



# EFFECT OF ELECTRONIC TAX SYSTEM ON TAX REVENUE IN NIGERIA

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## ABSTRACT

The primary responsibility of Nigeria government is to cater for the welfare of citizens and non-citizens residing in Nigeria. In performing her responsibilities to her citizens, government needs money to finance her activities. Based on the forgone this study examines the effect of electronic tax system on tax revenue in Nigeria. The study covers the period of 2012 to 2018. The study covers twenty-six (26) quarters made up of pre-e-taxation period of 13 quarters, spanning

## Introduction

The primary responsibility of Nigeria government is to cater for the welfare of citizens and non citizens residing in Nigeria. In performing her responsibilities to her citizens, government needs money to finance her activities. This makes it necessary for government to device means of generating revenue both internally and from either international financial bodies like International Monetary Fund (IMF), Paris Club among others or friendly countries to meet her expenses in creating social infrastructures, sustaining economic development and sustain governance business among others (Gylych, Samir & Abdurahman, 2016). Over the years, governments at all levels in Nigeria have relied heavily on revenue from crude oil and neglected tax revenue. With the current price crisis of crude oil in International market, it is now clear that reliance on oil is not sustainable, therefore government needs to source for fund through non oil sector in which raising money through tax is the main focus.

According to Nightingale (2001), money raised by government through taxes are used for provision of public goods, redistribution of income and wealth, promotion of social and economic welfare, economic stability and harmonization and regulation. Hence the relevance of tax cannot be



*from the first quarter of 2012 to the first of 2015 while the period for post e-taxation covers 13 quarters, spanning from the second quarter of 2015 to the second quarter of 2018. Secondary data were used for this study. The study applied regression analysis with the aid of SPSS Software 21 in data analysis and hypotheses testing. The study findings show among others that there is a negative significant difference in the petroleum profit tax revenue before and after the adoption of e-taxation in Nigeria and there is also a negative insignificant difference in the company income tax revenue before and after the adoption of e-taxation in Nigeria. The study also discovers that there is a positive insignificant difference between pre and post value added tax revenue. Final finding shows that there is a significant negative difference in tax revenue before and after the adoption of e-taxation in Nigeria. The study concludes that e-taxation has not actually improved tax revenue in Nigeria. Considering the findings and its implication, the study recommends amongst others that agencies saddled with tax collection (FIRS) should be trained on managing e-tax and as well ensuring that organizations compliance to tax filing time frame.*

**Keywords:** *Company income tax, electronic tax system, petroleum profit tax, total tax revenue, and value added tax.*

overemphasized. What is worrisome, however, has been the tax gap; the difference between the tax amount tax payers pay voluntarily and on time and what they should pay under the law has been a long-standing problem. When most tax payers fail to comply with tax law, the burden of funding the nation's commitment falls heavily on the few compliant taxpayers. Nigerian tax system was characterized with paper based tax administration system before the advent of electronic tax administration system, (Ogbonna&Appah, 2015).

During manual tax administration system, what is worrisome has been the tax gap; the difference between the tax amount tax payers pay voluntary and on time and what they should pay under the law has been a long-standing problem. Just few years ago, Dowe (2008) disclosed that tax authorities around the world are using electronic tax administration systems to interact with taxpaying public in tax collection, administration and compliance settings so as to improve effectiveness and efficiency in tax administration (Efunboade, 2014). Tax is a compulsory contribution to public revenue, impost on workers' income and business profits by the government.



United Nations (2017) state that e-taxation is a process where tax documents or tax returns are submitted through the internet, usually without the need to submit any paper return; it encompasses the use of internet technology, the World Wide Web and Software for a wide range of tax administration and compliance purposes.

Wasao (2014) describes electronic tax system is an online system or channel where taxpayers are able to have access or permit to the platform through the use of internet, in other to have access to all the services provided by the tax authority such as the registration for a tax identification number, electronic tax filing of tax returns , the Electronic taxation system that was introduced in Nigeria in the year 2015 by the Federal Inland Revenue service (FIRS) in conjunction with Nigeria inter - bank settlement System (NIBSS).

E-taxation is the process of collection and administration of tax procedure through an electronic medium. According to Che-Azmi and Kamarulzaman (2014), electronic tax payment system is one of the ways through which governments globally make use of information and communication technologies to enhance the provision of public services and the circulation of public administration information to the society. Okunowo (2015) says electronic tax payment was introduced so as to increase revenue Generation and for easy accessibility as tax payers are able to pay taxes from different locations and at various time. FIRS has an Information Communication Technology (ICT) department that provides support and customer care services to taxpayers and also with the main aim of increasing revenue generation and enabling voluntary acceptance of the system by taxpayers.

The Federal Inland Revenue Services introduced Integrated Tax Administration System (ITAS). The ITAS has about nine modules, amongst which is project Joint Tax Board Tax Identification Number (JTB-TIN). It also involves the deployment of the Standard Integrated Government Tax Administration Solution (SIGTAS) and hardware infrastructure including support service for FIRS. This platform will enable the taxpayer file annual return and make payment online from their comfort zone without delay. The SIGTAS solution is expected to integrate some existing FIRS Enterprise Resource Planning (ERP) Production System applications like SAP (HR) for Human Capital Management Systems including: Online Appraisal, Leave, Payroll and Personnel Administration to mention just four. SAP (FICO) that is, Finance and Control/Material Management for Finance and Accounts Systems including: Invoicing, Treasury Operations and Central Pay Offices (CPO), and SAP Self Service (ESS/MSS) Portal for Employee and Manager respectively. (Wamathu , 2014)

With the introduction of Electronic Taxation Payment system, it is expected that there will be an obvious increment in tax revenues, which will in turn bring about an increase in federally collected revenues as a whole as noticed in various countries of the world after



it introduction of e-tax payment system. However, since the introduction of electronic tax payment system in 2015 this is paucity of empirical evidence that shown the extent to which the new technology has achieved this purpose on petroleum profit tax, company income tax and value added tax hence necessitating this study.

### **Statement of the Problem**

Poor contributions of tax revenues to total revenue collected in Nigeria are alarming (Okauru, 2011). African states such as Ghana, Tunisia, Morocco, and so on, have their tax incomes constituting important share of their entire revenue, Nigeria being the giant of Africa has an important low portion of tax-to-total revenue when likened with these nations (Ofurum, 2018). Organization for economic co-operation and development (2014) exposed that in Ghana 73% of its total revenue was made from tax; in Tunisia, tax revenue accounted for 31.3% of her total revenue, while in Morocco, tax-to-total revenue ratio was 28.5%. Though, in Nigeria, tax-to-total revenue ratio was 5.2 percent in 2014 (Federal Inland Revenue Service, 2015, & CBN, 2016). Also obtainable archives displays that this figure has remained below 13% since 2001, and tax revenues has not accounted up to 50% of collected revenue of government since this period to date (Ofurum, C. N., Amaefule, L. I., Okonya, B.E., & Amaefule, H. C. (2018)).

The E-tax was introduced with the chief aim of combating vices that were mainly associated with the collection of taxes like; Tax evasion, filing of wrong tax returns and claiming of undeserved tax refunds (Wamathu, 2014). Income resulting from taxes has remained very low and no physical growth really took place, hence the influence on the poor is not being felt. Inadequate tax workers, deceitful actions of tax collectors and absence of understanding of the significance to pay tax by tax payers are few of the difficulties of tax income (Afuberoh & Okoye, 2014).

Previous study by Onuri, (2015) noted that the tax system in Nigeria is bounded by myriad of problems ranging from slight data available on the history of tax revenues or taxpayers owing to an absence of good archives keeping system (Federal Republic of Nigeria, 1997); the nonexistence of complete tax figures and a centralized archive for the current ones (Federal Republic of Nigeria, 2002); inadequate manpower and other essential capitals into redundant parts and job purposes (Ariyo, 1997); repetition of taxes and its bad influence on taxpayers a problem resulting from a clash in the administrations' fiscal accountability and its fiscal power (Oduola, 2002); and thoughtful efforts by taxpayers to evade taxes (Oduola, 2003). With the application of E-taxation, it is anticipated that after empirical investigation, E-taxation will increase revenue generation in Nigeria. While it is believed that the intention of introducing E-taxation is to increase income generation in the system, though, there is a paucity of empirical evidence that has shown the degree



to which the new technology has achieved this purpose on company income tax, value added tax and Petroleum profit tax, hence the need for this study.

### **Objectives of the Study**

The main objective of the study is to investigate the effect of electronic tax system on revenue generation in Nigeria. The specific objectives are to;

2. ascertain the effect of petroleum profit tax before the advent of e-taxation and after the adoption of e-taxation on tax revenue in Nigeria;
3. determine the relationship between company income tax before the advent of e-taxation and after the adoption of e-taxation and tax revenue in Nigeria;
4. investigate the effect of value added tax before the advent of e-taxation and after the adoption of e-taxation on tax revenue in Nigeria; and
5. comparatively evaluate the pre-and post adoption of e-taxation on tax revenue in Nigeria

### **Statement of Hypotheses**

The following Hypotheses were formulated in Null form to be tested in order to achieve the objectives of the study.

- Ho<sub>1</sub>:** There is no significant difference in the petroleum profit tax revenue before and after the adoption of e-taxation in Nigeria,
- Ho<sub>2</sub>:** There is no significant difference in the company income tax revenue before and after the adoption of e-taxation in Nigeria and
- Ho<sub>3</sub>:** There is no significant difference in the value added tax revenue before and after the adoption of e-taxation in Nigeria.
- Ho<sub>4</sub>:** There is no significant difference in tax revenue before and after the adoption of e-taxation in Nigeria

### **Scope of the study**

The study covers petroleum profit tax revenue, company income tax revenue and value added tax revenue generated by Federal Government of Nigeria before the advent of e-taxation and after the adoption of e-taxation. The study covers the period of 2012 to 2018. The study period was on quarterly bases and the period for pre-e-taxation covered 13 quarters, spanning from the first quarter of 2012 to the first of 2015 while the period for post e-taxation covered 13 quarters, spanning from the second quarter of 2015 to the second quarter of 2018.

### **Review of Related Literature**

#### **Conceptual Review**

#### **Electronic tax system**

United Nations (2007) states that e-taxation is a process where tax documents or tax returns are submitted through the internet, usually without the need to submit any paper



return; it encompasses the use of internet technology, the World Wide Web and Software for a wide range of tax administration and compliance purposes. Wasao (2014) describes electronic tax system is an online platform whereby the taxpayer is able to access through internet all the services offered by a financial authority such as the registration for a personal identification number, filing of returns and application for compliance certificate, a perfect example of such system is the Electronic taxation system.

In Nigeria e-tax payment system was introduced in 2015 by the Federal Inland Revenue Service (FIRS) in conjunction with Nigeria inter - bank settlement System (NIBSS), According to Okunowo (2015). Electronic tax payment was introduced so as to increase revenue Generation and for easy accessibility as tax payers are able to pay taxes from different locations and at various time. FIRS have an Information Communication Technology (ICT) department that provides support and customer care services to taxpayers and also with the main aim of increasing revenue generation.

The Federal Inland Revenue Services recently launched Integrated Tax Administration System (ITAS). The ITAS has about nine modules, amongst which is project Joint Tax Board Tax Identification Number (JTB-TIN). It also involves the deployment of the Standard Integrated Government Tax Administration Solution (SIGTAS) and hardware infrastructure including support service for FIRS. This platform will enable the taxpayer file annual return and make payment online from their comfort zone without delay. The SIGTAS solution is expected to integrate some existing FIRS Enterprise Resource Planning (ERP) Production System applications like SAP (HR) for Human Capital Management Systems including: Online Appraisal, Leave, Payroll and Personnel Administration to mention just four. SAP (FICO) that is, Finance and Control/Material Management for Finance and Accounts Systems including: Invoicing, Treasury Operations and Central Pay Offices (CPO), and SAP Self Service (ESS/MSS) Portal for Employee and Manager respectively.

According to Flossy, Makokha, and Namusonge (2017), electronic tax system in Nigeria introduced the following e-services; e-Filing, e-Payment, e-Registration, e-Stamp duty, e-receipt and e-TCC. E-filing enables taxpayers file their tax returns through the FIRS' Integrated Tax Administration System (ITAS). E-payment is a service rendered for payment of all Federal government taxes and levies through any of the following platforms; Nigeria Inter-Bank Settlement System (NIBSS), Remita and Inter switch. E-taxation is the process of assessing, collecting and administering the taxation process through an electronic media.

According to Federal Inland Revenue Service (2015), Elements of FIRS Electronic Tax Filing and Online Payment of Taxes are: Taxpayers returns filed online, Tax payment on the platform, Processing & issuance of Electronic Tax Clearance Certificates, Verification of



Tax Identification Number (TIN), Electronic correspondence with FIRS official, and Online imposition of late filing penalties and interests.

Deloitte, (2017) said E-registration is for the registration of new taxpayers with the Internal or Inland Revenue Service for the various taxes. E-stamp duty is for the payment of stamp duties on qualifying documents. E-receipt is for receiving and verifying E-receipts generated for taxes paid through the new e-payment. E-TCC is the platform that enables taxpayers applies for, receive and verify authenticity of their electronic tax clearance certificate (e- TCC).

### **Electronic tax system and Petroleum Profit Tax Revenue**

Revenue from petroleum profit tax is the most significant source of revenue of the Nigeria government, accounting for over 90% of its total foreign exchange earnings (Afuberoh&Okoye, 2014). For this reason, the entire ownership and control of petroleum wherever it is found in Nigeria is vested in the Federal Government. Section 8 of PPTA provides that there shall be levied upon the profits of each accounting period of any company engaged in petroleum operations during that period, a tax to be charged, assessed and payable in accordance with the provisions of the Act Companies taxable under the Companies Income Tax Act assessable to tax on preceding year basis.

A petroleum operation is defined as the winning or obtaining and transportation of petroleum or chargeable oil in Nigeria by or on behalf of a company for its accounts by any drilling, mining, extracting or other like operations or process of a business earned on by the company incidental thereto and any sale of or any disposal of, chargeable oil or on behalf of the company. Petroleum profit tax is charged at 85% on export (Oduola, 2006). Wasao (2014) describes electronic tax system is an online system that make it easier for petroleum firms to pay in their petroleum profit tax. Ogbonna and Appah (2012) reveal in their study that electronic tax system have really boost petroleum profit tax revenue because it is convenient for petroleum company profit tax without necessarily visit tax office to make their payment.

### **Electronic tax system and Companies Income Tax Revenue**

Companies' Income Tax is a compulsory levy by government on the profits made by the registered companies (Afuberoh & Okoye, 2014). This type of tax is a sub-set of direct taxes because the incidence of payment and burden of the companies' income tax are borne by the companies and not transferable to third parties. The relevant tax authority charged with responsibility of assessing and collection of companies' income tax among others is the federal Inland Revenue service (FIRS) under the supervision of a board called Federal Board of Inland Revenue (FBIR). It deals with the taxation of all limited liability



companies in Nigeria with the exception of those engaged in petroleum operations (Naomi & Sule, 2015).

Oriakhi and Ahuru (2014) says that electronic tax system will help Federal Inland Revenue Services to increase revenue to be generated through company income tax. The study emphasize that the introduction of electronic tax system will make it easier for companies to pay in their tax electronically.

### **Electronic tax system and Value Added Tax Revenue**

Bird (2005) defines value added tax (VAT) as a multi stage tax imposed on the value added to goods and services as they proceed through various stages of production and distribution and to services as they are rendered” which is eventually borne by the final consumer but collected at each stage of production and contribution chain. On the other hand Adesola (2000) described value added tax as a consumer tax and is charged before selling the goods. Furthermore, VAT is often defined as the sum of wages and profit. VAT was adopted in Nigeria in 1994 and prospective VAT payers, manufacturers, wholesalers, importers suppliers of taxable goods and services were required by decree No 102 of 1993 to register with the Federal Inland Revenue Services (FIRS) which centrally administers VAT which is a gross product type of tax imposed on the destination principle.

According to Adereti, Sanni and Adesina (2011), every person whether resident in Nigeria or nonresident in Nigeria who sells goods or render services in Nigeria under the VAT Act is obligated to register for VAT within six months of it commencement of business in Nigeria.

The goods and services exempted by the Acts are purely those that bother on people welfare and whose requirements are necessary for improving human development. These include medical and pharmaceutical products, basic food items, educational materials, agricultural services and equipment.

### **Government Revenue in Nigeria**

Odusola (2003) describes revenue as the total income generated from federal, state and local government. It is the amount of money that a company actually receives during a specific period. According to Edogbanya and Ja’afaru (2013), revenue is defined as the funds generated by the government to finance its activities. In other words, revenue is the total fund generated by government (Federal, state, local government/ to meet their expenditure for a fiscal year.

Revenues earned by the government are received from sources such as taxes levied on the incomes and wealth accumulation of individuals and corporations and on the goods and services produced, exports and imports, non-taxable sources such as government-owned corporations' incomes, central bank revenue and capital receipts in the form of



external loans and debts from international financial institutions. Government revenue is an important tool of the fiscal policy of the government. Governments use revenue for the development of the country, such as: construction of roads, bridges, build homes, fix schools etc. The money that government collects pays for the services that are provided for the people. The sources of finance used by the central government are mainly taxes paid by the public.

In Nigeria, federally collected revenue is divided into oil revenue and non-oil revenue. While oil revenue covers all revenue generated from oil and gas activities in the country, non-oil revenue looks at any revenue earned from sources other than oil and gas activities. While other countries within and outside Africa segment their revenues into tax and non-tax revenue, Nigeria preferred oil and non-oil due to the fact that oil is the major revenue driver of the economy.

### **Theoretical Framework**

#### **Theory of Innovation Diffusion**

The Shorter Oxford English Dictionary defines innovation as “the alteration of what is established; something newly introduced” (Oxford 1973). The Macquarie Dictionary adds “introducing new things or methods” (Macquarie Library 1981), and Roget’s Thesaurus offers the synonyms ‘newness’ and ‘change’. Diffusion of innovations is a theory that seeks to explain how, why, and at what rate new ideas and technology spread. Everett Rogers, a professor of communication studies, popularized the theory in his book *Diffusion of Innovations*; the book was first published in 1962, and is now in its fifth edition (2003). Rogers (2003) argues that diffusion is the process by which an innovation is communicated over time among the participants in a social system, while diffusion is the process by which an innovation is communicated through certain channels over time among the members of a social system. The most striking feature of diffusion theory is that, for most members of a social system, the innovation-decision depends heavily on the innovation-decisions of the other members of the system. Rogers (2003) argues that after about 10-25% of system members adopt an innovation, relatively rapid adoption by the remaining members and then a period in which the holdouts finally adopt. However, there still a tendency of having failed diffusion. Failed diffusion does not mean that the technology was adopted by no one.

Rogers (2003) proposes that four main elements influence the spread of a new idea: the innovation itself, communication channels, time, and a social system. This process relies heavily on human capital. The innovation must be widely adopted in order to self-sustain. Within the rate of adoption, there is a point at which an innovation reaches critical mass.



This study is anchored on theory of innovation diffusion because its four main elements that influence the spread of new ideas is been considered by the Federal Inland Revenue Services, more especially by involving Nigeria Inter-Bank Settlement System as a channel through which taxpayers can conveniently pay their taxes.

### **Empirical Review**

Since the implementation of the e-tax system in Nigeria, there are few studies conducted on evaluating the impact of electronic tax system on revenue generation. Some of these studies are reviewed below:

Ofurum, Amaefuel, Okonya, and Amaefule (2018) studied the impact of E-taxation on Nigeria's revenue and economic growth. The aim of the study was to evaluate the extent the new technology has helped to improve the tax-to-GDP ratio. The study uses secondary data and employed pre-post analysis form of quasi-experimental research design approach. A Paired sampled t-test was adopted. The findings reveal that the implementation of e-taxation has not improved tax revenue and the tax-to-GDP ratio significantly decreased after e-taxation was implemented. They recommend that federal government through the Federal Inland Revenue Service should conduct more enlightenment seminars in all the 36 states in the country to increase the knowledge on the use of all electronic services on their platform. They used adequate statistical tools of analysis to examine their panel data but combined data from both pre (2007-2011) and post (2012-2017) IFRS implementation in Nigeria which affects their findings. Also, their study was carried out in 2018 and their data covered up to 2019 which is a gap this study will cover or fill.

Olurankinse and Oladeji (2018) conducted a study on self-assessment, electronic-taxation payment system and revenue generation in Nigeria. The study was intended to assess how self-assessment tax system can enhance tax revenue and evaluate how e-tax payment system can improve revenue generation. The study adopted quasi-experimental research design and data were collected through primary sources. Both Pearson's product moment correlation coefficient and regression analysis were used. It was found that there was a significant relationship between compliance enforcement of taxpayers in the payment of tax and revenue generation. Hence, they recommend that corporate bodies in River State of Nigeria should comply with the relevant laws and provisions on taxation. The study was limited to rivers state and as such the findings cannot be generalized while this study is on Nigeria economy

Allahverdi, Alagoz and Ortakarpuz (2017) examined the effect of E-taxation system on tax revenues and costs in Turkey. The study employs case study analysis and used Mann-Whitney U test to test the formulated hypotheses. Secondary data were collected and the data were examined in two groups that are pre-electronic tax period and post-electronic



tax period. The empirical result confirmed that the transition to the electronic tax system positively affected the tax revenues and reduced the cost per tax. The limitations in the study is on the geographical location, the study was carried out in Turkey while this current study is in Nigeria.

Bett and Yudah (2017) examined the Contribution of E-tax system as a strategy for revenue collection at Kenya revenue authority, Rift Valley Region, Kenya. The study employed correlational research design and data were collected from 76 respondents using a five-point Likert scale. Multiple regressions was used as inferential statistics to analyze the data and the result obtained show that online taxpayer registration, online tax return processing, online compliance and monitoring activities; and electronic tax payments have a significant contribution on revenue collection at KRA. The study recommends that KRA management should focus on taxpayer facilitation through a robust system of customer relationship management, efficient complaints resolution and ensure that more resources are invested in user-friendly online tax system. The limitation in the study is on the geographical location, the study was carried out in Kenya while this current study is in Nigeria.

Owino, Otieno and Odoyo (2017) study influence of information and communication Technology (ICT) on Revenue Collection in County Governments in Kenya: A Comparative Study of Migori and Homa Bay County Governments”, used a correlation study research design to determine the influence of ICT system for single business permits on revenue collection; evaluate the influence of ICT system for land rates on revenue collection; establish the influence of ICT system for property rates on revenue collection and establish the influence of ICT system for bus park on revenue collection in Migori and Homa Bay County Governments, Kenya. The target population was 864 consisting of 848 revenue clerks and 16 revenue officers from which a Sample size of 86 respondents were selected using a stratified random sampling technique. Primary data were collected with the use of questionnaire, and analyzed using mean and regression techniques. The findings showed that a strong association existed between ICT systems adopted in County Governments and the revenue collection; the application of the information communication technology systems explain up to 91.9% variation in revenue collection efficiency in the county governments. Further findings revealed that the application of these systems improves revenue collection efficiency in the county governments. The limitations in the study are on the geographical location, the study was carried out in Kenya while this current study is in Nigeria. Primary data was used in place of revenue generation which is not appropriate.

Gwaro, Maina, and Kwasira (2016) examini the Influence of online tax Filing on tax compliance among Small and Medium Enterprises in Nakuru Town, Kenya. The study aimed at assessing the level of awareness regarding online filling of tax return. The study



employed survey descriptive research design and quantitative data was collected through primary data. A sample of 100 respondents from small and medium enterprise was utilized. The study found that only the computer literacy had significant effect on the level of compliance amongst the small and medium enterprises in Nakuru. It was recommended that computer literacy levels should be emphasized by Kenya Revenue Authority in order to improve the level of tax compliance through e-tax system. The limitations in the study is on the geographical location, the study was carried out in Kenya while this current study is in Nigeria. Primary data was used in place of revenue generation which is not appropriate.

Mustapha (2015) study the factor influencing income taxpayers' reaction towards E-tax system adoption in Nigeria. A quantitative analysis was employ and purposive sample method was adopted to investigate the indulgent and reaction of 260 income taxpayers toward e-tax system. The aim was to identify items that best explain each of the variables that influence taxpayer reaction towards e-tax system. A factor analysis was used and it was found that trust, ease of use, compatibility, complexity, compatibility, relative advantage, government support, security and resistance to change are factors that influence taxpayers' reaction towards an e-tax system in Nigeria. It recommended that if the tax authority and policymakers put into consideration the identified variables, it will lead to increase in revenue generation. The study cover 2015 and did not cover up 2019 which is the gap the current study will cover

Okoye and Ezejiofor (2014) investigated the impact of E-taxation on revenue Generation in Enugu, Nigeria. The paper set to ascertain whether e-taxation can resolve the issue of tax evasion and prevent corrupt practice by tax officials. The study collected data from primary source and was analyzed using Z-test statistics. The findings show that e-taxation can enhance internally generated revenue and reduce the issue of tax evasion in Enugu State. It was recommended that government should support the establishment of e-tax administration so as to increase the rate of compliance. The study was limited to only Enugu state not Nigeria as a whole as in the case of the current study.

Okafor (2012) examine revenue generation in Nigeria through E-taxation (A Study of Selected States in Nigeria). The paper aimed at finding out whether electronic taxation will significantly curb tax evasion and avoidance and improve revenue generation. The study adopted survey method. The data for the study were collected from primary and secondary sources. The data collected were analyzed using simple percentages and presented in tables. The model specification for the test of hypotheses is Analysis of Variance (ANOVA). From the Analysis, the study discovered that electronic taxation will enhance revenue generation in the states studied. Also large database of the citizenry achieved through proper record keeping will enhance revenue generation. The researcher equally found out that e-government is an indispensable factor in achieving the objective



of e-taxation. Computer literacy will enhance electronic tax administration which will significantly curb tax evasion and avoidance and reduce operational compliance cost. The study is on some selected state in Nigeria not as such the findings cannot be generalized.

### **Gap in the Literature**

The previous works reviewed in this study are very good and comprehensive, however, not exhaustive. Thus, some of the gaps identified in them which this work intends to fill are as follows: among the previous works reviewed above, none of them focused exclusively on investigation of e-tax system and tax revenue in Nigeria. Finally, with the numbers of years and quarters the study covers, it will make the findings very recent and current. However, all the reviewed empirical works above are either done before the introduction of the e-tax system in Nigeria (i.e in anticipation) or before the last quarter of 2016 which is just a year after the introduction of the e-tax system in Nigeria.

### **METHODOLOGY**

This study adopted ex-post facto research design and Quasi-experimental research design. According to Louis, Lawrence and Keith (2005) ex-post facto design is a method of teasing out possible antecedents of events that have happened and cannot, therefore, be engineered or manipulated by the researcher. *Ex-post facto* research design was used for the study because the researcher cannot manipulate data for the study. While Quasi-experimental research design was adopted because the study is considering pre and post (contrast in time) structure of electronic tax system. The population of the study comprised of total tax revenue received by Federal Government of Nigerian, petroleum profit tax revenue, company income tax revenue and value added tax revenue generated by Federal Government of Nigeria during the period 2012 to 2018. The study period was on quarterly bases and the period for pre-e-taxation covered 13 quarters, spanning from the first quarter of 2012 to the first of 2015 while the period for post e-taxation covered 13 quarters, spanning from the second quarter of 2015 to the second quarter of 2018.

This study used panel data mainly from Secondary sources, the data were extracted from Federal Inland Revenue Service tax Quarterly Reports for 2012 to 2018. The choice of the data used was informed by previous studies because such information is produced regularly and will be in public domain (Iheanacho, 2016).

### **Techniques of Data Analysis and Variables Specification**

The technique of data analysis used by this study is descriptive statistics, line graph, paired sample t-test, and regression analysis with the aid of SPSS version 21 Software. This study examines the effect of electronic tax system (which is proxy by petroleum profit tax revenue, company income tax revenue and value added tax revenue) and tax revenue



that is proxy by total tax revenue. The measurements of Independent variables: electronic tax system was proxy by petroleum profit tax revenue, company income tax revenue and value added tax revenue generated by Federal Government of Nigeria through Federal Inland Revenue Services. Tax revenue was proxy by the total amount of tax revenue collected by Federal Government of Nigeria through Federal Inland Revenue Services. The used of the above analysis technique is to enhance the reliability of the panel data analysis used for the research result when comparing the relationship of the variables (Iheanacho, 2016).

The suitability of this technique can be vindicated from the point that each variable was grouped into two explanations (before e-taxation application and after e-taxation application). The use of Paired Sampled T-Test with the aid of SPSS Software 21 package enhanced the testing of the hypotheses empirically.

**Model Specification**

The model applied was adopted from the work of Ojong, Ogar and Oka (2016) and modified to suite this study.

$$GDP = F (PPT, C1T, NOR) \dots\dots\dots I$$

Obtaining the OLS model from the above expression,

$$They\ had: GDP = a_0 + a_1PPT + a_2CIT + a_3NOR + e_t \dots\dots\dots II$$

The model for this investigation is prefaced on the principle objective and tied down on the sub-objective. The functional relationship between e-taxation and revenue generation of Nigeria are expressed thus:

$$FCR = F (PPT, VAT, CIT) \dots\dots\dots III$$

Obtaining the OLS model from the above expression, we had:

$$FCR = \beta_0 + \beta_1PPT + \beta_2VAT + \beta_3CIT + ? \dots\dots\dots IV$$

Where:

- FCR = Federally Collected Revenue
- PPT= Petroleum profit tax
- VAT = Value Added tax
- CIT = Company Income Tax
- t = Error term
- $\beta_0$  = Intercept
- $\beta_1-\beta_3$  =- the independent variable co-efficient

**Result and Discussion**

As specified earlier, the variables employed in this study as specified in the model, the specifications are capital federally collected revenue (FCR), petroleum profit tax (PPT),



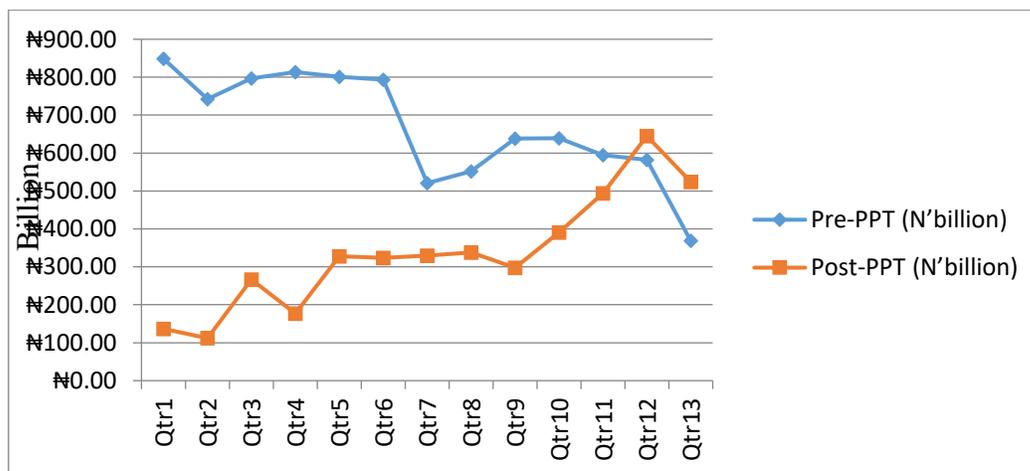
Company income tax (CIT) and Value Added Tax (VAT) which are the proxies for the dependent and independent variables. The analysis was carried out and achieved through the use of descriptive statistics of mean and standard deviation, paired sampled t-test, Regression Analysis. See appendix for data.

**Descriptive Statistics of petroleum profit tax (PPT), Company income tax (CIT), Value Added Tax (VAT), and Tax Revenue before and After the Advent of E-taxation.**

**Table 1. Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
Pre-PPT	13	368.59	848.75	668.4790	143.95900
Post-PPT	13	111.96	644.78	335.5663	152.82911
Pre-CIT	13	116.51	556.27	240.1078	122.10493
Post-CIT	13	65.29	501.66	281.2403	129.31639
Pre-VAT	13	170.69	222.80	194.5256	15.96699
Post-VAT	13	56.40	269.79	203.2241	68.95271
Pre-Total Tax Revenue	13	1172.47	2783.46	1904.8538	643.91192
Post-Total Tax Revenue	13	778.19	1911.71	1313.1287	320.82944
Valid N (listwise)	13				

Source: SPSS Output 21



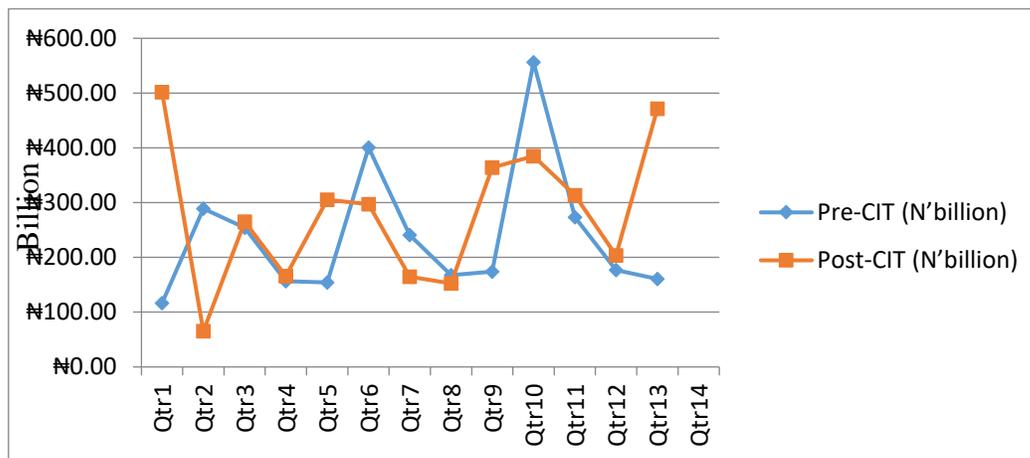
**Fig.1: Showing Pre and Post E-taxation PPT Revenue in Nigeria**

From the result in table 1 above, it could be clearly seen that the mean and standard deviation values of pre petroleum profit tax (before the advent of e-taxation) were 668.47 billion and 143.96 respectively while that of post petroleum profit tax revenue (after the adoption of e-taxation) were 335.57 and 152.83 respectively. Similarly, the pre



minimum and maximum values of petroleum profit tax were 368.59 billion and 848.75 billion respectively for the periods covered. In the same vein, it was gathered that the post minimum and maximum values of petroleum profit tax were 111.96 billion 644.78 billion respectively for the periods covered.

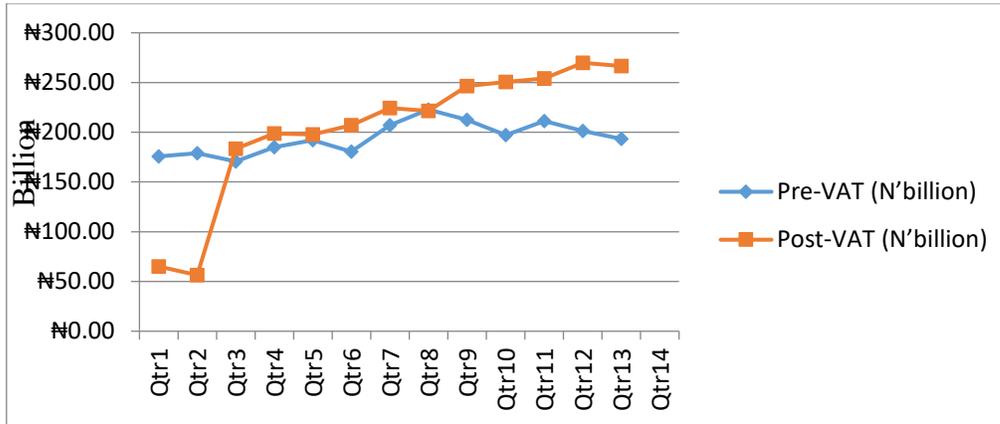
From the line chart depicting the revenue performance between pre and post adoption of e-taxation for PPT shows the pre-adoption revenue in most instance higher than the post adoption of e-taxation. The results showed that there is better revenue performance prior adoption of e-taxation for petroleum profit tax.



**Fig.2:** Showing Pre and Post E-taxation CIT Revenue in Nigeria

The outcome above in table 1 for Company Income Tax revenue shows that the mean and standard deviation values of pre Company Income Tax revenue (before the advent of e-taxation) were 240.11 billion and 122.11 respectively while that of post Company Income Tax revenue (after the adoption of e-taxation) were 281.24 billion and 129.32 respectively. Similarly, the pre minimum and maximum values of Company Income Tax revenue were 116.21 billion and 556.27 billion respectively for the periods covered. In the same vein, it was gathered that the post minimum and maximum values of Company Income Tax revenue were 65.29 billion and 501.66 billion respectively for the periods covered.

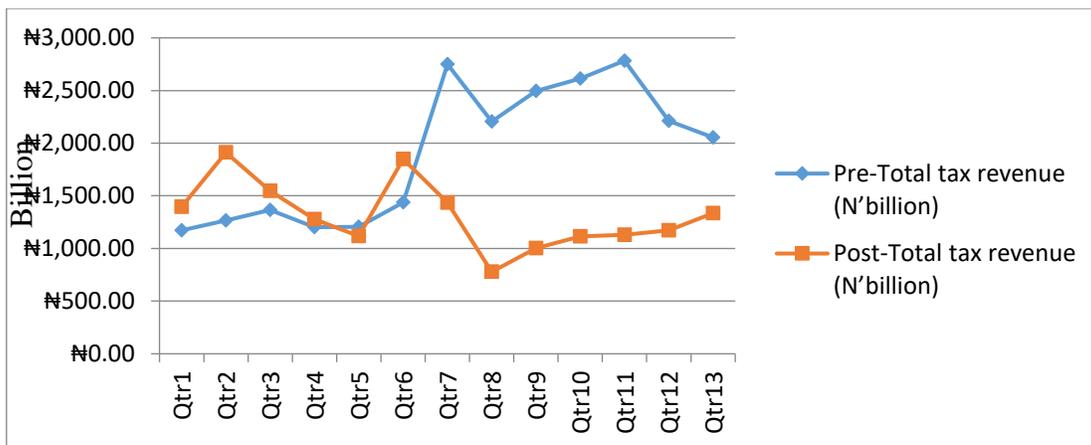
From the line chart depicting the revenue performance between pre and post adoption of e-taxation for CIT shows the pre and post adoption for the revenue in moving in fluctuating direction while in some instances the pre adoption is higher while post adoption also indicates high value as reflected in the post mean rating performance. Although the result shows better CIT performance compared to PPT. this will be subjected to the t-test to ascertain the significance of the difference.



**Fig.3:** Showing Pre and Post E-taxation VAT Revenue in Nigeria

From the result on table 1 above, it could be clearly seen that the mean and standard deviation values of pre Value Added Tax revenue (before the advent of e-taxation) were 194.53 billion and 15.97 respectively while that of post Value Added Tax revenue (after the adoption of e-taxation) were 203.22 and 68.95 respectively. Similarly, the pre minimum and maximum values of Value Added Tax were 170.69 billion and 222.80 billion respectively for the periods covered. In the same vein, it was gathered that the post minimum and maximum values of Value Added Tax were 56.40 billion 269.79 billion respectively for the periods covered.

From the line chart depicting the revenue performance between pre and post adoption of e-taxation for VAT shows that post adoption for the revenue performs better than the pre-adoption period. Result comparism which shows better performance of value added tax since the adoption of e-taxation will also be subjected to test of significance.



**Fig.4:** Showing Pre and Post E-taxation Total Tax Revenue in Nigeria



Result as regards performance of total tax revenue as shown on table 1 above, indicated that the mean and standard deviation values of pre Total Tax revenue (before the advent of e-taxation) were 1,904.85 billion and 643.91 respectively while that of post Total Tax revenue (after the adoption of e-taxation) were 1,313.13 billion and 320.83 respectively. Similarly, the pre **minimum** and maximum values of Total Tax were 1,172.47 billion and 2,783.46 billion respectively for the periods covered. In the same vein, it was gathered that the post minimum and maximum values of Total Tax were 778.19 billion and 1,911.71 billion respectively for the periods covered.

From the line chart depicting the revenue performance between pre and post adoption of e-taxation for total tax revenue shows that pre adoption of e-taxation for the revenue performs better than the post-adoption period. Result comparism which shows better performance of total tax revenue before the adoption of e-taxation will also be subjected to test of significance.

### **Hypotheses Results Interpretation**

**Table 2:** Paired Samples Correlations

		<b>N</b>	<b>Correlation</b>	<b>Sig.</b>
<b>Pair 1</b>	Pre-PPT & Post-PPT	13	-.688	.009
<b>Pair 2</b>	Pre-CIT & Post-CIT	13	-.002	.994
<b>Pair 3</b>	Pre-VAT & Post-VAT	13	.624	.023
<b>Pair 4</b>	Pre-Total Tax Revenue & Post-VAT	13	.690	.009

**Source:** SPSS Result Output, Version 21

Table 2 above presents the correlations between the pre and post performance of the tax revenue guiding the study. The pair on petroleum profit tax indicating a correlation coefficient of -.688 with a significance value of .009 indicates a negative relationship during the manual and the electronic system adoption in collection of tax revenue in Nigeria. The significance value of .009 less than .05 indicates that there is significant negative relationship between petroleum profit tax revenue before and after adoption of e-taxation in Nigeria.

The paired correlation results for company income tax before and after adoption of e-taxation indicated with a value of -.002 with a significance value of .994 which indicated that there is negative non-significant relationship between company income tax revenue before and after adoption of e-taxation in Nigeria.

The paired correlation results for value added tax before and after adoption of e-taxation indicated with a value of .624 with a significance value of .023 which indicated that there is positive significant relationship between value added tax revenue before and after adoption of e-taxation in Nigeria.



The final paired correlation results for total tax before and after adoption of e-taxation indicated with a value of -.500 with a significance value of .082 which indicated that there is negative non-significant relationship between total tax revenue before and after adoption of e-taxation in Nigeria.

**Table 3:** Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
<b>Pair 1</b>	Pre-PPT - Post-PPT	332.91272	272.64076	75.61694	168.15755	497.66788	4.403	12	.001
<b>Pair 2</b>	Pre-CIT - Post-CIT	-41.13248	178.06823	49.38724	-148.73803	66.47308	-.833	12	.421
<b>Pair 3</b>	Pre-VAT - Post-VAT	-8.69851	60.29723	16.72344	-45.13576	27.73875	-.520	12	.612
<b>Pair 4</b>	Pre-Total Tax Revenue - Post-VAT	1701.62971	598.42129	165.97220	1340.00734	2063.25207	10.252	12	.000

Source: SPSS Result Output, Version 21

### Hypothesis 1

**Ho.:** There is no significant difference in the petroleum profit tax revenue before and after the adoption of e-taxation in Nigeria

The result from table 3 above as regards pre and post PPT e-taxation adoptions shows that the paired sample test of the petroleum profit tax collected quarterly for 13 consecutive period of pre and post adoption of e-payment system. At 95% confidence interval of the difference between the two periods is within 168.158 and 497.668. The t-calculated value of 4.403 > t-tabulated value of 2.179 at 0.05 level of significant. From the result, it can be observed that t-calculated is greater than t-critical value with a significance value computed at .001 which shows that the null hypothesis be rejected while the alternate hypothesis accepted to the effect that there is statistically significant difference in the petroleum profit tax revenue before and after the adoption of e-taxation in Nigeria



**Ho<sub>2</sub>:** There is no significant difference in the company income tax revenue before and after the adoption of e-taxation in Nigeria

The result from table 3 above as regards pre and post CIT e-taxation adoptions shows that the paired sample test of the company income tax collected quarterly for 13 consecutive period of pre and post adoption of e-payment system. At 95% confidence interval of the difference between the two periods is within -148.738 and 66.473. The t-calculated value of  $-0.833 < t$ -tabulated of 2.179 at 0.05 level of significance. From the result and decision rule for the test, it can be observed that t-calculated is less than t-critical with an insignificance value computed at .421 which shows that the null hypothesis be accepted to the effect that there is no significant difference in the company income tax revenue before and after the adoption of e-taxation in Nigeria.

**Ho<sub>3</sub>:** There is no significant difference in the value added tax revenue before and after the adoption of e-taxation in Nigeria.

The result from table 3 above as regards pre and post VAT e-taxation adoptions shows that the paired sample test of the value added tax collected quarterly for 13 consecutive period of pre and post adoption of e-payment system. At 95% confidence interval of the difference between the two periods is within -45.136 and 27.739. The t-calculated value of  $-0.520 < t$ -tabulated of 2.179 at .05 level of significance. From the result and decision rule for the test, it can be observed that t-calculated is less than t-critical with an insignificance value computed at .612 which shows that the null hypothesis be accepted to the effect that there is no significant difference in the value added tax revenue before and after the adoption of e-taxation in Nigeria.

**Ho<sub>4</sub>:** There is no significant difference in tax revenue before and after the adoption of e-taxation in Nigeria

**Table 4:** Regression Result Summary for Pre and Post Adoption of E-taxation in Nigeria

Pre E-Taxation Adoption	Sig.	Post E-Taxation Adoption	Sig.
R-Square	.489	R-Square	.113
F	16.868	F	1.508
(Constant)-t.cal	-1.155	(Constant)-t.cal	6.059
Pre-PPT-t.cal	-2.159	Post-PPT-t.cal	.425
Pre-CIT-t.cal	2.614	Post-CIT-t.cal	-.438
Pre-VAT-t.cal	3.405	Post-VAT-t.cal	-.172

Source: Appendix 2, Section B

The regression result on table 4 for pre and post e-taxation adoption effect on total tax revenue shows an R-square value of .489 for pre e-taxation adoption indicating that the 3



indicators of PPT, CIT and VAT has 48.9% effect on total tax revenue in Nigeria. After the adoption of e-taxation the R-square value shows a value of .133 indicating 13% effect of PPT, CIT and VAT on total tax revenue in Nigeria. Comparing the regression effect, it clearly shows a drop in tax revenue generation after adoption of the e-taxation in Nigeria. The f-value of 16.868 with a with value of .000 indicated that the three variables of PPT, CIT and VAT are significant pre adoption of e-taxation while post adoption with an f-value of 1.508 with as insignificance value of .278 also shows that e-taxation adoption has not significantly improved PPT, CIT and VAT effect on Total tax revenue in Nigeria.

Also in affirmation to the regression result above and decision on the significance of the hypothesis, result on table 3 above as regards pre and post e-taxation adoption for total tax revenue shows that the paired sample test of the petroleum profit tax collected quarterly for 13 consecutive period of pre and post adoption of e-payment system. The t-calculated value indicates  $10.252 > t$ -tabulated of 2.179 at .05 level of significance. From the result and decision rule for the test, it can be observed that t-calculated is greater than t-critical with a significance value computed at .000 which shows that the null hypothesis be rejected while the alternate hypothesis accepted to the effect that there is significant difference in tax revenue before and after the adoption of e-taxation in Nigeria

### **Discussion of Result**

The first hypotheses tested shows that there is statistically significant difference in the petroleum profit tax revenue before and after the adoption of e-taxation in Nigeria. This was indicated by t-value of  $4.403 > t$ -calculated of 2.179 at .05 level of significance. Considering the mean position of both pre and post (668.47 and 152.83 billion), the result practically indicated that adoption of e-taxation have been significantly different from what is been earned before adoption of e-taxation in Nigeria in favour of pre-adoption of e-taxation. This finding was in accordance with the after effects of Olaoye and Atilola (2018) which found an unimportant variance between pre and post petroleum profit tax revenue and was also in variance with the finding of Afuberoh and Okoye (2014) which found that taxation has an important influence on revenue generation at 0.05 significant levels.

The second test reveals that there is no significant difference between pre company income tax revenue and post company income tax revenue. This is shown on the mean deviation of the two period (pre-e-tax-M: 240.11; and post-e-tax M: 281.24. This finding was in accordance with the findings of Ofurum, Amaefuel, Okonya, and Amaefule (2018) which revealed that the implementation of e-taxation has not improved tax revenue. The findings justifies the discovery of Bett and Yudah (2017) that compliance to online taxpayer registration, online tax return processing, online compliance and monitoring activities; and electronic tax payments contributes to revenue collection.



The third tested result shows there is no significant difference in the value added tax revenue before and after the adoption of e-taxation in Nigeria. The t. calculated value obtained is below the t-calculated of  $-.520 < t$ -tabulated of 2.179 at .05 level of significance. This finding was in inline to the findings of Ofurum, Amaefuel, Okonya, and Amaefule (2018) which revealed that the implementation of e-taxation has not improved tax revenue. Although the findings vary from the Olaoye & Atilola (2018) findings which indicated an unimportant variance between pre and post value added tax revenue.

The fourth and the final finding shows that total tax revenue shows an R-square value of .489 for pre e-taxation adoption indicating that the 3 indicators of PPT, CIT and VAT has 48.9% effect on total tax revenue in Nigeria. After the adoption of e-taxation the R-square value shows a value of .133 indicating 13% effect of PPT, CIT and VAT on total tax revenue in Nigeria. The result indicated adoption of e-taxation have not improved tax collection in Nigeria. Also the paired t-test results showed that there is significant difference in tax revenue before and after the adoption of e-taxation in Nigeria. This can be justified by the t-calculated value  $10.252 > t$ -tabulated of 2.179 at .05 level of significance. The result shows that the pre and post tax collection are negative in the movement which can be confirmed from the line chart and the correlation coefficient table.

### **Summary of the findings, Conclusion and Recommendations**

#### **Summary of the findings**

The findings from the result and the test of hypotheses of the study show the followings

- There is significant difference in the petroleum profit tax revenue before and after the adoption of e-taxation in Nigeria.
- There is no significant difference in the company income tax revenue before and after the adoption of e-taxation in Nigeria.
- There is no significant difference in the value added tax revenue before and after the adoption of e-taxation in Nigeria.
- there is significant difference in tax revenue before and after the adoption of e-taxation in Nigeria

#### **Conclusion**

Literature affirmed that over the years tax compliance levels remain low and tax collections are below the targets set by most revenue collection authorities. The introduction of electronic tax systems in most countries across the global divide, developing countries like Nigeria, still face the challenges of low tax compliance and tax administration. It was argued that online tax systems are rapidly replacing paper-based tax reporting systems. Promising many advantages over the traditional method of hard copy tax filing, these systems promise faster processing, lower cost and increased efficiency. This was the basis on which this seminar research paper was conducted to examine the effect of E-tax system on revenue generation in Nigeria. Based on the outcome of the analysis carried out, it was concluded that:



1. There is a negative significant difference between pre and post petroleum profit tax revenue. E-taxation have not contributed to the generation of petroleum profit tax and revenue generation in Nigeria but the contribution is not significant.
2. There is a negative insignificant difference between pre and post company income tax revenue. This means that E-tax system have not contributed to company added tax generation in Nigeria.
3. There is a positive insignificant difference between pre (before the introduction of e-taxation) and post (after the advent of e-taxation) value added tax revenue. This means that E-tax system has contributed to value added tax revenue generation in Nigeria.
4. there is negative significant difference in tax revenue before and after the adoption of e-taxation in Nigeria

### **Recommendations**

Considering the findings and conclusions of the study, the researcher recommends that;

6. Federal government through the Federal Inland Revenue Services should conduct more enlightenment seminars in all 36 states in the country to increase the knowledge on the use of all electronic services on their platform.
7. All existing tax payers should be given mandate on when they are expected to complete their e-registration and e-filing.
8. Mobile version of FIRS electronic tax portal should be created and made available for different types of mobile operating system such as Android, Windows and Apple OS. This will no doubt increase the adoption rate by tax payers as mobile phones are being increasingly used

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**Appendix A**

**Part A: Pre E-taxation adoption data**

**Total tax revenue, petroleum profit tax, company income tax and value added tax**

Periods: Before electronic tax system	Total tax revenue (N'billion)	PPT (N'billion)	CIT (N'billion)	VAT (N'billion)
2012-Q1	1172.470	848.7490	116.5074	175.8575
2012-Q2	1267.230	742.3155	289.0813	178.9823
2012-Q3	1366.060	796.5106	254.4492	170.6901
2012-Q4	1201.860	813.7443	156.4812	185.0252
2013-Q1	1206.730	800.6496	154.2939	192.1964
2013-Q2	1436.510	793.4257	400.6694	180.6144
2013-Q3	2748.740	520.4811	240.7724	207.0707
2013-Q4	2204.550	551.8105	167.8149	222.8020
2014-Q1	2495.740	638.0883	174.1639	212.3853
2014-Q2	2613.300	639.2683	556.2703	197.2551
2014-Q3	2783.460	594.7995	273.1290	211.3232
2014-Q4	2210.810	581.7913	176.8439	201.2417
2015-Q1	2055.640	368.5937	160.9244	193.3893

Source: FIRS, 2020

**Part B: Post E-taxation adoption data**

**Total tax revenue, petroleum profit tax, company income tax and value added tax**

Periods: After electronic tax system	Total tax revenue (N'billion)	PPT (N'billion)	CIT (N'billion)	VAT (N'billion)
2015-Q2	1397.200	136.5696	501.6561	64.99220
2015-Q3	1911.710	111.9589	65.28760	56.39900
2015-Q4	1547.960	266.9164	265.3192	183.4499
2016-Q1	1276.380	176.7478	166.0176	198.7343
2016-Q2	1118.560	328.0916	305.3955	197.7765
2016-Q3	1848.520	323.579	297.3369	207.2140
2016-Q4	1434.480	329.3897	164.7873	224.4740
2017-Q1	778.1935	338.2990	152.4191	221.3805
2017-Q2	1004.180	297.8715	364.2424	246.3033
2017-Q3	1115.330	390.7045	384.9345	250.5607
2017-Q4	1130.250	493.6067	313.4608	254.1039
2018-Q1	1173.610	644.7751	203.6832	269.7938
2018-Q2	1334.300	523.8523	471.5832	266.7317

Source: FIRS, 2020