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Impact of Electronic Payment Systems on Tax Evasion in Nigeria (2012-2023)

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Abstract

Research Purpose: With Nigeria facing increasing pressure to broaden its tax base and combat tax evasion in the digital age, this study investigates the impact of electronic payment systems on tax evasion between 2012 and 2023. This analysis aims to understand how the adoption of mobile banking, ATM, POS, and web-based payments has influenced tax compliance in Nigeria.

Methodology: An ex-post facto research design was employed, utilising time series data extracted from the Statistical Bulletin of the Central Bank of Nigeria (CBN). The study applied multiple regression analysis using Ordinary Least Squares (OLS) to assess the relationship between electronic payment system components and tax evasion at a 0.05 significance level.

Findings: The regression analysis revealed a negative and significant impact of mobile banking payments, ATM payments, and web-based transfer payments on tax evasion in Nigeria. Conversely, point-of-sale (POS) payments exhibited a positive and significant impact on tax evasion.

Conclusion: The findings suggest that electronic payment systems, with the exception of POS payments, have contributed to reducing tax evasion in Nigeria. This implies that increased adoption of electronic payment methods can potentially lead to greater tax compliance.

Recommendations: The government and private sector should invest in expanding electronic payment infrastructure by fostering the development of ICT, innovation, and high-speed information networks. This will solidify the foundation for electronic payment systems and continue to curb tax evasion in Nigeria.

Key words: *Electronic Payment System, Electronic Payments Infrastructures, Tax Evasion and Nigeria.*

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1. INTRODUCTION

The need to get information on taxpayers and their activities has been the concern of tax authorities in most of the developing economies of the world. For instance, many developing countries have vast informal economic activities, the output from which cannot be readily measured or taxed. As such, the tax base as a proportion of the aggregate economic activity in such countries may be relatively low compared to that in developed countries (Schneider, 2015). Before the emergence of the electronic payment system in Nigeria, most transactions done by individual, corporate entities and government were in cash; hence, there was no paper trail that could be used to verify the accuracy of any report (Olaoye and Atilola, 2019). Accordingly, Alm (2022) opined that many types of income were not subjected to source withholding, which decreased the flow of information to the tax authorities. Many types of tax shelters were shrouded in secrecy. For instance, some multinational companies were able to shift their profits to low-tax jurisdiction areas via transfer prices that were largely hidden, and even when reported, could not be independently verified (Slemrod, 2019). The end result was tax evasion, which has persisted and flourished in most of the developing economies of the world, Nigeria inclusive, largely because tax administration did not have the information necessary to prevent those practices.

In Nigeria, the electronic payment system was first implemented in January 2012 by the Federal Inland Revenue Service (FIRS) in conjunction with Nigeria Inter-Bank Settlement System (NIBSS). According to Adegbie and Akinyemi (2020), the rationale for the adoption of electronic payment system in Nigeria was to develop a modern payment system that can improve service delivery, decongest queues during cash payment, enable customer withdraw cash at will, track personal cash transactions, aid international payment and remittances, request for online statements and transfer deposit to a third party account (Iluno, Frank and Sheed, 2018). This view is in line with Okunowo (2015) who opined that an electronic payment system was introduced so as to increase revenue generation and for easy accessibility as taxpayers are able to pay taxes from different locations at various times.

Electronic payment (e-payment) system is the process of paying for goods and services through an electronic medium without the use of check or cash (Mohammed 2020). Since technically, cash provides taxpayers the opportunity to create fictitious tax invoices, report lower sales, and overstate discounts (OECD, 2017). Applying Information Technology in e-registration, e-billing, e-filing, and e-tracking in tax administration are efforts to implement the principles of tax collection: simplicity, equity, efficiency, effectiveness, transparency and to strengthen tax compliance while also reducing tax fraud. It has formed the fundamental starting point of Nigeria's modern market economy. A well-functioning e-payment system has been recognized to have much relevance on financial stability, monetary policy and overall economic development (Aduda and Kingoo, 2018).

As the world advances more on technology development, a lot of electronic payment devices have been developed to improve and provide a secure payment transaction, while decreasing

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the percentage of check and cash transactions (Adegbie, Folajimi and Akinyemi, 2020). Electronic payment systems come in different forms such as the point of sales (POS), automated teller machines (ATM), web transfer, and mobile banking payment (Mohammed, 2020). These electronic fiscal devices are machines that automatically record transactions as they are performed and communicate this information to the tax administration through either a mobile network or the internet. In some cases, these machines also print out receipts. Such unprecedented flow of information holds the potential of assisting the tax administration in knowing more about the taxpayer population. Although electronic payment was not specifically designed for taxation, it plays an important role in providing paper trail for revenues received by taxpayers, thereby providing information on tax liability. More so, in addressing the challenges of information on transactions that may go unreported, we examine the use of electronic fiscal devices that report information on transactions as they occur.

Aggressive tax evasion has become a severe problem for the government over the years (Paoki, Yusha, Kale and Mangoting, 2021). It is an illegal form of tax avoidance done by reporting part of the earned income, creating fictitious deductions and violating tax regulations to reduce the amount of tax paid (Prebble and OC, 2010). Tax evasion has its social and economic consequences which make citizens unpatriotic and reduce the available funds needed for socio-economic development of a given country. In recent times, it has become a chronic challenge that has led to high loss of financial resources that sabotage the Nigerian economy (Otekunrin, Nwanji and Elnyela, 2021). For instance, in 2017, the minister for information reported that Nigeria lost over $1 trillion from tax evasion by multinational companies operating in Nigeria (Aliyi and Bakare, 2019). It has become so widespread in many developing countries, and the situation is much deteriorated by the fact that many governments of these countries have not shown any serious concern to determine or measure the cause factors that encourage taxpayers to evade tax (Paoki et al, 2021). They neglect the issue by concentrating on other sources of revenue like crude oil (Temitipe, Olayinka and Abduratiu, 2020). A typical example of such a circumstance and country is Nigeria. Unfortunately, the realisation that revenue from crude oil can no longer adequately fund government developmental objectives due to the consistent decline or volatility in crude oil prices in the global market has placed the Nigerian government in a helpless situation. The situation has led to public borrowings which may not only horde out the activities of the private sector, but it also drags the government into an escalated debt trap. The resultant effect is that economic growth will become stagnant and socio-economic development benefits will be far away from the public.

Currently in Nigeria, very few studies have been carried in this area to the best knowledge of the researcher. For instance, (Osaloni, Igbekoyi Ogungbade and Akpan, 2022; Abdul, Zubairu, and Abubakar 2021; Oteturin, Nwaji Eluleya, 2021; Etaele and Pouzigha, 2020 and Mohammed, 2020). Moreover, none of these prior studies decomposed electronic payment into web transfer, automated teller machine, point of sales and mobile transfer. This is a clear

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departure from the prior studies which used electronic payment as a whole. This therefore, justified the imperative of this study looking specifically on the impact of mobile banking payments, point of sales (POS) payments, automated teller machines (ATM) payments and web transfer payment system on tax evasion in Nigeria.

The findings of this study will be of good help to fiscal policy makers in Nigeria, tax relevant authorities, tax consultants, academics and potential researchers including accounting and taxation students.

The study is organised into five sections; following the introduction, Section 2 reviews related literature. The methodology adopted in the study is presented in section 3. Section 4 elaborates on the empirical results. Finally, section 5 provides the summary, conclusions and policy recommendations.

2. REVIEW OF RELATED LITERATURE

Electronic Payment System

Electronic payment (e-payment) systems refer to the automated processes of exchanging momentary value among parties in business transactions and transmitting this value over the internet (Amin, Onyeukwu & Osuagwu, 2018). In Nigeria, e-payment is effecting payment from one end to another end through the medium of the computer without manual intervention beyond inputting payment data. It is the ability to pay the suppliers, vendors and staff salaries electronically at the touch of a computer button (Udeghi & Hanzace, 2018). In recent times, the e-payment system has become a medium through which monetary substance circulates conveniently, especially in developing economies like Nigeria where carrying cash around is habitual.

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. E-payment is convenient, safe, and secured methods for payment of bills and other transactions by electronic means such as card, telephone, the Internet, Electronic Fund Transfer. Electronic payment gives consumers an alternative to paying bills and debts by cash, cheque and money order (Wahab, 2012).

Mobile Banking Payment System

Mobile banking applications also known as M-banking is a term used for performing balance checks, account transactions and payments etc. through mobile banking products such as a mobile phone (Clive, 2017). Mobile banking products provide basic banking services to customers from their mobile phones. It is a platform which facilitates access to banking services using cell phones. The services available on the mobile banking product include mini statements and checking of account history, alerts on account activity or passing of set thresholds, monitoring of term deposits, domestic and international fund transfers,

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micro-payment handling, bill payment processing, portfolio management services, status of requests for credit, including mortgage approval and insurance coverage (Burabari, Udeh & Ukachi, 2022). 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).

Automated Teller Machine Payment System

This is a computerised telecommunications device that provides the customer of a financial institution with space to make financial transactions in a public space without the need for a human clerk or bank teller (Edet, 2019). Using an ATM, customers can access their bank accounts in order to make cash withdrawals and check their account balance. ATM's rely on authorization of a financial transaction by the card issuer or other authorising institution via the communications network. Features of ATM service include cash withdrawals, balance inquiry, mini-statement request, funds transfer, and purchase. The benefits of ATMs to banks include avoiding robbery, attraction and retention of customers, increase of profit from customer charges, providing convenient service for customers, reducing the amount of bad cheques, saving branches lots of hidden costs and tellers are freed from small value transactions (Akinuli, 2018).

Point of Sales Payment System

Point of sales is referred to as a retail shop, a checkout counter in a shop, or the location where a transaction occurs. POS machines are electronic devices deployed at retail outlets to facilitate the exchange of value between a cardholder and a merchant (Burabari, Udeh & Ukachi, 2022). They are used to perform a variety of basic banking and financial transactions like payment for purchases, balance enquiry, mini statement printing amongst others. It eliminates the numerous issues related to regular cash transactions. The benefits of POS to all the parties involved are improving operational efficiency, ensuring transaction security and integrity, eliminating needs to carry large amounts of service beyond banking hours, increasing income from transaction fees and float, providing a simple, more efficient and convenient payment system amongst others (Aduda & Kingoo, 2018).

Web-Based Transfer Payment System

Anyanwaokoro (2017) asserts that web-based transfer also known as internet banking is an online platform through which customers of the bank can access their account and accomplish financial transactions using the internet. With internet banking, customers can view account balance, transfer funds between sister accounts, transfer funds in favour of third parties. 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

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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, 2017).

Tax Evasion

Tax evasion typically involves taxpayers consciously misrepresenting or hiding the true position of their affairs to the relevant tax authorities to ease their tax burden. It simply refers to an intentional effort by people, corporate bodies, trusts and other institutions to illicitly refuse to pay taxes and report the true and fair value of their earnings by means of evading (Edwin, 2007). Tax evasion is characterised 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 statements about their liabilities on the revenue tax through exploiting ineffectiveness in the tax laws and regulations. According to Richardson (2008), tax evasion is an intentional, illegal and unacceptable behaviour or activity involving tax laws, whereas tax avoidance is a legal way of decreasing tax burden. Both the two are not acceptable but the latter is less serious to the former in eroding the revenue generation used for financing public expenditure.

Empirical Review

Pohan, Rahmi, Arimbhi and Junaidi (2022) investigated the effectiveness of using automatic exchange of information in minimising tax evasion in Indonesia. Specifically, the study sought to examine the implementation of automatic exchange of information from the perspective of its effectiveness in minimising tax evasion. The study adopted cross-sectional survey design which enabled primary data to be collected through the use of observations, documentation and in-depth interview from participants. The data were analysed with the use of descriptive statistics. Results of the analyses revealed that implementation of automatic exchange of information has been effective in minimising tax evasion in Indonesia. The study also found that complexity of conversion of tax revenue to data, banks tend to be resistant to data access and lack of technology that support the implementation were some of the obstacles.

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 of tax cognitive modelling on tax evasion practice in Nigeria. The study adopted survey research design which enabled primary data to be obtained with the aid of structured questionnaires administered to 289 selected staff of Federal Inland Revenue Service (FIRS) and state board

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of internal revenue service of Ekiti, Ondo and Osun. The reliability of the research instrument was confirmed using Cronbach Alpha test which had a value of 70% (0.7) indicating a highly reliable research instrument. Multicollinearity test of the research variables was performed using tolerance and variance inflation factor (VIF). Data collected were analysed 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.

Otekumrin, Nwaji and Eluyela (2021) examined the effectiveness of the E-tax system in reducing tax evasion in Nigeria. The specific objectives of the study were to determine the effect of the E-tax system in reducing tax evasion in Nigeria before and after the introduction of the e-tax system. Primary data was sourced with the aid of a 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 Nigeria. 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 and dependent variable. The outcome of the study revealed that an effective electronic tax system will significantly reduce tax evasion.

Oketa, Nwamgbebu, Nkwede and Oraekwuotu (2021) conducted a study of the electronic tax system and internally generated revenue in Ebonyi State, Nigeria. The study was anchored on expediency theory of taxation and technology acceptance model. The study used cross-sectional survey research design. The population consisted of 124 qualified and experienced respondents from Ebonyi State Board of Internal Revenue and a sample size of 94 respondents was used for data analysis. The study used primary data obtained from a structured questionnaire designed by the researchers. The responses obtained from the questionnaire were analysed using descriptive and multiple regression analysis. The results from the analysis disclosed that electronic tax registration and electronic filing of tax returns influences the internally generated revenue in Ebonyi State and electronic tax payment does not statistically show significant effect on the internally generated revenue of the state. The study recommended the Board should adopt a user-friendly electronic tax system that can make electronic tax filing and payment easy for the taxpayers in Ebonyi State.

Folayan, Dosumu and Amusa (2020) investigated tax evasion and government revenue generation in selected states in Southwest Nigeria. The specific objectives of the study were to examine the effect of tax evasion on government revenue generation; suggest ways to minimise the practice and to evaluate the effect of perceived corruption in government on tax evasion. Data were collected with the aid of a structured questionnaire administered to 850 participants from the office of budget and Economic planning and board of internal revenue services from Osun Oyo, Ogun Lagos and Ondo states. Analysis of data was done using descriptive statistics. Inferential statistics was used to estimate the statistical significance of the independent on the dependent variable with the aid of statistical package for social

science (SPSS) version 23.0 result of the data analysis showed that tax evasion had negative and significant influence on government revenue generation in selected five (5) states in southwest, Nigeria.

Jabil and Mankwat (2020) carried out a study on minimising tax evasion and avoidance in personal income tax administration in Plateau State. The specific objectives of the study were to ascertain the impact of tax evasion and avoidance in personal income on revenue generation in Plateau state. Data were obtained with the aid of structured questionnaire officials and one hundred and twenty-five (125) self-employed taxpayers drawn using purposive sampling technique. Analysis of data was done using descriptive statistics such as the mean and standard deviation. The study found that high levels of tax evasion and avoidance were caused by high rates of tax, multiple taxation, lack of public enlightenment, poverty and lack of efficient and effective tax authority.

Abah and Nwoba (2018) examined the impact of tax revenue loss on socio-economic development in Ebonyi State. The specific objectives of the study were to determine the relationship between budgeted tax revenue and actual tax revenue of Ebonyi State from 2008 to 2016; and to find the effect of tax budget deficit on the socio-economic development of Ebonyi State. The study adopted ex-post facto research design which enabled secondary data to be collected from the board of internal Revenue and planning and budget office covering the period 9 years spanning from 2008-2016. Correlation and t-test were used for data analysis with the aid of the standard package for social sciences (SPSS version 20.0). Findings indicated that there is a positive and significant relationship and accrual tax revenue of Ebonyi State. It was also discovered that the shortfall in tax revenue negatively affected the development of Ebonyi State.

Theoretical Framework

This study was anchored on the economic deterrence theory which was propounded by Allingham and Sandmo in 1972. The theory states that a taxpayer's behaviour 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 wrongdoing is surpassed by the result of perpetrating the act, an individual will be prevented from performing wrong doing. The theory assumes that the taxpayer 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 minimise tax evasion in Nigeria's tax system.

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3. METHODOLOGY

The study adopted *ex-post facto* research design. *Ex-post facto* requires the use of historical records which is relevant in explaining a consequence based on antecedent conditions. The appropriateness of *ex-post facto* research design in this study is based on the fact that the events investigated had already taken place. Hence, data was already available to be extracted and utilised. Data for the study was obtained from the official publications of the Central Bank of Nigeria and Federal Inland Revenue Service for the period 2012 to 2023.

Model Specification

This study employed multiple regression models to test the statistical significant relationship between the variables of electronic payment systems and tax evasion. This is expressed as follows:

$Y = \beta_0+\beta_1X_1+\beta_2X_2+ \beta_3X_3+ \beta_4X_4+ut$……(i)

The above functional model was restated explicitly as an econometric equation to suit this present study as expressed in equation (i)

$TE = \beta_0+ \beta_1MBPS+ \beta_2ATMPS+ \beta_3PSPS+WTPS_4+ut$……. (ii)

Where:

TE = tax evasion (Dependent variable)

B_0 = Constant

B1 – β4 = Slopes of Coefficient of the explanatory variables

MBPS = Mobile Banking Payment System (Independent variable)

ATMPS = Automated Teller Machine Payment System (Independent variable)

PSPS = Point of Sales Payment System (Independent variable)

WTPS = Web-Based Transfer Payment System (Independent variable)

ut = Error Term

Preliminary tests such as unit root were performed to validate the data in order to obtain a regression result that is not spurious. Descriptive statistics was used to analyse data so as to determine the individual characteristics of the model variables such as the mean, standard deviation, minimum and maximum values amongst others. The study made use of multiple regression models involving ordinary least squares to test the formulated hypotheses at 0.05 level of significance.

Decision Rule 1: 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.

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4. RESULTS

Descriptive Test

The essence of the descriptive test was to examine the individual characteristics of the dependent and independent variables.

Table 2: Descriptive Statistics

	TE	MBPS	ATMPS	PSPS	WTPS
Mean	46.23564	34.42333	32.88046	28.38452	19.96399
Median	38.42108	22.66144	25.44568	23.98488	19.06268
Maximum	89.99066	68.98818	66.66808	54.33878	72.68896
Minimum	56.84442	43.66089	48.43282	38.64456	44.84099
Std. Dev.	17.63408	9.21306	7.51286	3.67462	8.41862
Skewness	5.883140	4.03456	3.56040	2.05684	3.80748
Kurtosis	8.628290	3.15769	5.60568	3.23968	2.21123
Jarque-Bera	333.90940	102.3224	81.16464	40.44207	73.66768
Probability	0.02486	0.000000	0.03280	0.05684	0.00284
Sum	18.10866	8.34050	10.76082	8.44207	12.11632
Sum Sq.Dev.	8.46E+13	4.37474	9.73E+14	2.63E+11	9.65450
Observations	48	48	48	48	48

Source: Author's Computation 2024 from E-view Version 10

Table 2 showed the summary of descriptive statistics for tax evasion (TE), mobile banking payment system (MBPS), automated teller machine payment system (ATMS), point of sales payment system (PSPS) and web-based transfer payment system (WTPS) for the period of 12 years, spanning from 2012-2023. The average percentage of tax evasion for the period 2012 to 2023 stood at 46.23564% which fluctuated from the maximum of 89.99066 to the minimum of 56.84442. The dispersion around the mean indicated by standard deviation is 17.63408. The skewness coefficient stood at 5.88314%. This value (5.88314%) is positive, which implies that TE clustered to the left, but had a long tail to the right of the distribution. The probability value (P-value) (0.02486) is less than 0.05 level of significance, indicating that the null hypothesis of normal distribution was accepted.

Mobile banking payment system (MBPS) was 34.42333% on average, which fluctuated from the maximum value of 68.98818% to the minimum value of 43.66089%. The changes in series of data as shown by the value of standard deviation (9.21306%) revealed the extent to

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which mobile banking payment deviated from its expected mean value. It was found that MBPS was positively skewed with a skewness coefficient of 4.03456%, which measures the asymmetry distribution of the series around its mean. The implication is that MBPS had a long tail to the right, but clustered to the left. The closer the value of skewness is to zero, the higher the tendency that the data is normally distributed. Hence, this variable is not normally distributed as confirmed by its skewness value of 4.03456%. The kurtosis, which measures how the series clustered a central point for a standard distribution, indicated that the mobile banking payment system (MBPS) is leptokurtic since its kurtosis value is greater than 0 (zero). Hence, MBPS does not meet the Gaussian distribution requirement which suggests a zero value for kurtosis.

The mean value of automated teller machine payment system (ATMS) was 32.88046, which fluctuated from the maximum value of 66.66808 to the minimum value of 48.43282. The standard deviation value of 7.51286% showed the extent to which ATMPS deviated from its expected value. This variable is positively skewed with a skewness coefficient value of 3.56040, which showed how ATMPS was distributed around its mean. The positive value of its skewness implies that ATMPS had a long tail to the right, but clustered to the left. The kurtosis which measures how the series clustered around a central point for a standard distribution revealed that ATMPS did not meet the Gaussian distribution requirement which suggested a value of zero for kurtosis. Jarque-Bera's probability value with respect to ATMPS was 0.03280; implying that the null hypothesis of normal distribution was accepted at 5% level of significance.

On average, point of sales payment system (PSPS) had 28.48452% which fluctuated from the maximum value of 54.33878to the minimum value of 38.64456%. The dispersion around the mean indicated by the value of standard deviation is 3.67462. It was observed that PSPS is positively skewed with a skewness coefficient value of 2.05684, which revealed how this variable was distributed around its mean. The positive value of its skewness coefficient showed that PSPS had a long tail to the right, but clustered to the left. The skewness coefficient of PSPS (2.05684) is greater than zero (0), implying that the Gaussian distribution requirement which suggests a value of zero was not met by this variable. The kurtosis value (3.23968), which measures how the series clustered around a central point for a standard distribution, indicated that PSPS did not meet the Gaussian distribution requirement which suggests zero (0) value for kurtosis.

Web-based transfer payment systems (WTPS) had 19.96399% on average, which fluctuated from the maximum value of 72.68896% to the minimum value of 44.84099%. The dispersion around the mean indicated by the value of standard deviation is 8.41862. It was discovered that WTPS is positively skewed with a skewness coefficient value of 3.80748%, which showed how this variable is distributed around its mean. The positive value of its skewness coefficient indicated that WTPS had a long tail to the right, but clustered to the left. Jarque-Bera showed whether the series are normally distributed or not. Table 1 showed that

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Jarque-Bera probability value with respect to WTPS was 0.00284, indicating that the null hypothesis of normal distribution was accepted at 0.05 level of significance.

Unit Root Test

The unit root was conducted using the Conventional Augmented Dickey-Fuller (ADF) statistics on both the dependent and independent variables as shown in table 3 below:

Table 3: Unit Root Test

Variable	Constant and trend level prob.		Constant and trend level	
			1st difference	Prob.
TE	60.566	0.153	-4.355	0.013
MBPS	-1.158	0.942	-3.623	0.032
ATMPS	-3.415	0.316	-5.564	0.052
PSPS	-2.818	0.318	-4.346	0.018
WTPS	-3/541	0.445	-3.338	0.000

Source: Author's Computation from Eviews, 2024 version 10.0

The result of table 3 with respect to ADF unit root test indicated that all the variables, tax evasion (TE), mobile banking payment system (MBPS), automated teller machine payment system (ATMPS), point of sales payment system (PSPS) and web-based, transfer payment system (WTPS) series are non-stationary at levels; but considering their series in 1st difference, all the series become stationary. Therefore, the results showed that the time series on TE, MBPS, ATMPS, PSPS and WTPS are integrated of order 1(1). Hence, the series do not have root and therefore are considered relevant for prediction.

Multicollinearity Test

Multicollinearity exists as a result of the existence of a linear relationship involving one or more additional independent variables. Existence of multicollinearity leads to false regression results. Therefore, it is imperative to check whether multicollinearity exists among the explanatory variables. To achieve this purpose, the Variance of Inflation Factor (VIF) test was carried out. The non-existence of multicollinearity is established when the tolerance value is substantially below 10% and the corresponding values of variance of inflation factor (VIF) is above 5% (Ringle, Wende and Becker, 2015). The VIF results in table 3 showed that the tolerance and VIF values of all the variables of the study aligned with the above condition.

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Table 4: Multicollinearity Test

Variables	Tolerance	VIF
MBPS	0.043	2.834
ATMPS	0.013	6.308
PSPS	0.018	3.266
WTPS	0.027	5.828

Source: Author's Computation from E-view, 2024 Version 10.0

Autocorrelation Test

The Autocorrelation assumption test was checked using the Durbin Watson Test. The aim is to confirm the likelihood of autocorrelation in the model of the study and to accomplish the assumption of independent error which arises if the disturbance term grows to influence the dependent variable. The conventional rule is that the closer the value of d to 2, the less the likelihood of the problem of autocorrelation. The result showed that the value is 1.82892. This value (1.82892) is actually within the acceptable range of near 2. Hence, the autocorrelation assumption was accomplished.

Test of Research Hypotheses

Regression Result

Dependent Variable: TE

Method: Least Squares

Date: I1/3/2024

Time: 12: 00 sample

Included Observation 48

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	14.33624	0.88648	16.17210	0.00000
MBPS	-2.58808	0.72465	-3.57149	0.0234
ATMPS	-1.32740	0.26456	-5.01739	0.0184
PSPS	0.89923	0.26845	3.34971	0.0361
WTPS	0.69482	0.82426	0.84296	0.335

R- squared	0.55693	Mean dependent var	0.83886
Adjusted R-squared	0.58060	S. D. dependent var	0.06263
S.E. of regression	0.20458	Akaike info criterion	-3.456911

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Sum squared resid	42.45883	Schwarz criterion	-3.45619
Log likelihood	0.56855	Hannan-Quinn criter	-3.15425
F-statistic	38.23126	Durbin-Watson stat	1.82892
Prob. (F-statistic)	0.00000		

Source: Author's Computation from Eviews, 2024, Version 10.0

Test of Research Hypothesis One

HO_1: Mobile banking payment system has no significant impact on tax evasion in Nigeria.

The OLS multiple regression results presented in table 4 showed that the coefficient of mobile banking payment system (MBPS) was -2.58808, while its p-value was 0.0234. Based on the results presented, and in line with the decision rule guiding the study, the researcher accepted the alternate hypothesis and concluded that the mobile banking payment system had a negative and significant impact on tax evasion in Nigeria. The implication of this finding is that ₦1 increase in electronic payment through mobile banking led to 2.59% reduction in evasion of taxes in Nigeria. It showed an inverse relationship between mobile banking payment system and tax evasion in Nigeria, which aligned with the researcher's *a priori* expectation.

Test of Research Hypothesis Two

HO_2: Automated teller machine payment system has no significant impact on tax evasion in Nigeria.

The results of the regression analysis presented in table 4 revealed that the coefficient of the automated teller machine payment system was -1.32740, while its p-value was 0.0184. Based on these results and in line with the decision rules guiding the study, the researcher accepted the alternate hypothesis and concluded that the parameter of the automated teller machine payment system had a negative and significant impact on tax evasion in Nigeria. This implies that an increase in electronic payment through ATMPS leads to 1.33% decrease in tax evasion practices in Nigeria.

Test of Research Hypothesis Three

HO_3: Point of sales payment system has no significant impact on tax evasion in Nigeria.

The outcome of the OLS regression analysis presented in table 4 indicated that the coefficient of PSPS (Point of sales payment system) was 0.89923; while its p-value was 0.0361. In line with the results presented and the decision rules guiding the study, the researcher accepted the alternate hypothesis and concluded that PSPS had a positive and significant impact on tax evasion in Nigeria. However, this result does not align with the *a priori* expectation of the researcher; because the finding implies that N1 increase in payment through point of sales leads to 90% increase in tax evasion practices in Nigeria. This is a direct relationship between

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electronic payment and tax evasion which is inconsistent with the primary focus of online payment.

Test of Research Hypothesis Four

HO_4: Web-based transfer payment system has no significant impact on tax evasion in Nigeria.

The regression results presented in table 4 showed that the coefficient value of web-based transfer payment system (WTPS) was 0.69482, while its p-value was 0.335. Based on the results presented, and in line with decision rules guiding the study, the researcher accepted the null hypothesis and concluded that web-based transfer payment systems had positive and no significant impact on tax evasion in Nigeria.

R –squared = 0.0556930, implied that about 56% changes in tax evasion was attributed to changes in MBPS, ATMPS, and WTPS; while 44% is caused by other factors not captured in the model of the study but which are capable of influencing tax evasion in Nigeria. Moreover, the value of F-statistics (38.23126) is high which indicates that the variables (MBPS, ATMPS, PSPS and WTPS) are jointly significant in explaining tax evasion in Nigeria at 5% level of significance.

Discussion of Findings

Impact of Mobile Banking Payment System on Tax Evasion in Nigeria

The results of the OLS regression analysis presented in table 4 showed that the coefficient and p-value of mobile banking payment system (MBPS) were -2.58808 and 0.0234 respectively. Based on these results, the study found that the mobile banking payment system had a negative and significant impact on tax evasion in Nigeria. This showed an inverse relationship between MBPS and tax evasion. The implication of this relationship is that N1 increase in electronic payment through mobile banking leads to 2.59% reduction in tax evasion practices in Nigeria. This finding conformed with the researcher's prior expectation due to the fact that increase in the application of MBPS provides a paper trail for incomes received by taxpayers, thereby providing information on tax liability, which reduces tax evasion. This finding aligned with the result of Pohan, Rahmi, Arimbhi and Junaidi (2022) who examined the effectiveness of using automatic exchange of information in minimising tax evasion in Indonesia. This prior study found that implementation of automatic exchange of information has been effective in minimising tax evasion in Indonesia. Similarly, the result of our study is also in agreement with the finding of Adegbie, Enerson and Olaoye (2022), who discovered that mobile payment systems had a positive significant effect on tax revenue collection efficiency in South West Nigeria.

Impact of Automated Teller Machine Payment System on Tax Evasion

The result of multiple regression analysis presented in table 4 indicated that automated teller machine payment system (ATMPS) had a coefficient of -1.32740, while its p-value was

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0.0184. In line with these results, the study found that ATMPS had negative and significant impact on tax evasion in Nigeria. The implication of this finding is that N1 increase in electronic payment through automated teller machine brings 1.33% reduction in tax evasion practices in Nigeria. This indicate consistency with the result of Nimer, Uyar, Kuzey and Friedrich (2022) who evaluated the impact of electronic government services on tax evasion in Kuwait. This prior study found that variables of electronic government services had negative relationship with tax evasion practices in Kuwait. Similarly, the finding of Otekumrin, Nwanji and Eluye (2021) who studied the effectiveness of e-tax system in reducing tax evasion in Nigeria also corroborate with our result. Otkumrin et al (2021) found that effective electronic payment significantly reduces tax evasion in Nigeria. However, the result of our study disagreed with the finding of strange (2021), who examined the impact of digitalization of public services on tax evasion using 27 member states of the European Union. This prior study discovered that digitalization of public services had a nonlinear 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 starts to increase again.

Impact of Point of Sales Payment System on Tax Evasion in Nigeria

The study found that the point of sales payment system (PSPS) with coefficient value of 0.89923 and p-value of 0.0361 had positive and significant impact on tax evasion practices in Nigeria. This result is in line with the findings of Osaloni, Igbekoyi, Ogungbade and Akpan (2022) who examined the effect of information technology on tax evasion practices in Nigeria. The outcome of this prior study revealed that information technology had a positive and significant effect on tax evasion practices in Nigeria. Moreover, the result of our study is in disagreement with the findings of Adegbie and Akinyemi (2020) who examined the effect of the electronic payment system on revenue generation in Lagos State. This prior study found that the electronic payment system had a positive and significant effect on revenue generation in Lagos State. A positive relationship between electronic payment and revenue generation implies that the electronic payment system reduces tax evasion. However, our finding disagreed with the result of Madumere and Ubani (2020) who assessed the impact of the electronic payment system on tax fraud in River State, Nigeria. This prior study discovered that the electronic payment system has reduced tax evasion in River State, Nigeria.

Impact of Web-Based Transfer Payment System on Tax Evasion in Nigeria

The results of the Ordinary Least Square (OLS) Multiple Regression Analysis presented in table 4 showed that web-based transfer payment system (WTPS) had a coefficient value of 0.69482 and p-value of 0.335. Based on these results, the study found that web-based transfer payment systems had positive and no significant impact on tax evasion in Nigeria. The implication of this relationship is that an increase in electronic payment through WTPS will lead to no significant change in tax evasion practices in Nigeria. This result aligned with the

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finding of Etale and Pouzigha (2020) who evaluated the effect of electronic payment systems on payroll fraud prevention in selected ministries in Bayelsa State. Results from this prior study indicated that electronic transfer had positive and no significant effect on payroll fraud prevention in Bayelsa State, Nigeria. However, the result of our study did not align with the finding of Osaloni, Igbekoyi, Ogungbade and Akpan (2022), who investigated the effect of information technology on tax evasion practices in Nigeria. Osaloni et al (2022) discovered that information technology had a positive and significant impact on tax evasion practices in Nigeria.

5. FINDINGS, CONCLUSION AND RECOMMENDATIONS

The study examined the impact of the electronic payment system on tax evasion in Nigeria. The summary of findings were obtained from the results of regression analysis conducted in study. The summary of findings were as follows state:

i. The study found that mobile banking payment (MBPS) with coefficient value of -2.58808 and p-value of 0.0234 had negative and significant impact on tax evasion in Nigeria.

ii. The study discovered that automated teller machine payment systems (ATMPS) with coefficient value of -1.32740 and p-value of 0.0184 had a negative and significant impact on tax evasion in Nigeria.

iii. The study also found that the point of sales payment system (PSPS) with coefficient value of 0.89923 and p-value of 0.0361 had a positive and significant impact on tax evasion in Nigeria.

iv. Finally, the study discovered that web-based transfer payment systems (WTPS) with coefficient value of -0.69482 and p-value of 0.335 had negative and no significant impact on tax evasion in Nigeria.

Conclusion

Based on the findings drawn from the empirical results, the study concluded that the variables employed as proxies for electronic payment systems are significantly relevant in estimating tax evasion practices in Nigeria for the period 2012-2023.

Recommendations

In line with the findings, the study made the following recommendations.

1 That government and relevant tax authority should sustain and even boost the use of mobile banking payment (MBPS) in Nigeria since they negatively and significantly impact tax evasion in Nigeria. This is vouched by the coefficient value of -2.58808 and p-value of 0.0234 of the analysis.

2 Government should make further substantial improvements in the adoption of the ATM with respect to availability of a steady network in order to make it at par with

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that which is obtainable in developed economics so as to improve revenue from taxation through reduction in tax evasion.

3 That the government should invest in its internet/cyber security framework on POS operations in the country so as to discourage the use of POS in evading tax in Nigeria.

4 The Government and private sectors should encourage expansion of necessary infrastructure by promoting the development of necessary information technologies, innovations and expanding high speed information networks in web-based transfer payment systems as this would sustain a negative impact on tax evasion in Nigeria.

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