

Impact of Electronic Payment on the Nigerian Economy: A Case of Selected Deposit Money Banks

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ABSTRACT

This study examines the impact of electronic payment systems on Nigeria's economy, focusing on selected Deposit Money Banks (DMBs) between 2012 and 2022. It assesses how platforms such as mobile money, internet banking, ATMs, and POS terminals influence GDP growth. The study adopts a quantitative approach, using secondary data from the Central Bank of Nigeria (CBN), National Bureau of Statistics (NBS), and financial reports of selected DMBs. Descriptive statistics, trend analysis, and multiple regression techniques were employed to evaluate the relationship between electronic payment volumes and GDP growth. Findings show remarkable growth in electronic transactions over the period. Mobile money transactions increased from 2,297,688 in 2012 to 1,926,293,135 in 2022, while internet banking transactions reached 14,063,927,436 in 2022. ATM and POS transactions also expanded significantly, reflecting increased adoption of digital payments. However, GDP growth fluctuated, peaking at 6.67% in 2013 and declining to -1.79% in 2016, with an average growth rate of 2.60%. Regression results reveal a strong positive relationship between electronic payment transactions and GDP growth. Nevertheless, an R-squared value of 0.54 indicates that electronic payments explain 54.4% of GDP variations, suggesting other macroeconomic factors are influential. The study concludes that while electronic payments enhance economic performance, sustained infrastructure investment is recommended for a robust and secure digital payment ecosystem in Nigeria.

Keywords: Deposit money banks, Digital Banking, GDP and Infrastructures.

INTRODUCTION

Electronic payments have become a critical component of modern banking and financial systems globally, and Nigeria is no exception. The transformation from traditional cash-based transactions to digital payment systems has revolutionized the financial landscape (Adesina, 2020). This shift has significant implications for economic development, financial inclusion, and the overall efficiency of financial systems (Oluwaseun, 2021).

The Nigerian banking sector has historically been characterized by cash-dominated transactions, which posed numerous challenges including inefficiencies, high transaction costs, and security risks (Ikenna, 2021). The introduction of electronic payment systems is a strategic response to these challenges, aimed at enhancing transaction efficiency, reducing costs, and improving security (Adesanya, 2022). Over the past decade, there has been a notable increase in the adoption of electronic payments, driven by technological advancements, regulatory initiatives, and changing consumer preferences (Obinna, 2023). The Central Bank of Nigeria (CBN) has played a pivotal role in promoting electronic payments through various policies and initiatives. For instance, the Cashless Policy introduced in 2012 was designed to reduce the volume of cash in circulation, encourage electronic payments, and curb financial crimes (Abubakar, 2023). This policy mandated charges on cash withdrawals above certain thresholds, thereby incentivizing the use of electronic payment channels.

Despite these efforts, the journey towards a fully cashless economy in Nigeria has been fraught with challenges. Issues such as infrastructural deficits, cyber security threats, and limited financial literacy have impeded the widespread adoption of electronic payments (Ezeani, 2021). Moreover, the penetration of electronic payment systems has been uneven across different regions, reflecting disparities in technological infrastructure and economic development (Nkiru, 2022). In response to these challenges, various stakeholders, including the CBN, banks, and fintech companies, have implemented measures to enhance the security and reliability of electronic payment systems (Olatunde, 2022). These measures include the adoption of advanced security technologies, public awareness campaigns, and collaborations with international partners to adopt best practices in electronic payments (Adamu, 2023). The regulatory environment has also evolved to support the growth of electronic payments. Electronic payments encompass a wide range of services, including mobile banking, internet banking, Automated Teller Machines (ATMs), and Point of Sale (POS) transactions (Tijani, 2021). Mobile banking, in particular, has gained significant traction due to the high penetration of mobile phones in Nigeria (Nwankwo, 2022). According to data from the National Bureau of Statistics (NBS, 2021), the volume of mobile banking transactions grew by over 200% between 2015 and 2020, highlighting the increasing reliance on mobile platforms for financial transactions (Omotayo, 2020).

Statement of the Problem

The adoption of electronic payment systems in Nigeria has increased markedly in recent years, reflecting the Central Bank of Nigeria's (CBN) drive toward a cashless economy. However, significant challenges continue to constrain their full potential. Key among these are infrastructural deficits, cybersecurity threats, and low levels of financial literacy. In many rural

and semi-urban areas, inadequate internet connectivity, unstable power supply, and limited access to digital devices restrict the effective use of electronic payment platforms. This digital divide undermines financial inclusion and reinforces existing economic disparities between urban and rural communities.

Cybersecurity concerns further weaken public confidence in electronic payment systems. Rising incidents of fraud, hacking, and data breaches expose consumers and financial institutions to substantial risks. These threats discourage widespread adoption despite the convenience and efficiency of digital transactions. Moreover, regulatory and supervisory frameworks have struggled to keep pace with rapid technological change, creating loopholes that cybercriminals exploit. Weak enforcement and insufficiently coordinated cybersecurity policies intensify these vulnerabilities, highlighting the need for stronger institutional responses.

Limited financial literacy also remains a critical barrier. A significant proportion of Nigerians, particularly in underserved regions, lack adequate knowledge of digital financial services. This knowledge gap reduces trust, limits usage, and constrains the broader goals of financial inclusion. Existing educational initiatives have been fragmented and insufficient to reach the large unbanked population. Overall, infrastructural weaknesses, security risks, and low financial literacy significantly hinder the effectiveness of electronic payments in Nigeria. Addressing these challenges is essential to enhance financial inclusion, strengthen consumer confidence, and maximize the developmental benefits of digital financial systems. This study assesses the impact of electronic payment systems on the Nigerian economy, with a focus on selected Deposit Money Banks (DMBs) from 2012 to 2022.

Research Hypotheses

From the objectives of the study, the following null hypotheses are formulated:

- H₀₁: There is no significant trend in transaction volumes processed through electronic payment systems in selected Deposit Money Banks (DMBs) in Nigeria from 2012 to 2022.
- H₀₂: The adoption of electronic payment systems does not have a significant impact on Nigeria's GDP growth from 2012 to 2022.
- H₀₃: There is no significant relationship between electronic payment system adoption and GDP growth in Nigeria

REVIEW OF LITERATURE

Electronic payments, or e-payments, refer to the transfer of funds using digital systems rather than traditional paper-based methods. These systems have significantly altered financial transactions globally, including in Nigeria (Adewale & Adebola, 2021). The adoption of electronic payments is largely driven by the demand for faster, more secure, and efficient transaction methods (CBN, 2020). Both consumers and businesses benefit from the convenience and speed that electronic payments offer, reducing the need for physical cash handling (NBS, 2019).

Theoretical Issues

The theoretical issues provide a foundation for understanding the dynamics influencing the adoption and effect of electronic payment systems. By exploring established theories, we can better comprehend how these systems are integrated into financial practices and their subsequent effects on economic performance.

Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM), proposed by Fred Davis in 1989, is a widely recognized theory explaining how users come to accept and use technology (Davis, 1989). TAM posits that perceived usefulness and perceived ease of use are the primary factors influencing an individual's decision to adopt a new technology. Perceived usefulness is defined as the degree to which a person believes that using a particular system would enhance their job performance, while perceived ease of use refers to the degree to which a person believes that using the system would be free of effort, the relevance of TAM to the study of electronic payments is significant. In the context of electronic payment systems, perceived usefulness can be linked to the efficiency, speed, and convenience of conducting financial transactions digitally TAM also includes the concept of behavioral intention to use, which is influenced by perceived usefulness and perceived ease of use. Behavioral intention to use directly impacts actual system usage. In the Nigerian context, where electronic payment systems are becoming increasingly prevalent, understanding these behavioral intentions can help banks and financial institutions tailor their services to meet customer needs and preferences.

Diffusion of Innovations Theory (DOI)

The Diffusion of Innovations (DOI) theory, developed by Everett Rogers in 1962, describes how, why, and at what rate new ideas and technology spread through cultures. According to Rogers, diffusion is the process by which an innovation is communicated over time among the participants in a social system. The theory identifies five categories of adopters: innovators, early adopters, early majority, late majority, and laggards, each with distinct characteristics and attitudes towards new technologies. The adoption process is influenced by factors such as relative advantage, compatibility, complexity, trial ability, and observability of the innovation.

In the realm of electronic payments, DOI theory is particularly relevant. The relative advantage of electronic payments over traditional methods, such as increased speed and security of transactions, plays a crucial role in their adoption. Compatibility with existing values and practices, such as ease of integration with business processes, further enhances adoption. Complexity, or the perceived difficulty of using electronic payment systems, can hinder adoption unless addressed through user education and intuitive design. Trial ability and observability, which allow potential users to experiment with and observe the benefits of electronic payments, also significantly impact adoption rates. Rogers' DOI theory emphasizes the importance of communication channels in the diffusion process. Effective communication can facilitate the spread of information about the benefits and usage of electronic payment systems, thereby influencing the adoption decisions of potential. In the Nigerian context,

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leveraging both traditional media and digital platforms can enhance awareness and understanding of electronic payment systems.

Empirical Review

The empirical review provides a comprehensive examination of previous studies on electronic payments, focusing on global and Nigerian contexts. Thus, it is presented as follow:

The Role of Digital Payment Systems in Enhancing Financial Inclusion

Nwachukwu and Anozie (2023) studied Nigerian sectors, sampling 600 stakeholders via stratified random sampling, using mixed methods, reliable instruments ($\alpha = 0.87$), regression and thematic analyses. Their study found that electronic payment systems significantly contribute to economic growth by enhancing transaction efficiency, reducing costs, and increasing financial inclusion. These findings suggest a strong positive correlation between the adoption of electronic payment systems and economic growth indicators such as GDP and employment rates.

Balogun and Adeoye (2022) examined banking efficiency in Nigeria using a quantitative design. Data were collected from 300 bank employees and customers through questionnaires and efficiency reports (Cronbach's alpha = 0.84). Descriptive and multiple regression analyses showed that electronic payment systems significantly enhance efficiency by reducing transaction time and costs, though broader economic impacts were not assessed.

Sharma and Gupta (2021) examined mobile payment usage across urban and rural India, focusing on users of Paytm and Google Pay. Using random sampling, 600 respondents completed online structured questionnaires (Cronbach's alpha = 0.87). Adopting a quantitative design, data were analyzed with descriptive statistics and correlation analysis. Results showed mobile payments enhance economic development by improving transaction speed, efficiency, and reducing costs, with significant links to GDP and employment growth.

Maduka and Adeyemi (2021) examined the operational efficiency of commercial banks using a quantitative design. A convenience sample of 400 internet banking users and bank employees was surveyed with structured questionnaires and bank efficiency reports (Cronbach's alpha = 0.85). Data were analyzed using descriptive statistics and multiple regression. Findings show that internet banking significantly enhances operational efficiency by lowering transaction costs and processing time, though broader financial performance was not assessed.

Nwankwo (2021) studied consumers, businesses, and financial institutions, sampling 500 electronic payment users and banking professionals through stratified random sampling. Using interviews, questionnaires, and financial reports (Cronbach's alpha = 0.86), they applied a mixed-methods design with thematic and regression analyses. Findings show electronic payments improve transaction efficiency, financial inclusion, and economic growth in Nigeria. However, the study does not specifically examine the financial performance of individual banks.

Nkosi and Dlamini (2020) did a study on the performance metrics of major banks. The population comprised all major commercial banks operating in South Africa. A sample of four

banks was selected through convenience sampling. The researchers used bank performance reports and financial statements as instruments, with data collection spanning over five years. The study employed a quantitative research design, and the data were analyzed using panel data regression analysis. The study found that electronic payments significantly improve bank performance by increasing transaction volumes and operational efficiencies. The results indicate that banks adopting electronic payment systems report higher profitability and customer satisfaction levels. This study emphasizes the positive impact of electronic payments on bank performance but does not consider the broader economic implications.

Ibekwe and Ugochukwu (2020) studied the relationship between bank profitability and the application of electronic payment. The population comprised all commercial banks operating in Abuja. A sample of five banks was selected through purposive sampling. The researchers used financial statements and profitability reports as instruments, with data collection spanning over four years. The study employed a quantitative research design, and the data were analyzed using panel data regression analysis. The study found that POS transactions significantly increase bank profitability by enhancing revenue streams and reducing cash handling costs. The results indicate that banks with higher volumes of POS transactions report higher profitability margins. This study highlights the positive impact of POS transactions on profitability but does not consider other types of electronic payments.

Mwangi and Wambugu (2019) conducted a study in Kenya focusing on urban SMEs and individual consumers using digital payment systems. Using purposive sampling, 500 respondents were selected. Data were collected through structured interviews and questionnaires with a reliability coefficient of 0.85 (Cronbach's alpha). A mixed methods design was adopted, combining thematic and regression analyses. Findings showed that digital payments significantly promote financial inclusion by improving accessibility, efficiency, and security, though challenges such as cybersecurity risks and weak regulatory frameworks persist.

Addo and Owusu (2019) investigated customer satisfaction with internet banking among users of commercial banks in Accra. Using a quantitative design, they selected 400 respondents through stratified random sampling and collected data via structured questionnaires (Cronbach's alpha = 0.83). Descriptive statistics and regression analysis were applied. Findings revealed that internet banking significantly enhances customer satisfaction through convenience, security, and efficiency, with frequent users reporting higher satisfaction. However, the study did not examine the impact of internet banking on financial performance.

METHODOLOGY

Research Design

Following Bryman (2016), the descriptive research design facilitates a systematic description of trends, patterns, and relationships between electronic payment systems and various economic indicators.

Nature and Sources of Data

This study uses secondary data from reliable sources on electronic payment systems across Deposit Money Banks in Nigeria. Data were obtained from banks' financial reports, the Central Bank of Nigeria, and the National Bureau of Statistics, providing quantitative information on transaction volumes, financial performance, and relevant economic indicators.

Scope of the Study

The study covers multiple Deposit Money Banks (DMBs) in Nigeria to provide a broader view of electronic payment adoption and its implications. Selected banks have significant market share and extensive e-payment usage, reflecting their strong influence on the sector's technological development.

Models Specification

To analyze the effect of electronic payment systems on the Nigerian economy, particularly through Deposit Money Banks (DMBs), the model specification involves two primary models: a regression model to analyse the impact of electronic payment systems on economic indicators and a trend analysis model for examining the trends in electronic payment data over the specified period. The choice of this approach is based on convenience and the nature of this study.

Regression Model

The analytical framework for this study employs a multiple regression model to investigate the impact of electronic payment systems on the Nigerian economy and the financial performance of Deposit Money Bank (DMB) from 2012 to 2022 this model is adopted from the works of (Ogbonna and Atsanan,2019) and modified, the model is specified as follows:

$$GDP_{growth} = \beta_0 + \beta_1 EPV + \beta_2 MBT + \beta_3 IBT + \beta_4 ATM + \beta_5 POS + \epsilon \quad (1)$$

Where;

GDP_{growth} denotes Gross Domestic Product growth rate, representing the economic performance of Nigeria; EPV is the Electronic Payment Volume; MBT is Mobile Banking Transactions; IBT represents Internet Banking Transactions; ATM is ATM Transactions and POS is POS Transactions. $\beta_1 - \beta_5$ are coefficients representing the relationship between each independent variable and GDP growth rate. ϵ is the error term, representing factors not accounted for by the model.

Description of Variables

In this study, several key variables are used to measure the impact of electronic payment systems on the Nigerian economy and the financial performance of DMBs.

Dependent Variable

GDP Growth Rate (GDP growth): measures the annual percentage change in Nigeria's Gross Domestic Product (GDP). It is included in the model to function as a primary indicator of

economic performance and it is influenced by various factors, including electronic payment transactions.

Independent Variables

Electronic Payment Volume (EPV) represents the total volume of electronic payment transactions processed by Deposit money Banks. It includes transactions through mobile banking, internet banking, ATMs, and POS terminals.

Mobile Banking Transactions (MBT) captures the volume of transactions through mobile banking platform. Mobile banking has become increasingly popular, reflecting changing consumer preferences towards digital financial services.

Internet Banking Transactions (IBT) measures the volume of transactions processed by DMBs internet banking platform. Internet banking provides customers with convenient access to various banking services online.

ATM Transactions (ATM) is the volume of transactions carried out through DMBs Automated Teller Machines (ATMs). It is included in the model because it plays crucial role in providing round-the-clock access to cash withdrawal and other banking services.

Point of Sales Transactions (POS) is the volume of transactions conducted through Point-of-Sale (POS) terminals. POS transactions facilitate card-based payments at retail outlets and contribute to the growth of electronic payments.

RESULTS AND DISCUSSIONS

Data Presentation

This section presents the data and its analysis. The selection of the dataset was guided primarily by availability and reliability considerations. Notably, the period under review coincides with a significant transformation and marked improvement in the adoption and utilization of electronic payment systems within the sector.

Table 1: Transaction Volumes by Electronic Payment System (2012-2022)

Year	Mobile Money Transaction Volume	Internet Banking Transaction Volume	ATM Transaction Volume	POS Transaction Volume
2012	2,297,688	2,276,464	375,513,154	2,587,595
2013	15,930,181	2,900,473	295,416,724	9,418,427
2014	27,744,797	5,567,436	400,269,140	20,817,423
2015	43,933,362	7,981,361	433,695,748	33,720,933
2016	47,053,252	14,088,247	590,238,934	63,715,203
2017	47,804,561	28,991,097	800,549,099	146,267,156
2018	87,086,260	50,815,901	875,519,307	295,890,167
2019	377,265,208	103,497,007	839,819,922	438,614,182
2020	449,745,924	3,432,692,730	968,433,479	382,845,859

Year	Mobile Money Transaction Volume	Internet Banking Transaction Volume	ATM Transaction Volume	POS Transaction Volume
2021	1,201,541,158	10,321,579,925	1,599,187,337	2,743,555,841
2022	1,926,293,135	14,063,927,436	1,506,991,903	3,885,782,065

Source: CBN (2025).

Table 2: GDP Growth Rates (2012-2022)

Year	GDP Growth Rate (%)
2012	4.23
2013	6.67
2014	6.31
2015	2.65
2016	-1.62
2017	0.81
2018	1.92
2019	2.21
2020	-1.79
2021	3.65
2022	3.25

Source: CBN (2025).

2.1 Descriptive Statistics

Descriptive statistics are presented to summarize the main features of the data, providing insights into the distribution and variability of transaction volumes and GDP growth rates.

Table 3: Descriptive Statistics of Electronic Payment Transactions (2012-2022)

Variable	Minimum	Maximum	Mean	Std. Deviation	Variance
Mobile Money Transaction Volume	2,297,688	1,926,293,135	384,245,047.82	623,687,603.73	388,986,227,048,823,000
Internet Banking Transaction Volume	2,276,464	14,063,927,436	2,548,574,370.64	4,946,507,283.37	24,467,934,304,468,600,000

ATM Transaction Volume	295,416,724	1,599,187,337	789,603,158.82	441,108,204.25	194,576,447,855,715,000
POS Transaction Volume	2,587,595	3,885,782,065	729,383,168.27	1,312,555,787.84	1,722,802,696,179,340,000

Source: Researchers' computation (2025).

Table 3 summarizes descriptive statistics for electronic payment transaction volumes in Nigeria from 2012 to 2022. Mobile money transactions range from 2,297,688 to 1,926,293,135, with a mean of 384,245,047.82 and a standard deviation of 623,687,603.73. Internet banking records a wider spread, between 2,276,464 and 14,063,927,436, averaging 2,548,574,370.64 (SD = 4,946,507,283.37). ATM transactions vary from 295,416,724 to 1,599,187,337, with a mean of 789,603,158.82 and SD of 441,108,204.25. POS transactions range from 2,587,595 to 3,885,782,065, with a mean of 729,383,168.27 and SD of 1,312,555,787.84. The substantial standard deviations across all channels indicate pronounced fluctuations, suggesting uneven growth, changing adoption rates, and differing operational scales within Nigeria's electronic payment systems.

Table 4: Descriptive Statistics of GDP Growth Rates (2012-2022)

Variable	Minimum	Maximum	Mean	Std. Deviation	Variance
GDP Growth Rate (%)	-1.79	6.67	2.5957	2.62001	6.864

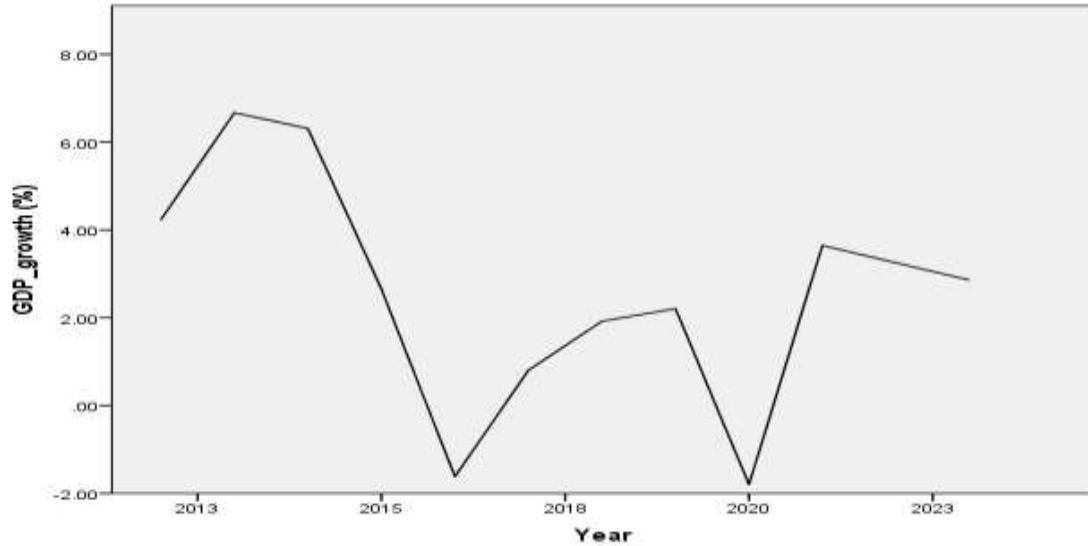
Source: Researchers' computation (2025).

Table 4 presents descriptive statistics of GDP growth from 2012–2022. Growth ranged from –1.79% to 6.67%, with an average of 2.60%. A standard deviation of 2.62 and variance of 6.864 indicate considerable dispersion, reflecting notable fluctuations in Nigeria's economic growth during the study period.

2.2 Trend Analysis

Trend analysis is performed to identify patterns and shifts in transaction volumes and GDP growth rates over the study period. The results are visualized in the following figures:

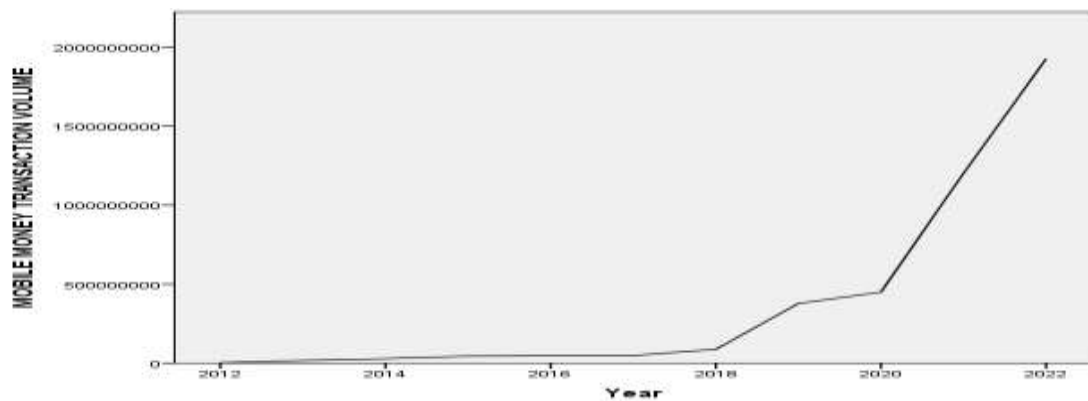
Fig 1: GDP Growth Rate (2012-2022)



Source: Researchers' computation (2025).

Figure 1 illustrates Nigeria's GDP growth rate from 2012 to 2022, highlighting alternating periods of expansion and contraction. Growth was initially moderate, reflecting relative stability. A sharp decline occurred in 2015–2016, largely due to the global oil price crash, which adversely affected the oil-dependent economy. Subsequent recovery shows gradual improvement, suggesting stabilization and diversification efforts. Although short-term fluctuations are evident, the average growth rate indicates a positive long-term trajectory. From a banking standpoint, GDP growth drives credit demand, investment, and financial stability, creating supportive conditions for electronic payments and broader financial innovation.

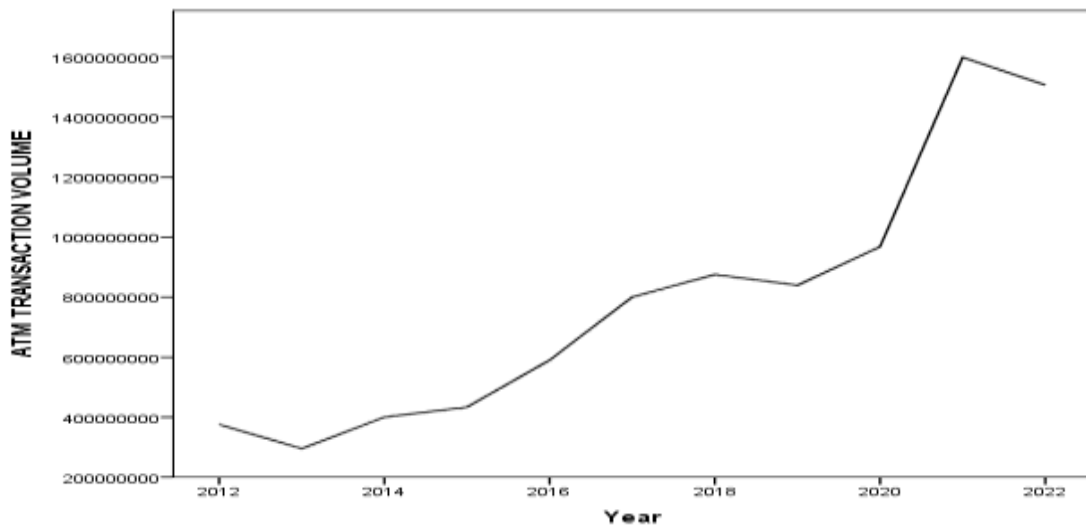
Fig 2: Mobile Money Transaction Volume (2012-2022)



Source: Researchers' computation (2025).

Fig 2 illustrates the mobile money transaction volume over the decade. The graph shows a sharp increase, indicating the rapid adoption of mobile banking solutions. Early years depict a gradual rise, likely due to the initial acceptance of mobile payment technologies. Midway through the period, there is an exponential growth phase, reflecting enhanced mobile banking infrastructure, increased smartphone penetration, and favorable regulatory policies. Statistically, the high growth rate and low variance indicate a consistent upward trend. For Nigerian Deposit Money Banks (DMBs), this surge in mobile money transactions highlights a shift towards digital banking, reducing operational costs, enhancing customer reach, and improving financial inclusion.

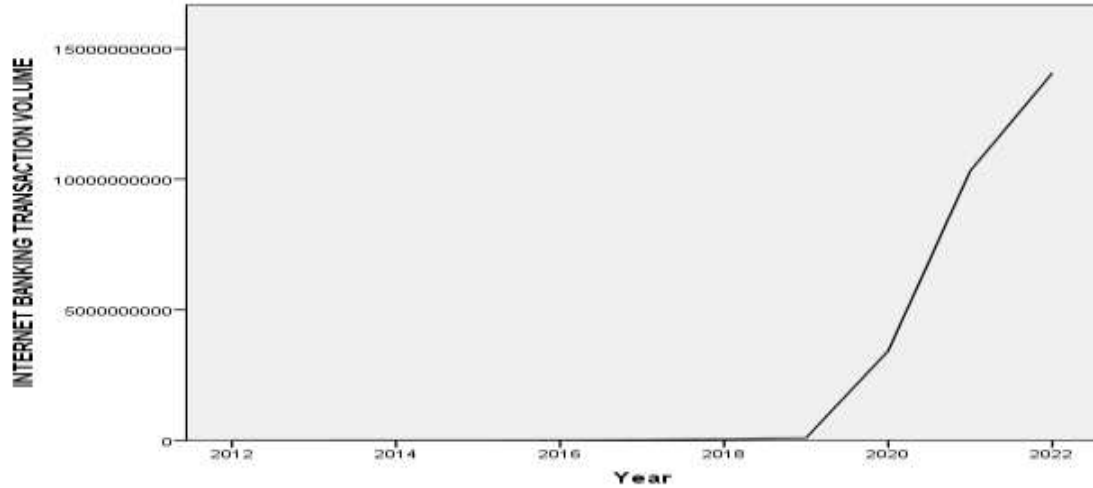
Fig 3: ATM Transaction Volume (2012-2022)



Source: Researchers' computation (2025).

Fig 3 shows the ATM transaction volume trends. The graph exhibits a steady increase in the early years, indicating growing ATM usage for cash withdrawals and other banking services. Midway, a plateau is observed, suggesting market saturation or the advent of alternative electronic payment methods. The subsequent period shows a slight decline, possibly due to the increasing popularity of mobile and online banking. Statistically, the trend line indicates moderate growth with periods of stabilization. For DMBs, maintaining a robust ATM network is essential for customer convenience, but the focus is gradually shifting towards more cost-effective and secure electronic payment solutions.

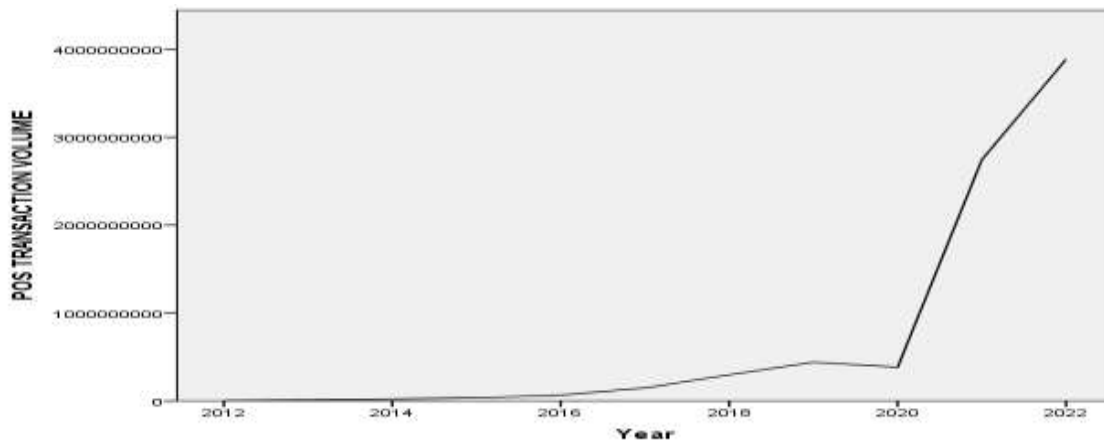
Fig 4: Internet Banking Transaction Volume (2012-2022)



Source: Researchers' computation (2025).

Fig 4 presents the internet banking transaction volume over the years. The graph indicates an upward trajectory, with significant growth during the latter half of the period. The initial phase shows moderate growth, reflecting early adoption stages. Midway, a steep rise is seen, suggesting increased internet penetration, improved cybersecurity measures, and customer trust in digital banking platforms. Statistically, the growth rate and positive trend signify widespread acceptance and reliance on internet banking. For DMBs, this growth represents a shift towards digital transformation, enhancing service delivery, reducing transaction costs, and supporting the overall efficiency of the banking system.

Fig 5: POS Transaction Volume (2012-2022)



Source: Researchers' computation (2025).

Figure 5 illustrates trends in POS transaction volume, showing a pronounced increase in later years, reflecting widespread adoption by merchants and consumers. Initial slow growth suggests early infrastructural and acceptance challenges. The sharp mid-period rise is attributed to greater merchant onboarding, growing preference for cashless payments, and supportive government policies. The high growth rate with low variance indicates consistent expansion. For DMBs, increased POS usage improves convenience, lowers cash-handling costs, and supports economic growth and financial stability.

Regression Analysis

Multiple regression analysis is performed to quantify the relationship between electronic payment transactions and GDP growth. The regression model specified earlier is estimated using the ordinary least squares (OLS) method in SPSS.

Table 4: Model Summary for Multiple Regression Analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.738	0.544	0.24	2.394

Source: Researchers' computation (2025).

The model summary indicates a strong positive relationship between electronic payment transactions and GDP growth in Nigeria, with a correlation coefficient (R) of 0.738. The R² value of 0.544 shows that 54.4% of the variation in GDP growth is explained by mobile money, internet banking, ATM, and POS transactions. However, the Adjusted R² of 0.240 suggests that, after accounting for the number of predictors, the model explains 24.0% of GDP variation, offering a more conservative estimate. The standard error of 2.394 reflects the average deviation of observed values from the regression line. Overall, electronic payments significantly influence GDP growth, though other macroeconomic factors also contribute to Nigeria's economic performance.

Table 6: ANOVA for Multiple Regression Analysis

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	41.035	4	10.259	1.789	0.25
Residual	34.397	6	5.733		
Total	75.432	10			

Source: Researchers' computation (2025).

In Table 6, the p-value (0.250) is greater than the significance level of 0.05, the overall regression model is not statistically significant. This implies that the predictor variables (POS transaction volume, ATM transaction volume, internet banking transaction volume, and mobile money transaction volume) do not significantly predict GDP growth in Nigeria during the study period.

Table 7: Coefficients for Multiple Regression Analysis

Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.
	B	Std. Error	Beta	
Constant	7.27	2.26		3.218
MBT	-7.47E-09	0	-1.697	-0.921
IBT	-2.62E-10	0	-0.473	-0.278
ATM	-7.94E-09	0	-1.275	-2.179
POS	7.00E-09	0	3.347	1.73

Source: Researchers' computation (2025).

The coefficients table provides detailed information about the influence of each independent variable on GDP growth. The constant (intercept) has a value of 7.270 with a p-value of 0.018, indicating it is statistically significant. For the transaction volumes:

Mobile Money Transaction Volume: The coefficient is -7.474E-009 with a t-value of -0.921 and a p-value of 0.392. This indicates a negative but not statistically significant relationship with GDP growth.

Internet Banking Transaction Volume: The coefficient is -2.624E-010 with a t-value of -0.278 and a p-value of 0.791, showing a negligible and not statistically significant impact on GDP growth.

ATM Transaction Volume: The coefficient is -7.936E-009 with a t-value of -2.179 and a p-value of 0.072, indicating a negative relationship, approaching statistical significance.

POS Transaction Volume: The coefficient is 7.004E-009 with a t-value of 1.730 and a p-value of 0.134, suggesting a positive but not statistically significant relationship with GDP growth.

Overall, the coefficients suggest that while mobile money, internet banking, and ATM transaction volumes have a negative relationship with GDP growth, POS transaction volume shows a positive relationship. However, none of these relationships are statistically significant at the 0.05 level.

Hypothesis Testing

Hypothesis 1 (H_0): *There is no significant trend in transaction volumes processed through electronic payment systems in selected Deposit Money Banks (DMBs) in Nigeria from 2012 to 2022.*

On the level of significance decision rule, the conventional alpha level for significance is 0.05. If the p-value (Sig.) for a predictor is less than 0.05, then that predictor has a significant effect on the dependent variable (GDP growth).

As obtained from the regression model, the mobile money transaction volume, ($\beta_2 = -7.474E - 009$, Sig. = 0.392), Internet banking transaction volume, ($\beta_3 = -2.624E - 010$, Sig. = 0.791), ATM transaction volume, ($\beta_4 = -2.624E - 010$, Sig. = 0.072), POS transaction volume, ($\beta_5 = 7.004E - 009$, Sig. = 0.134). For mobile money transaction

volume, internet banking transaction volume, ATM transaction volume, and POS transaction volume, the p-values are all greater than 0.05. This indicates that none of these transaction volumes have a statistically significant effect on GDP growth, as per the conventional significance level.

Based on the regression analysis conducted, the significance values for all transaction volumes (mobile money, internet banking, ATM, and POS) are greater than the alpha level of 0.05. This implies that none of these transaction volumes show a statistically significant trend affecting GDP growth. Therefore, we fail to reject the null hypothesis (H_0) that there is no significant trend in transaction volumes processed through electronic payment systems in the selected Deposit Money Banks in Nigeria from 2012 to 2022.

Hypothesis 2 (H_0): The adoption of electronic payment systems does not have a significant impact on Nigeria's GDP growth from 2012 to 2022.

The ANOVA helps to determine if the overall regression model is statistically significant. It tests whether at least one predictor variable significantly explains the variance in GDP growth.

Table 6 shows the F-value as 1.789 and Sig. (p-value): 0.250 indicating that the overall regression model is not statistically significant. A p-value greater than 0.05 suggests that the model does not explain a significant portion of the variance in GDP growth.

To further test the hypothesis, the table provides the p-values for each predictor variable. If none of the predictors is significant, then the overall impact of electronic payment systems on GDP growth is also not significant. S shown below, the coefficients of the mobile money transaction volume (Sig. = 0.392), Internet banking transaction volume (Sig. = 0.791), ATM transaction volume (Sig. = 0.072), and POS transaction volume (Sig. = 0.134). these findings indicates that none of the predictors have a p-value less than 0.05, which further suggests that individual predictors do not have a significant impact on GDP growth.

Based on the regression analysis, the overall model does not show a statistically significant relationship between electronic payment systems and GDP growth, with an F-value of 1.789 and a p-value of 0.250. Additionally, none of the individual predictors (mobile money, internet banking, ATM, and POS) has significant impacts on GDP growth, as indicated by their p-values being greater than 0.05. Therefore, the study could not reject the null hypothesis (H_0), hence, concluding that the adoption of electronic payment systems does not significantly impact Nigeria's GDP growth from 2012 to 2022.

Hypothesis 3 (H_0): There is no significant relationship between electronic payment system adoption and GDP growth in Nigeria.

The overall model fit reveals that as the R-squared value valued as 0.544 indicates that approximately 54.4% of the variance in GDP growth is explained by the electronic payment system variables in the regression model. In the same view, the Adjusted R-squared valuing 0.240 accounts for the number of predictors in the model and is lower than the R-squared, suggesting that the model may have some explanatory power but also highlights the potential issue of overfitting or weak explanatory power after adjusting for the number of predictors.

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Among other things, the key findings from the study are: there is no significant trend in transaction volumes processed through electronic payment systems in the selected Deposit Money Banks in Nigeria from 2012 to 2022; the adoption of electronic payment systems does not significantly impact Nigeria's GDP growth from 2012 to 2022; and there is no significant relationship between electronic payment system adoption and GDP growth in Nigeria.

Conclusion

The study concludes that electronic payment systems, though essential for modernizing the financial sector and promoting financial inclusion, do not solely drive GDP growth. Other economic factors, such as government policies, global economic conditions, and sectoral performance, significantly affect the nation's GDP.

RECOMMENDATIONS

Based on the findings of the study, the study recommends that: for the country to Invest in robust and secured electronic payment, adequate investment in infrastructure should be carried out; the development of diver's electronic payment solution to cater for various segment of the population; and to foster collaboration between financial institutions, technology providers, and regulatory bodies to address challenges and leverage opportunities in the electronic payment ecosystem.

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