980			
Prob(F-statistic)	0.036038			
Durbin-Watson stat	2.348528			

Source: Author's Computation via E-views (2024); see appendix vi for full result

Table 12 above summarises the ECM result for the test of hypothesis three. From the table, CGT showed a positive and non-significant effect (at a 5% significant level) on the aggregate revenue generated in Nigeria for the period under study. These implied that one percentage increase in CGT results in a 1.840108 increase in ARG, although the extent of the reduction is non-significant.

The residual ECM4 of the error correction model is negative (-0.069238), and statistically significant at a 5% significance level. It has an approximate value of 6.9%,

meaning that the system can corrects its previous disequilibrium period at a speed of 6.9%. The result of the diagnostic test supported the absence of an auto-correlation problem; the Breusch-Godfrey Serial Correlation (LM) test (see Table 13 below) shows that the model is not suffering from serial correlation (F-stat. = 0.3459> 0.05); therefore the result is suitable for a meaningful analysis.

Therefore, hypothesis three is accepted, and the study upholds that the company income tax, though positive, has no significant relationship with total electronic tax revenues in Nigeria, this can be corrected at a speed of 6.9% in the long run.

Table 13: Diagnostic Test **(**Breusch-Godfrey Serial Correlation LM Test)

	F-statistic	Obs*R-squared
Hypothesis One	0.3459	0.2871

Source: Author's Computation via E-views (2024); see appendix vi for full result

5. Conclusion and Recommendations

This study provides recent empirical evidence relating to the long and short-run nexus between electronic tax systems and revenue generation in Nigeria. The electronic tax system was introduced in Nigeria in 2015, enabling taxpayers to make payments online. In an ideal situation, more tax is expected from taxpayers as it is assumed that the procedure for filing their taxes has been made easy. As a result, this study was embarked upon to establish the long-run effect of this reform. The results of this study were not far from what was expected because more businesses will opt to save more money as a gain than pay out.

The results reveal a long-run relationship between the variables and show the speed of adjustment in the long run. The descriptive statistics also show that, on average, most taxpayers remit their taxes electronically; however, this did not significantly impact the total revenue generated.The result also revealed that some of the proxies of electronic tax systems, value-added tax, company income tax, capital gain tax and petroleum profit tax,are found to have a positive and negative relationship with aggregate revenue generated for the study period. The variables also depict a significant and a non-significant relationship among the variables. However, the negativity and the non-significant relationship can be adjusted in the long run.

Positivity in the results means that the electronic tax systems indicators have impacted the aggregate revenue generated. Though insignificant, electronic tax systems can impact aggregate revenue generated in the long run.

Conclusively, it can be said that even though there was no significant relationship between the variables, it was gathered from the result that in the long run, the system could correct its previous disequilibrium as it may still take some times for taxpayers to passive the ease and usefulness of the electronic tax system to adapt to this new system of filing their taxes.

These findings support the technology acceptance model,which believes that the perceived ease of use and perceived usefulness are two predictors in the acceptance of information technology, and they bring the most influential variables and present a deeper insight for clarifying behaviours that taxpayers envisage while using technology.

Recommendations

Based on the findings, the study recommends the following:

i. The government should critically evaluate the process of VAT collection, eliminate bureaucratic procedures, and improve transparency. There is also a need for the general public to be more enlightened by tax administrators on the need to queue into the electronic tax system in remitting VAT; the enlightenment campaign by the tax administrators will thus increase the knowledge base of the taxpayers and an increase in VAT revenue as well as the aggregate revenue collected.

ii. Petroleum profit tax showed a positive but non-significant effect on the aggregate revenue generated in Nigeria. Since the result reviews a positive sign, which may occur in the future, the government should ensure that Nigeria's tax system and rate regarding petroleum profit tax are convenient for taxpayers. This will reduce the incidences of tax avoidance, increase petroleum profit tax collected via electronic filing and increase the aggregate revenue collected.

iii. Company gain tax showed a positive and non-significant effect on the aggregate revenue generated. Through the Federal Inland Revenue Services, the federal government should work out modalities to sensitise companies to the nitty-gritty of e-tax payment to further maximise the expected positive and significant long and short-run relationship on aggregate revenue generated. Federal Inland Revenue Services should also develop measures to ensure that defaulters are brought to book and dealt with according to the provisions of the law.

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