# IMPACT OF ELECTRONIC PAYMENT SYSTEM ON TAX EVASION IN NIGERIA (2015-2021)

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## Abstract
This study investigated the impact of electronic payment system on tax evasion in Nigeria. The specific objectives of the study were to examine the impact of mobile banking payment (MBP); web-based transfer payment (WBP); automated teller machine payment (ATMP) and point of sales payment (POSP) on tax evasion in Nigeria. The study adopted *Ex-post facto* research design which enabled secondary data that covered the period of 7years (2015)-2021) to be collected from the reports and accounts of Federal Inland Revenue Service, Central Bank of Nigeria and National Bureau of Statistics. The study made use of descriptive statistics in order to determine the characteristics of the research variables. Ordinary least square multiple regression model was employed to test the research hypotheses at 0.05 level of significance. Results of the regression analyses revealed that MBP, ATMP and POSP had negative and significant impact on tax evasion in Nigeria. However, the study also discovered that WBP had negative and no significant impact on tax evasion. The implication of the findings is that any increase in the use of MBP, ATMP and POSP in payment of taxes leads to reduction in tax evasion in Nigeria. The study concluded that electronic payment systems have significantly influenced the reduction of tax evasion in Nigeria. The study therefore recommended that government should address the challenges of unreliable power supply and poor internet network to reduce the motives that could discourage taxpayers from using the electronic payment system.

## Introduction
Boosting revenue from taxation to bridge the gap between tax revenue and governance expenditure has been a source of serious concern to the Nigerian government in recent times. This is in line with the realization that revenue from crude oil can no longer adequately support the government developmental objectives owing to the consistent decline in prices of crude oil in the global market. Unfortunately, most developing countries do not obtain adequate revenue from taxation as seen in industrially developed nations which is attributable to loopholes in the tax system, especially tax evasion (Otekunrin, Nwanji and Eluyela, 2021). They opined that tax evasion has become a chronic challenge that has led to a high loss of financial resources that sabotage the Nigeria economy (Otekunrin et al, 2021). For instance, the Nigerian Government lost over ₦90 billion as a result of tax evasion in the automobile industry between 2013 and 2016. Similarly, in 2017, the minister for information reported that Nigeria also lost over $1trillion from tax evasion by multinational companies operating in Nigeria (Aliyu and Bakare, 2019). This is further buttressed by James and Moses (2012) who opined that the prevalence of tax evasion in the Nigerian tax system has curtailed the amount of revenue generated from income tax, which in no doubt has affected the governance expenditure. The situation has placed government in a helpless situation towards the provision of socio-economic life made easy facilities (Eze, 2009), resulting to a deplorable condition of the people's living standard.

In recent times, the use of technology to improve the effectiveness of tax administration has come to attract increasing attention in both developed and developing countries (Olaoye and Kehinde, 2015). Consequently, tax experts and Administrators have advocated for technology-driven tax system in order to expand the country's tax base, achieve economic diversification away from oil and effective

delivery of public services (Oketa, Nwamgbebu, Nkwede and Oraekwuotu, 2021). Therefore, a high Lucrative means of generating the amount of revenue needed for economic development of any country is undoubtedly through a well-structured tax system based on technology. Hence, the Federal Government of Nigeria introduced electronic payment system in 2015 to create a safe, efficient and effective mechanism for making and receiving any type of payment conveniently from any location and time through electronic channels (Afaha, 2019). This development is gradually shifting the Nigerian economy from paper transactions to a paper-less transaction system, where electronic devices are used for exchange of monetary transactions without the physical contact of the transacting parties (Ude, 2020).

The rationale for the adoption of electronic payment system in Nigeria was to develop a modern payment system that can enhance revenue generation; since the traditional system of payment has facilitated bribery by the taxpayers to the tax officials due to the physical contact between the two groups which has led to reduction in the amount of taxes to be paid (Adegbie and Akinyemi, 2020). Electronic payment system according to Guttman (2017) is a convenient, safe and secured method of paying bills and other transactions through electronic fund transfer and the internet. It is a way of paying for goods and services through an electronic medium without the use of cheque or cash (Mohammed, 2020). As the world advance more on technological development, a lot of electronic payment devices have been developed to increase, improve and provide secured e-payment transactions, while decreasing the percentage of cheque and cash transactions (Adegbie and Akinyemi, 2020).

Electronic payment systems come in different forms, such as the web transfer payment, automated teller machine payment, mobile banking payment and point of sales payment (Mohammed, 2020). These channels provide a medium where economic exchanges take place without visiting the banks or with no physical presence of the transacting parties. According to Oginni, El-mude, Mohammed and Onuh (2013), the easiness of transacting economic activities as well as safer and quicker access to funds, among other factors, has placed electronic payment on a more gloried pace than cash-based system. It facilitates an efficient tax system that provides a strong channel to exploit internal revenue sources of a country or proper service delivery. Based on this background, the researcher is motivated to investigate the extent to which electronic payment system has enhanced tax revenue through reduction in evasion of taxes in Nigeria.

## 1.2 Statement of the Problem

The primary focus of any tax administration anywhere in the world is to maximize revenue collections by improving tax compliance through efficient and effective administrative machinery. Hence, electronic payment system was adopted in Nigeria to avail services to the taxpayers all the time from anywhere, reduce cost of compliance and improve revenue collections. However, it has been consistently noticed over the years that the revenue from taxes are grossly inadequate for governance expenditure especially when compared with the budgeted bulk of revenues needed for developmental purposes in Nigeria. The situation is worrisome and has been worsened in recent times when revenue from oil can no longer adequately support the Nigeria's developmental objectives, arising from the decline in prices of crude oil in the global market. The traditional system of payment is characterized by the physical interaction between the taxpayers and the tax officials resulting to bribery due to the collusion between the two groups (Oketa, Nwamgbebu, Nkwede and Oraekwuotu, 2021). This development has created a huge revenue gap between what tax officials collect and what they ought to collect. This situation is believed to have been the cause of the continuous accumulation of Nigeria's indebtedness which has resulted to the deplorable condition of the present economy of Nigeria.

In a bid to avert this danger, the Nigerian government introduced electronic payment system to boost

tax revenue generation through the use of web transfer, automated teller machine, mobile banking and point of sales. The adoption of these forms of electronic payment channels were designed to eliminate the physical interaction between the taxpayers and tax officials and to reduce time to compliance in order to enhance revenue generation.

In Nigeria, most of the prior studies on electronic payment systems were in different dimensions. For instance, (Okifo and Igbunu, 2015 and Mohammed, 2020) examined electronic payment system and economic growth in Nigeria. Obviously, these prior studies cannot be used in place of the impact of electronic payment system on tax evasion in Nigeria, because the dependent variables do not represent the same thing. Moreover, Adegbie and Akinyemi (2020) evaluated electronic payment system and revenue generation in Lagos State. The problem with this study is that it was specifically carried out in Lagos State. Hence its findings cannot be used for the explanation of electronic payment carried in Nigeria. Again, Oyelami, Adebiya and Adekunle (2020) investigated electronic payment system and consumers' spending growth in Nigeria using primary data. The deviation of the present study from this prior study is the use of secondary data. Therefore, there is need for a study that will provide empirical evidence on the extent to which electronic payment system has helped in the minimization of tax evasion in Nigeria. This justified the imperative of this study.

### 1.3 Objectives of the Study
The broad objective of the study is to examine the impact of electronic payment systems on tax evasion in Nigeria. Specifically, the study sought:
1. To examine the impact of mobile banking payment on tax evasion in Nigeria.
2. To evaluate the impact of web-based transfer payment on tax evasion in Nigeria.
3. To determine the impact of automated teller machine payment on tax evasion in Nigeria.
4. To investigate the impact of point of sales payment has affected tax evasion in Nigeria.

### 1.4 Research Questions
The following research questions were raised in line with the specific objectives to guide the study:
1. To what extent does mobile banking payment impact on tax evasion in Nigeria?
2. What impact does web-based transfer payment have on tax evasion in Nigeria?
3. To what extent does automated teller machine payment impact on tax evasion in Nigeria?
**4.** To what extent does point of sales payment impact on tax evasion in Nigeria?

### 1.5 Research Hypotheses
The following research hypotheses were formulated in null forms to guide the study in line with the specific objectives and research questions.
1. Mobile banking payment does not significantly impact on tax evasion in Nigeria.
2. Web-based transfer payment has no significant impact on tax evasion in Nigeria.
3. Automated Teller Machine Payment does not significantly impact on tax evasion in Nigeria.
4. Point of sales payment does not have significant impact on tax evasion in Nigeria.

### 1.6 Significance of the Study

Information provided by this study will guide the policy makers on the appropriate policies that will facilitate the use of electronic payment by the Nigerian society in carrying out their economic transactions which will also help to capture greater percentage of the population into the Nigeria's tax net. Federal Inland Revenue Service (FIRS): The study will provide the relevant information that

will help the FIRS to embark on reformation which will enhance tax revenue generation that will be capable of supporting the government development objectives adequately aimed at satisfying the expectations of the citizenry. The Public.

The findings of this study will educate members of the general public and other potential investors on the need for the use of electronic payment in transacting their business activities in order to remain relevant in the current global economic realities. It will help to reduce the risk of cash- related crimes in the Nigeria society as most people no longer carry physical cash with them or keep it in their homes. Researchers: The findings of this study will be a good source of knowledge to scholars or researchers and may form the basis for further studies in the area of electronic payment and tax evasion in Nigeria.

### 1.7 Scope of the Study

The study evaluated the impact of electronic payment system on tax evasion in Nigeria for the period of 7 years spanning from 2015-2021. Electronic payment system studied was measurable using Mobile Banking payment (MBP); web-based transfer payment (WBP); automated teller machine payment (ATMP) and point of sales payment (POSP); while the dependent variable is tax evasion. 2015 was chosen as the base year because electronic payment system became more pronounced in Nigeria in 2015.

### 1.8 Limitations of the Study

The study was carried out in Nigeria. Hence, its findings and recommendations cannot be universally applied. The study only covered Mobile Banking payment; web-based transfer payment; automated teller machine payment and point of sales. These are not the only components of electronic tax system, which has limited our findings and therefore, cannot be generalized.

### Review of Related Literature
### 2.1 Conceptual Review
### 2.1.1 Electronic Payment System

E-payment has been designed to help individual customers and companies as well as the banks itself in "eliminating or reducing some of the problems inherent in the settlement and payment process. Customers can pay their bills without having to actually move to the bank's premises (Wahab, 2012). They may also have access to their account information and even transfer money to other accounts in the comfort of their home.

Electronic payment is a form of financial exchange that takes place between the buyer and seller facilitated by means of electronic communication (Okifo and Igbunu, 2015). The term electronic payment can be referred narrowly to e-commerce; a payment for buying and selling goods and services offered through the internet, or broadly to any type of electronic funds transfer. Furthermore, Ayo (2017) defined e-payment as electronic transfer of cash via online transactions for business-to business (B2B), business-to-consumer (B2C), person-to-person (P2P), and most recently administration-to consumer (A2C) purposes. Administration to consumer payment addresses the payment of taxes toward the government. He also defined e-payment as cash and associated transactions implemented using electronic means. Typically, this involves the use of computer networks such as the internet and digital stored value system. This system allows bills to be paid directly from bank, and without the use of writing and mailing cheques.

### 2.1.2 Mobile Banking Payment (MBP)

This is a product that enables users to conduct fund transfer, make payment or receive balance enquiries on their mobile phones. Mobile banking is very popular and exciting to customers given the low infrastructure requirements and the rapid increase in mobile phone penetration in the country. Services covered by this product include account balance enquiry, funds transfer, recharging of phones, changing password and bill payments.

Though the product is exciting, most customers are yet to fully buy into it in Nigeria. Hence, the apex bank and other financial institutions still have a lot to do in terms of increasing awareness of its product to the saving populace in the country (Woleola, 2017).

### 2.1.3 Web-Based Transfer (Internet)
This refers to electronic transfers which can be affected through the internet on personal computers. Bank customers who have subscribed to internet banking can do basic banking transactions via the web. Internet banking like mobile banking also uses the electronic card infrastructure for executing payment instructions and final settlement for goods and services over the internet between the merchants and the customers (Woleola, 2017). Commonly used internet banking transactions in Nigeria are settlement of commercial bills and purchase of air tickets through the  websites of the merchants. Basically, this device enables a customer with a personal computer and telephone to screen his account, print his own statement of account and carry out transfer activities right in the office or at home (Gandy, Igbanibo and Uzo-Ahunanya 2017).

### 2.1.4  Automated Teller Machine (ATM)
This concept is defined as electronic banking machine that dispenses cash, accepts deposits, and performs other services when a customer inserts a plastic card and pushes the proper coded buttons. An automated teller machine (ATM) is an electronic telecommunications device that enables customers of financial institutions to perform financial transactions, such as cash withdrawals, deposits, transfer funds, or obtaining account information, at any time and without the need for direct interaction with bank staff (Mohammed, 2020).

### 2.1.5 Point of Sales (POS)
Point of Sale terminals are deployed to merchant locations where users slot their electronic cards through POS in order to make payments for purchases or services instead of using raw cash. As the POS terminals are online real-time, the customer's bank account is debited immediately for value of purchases made or services enjoyed. However, in Nigeria, the Point of Sale (POS) terminal was introduced by the CBN to drive home its cashless policy aimed at enhancing Nigeria payment system (Gandy, Igbanibo and Uzo-ahunanya, 2017). Point of-sale machine is the payment device that allows credit/debit cardholders make payments at sales/purchase outlets. It allowed customers to perform the following services: retail payments, cashless payments, cash back balance enquiry, airtime vending and printing mini-statement amongst others.

### 2.1.6 Tax Evasion
Tax evasion simple refers to an intentional effort by people, corporate bodies, trust and other institutions to illicitly refuse to pay taxes and reporting true and fair value of their earnings by a means of evading tax (Edwin, 2007). Tax evasion is characterized as an intentional wrongful attitude, or as a behaviour involving a direct violation of tax laws, norms and ethics regarding citizenry obligation to escape the payment of tax. The intentional underreporting of income, as well as over-claiming of a tax deduction, is an obvious example of tax evasion (Adebisi and Gbegi, 2013). Soyode and Kojola (2006) define tax evasion as an intentional and conscious practice of not revealing full taxable income. It is a violation of tax laws in which the tax rate due by a taxable person is unpaid after the minimum required period (Temitope, Olayinka and Abduratiu, 2010). Tax evasion is clear evidence in a situation where taxpayers are reducing, making or proclaiming false statement about their liabilities on the revenue tax through exploiting ineffectiveness in the tax laws and regulations.

Different factors are the causal that encourage and make taxpayer acting toward evasion have been identified by various studies and authors. As the problems of tax evasion cut across many countries developed and developing the causes also seems to be unanimously universal. This is because tax is levied on the citizen and corporate entities as a contribution toward the redistribution of limited resources and taking care of public expenditure. Therefore, taxpayers share unique attitude in minimizing their tax liability through all the available and possible means to maximize their selfish interest. Adebisi and Gbegi (2013) suggested the

following as causes of tax evasion in many countries where taxes are levied, unfair distribution of facilities (amenities), poor management and misuse of tax collected, lack of essence of civic responsibility, taxpayer inaccessibility to government services, unfair distribution of amenities provided with the tax revnue by government make some taxpayers to feel not belonging or isolated from the society. This situation may create grudges and misunderstanding between the taxpayer and tax authorities. The taxpayer may see that no reason any longer for him to pay any taxes because the benefit expected from paying the tax is to get back services provided by the government.

## 2.2 Empirical Review

Osaloni, Igbekoyi, Ogungbade and Akpan (2022) examined the effect of information technology on tax evasion practice in Nigeria. Specifically, the study sought to determine the effect of tax automation on tax evasion; effect of digital economy on tax evasion; and effect of tax cognitive modeling on tax evasion practice in Nigeria. The study adopted survey research design which enabled primary data to be obtained with the aid of structured questionnaire administered to 289 selected staff of Federal Inland Revenue Service (FIRS) and states board of internal revenue service of Ekiti, Ondo and Osun. The reliability of research instrument was confirmed using Cronbach Alpha test which had a value of 70% (0.7) indicating a high reliable research instrument. Multicollinearing test of the research variables was performed using tolerance and variance inflation factor (VIF). The values of the tolerance levels were within the region of 0 and 1; while the VIF values were less than 10 and greater than 0; which showed that there is no presence of multicollinearity. Data collected were analyzed using descriptive statistics; while OLS regression was used to test the hypothesis at 0.05 level of significance. The result of the regression analysis revealed that information technology had a positive and significant effect on tax evasion practice in Nigeria.

Strango (2021) investigated the impact of digitalization of public service on tax evasion using the European Union 27 (EU-27) member states as a case study over the period 2015-2019). Panel data were collected from the World Bank covering the period of the study. The data was analyzed using panel model approach by Generalized Method of Moments (GMM) system. The estimator reviews the issue of endogeneity, hetero scedasticity and redresses the autocorrelation in residuals by using the lagged dependent variable. The lagged dependent variable is also considered as regressor in order to reduce the occurrence of autocorrelation arising from model misspecification. Three scenarios were developed based on GMM-system estimator. A between explanatory variables were constructed for each scenario. The findings from the analysis of the study showed that digitalization of public services had non-linear U-shaped relationship with tax evasion. This implies that the acceleration of digitalization in public services reduces the level of tax evasion up to a certain point. Once the acceleration reaches that point, the level of tax evasion increases once again.

Abdul, Zubairu and Abubakar (2021) carried out a study on curbing tax evasion through taxpayer identification number in Niger state of Nigeria. The study specifically sought to determine the rate of tax evasion before the introduction of taxpayers' identification number TIN), and the rate of tax evasion after the introduction of TIN. Interview questions were used in the collection of data, from 36 staff of Niger State Board of Internal Revenue Service in Minna. A sample size of ten (10) staff was finally selected for the interview who have been in service prior to the introduction of TIN. Data gathered from the interview was analyzed in two steps namely: transcribing each of the interviews and analyzing the responses from the interviewees in order to identify similar themes in their responses. Result of the analysis revealed that all the ten officials of the Niger State Board of Internal Revenue interviewed agreed that the rate of tax evasion before the introduction of TIN was very high. Secondly, the ten officials also affirmed that the introduction of TIN has lead to significant reduction in tax evasion level in Niger state.

Otekumrin, Nwaji and Eluyela (2021) examined the effectiveness of E-tax system in reducing tax evasion in Nigeria. The specific objectives of the study were to determine the effect of E-tax system in reducing tax

evasion in Nigeria before and after the introduction of e-tax system. Primary data was sourced with the aid of structured questionnaire administered to 103 officials of Federal Inland Revenue Service and taxpayers of small and medium scale enterprises registered in Federal Capital Territory (FCT), Abuja in Ng. the entire population was 103, but only completed and returned for the analysis of the study. Descriptive statistics was used to estimate the statistical significance of the independent on dependent variable. The outcome of the study revealed that effective electronic tax system will significantly reduce tax evasion.

Adegbie and Akinyemi (2020) examined the effect of electronic payment system on revenue generation in Lagos State. The specific objectives of the study were to determine the effect of electronic payment system on personal income tax, the effect of electronic payment system on rates collected and the effect of electronic payment on penalties collected in Lagos State. The study made use of primary data which were sourced with the aid of questionnaire administered to 4275 staff of the six (6) selected revenue generating agencies in Lagos State. However, only 366 out of the population of 4275 were retrieved and used for analysis of the study. Data was analyzed with the use of descriptive statistics; while hypotheses using multiple regressions model at 0.05 level of significance. The study found that electronic payment system has positive and significant on personal income tax, rates and penalty collected in Lagos State.

Mohammed (2020) investigated the role of electronic payment on economic growth in Nigeria. Specifically, the study sought to ascertain the long run relationship between electronic payment system and Nigeria's economic growth; to determine the short run relationship between electronic payment system and economic growth in Nigeria; and to evaluate the casual relationship between electronic payment system and Nigeria's economic growth. The study made use of quarterly time series data obtained from the central Bank of Nigeria for the values of point of sales, automated teller machine, mobile banking, internet (web) transactions and real gross domestic product for the period 2010-2018. Analysis of the study was performed using multiple regression model, Johansen co-integration test, Granger causality test and vector Error correction model. The results of the regression analysis showed automated teller machine and web transactions had positive and no significant effect on economic growth in Nigeria. However, the regression result also indicated that point of sales transactions had negative and no significant effect on the growth of the Nigeria's economy.

Oyelami, Adebisi and Adekunle (2020) investigated the determinants of electronic payment adoption and the role of electronic payment on consumers' purchasing decisions as well as its effect on consumers' spending growth in Nigeria. The study made use of primary data obtained with the aid of structured questionnaire designed in 5-point likert scale. Reliability of research instrument was test and it showed a Cronbach Alpha value of 0.829 which indicated a high reliability. 84 copies of the questionnaire which represent the sample size of the population were distributed to banks' customers who had a minimum of 5 years experience in the use of different modes of electronic payment in Lagos. But only 401 out of the 484 administered were duly retrieved for the analysis of the study. Pearson correlation and Hierarchical regression were employed to test the formulated hypotheses at 0.05 level of significance. Results of the regression analysis revealed that factors such as education attainment, financial inclusion, income level, availability of internet services and financial structures such as ATM and POS Machines are critical determinants to electronic payment adoption in Nigeria. The result also showed that electronic payment system increases consumers' spending growth in Nigeria.

Mamudu and Gayovwi (2019) evaluated the impact of cashless policy on economic growth of Nigeria. The specific objectives of the study were to examine the impact of automated teller machine payment; web transfer payment, mobile banking payment; national fund transfer and point of sales on gross domestic product in Nigeria. Data were obtained from central bank of Nigeria for the period of seven (7) years spanning from 2011-2017. The study used Ordinary Least Square (OLS) regression technique, Johansen co-integration test and Error correction model for data analysis. The result showed that the use of cashless

policy instruments have a positive and significant impact on Gross Domestic Product in Nigeria. The Johansen  co integration test shows that a long run relationship exists between the variables while in the short run regression results also show the use of these non cash instruments have a significant and positive effect on Gross Domestic Product in Nigeria.

Kessy (2019) evaluated the role of e-payment on revenue collection in Tanzania. The specific objectives of the study were to examine the relationship between e-payment and tax compliance; to assess the relationship between e-payment and monitoring of revenue sources and to find the relationship between e-payment and financial reporting. The study obtained primary data with the aid of semi-structured questionnaire administered to 77 respondents. The study made use of descriptive statistics in analyzing data; while linear regression was used to test hypothesis at 5% level of significance. The findings showed that most of the participants admitted that e-payment influences revenue collection by increasing tax compliance. The study also discovered that e-payment additional competitive edge in monitoring revenue sources, and improving the quality of financial reporting.

## 2.3 Theoretical Framework
This study adopted two theories namely: Economic Deterrence theory and Technology Acceptance model

### 2.3.1 Economic Deterrence theory
This study is anchored on the economic deterrence theory (EDT), which was propounded by Alligngham and Sandmo in 1972. The theory states that tax payer's behavior is influenced by factors such as the benefits and penalties for engaging in tax evasion if his action is detected. The theory is based on the observation that if the benefit of wrong doing is surpassed by the result of perpetrating the act, an individual will be prevented from performing wrong doing.  According to the theory, the tax payer has the choice of either declaring his actual income or less than the actual. If he chose not to declare his actual income, the payoff depends on whether he was investigated or not by the relevant tax authority. This implies that failure to investigate the taxpayer will be worse off. The theory assumes that an increase in the probability of detecting undeclared income leads to a larger income being declared. Hence, if the taxpayer knows that once he is discovered, his whole past will be investigated, the tax-compliant level will show upward movement, resulting in a declaration of total income. The theory is used in this study to explain what is expected from the various forms of electronic payment systems so as to track non-compliant taxpayers in order to minimize tax evasion in the Nigeria's tax system.

### 2.3.2 Technology Acceptance Model
The second theory is Technology Acceptance Model (TAM). This theory was developed by Fred Davis in 1986. The Technology Acceptance Model is an information systems theory that models how users come to accept and use a technology. The theory is based on the assumption that the acceptability of an information system is determined by two main factors, being Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). Perceived Usefulness is the degree to which a person believes that using a particular system would enhance his or her job performance. Perceived Ease of Use (PEOU) is the degree to which a person believes that using a particular system would be free from effort. This theory is relevant to this study in the sense that the Technology Acceptance Model provides the basis for the adoption and implementation of the electronic tax system by the FIRS based on the assumption of its perceived usefulness by both the tax payers and tax officials.

## Methodology
### 3.1 Research Design
The study adopted *Ex-post facto* research design. The appropriateness of this type of design was based on the fact that *ex-post facto* is a method of testing out antecedent that have happened. Hence, the researcher

made use of *ex-post facto* research design because the data used for the analysis of the study were already in existence.

### 3.2 Sources of Data
The data used for the analysis of the study were obtained from secondary sources. Data for the independent variables were collected from the official publications of Central Bank of Nigeria (CBN) and National Bureau of Statistics; while the dependent variable were obtained from the annual reports and accounts of Federal Inland Revenue Service. Data collected covered Mobile Banking payment (MBP); web-based transfer payment (WBP); automated teller machine payment (ATMP) and point of sales payment (POSP) for the period of 7 years spanning from 2015 to 2021.

### 3.3 Model Specification
Ordinary Least Square (OLS) Multiple regression model was adopted to test the impact of electronic payment systems and tax evasion. Multiple linear regression model was stated as follows:

$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + ut$…………..(1)

The above model was modified and expressed as follows:

$TE = \beta_0 + \beta_1 MBP + \beta_2 WBP + \beta_3 ATMP + \beta_4 POSP_4 + ut$…………..(2)

Where:

| | |
|---|---|
| TE | = Tax Evasion |
| $\beta_0$ | =Constant |
| $\beta_1$ __ $\beta_4$ | = Slopes of Coefficient |
| MBP | = Mobile Banking payment |
| WBP | =Web-based Transfer Payment |
| ATMP | = Automated Teller Machine Payment |
| POSP | = Point of Sales Payment |
| Ut | = Error Term |

### 3.4 Description of Model Variables

**Mobile Banking Payment:** This is measured by the value of Mobile Banking transactions as reported by the Central Bank of Nigeria.

**Web-based Transfer Payment:** This was technically defined as the value of web-based transactions as reported by the Central Bank of Nigeria.

**Automated Teller Machine Payment:** This was technically defined and measured by the value of Automated Teller Machine transactions as reported by the Central Bank of Nigeria or National Bureau of Statistics.

**Point of Sales Payment:** Measured by the value of point of sales transactions as reported by the National Bureau of Statistics or Central Bank of Nigeria for the period covered by the study.

**Tax Evasion:** This was measured by the difference between estimated taxes by the Federal Government and actual tax receipts.

### 3.5 Method of Data Analysis

The data which was obtained from secondary sources were estimated using multiple regression equation with the aid of E-views 10.0 econometric software. Descriptive statistics was used to analyze data so as to determine the characteristics of the model variables such as the mean, standard deviation, minimum and maximum values amongst others. Unit root test was performed using the conventional Augmented Dickey-Fuller (ADF) test in order to validate the data employed in the study on both the independent variables. The

study made use of Ordinary Least Square Multiple regression model to test the formulated hypotheses at 0.05 level of significance. For the purposes of taking decision, the study was guided by the following decision rules.

Decision Rule1: Accept the alternate hypothesis and reject the null hypothesis if the probability value (p-value) associated with the regression outcome is less than 0.05 chosen level of significance. Decision Rule 2: Accept the null hypothesis and reject the alternate hypothesis if the p- value associated with the regression outcome is greater than 0.05 chosen level of significance.

## Results
This section presents a detailed analysis of data collected from secondary sources with a view to arriving at solution to the problem identified.

### 4.1 Data presentation
Annual data obtained on the variables of the study for the period 2015 to 2021 are presented on table 1 for Tax evasion (TE), Mobile Banking payment (MBP); web-based transfer payment (WBP); automated teller machine payment (ATMP) and point of sales payment (POSP).

**Table 1: Descriptive Statistics**

|  | TE | MBP | WBP | ATMP | POSP |
|---|---|---|---|---|---|
| Mean | 44.3228 | 13.6099 | 8.5877 | 12.9644 | 7.3668 |
| Median | 41.9686 | 13.1524 | 5.1633 | 6.4672 | 7.1992 |
| Maximum | 53.4312 | 16.2895 | 7.729 | 29.9270 | 9.8634 |
| Minimum | 23.8877 | 12.4834 | 3.1477 | 5.3483 | 5.6696 |
| Std. Dev. | 1.9286 | 1.9668 | 0.8694 | 0.6472 | 1.2128 |
| Skewness | 0.9447 | 0.0344 | 0.531 | 0.460 | 0.4526 |
| Probability | 0.1125 | 0.0418 | 0.0238 | 0.0396 | 1.9654 |
|  |  |  |  |  |  |
| Kurtosis | 2.1614 | 1.8836 | 1.614 | 1.911 | 2.5735 |
| Jarque-Bera | 3.34395 | 1.9189 | 1.918 | 0.980 | 0.4252 |
| **Observations** | **7** | 7 | 7 | 7 | 7 |

**Source:** Author's E-views Output, 2022.

Table 1 shows the summary of descriptive statistics test for all the variables of interest adopted in the model of the study. The average value of tax evasion (TE) for the period of the study (2015-2021) is 44.3228%, which fluctuated from the minimum of 23.8877% to a maximum of 53.4312%. The dispersion around the mean indicated by the value of standard deviation is 1.9286. This showed that within the period of the study (2015 to 2021), the Nigerian government on average has lost 44.3228 billion through tax evasion; while the maximum and minimum amount lost through evasion of taxes were 53.4312 billion and 23.8877 billion respectively.

Besides the average values of Mobile Banking payment (MBP); web-based transfer payment (WBP); automated teller machine payment (ATMP) and point of sales payment (POSP) stood at 13.6099%; 8.5877%; 12.9644% and 7.3668% respectively, while their standard deviation values stood at 1.9668; 0.8694, 0.6472 and 1.2128 respectively. Given that the smaller the values of standard deviation in relative to their corresponding mean values, the more data is accurately represented. Hence, since the values of standard deviation are low, it implies that the variables of the study are effectively represented.

**4.2 Test of Hypotheses**

**Table 2: OLS Regression Results**

Dependent variable: TE
Method: Least Squares
Date: 30/11/2022
Time: 10:10
Sample 2015-2021
Total observations: 7

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 0.314276 | 0.014872 | 21.132060 | 0.0000 |
| MBP | -0.486998 | 0.225663 | -2.158076 | 0.0247 |
| WBP | -0.426264 | 0.284385 | -1.498898 | 0.2130 |
| ATMP | -0.836647 | 0. 123318 | -6.784467 | 0.0000 |
| POSP | -0.067636 | 0.029278 | -2.310130 | 0.0118 |
| | | | | |
| R-squared | 0.669228 | Mean dependent vari | | 0.363833 |
| Adjusted R-squared | 0.609886 | S.D. dependent var | | 0.117356 |
| S.E of regression | 0.076784 | Akaike info criterion | | -1.867416 |
| Sum squared resid | 0.560040 | Schwarz criterion | | -1.982192 |
| Log likelihood | 56.92274 | Hannan-Quinn criter. | | -1.885543 |
| F-statistic | 35.31023 | Durbin-Watson stat | | 1.833669 |
| Prob (F-statistic) | 0.00000 | | | |

**Source**: Author's Computation from E-views, 9.0, 2022.

**4.2.1 Decision Rule**

The decision rule is anchored on the conventional probability value (p-value) linked with the outcome of the regression analysis. The decision rule states that if the computed p-values of the research variables is less than 0.05 chosen level of significance i.e. (if p-value < 0.05), we accept alternate hypothesis ($H_A$); and reject the null ($H_O$). Otherwise, we accept the null hypothesis and vis-visa.

**4.2.2 Interpretation of Regression Result**

The result of the regression analysis presented in table 2 showed that the p-values of MBP, ATMP and POSP were 0.0247, 0.0000 and 0.0118 respectively. The corresponding t-values were -2.158076, -6.784467 and -2.310130 which were all in negatives. Based on these results and guided by the decision rules earlier stated, the researcher accepted the alternate hypothesis ($H_A$) and rejected null hypothesis ($H_O$) with respect to MBP, ATMP and POSP since their p-values are less than 0.05 chosen level of significance. The implication of this decision is that MBP, ATMP and POSP had negative and significant impact on tax evasion in Nigeria. However, WBP had negative and no significant impact on tax evasion, since its p-value (0.213) is greater than 0.05 chosen level of significance. Moreover, the negative values of the t-statistics showed that there is an inverse relationship between components of electronic payment systems and evasion of taxes in Nigeria. That is, any increase in volume of transactions with respect to MBP, WBP, ATMP and POSP led to reduction in tax evasion in Nigeria for the period 2015-2021.

Moreover, the value of R-squared is 0.669228 which implied that about 67% changes in tax evasion in Nigeria is attributed to changes in mobile banking payment, automated teller machine payment and point of sales transactions; while 33% changes in tax evasion is caused by other factors not captured in the model but which are capable of affecting tax evasion in Nigeria. Durbin Waston has the value of 1.833669 which revealed that there is no autocorrelation presence since the value is close to 2. Again, the value of

F-statistic (35.31025) is high which implies that the variables (MBP, WBP, ATMP and POSP) are jointly relevant in the explanation of tax evasion in Nigeria.

## 4.3 Discussion of Findings

The result of the Ordinary Least Square (OLS) regression analysis formed the basis of discussion of findings, which were made in line with the specific objectives. Result of the regression analysis was also compared with prior studies on the related topic.

### 4.3.1 Impact of Mobile Banking payment (MBP) on Tax Evasion in Nigeria

The result of the regression analysis presented on table (2) revealed that Mobile Banking payment (MBP) had a coefficient value of -0.486998 and p-value of 0.0247. Based on these results and in line with the decision rules guiding, the researcher rejected the null hypothesis and concluded that Mobile Banking payment had negative and significant impact on tax evasion in Nigeria. The implication of this result is that MBP had a negative relationship with evasion of taxes in Nigeria; meaning that 1% increase in MBP transactions leads to 49% reduction in evasion of taxes in Nigeria. This result is in conformity with the researcher's apriori expectation because one of the reasons for the adoption of electronic tax systems in Nigeria was to enhance tax revenue through reduction in tax evasion. Similarly, the result of this study is also in line with the finding of Otekunrin, Nwanji and Eluyela (2021). This prior study found that effective electronic payment system significantly reduces tax evasion in Nigeria.

### 4.3.2 Impact of Web-Based Transfer Payment (WBP) on Tax Evasion in Nigeria

The study found that web-based payment (WBP) with coefficient value of -0.426264 and p-value of 0.213 had negative and no significant impact on tax evasion in Nigeria. This result contradict with the researcher's apriori expectation since the primary focus of adopting electronic payment system in Nigeria was to improve revenue generation. Moreover, the result also disagreed with the findings of strange (2021) who carried out a study to determine whether digitalization of public services reduces tax evasion in Romania. This prior study discovered that digitalization of public services in Romania showed a non-linear relationship with tax evasion. Similarly, the result of our study did not align with the findings of Osaloni, Igbekoyi, Ogungbade and Akpan (2022) who investigated the impact of information technology on tax evasion practice and discovered that information technology had positive and significant effect on tax evasion in Nigeria.

### 4.3.3 Impact of Automated Teller Machine Payment (ATMP) on Tax Evasion in Nigeria

The study found that ATMP with coefficient value of -0.836647 and p-value of 0.0000 had negative and significant impact on tax evasion in Nigeria. The negative value of coefficient of ATMP indicated that it has an inverse relationship with tax evasion in Nigeria. The implication of this result is that 1% increase in ATMP transactions resulted to 84% reduction in tax evasion in Nigeria. This result aligns with the findings of Osaloni, Igbekoyi, Ogungbade and Akpan (2022) who examined the effect of information technology on tax evasion practice in Nigeria. This prior study found that tax automation has a considerable significant relationship with tax evasion practices in Nigeria. Similarly, the findings of this study is also in agreement with the result of Nimer, Ali, Cemil and Friedrich (2022) who investigated to ascertain whether e-government services reduce the prevalence of tax evasion in United Kingdom. This prior study revealed that e-government services reduce tax evasion in UK.

### 4.3.4 Impact of Point of Sales Payment (POSP) on Tax Evasion in Nigeria

The result of the regression analysis presented in table 2 indicated that the coefficient value of point of

sales payment (POSP) was -0.067636, while its p-value was 0.0118. Based on these results and in line with the decision rules guiding the study, the study accepted the alternate hypothesis and concluded that point of sales had negative and significant impact on tax evasion in Nigeria. This result is in consistence with the findings of Kessy (2019) who evaluated the role of electronic payment system on revenue collection in Tanzania, and found that electronic payment system influences revenue collection by increasing tax compliance. Similarly, the result of our study is also in agreement with the findings of Otekunrin, Nwanji and Eluyela (2021) who opined that effective electronic tax system significantly reduces tax evasion in Nigeria.

## 5. Conclusion and Recommendations

The study examined the impact of electronic payment systems on tax evasion in Nigeria. Findings from the results of the OLS multiple regression analysis revealed that MBP, ATMP and POSP had negative and significant impact on tax evasion. However, the study also discovered that WBP had negative and no significant impact on tax evasion in Nigeria. Based on these findings, the study concluded that electronic payment systems had significantly contributed in the minimization of tax evasion in Nigeria, resulting in tax revenue enhancement. The following recommendations are hereby made;

1.  Mobile banking payment was found to have negative and significant impact on tax evasion in Nigeria. This explains the significant contribution of MBP in reducing tax evasion in Nigeria. However, there is still need for the government to create more awareness of MBP, how it works and its benefits among tax payers to enhance its use and raise compliance level.
2.  Web-based payment was discovered to have negative and no significant impact on tax evasion in Nigeria. Hence, the challenges reported by taxpayers such as unreliable power supply and poor internet connectivity should be addressed by government to reduce the motives that could discourage taxpayers from using WBP.
3.  It was discovered that automated teller machine payment (ATMP) had negative and significant impact on tax evasion in Nigeria. However, technical assistance should be made available to assist when default occur, particularly with respect to the use of ATM. Its regular maintenance should be performed to ensure that there are no technical failures.
4.  Point of sales payment was also found to have negative and significant impact on tax evasion in Nigeria. But government should instill confidence in the citizens to adopt the use of POS in their economic transactions which would provide reliable records that would facilitate revenue enhancement.

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**Data**

| Year | TE | MBP | WBP | ATMP | POSP |
|------|-----------|-----------|----------|-------------|-----------|
| 2015 | (854.2902) | 74.16228 | 14.14583 | 852.36489 | 70.25452 |
| 2016 | (1.504.70) | 86.49756 | 18.94882 | 1,027.92345 | 78.00938 |
| 2017 | (6605.5963) | 111.48452 | 24.37658 | 1,015.55240 | 96.34248 |
| 2018 | (904.7353) | 91.62995 | 22.76462 | 937.96648 | 96.31052 |
| 2019 | (2142.7243) | 100.44294 | 20.05825 | 962.43253 | 104.57844 |
| 2020 | (63.2772) | 109.31258 | 22.39869 | 1,011.48966 | 112.42930 |
| 2021 | (733.4699) | 141.00000 | 29.38466 | 1,058.38286 | 135.20632 |

**Sources**: CBN, NBS & FIRS, 2022

**Descriptive Statistics**

|  | TE | MBP | WBP | ATMP | POSP |
|------|---------|---------|--------|---------|--------|
| Mean | 44.3228 | 13.6099 | 8.5877 | 12.9644 | 7.3668 |
| Median | 41.9686 | 13.1524 | 5.1633 | 6.4672 | 7.1992 |
| Maximum | 53.4312 | 16.2895 | 7.729 | 29.9270 | 9.8634 |
| Minimum | 23.8877 | 12.4834 | 3.1477 | 5.3483 | 5.6696 |
| Std. Dev. | 1.9286 | 1.9668 | 0.8694 | 0.6472 | 1.2128 |
| Skewness | 0.9447 | 0.0344 | 0.531 | 0.460 | 0.4526 |
| Probability | 0.1125 | 0.0418 | 0.0238 | 0.0396 | 1.9654 |
|  |  |  |  |  |  |
| Kurtosis | 2.1614 | 1.8836 | 1.614 | 1.911 | 2.5735 |
| Jarque-Bera | 3.34395 | 1.9189 | 1.918 | 0.980 | 0.4252 |
| **Observations** | **7** | 7 | 7 | 7 | 7 |

**OLS Regression Results**

Dependent variable: TE
Method: Least Squares
Date: 30/11/2022
Time: 10:10
Sample 2015-2021
Total observations: 7

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 0.314276 | 0.014872 | 21.132060 | 0.0000 |
| MBP | -0.486998 | 0.225663 | -2.158076 | 0.0247 |
| WBP | -0.426264 | 0.284385 | -1.498898 | 0.2130 |
| ATMP | -0.836647 | 0. 123318 | -6.784467 | 0.0000 |
| POSP | -0.067636 | 0.029278 | -2.310130 | 0.0118 |
| | | | | |
| R-squared | 0.669228 | Mean dependent vari | | 0.363833 |
| Adjusted R-squared | 0.609886 | S.D. dependent var | | 0.117356 |
| S.E of regression | 0.076784 | Akaike info criterion | | -1.867416 |
| Sum squared resid | 0.560040 | Schwarz criterion | | -1.982192 |
| Log likelihood | 56.92274 | Hannan-Quinn criter. | | -1.885543 |
| F-statistic | 35.31023 | Durbin-Watson stat | | 1.833669 |
| Prob (F-statistic) | 0.00000 | | | |