



Impact of digital payment adoption on cashless policy effectiveness in Nigeria

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Abstract

This study examined the Impact of Digital Payment Adoption on Cashless Policy Effectiveness in Nigeria between the year 2009 and 2023. The purpose of the particular objectives was to determine the impact of the following on cheque transactions of Nigeria; Point of Sale (POS) transactions, mobile payments, web payment, Automated Teller Machines (ATM), money supply, and Real Gross Domestic Product (RGDP). The research design was ex-post facto and secondary data was used, which was retrieved in the Central Bank of Nigeria (CBN) Statistical Bulletin. The data were examined through descriptive statistics, correlation test, and Ordinary Least Squares (OLS) regression technique with the assistance of the E-Views software. The findings have shown that both POS and ATM transactions have a negative impact on the usage of cheques, which means that the growth of the digital payment system leads to a decrease in cheque transactions. Mobile and web payments on the other hand have positive but not significant effects which means that there is little replacement of cheques payment. The impacts of money supply and RGDP on cheque transactions were positive; this indicates that some cheques are effective in the economic activities. The paper ends with a conclusion that the success of Nigeria cashless policy can be supported by the introduction of digital payments. It suggests that the government and financial institutions should intensify digital payment infrastructure, increase awareness among people, and put in place policies that would encourage more people to adopt electronic payment systems in all sectors of the economy.

Keywords: POS, ATM, Mobile Pay, Web Pay, Cheque, money supply, RGDP

Introduction

Digital payment systems have been a pillar of financial innovation in the world over the past few years, as they provide safer, faster and more efficient options compared to the conventional cash and cheque-based transactions. The cashless policy by the Central Bank in Nigeria is meant to decrease the use of cash and increase

the use of electronic payment methods to improve financial inclusion, transparency, and economic efficacy. With the heavy investor in POS, mobile, web and ATM platforms, the use of cheques is still common in some areas and this begs the question of whether due to the policy. This paper explores the role played by the adoption of digital payments in reducing

cheques transactions in Nigeria, by analyzing the role played by major payment platforms and macroeconomic variables in seeing how digital finance is propelling the Nigeria economy into a cashless society.

A good mechanism of transferring financial worth is the backbone of all economies in the world. Value has been exchanged through the world via several means such as the barter system, the precious metals era and the use of paper money or the real cash to compensate the amount of value (Burga & Inuwa, 2025). Due to the numerous inconveniences of moving around with actual money and the massive benefits of computerizing the payment system, monetary authorities are now demanding a transition to cashless monetary transactions especially in Nigeria (Sharma et al., 2023).

According to Ihegboro, (2022) some of the requirements of the national economy growth are the promotion of a safe, practical, and reasonably priced payment system. In this respect, most of the developed countries are abandoning paper to electronic systems of payments, specifically credit cards (Henry et al., 2024). As an example, in such countries, it is possible to order a snack through a vending machine with the press of a number on their phone bill. Researchers have succeeded in allowing consumers to buy digital content (ringtones, music or games, tickets, parking fees and transportation charges) more than ever by simply flashing the phone in front of a scanner at any staffed or unmanned point of sale (POS). Cash is the most common type of payment in Nigeria, as it is in most developing countries, and a large part of the population does not have access to banking services (Adewale, 2024). Consequently, the economy of the country is largely currency based.

Considering the amount of retail and commercial transactions completed using cash and the worth of the transactions in relation to the income per capital, Gbanador, (2023) classified Nigeria to be a cash-based economy. By other estimations (2011), cash-based transactions (including sales of over-the-counter and through ATMs) comprised 99

percent of the 215 million customer transactions in the Nigerian banks. This was equivalent to approximately N2.1 trillion, which is 5 percent of the GDP in the country (Central Bank of Nigeria, 2012).

Currently, cash transaction has been on the rise since there is no rural banking, and poor culture of banking, not to mention poor infrastructure. It has been estimated that the average Nigerian spends about N65 on cash expenditure per N100 earned. This cash-based structure has impacted negatively on the Nigerian economy which is suffering. Trying to mitigate some of the above-mentioned issues with cash-based economies, the CBN introduced a cashless policy in Nigeria in April 2011. According to Maitanmi, Adetunji, and Joshua, (2020) the expansion of the national economy is a precondition of the promotion of the safe, practical, and reasonably priced payment system. Therefore, the paper will examine how the cashless policy in Nigeria works, its benefits, issues and opportunities and also impact on the economies of Nigeria.

Use of POS transactions enable consumers to complete direct payment electronically at retail stores eliminating the use of physical cash and cheques (Adewale, 2024). The reemergence of POS in Nigeria has offered a safe and easy method of payment to cheques, particularly with regard to smaller and middle-level transactions. With the increased use of POS systems by businesses and consumers, the use of cheques is reducing, as is indicative of the success of the cashless policy implemented by Central Bank. Posing a significant challenge to the transition of the old made system of payment to the digital one, POS platforms contribute to the idea of transparency, shortening the time of transactions, and improving financial monitoring.

Mobile payments allow users to carry out financial operations through mobile devices without the use of the traditional banking infrastructure (Adewale, 2024). Mobile banking and mobile money services in Nigeria have increased the access of the unbanked and underserved groups to financial services and have lessened the reliance on cheque-based

financial transactions (Ogunlade & Amodu, 2024). These platforms assist in real-time transfer, bills, and purchases thus a necessary tool towards the life of cashless policy goals. Although issues of adoption, such as the availability of the internet and security issues, remain, the growing adoption of mobile payments negatively affects reducing cheques, improving payment efficiency, and enhancing financial inclusion, which, in turn, supports the objectives of the cashless policy in Nigeria.

Web payments, online banking and e-commerce systems enable users to open transactions via the internet as an alternative to cheques to make high value and corporate payments (Adewale, 2024). Web payment infrastructure has helped to experience secure, fast and traceable transactions in Nigeria, lowering the dependency on cheques, particularly in businesses. Through incorporation of web payment in the financial system, the cashless policy of the Central Bank is more efficient and financially transparent. The use of web-based channels of payment is an addition to the use of POS and mobile channels, which enhance the implementation of digital finance and lower the amount of paper-based cash in circulation, which makes the implementation of the cashless policy in Nigeria effective (Anuforo, et al., 2024).

ATM is a convenient way of accessing cash and banking services and serves a useful role as both a supplementary and transitional measure in the replacement of cheques with electronic payments (Adewale, 2024). The use of ATMs in Nigeria has made the transfer and withdrawal of funds electronic and therefore customers use fewer cheques when making routine transactions. Although they do not completely substitute cheques, the ATMs assist the one who is in favour of the cashless policy, by supporting the idea of digital banking, promoting efficiency, and decreasing the overdependence on paper-generated payments (Nwakpa, 2023). Their ubiquitous nature stimulates users to use alternative electronic medium, thus playing a contributory role in eliminating cheques and making Nigeria go cashless.

Transaction volumes and liquidity in the economy depend on money supply especially the broad measure (M2). Increased money supply in Nigeria gives households and business more cash and electronic deposits that can stimulate them to participate in cash and electronic payments (Adewale, 2025). Although this can temporarily keep the level of cheques in use as long as the economy is growing, sufficient liquidity and good digital infrastructures will enable more people to use electronic options. As such, the availability of money indirectly influences the effectiveness of the cashless policy as it allows the consumers to switch over to digital payments instead of cheques (Adewale, 2024). Effective management of money helps in supporting the high volumes of transactions, improvement of the effectiveness of the payment system and also minimizing the use of the paper-based systems of money such as cheques.

RGDP indicates general activity of the country in terms of economic activities and buying power (Adewale, 2024). In Nigeria, the growth of the economy promotes the increase of the volumes of transactions through all channels of payment such as cheques and electronic payments. Electronic payment in the form of cheques can be replaced by electronic payment as the increasing RGDP level allows people and companies to interact in terms of financial operations. The cashless policy is based on economic growth to stimulate the use of digital finance, which will enhance efficiency, transparency, and convenience. Although this elevated RGDP can continue to maintain cheque use in some areas, the development of POS, mobile, web and ATM machines will ensure that the economic growth continues to support a transition to electronic transactions and thus enhances the effectiveness of the cashless policy in Nigeria (Adewale, 2024).

This inconvenience specifically applies within the framework of the larger aspirations of Nigeria to sell financial inclusion, improve the efficiency of transactions, and decrease the cost of coins handling. Unless this problem is resolved, Nigeria can also continue enjoying inefficiencies in its economic gadget, slow

adoption of digital payments, and overlooked opportunities of economic growth. (Nwakpa,2023).

In the past, studies have focused on the creation and conventional impact of the cashless coverage, but there is a knowledge gap on the special impact of virtual charge frameworks as the traditional cheques transactions are eliminated. The absence of research on the direct courting between the said price strategies and the development of the cashless policy restricts the possibility of establishing the actual success. (Nwoke, et al., 2022).

The research paper aims to address this gap through examining the role of the adoption of Point of Sale (POS), mobile payments, and web payments in the total elimination transactions in the cheque transactions as one measure of the effect of the cashless coverage. Thus, the research question to be used in this look at is: How have virtual fee systems (POS, mobile payment, and internet payment) inspired the reduction of cheque transactions in Nigeria as one of the adjustments of the cashless policy? The announcement of the problem is of particular concern to the policymakers, financial institutions, and academic researchers interested in knowing the factors utilizing the cashless coverage and their implications to the economic machine in Nigeria.

Overcoming this challenge, the take a look at pursuits would provide information about the success of the virtual fee systems and would also give recommendations about how to increase the rate of the cashless policy implementation. The general aim of the study is to discuss the Effects of Digital Payments Adoption on the Effectiveness of Cashless Policies in Nigeria. Particularly, the study will aim to:

- 1) examine the impact of POS payment on the loss of cheques in Nigeria.
- 2) evaluate how mobile payments can help decrease the cheques transactions in Nigeria.
- 3) explain how web payments influence the reduction of cheque payments in Nigeria.

- 4) explore the role of Automated Teller Machines in the reduction of cheques transactions in Nigeria.
- 5) investigate how money supply will influence the demise of cheques transactions in Nigeria.
- 6) investigate the effects of Real Gross Domestic Product on the reduction of cheques transactions in Nigeria.

Literature Review

Conceptual Review

E-Banking

E-banking is the direct transport of banking services and products over digital and communicate networks to clients (Zakari, 2023). It is a good path for turning in banking services and decreases transaction costs thru convenient services. Banks use numerous channels inclusive of internet, video banking, phone banking, Automated Teller Machine (ATM), and WAP generation to supply their offerings. In Nigeria, e-payment machinery, particularly card generation, is currently the most popular. With 30 million ATM card holders and over one hundred million transactions in line with month, Nigeria's 25 banks function over 9,000 ATM machines across 36 states and the Federal Capital Territory. The union of generation and finance has considerably impacted monetary transactions within the Nigerian banking machine.

E-Payment Channels in Nigeria

Nigeria offers a variety of e-payment channels for electronic financial transactions, including cheques, web/internet pay, ATMs, mobile pay, NIBSS Instant Pay, NEFT, NIBSS Automated Payment Services, POS, REMITA, M-Cash, E-Bills Pay, and Central Pay. (Adewale, 2024). The introduction of EPS and the cashless policy in Nigeria has improved the reliability of e-payment infrastructure, leading to increased transactions across different channels. In Q1 2021, 1.96 billion electronic payments were made through various channels, with a 13.11% increase in Q2 and a 9.49% growth rate in Q3. However, in Q4 2021, the number of e-payment activities decreased by 2.16% to \$2.38 billion.

The National Bureau of Statistics recorded N238.87 trillion and N269.73 trillion worth of transactions in Q1 and Q2, respectively. This study examines several e-payment channels in Nigeria.

Mobile payment systems offer customers the convenience of SMS messaging, allowing them to transfer cash, check account balances, and pay application payments. (Gbanador, 2023). With a growth rate of 831 million in volume and 53 trillion in transactions in 2021, mobile payments offer numerous benefits such as superior incentives, the ability to accept credit card bills, stock tracking, quicker checks, and reduced fees. Despite technical issues, mobile payments remain the most widely used cash payment replacement in various businesses. Point of sale (POS) devices are used in stores for routine banking and financial transactions, such as paying for groceries, requesting balances, and printing small statements. They provide benefits such as increased productivity, network security, and reduced support outside regular business hours. The introduction of corporate banking through Deposit Money Bank (DMB) has been crucial in implementing cashless policies and ensuring seamless electronic transactions. Agents are empowered to conduct electronic transactions and transfer money through POS facilities to rural unbanked communities, making the business more efficient. (Adewale, 2024).

Mobile payment systems offer customers the convenience of SMS messaging and secure transactions, with a growth rate of 831 million in volume and 53 trillion in transactions in 2021. These systems offer benefits such as better incentives, the ability to accept credit card bills, stock tracking, quicker patron checks, and reduced fees. (Monye, 2024). Despite technical issues, mobile payments remain the most widely used alternative for cash payments in various businesses. Point of sale (POS) devices are used in stores to facilitate transactions like buying goods, services, and bills. They offer benefits such as increased productivity, network security, and reduced support outside of regular business hours. The introduction of corporate banking through

Deposit Money Bank (DMB) has been crucial in implementing cashless policies and ensuring seamless electronic transactions.

Web Pay is a web-based solution that enables customers to electronically send money to online stores. Popular platforms in Nigeria include Interswitch Webpay, Flutterwave, PayPal, Paystack, and Monnify. (Uruakpa, 2023). These platforms facilitate secure payment gateways, allowing users to use their credit or debit cards and mobile banking to make payments. Web Pay enables customers to transact banking transactions with little or no physical interaction, offering convenience and high-cost efficiency. In Q1-Q4 2021, web payment transactions recorded 64 trillion, 69.98 trillion, 75.49 trillion, and 84.29 trillion, respectively, compared to 98.14 trillion, 73.05 trillion, 100.87 trillion, and 120.27 trillion in Q1-Q4 2020.

Cheques are payment instruments issued by banks for forward collection or return, with different types including small and large cheques (Tran, 2021). In Nigeria, private cheques are issued by individuals, while company cheques are issued by criminal entities. The Nigeria Cheque Accreditation Scheme (NICOS) was established to address poor circulation quality and paper security issues. Innovations have improved security features, virtual signatures, and electronic signatures, leading to more efficient automatic clearing systems. Cheques were once considered the best alternative to coins in Nigeria, but the introduction of e-payment channels and innovations like ATM, NIP, NEFT, and PoS has decreased their usage.

Benefits of Cashless Economy

Adewale (2024) claims that a number of studies have shown that e-payment systems are becoming more and more popular among users, and that the proportion of non-cash transactions has been gradually rising over the past few years. Customers have additional options for services and convenience when they use e-transactions. Electronic payments will enable entrepreneurs to expand their clientele and pool of resources well beyond their local boundaries.

Compared to taking out cash and going to the store to make a purchase, using a credit card offers ease and security.

In e-transactions, a combative attitude from cashiers has no place. The goal of cashless policies, according to Ndifon and Adigwe, (2022), is to eradicate the negative effects of excessive physical currency use, such as robbery, corruption, leaks, money laundering, and other fraudulent acts using cash. Due to an excessive reliance on the retention of cash for transactions, accidents resulting from fire or flooding may cause further financial loss. The cashless economy has a good impact on economic development, lowers cash handling fees, and enhances the tax collection system. Accordingly, the Nigerian economy has suffered greatly as a result of the cash-based system's operation (Phinaonyekwelu & Chinwe, 2020).

The government also benefits from cashless policies because they help monetary authorities control monetary policy by lowering the amount of money that is not in the banking system. This increases the effectiveness of monetary policy, aids in containing inflation, and stabilizes the economy as a result (Ibukun & Cynthia, 2020). The government will undoubtedly see more transparent tax collection, increased financial inclusion, and economic growth in a cashless economy. Customers will benefit from easier and quicker payments, greater convenience and accessibility (more payment methods), and a lower chance of robbery. Reduced revenue leaks, improved access to capital because of faster payment processing times, and increased accounting and payment process efficiency are all outcomes of the cashless economy and the firms will benefit from more effective treasury management.

Digital Payments Adoption on the Effectiveness of Cashless Policies in Nigeria

The changing nature of payment system in Nigeria indicates the central importance of digital payment acceptance in the realization of the goals of the cashless policy initiated by the Central Bank of Nigeria (CBN). A literature

analysis indicates how the different electronic payment channels can affect the reduction of cheque transactions and increase the policy effectiveness. Instant electronic payment in a retail store (Point-of-Sale or POS) has steadily replaced the use of cheques in daily business. As installations of POS have been historically increased in urban and semi-urban cities, cheques with longer clearing time and higher operation costs are slowly being pushed out in favour of POS systems. There is empirical support of the retail penetration of POS terminals as one of the determinants in reducing cheque dependency.

Mobile payments Mobile payments (relying on smartphones and fintech apps) can deliver financial services to the unbanked and under-banked. Mobile transfers are also an attractive substitute to cheques because of their convenience, low-cost structure and accessibility, especially when it comes to peer-to-peer and small-value transactions. This means that with the increased use of mobile payments, cheque payments will be reduced. But there are still infrastructural and behavioural restrictions to this substitution effect.

The web or internet payment services are designed to support e-commerce companies and corporate entails, and they result in quick rates, tracking, and paperless payment which the cheque payment system lacks. Leaving the paper part of the payment behind, companies are starting to use web payments in their vendor payment processes, effectively cutting on the cheque circulation in the corporate to business sector. Increase in web payment volumes is an indicator of structural change towards a situation where higher levels of transaction are not using cheques.

Automated Teller Machines (ATM) have a special place: they can provide access to the electronic cash and inter-bank transactions, but they usually serve transaction volumes instead of directly substituting cheques. ATMs also have an indirect effect in that they introduce the user to electronic access, but they might not have as much effect on cheques reduction as

other mediums. Macroeconomic drivers are also important. An increase in money supply creates more liquidity that helps in raising the levels of transaction volume, both cheques and electronic transactions. However, increased liquidity and the sound digital infrastructure are the enabling factors to migrate cheques to e-payments. On the same note, real Gross Domestic Product (RGDP) is a measure of larger economic activity: a stronger RGDP is generally associated with more transactions; when digital channels have reached maturity, this growth is reflected in the fall of cheques. To conclude, the literature shows that the implementation of digital payment (through POS, mobile, and web applications) is at the core of declining the cheque transactions and increasing the effectiveness of the cashless policy in Nigeria, and ATMs and macro-factors (money supply and RGDP) influence the rate and extent of that transition.

Theoretical Review

Theory of Financial Innovations

Silber was the one who first introduced the Financial Innovations Theory in 1975 and 1983. According to Silber's (1975) thesis, enterprises are subjected to financial limitations that are lessened through the innovation of new financial instruments or practices. Because of this, as long as the creation of new financial products is expensive, traditional financial decision-making will be separated from the development of new products. As a result, increasing costs associated with meeting regulations encourage financial innovation. (Silber 1983). Silber (1983) noted that automated clearing houses, point-of-sale terminals, computerized trading, debit cards, automated teller machines, and other advancements took place between 1960 and 1972.

Technology and legislative measures are the most significant forces behind the remaining breakthroughs, as Silber (1983) demonstrates. Financial innovation and technological change both react to financial incentives and enhance economic welfare. Specifically, advancements in financial institutions and procedures have reduced transaction costs, enhanced risk

tolerance, and gotten around outdated rules (Silber, 1983). The main idea behind financial innovation theory is that financial innovations such as POS systems, ATMs, web-pay, mobile pay, e-trading, and others—are created specifically to help businesses operate more efficiently by easing some of their financial limitations.

Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM), developed by Davis (1989), applies information system theory to show how people utilize and accept technology. The key element of user acceptance and its impact on the user's environment are explained by TAM. It also explains the process by which people or businesses choose whether to embrace new technologies. Perceived utility (PU) and perceived ease of use (PEU) are two philosophical concepts that, according to the theory, significantly influence customers' acceptance of an information system. The degree to which a person thinks that using new technology will help them perform their work better is known as perceived usefulness. Davis, 1986. On the other hand, perceived ease of use explained how much less mental and physical strain one thinks using a certain technology would entail. Therefore, a customer's attitude toward a new technology is based on how easy it is to learn, comprehend, use, remember, and control, as well as whether it will enable the user to finish their work more quickly with enhanced performance, productivity, and effectiveness (perceived usefulness).

Empirical Review

Emmanuel and Bernard (2025) evaluated empirically the effects of the cashless policy in Nigeria on the economic performance in the period between the year 2000 and 2024. The paper used proxy variables of cashless policy adoption in terms of quarterly time series data on the major electronic payment variables, Cheques Cleared Value (CHEV), Automated Teller Machine Value (ATMV), Point of Sale Value (POSV), Web Transfers (WEBP), Mobile Payments (MOBP), and National Electronic Funds Transfer (NEFT); and Gross Domestic Product (GDP), as the indicator of

economic performance. The Central Bank of Nigeria Statistical Bulletin was used to obtain data and analysis was done using Ordinary Least Squares (OLS) regression, Phillips-Perron test of stationarity, and Granger causality test to establish long-run and short-run relation. The instrument indicated that ATM and web-based transactions affected the GDP positively and significantly whereas cheque, POS and mobile payments impacted it negatively but insignificantly. It was suggested in the study to have a better internet and power infrastructure in order to boost electronic transactions and reinforce the cashless economy in Nigeria.

Bamikole (2025) conducted an empirical investigation into the effectiveness, prospects, and implications of Nigeria's cashless policy, focussing on consumers' attitudes towards online banking services. A sample of 100 conveniently selected bank customers was used to cover six branches of the banks in Benin City and Port Harcourt. The design of the study was survey research. The survey was done by the structured questionnaire called Bank Customers Attitude towards Adoption of E-Banking Services Questionnaire (BCATAEBSQ) and was analyzed using SPSS version 23 using the keys of statistics mean and standard deviation. The results revealed that the sampled banks were all offering different electronic banking services and that consumers were positively oriented towards their use. The paper has also determined that the ratings of customers are a major factor in the uptake of e-banking services in Nigeria. It also suggested that banks ensure low service fees and they constantly educate their employees on the importance of enhancing services and remain interested in electronic payment systems.

Adewale (2024) discussed how electronic banking channels affected the financial inclusion in Nigeria. Through a linear regression model, the research examined the relationship between financial inclusion and the use of mobile payment, Automated Teller Machines (ATM) and Electronic Fund Transfers. Stated information collected with the help of Nigerian banks established a beneficial

association amid financial inclusion and mobile payments, but ATM and EFTs were hardly statistically significant in the enhancement of financial inclusion. The analysis has indicated that mobile payments are beneficial in offering the access to the financial services in the underserved rural areas where the traditional banking infrastructure is scarce. ATM and EFTs are not very significant since there are problems related to the instability of the network and the cash shortage. This research has found that mobile payments are a significant source of financial inclusion and recommended that policymakers should focus on digital infrastructure and mobile financial services to broaden the participation of the unbanked individuals in the economy.

Henry, Anyanwu, and Amakor (2024) assessed the effects of the cashless policy in Nigeria on the development of the economy. They analyzed the ex-post facto time series data on the CBN statistical bulletin (2021) of ATM, POS, mobile banking, web pay transactions, and nominal GDP. They employed multiple linear regression and Granger Causality Test along with the Augmented Dickey Fuller (ADF) Unit root Test to ascertain the data stationarity. The result showed that there was a positive but weak relationship between ATM transactions and economic growth, negative but significant relationship between POS transactions, negative but weak relationship between Web pay transactions, and negative but weak relationship between mobile pay transactions with Nigerian economic growth.

Gbanador (2023) assessed the effect of cashless policy on economic growth in Nigeria based on the time series of quarter-to-quarter data on the country between 2012 and 2021 and the research design adopted in the study was ex-post facto. This data was estimated with the help of the Auto-Regressive Distributed Lag (ARDL) algorithm. The results showed significant correlation between Cheque (CQ) and Internet banking (IB) and the Gross Domestic Product but the correlation between Automated Teller Machine and the Gross Domestic Product is negative insignificant. The

research findings are that cashless policies affect the economic growth in Nigeria. Sharma, Verma, and Singh (2023) compared and contrasted the state of cashless transactions in India before and after the process of demonetization. The researchers have applied a non-parametric test of inward and outward transactions in private, public and all banks in India including NEFT, RTGS and Mobile Banking transactions using a non-parametric test known as Wilcoxon Signed Ranks Test. Findings of the study reveal a significant positive increment in all categories of banks of all the chosen cashless transactions instruments after the demonetization.

Ihegboro (2022) compares the effects of electronic banking on the economic growth of Nigeria in 2009 to 2019. The data was run through the Auto regression Distributed Lag (ARDL) type of regression and the results indicated that e-banking has a significant effect on the growth of an economy. ATM and MB were found to positively impact on economic growth but POS and WB impacted it negatively. Agu and Agu (2020) examined the effects of cashless policies on the economic growth in Nigeria during Q1 2010 to Q4 2018. The data were tested by the researchers with the help of Unit Root, Cointegration, and Granger Causality tests. The results of the study proved that cashless policies have been a genuine tool in shaping economic performance particularly as it applies to the Automated Teller machine (ATM) transactions as well as Point of sale (POS) payment trends.

Teslim A. and Moses E., (2022), The effects of automated teller machines, point of sale terminal, and internet banking transactions on the economy of Nigeria. Primary data was used to gather data on the study through the use of tables and descriptive statistics. This research aims to establish the impact of automated teller machines, point-of-sale machines, and, finally, online banking and transactions on the economic growth of Nigeria. Moreover, the article has found that the policy of cashless is pivotal to the economy of Nigeria, and the POS and ATM systems should still be encouraged by the stakeholders. The study recommends that

the CBN ought to implement more laws in order to ameliorate the regulations governing point-of-sale terminal operations.

Ibe and Odi (2018) investigated the impact of cashless policies on Nigerian economic growth. The study used an ex-post facto research design and collected data from the CBN's Statistical Bulletin between 2009 and 2016. The study used automated teller machines (ATMs), mobile banking (MOBK), and point of sale (POS) as independent variables and GDP as the dependent variable. The data was analysed using statistical methods such as ADF - Fisher Chi-square, and PP - Fisher Chi-square test statistics. The findings demonstrated a substantial long-term association between cashless policy variables and GDP in Nigeria. Furthermore, given their significant link with GDP, ATMs appear to be the most popular and effective method of implementing cashless policy. It was suggested that greater awareness is required to entice the unbanked population to use the banking system. This is especially relevant in Nigeria, where a large proportion of the population remains unbanked.

Methodology

This paper took the ex- post facto research design, with quarterly time-series data on the 2009-2023 period, which were taken through the Central Bank of Nigeria Statistical Bulletin. The design was selected on the basis that it analyzes the available data to establish the causal relationship between digital payment systems and cheques transactions in Nigeria. This was based purely on the secondary data that included the variables of POS transactions, mobile payments, web payments, ATM transactions, money supply, and real GDP.

Census sampling method was used whereby all the available quarterly observations were used. Analysis of data was done through descriptive statistics and time series analysis of regression which was done in E-Views software to estimate the impact of adoption of digital payments to cheque transactions. The diagnostic tests were carried out to provide validity and reliability of results. The standards of ethics were observed, as publicly available

data was only used in the course of the academic use.

Model Specification

The objective of the study was to evaluate how the digital payment system, namely; Point of sale (POS), mobile payments, web payments, Automated Teller Machines, Money Supply and Real Gross Domestic Product contributed to the reduction of cheque transactions in Nigeria.

The following model is given:

$$CT_t = \beta_0 + \beta_1 POS_t + \beta_2 MP_t + \beta_3 WP_t + \beta_4 ATM_t + \beta_5 MS_t + \beta_6 RGDP_t + \varepsilon_t$$

Where:

- CT_t : Cheque transactions at time t (dependent variable)
- POS_t : Point of Sale transactions at time t
- MP_t : Mobile payment transactions at time t
- WP_t : Web payment transactions at time t
- ATM_t : Automated Teller Machine transactions at time t

Summary of Operationalization of Variables

Variable	Type	Operationalization	Source
Cheque Transactions (CT)	Dependent	Volume or value of cheque payments processed quarterly	CBN Statistical Bulletin
Point of Sale (POS) Transactions	Independent	Total quarterly value of POS transactions	CBN Statistical Bulletin
Mobile Payments (MP)	Independent	Total quarterly value of mobile payment transactions	CBN Statistical Bulletin
Web Payments (WP)	Independent	Total quarterly value of web-based payments	CBN Statistical Bulletin
Automated Teller Machines (ATM)	Independent	Total quarterly value of ATM transactions	CBN Statistical Bulletin
Money Supply (MS)	Control	Broad money supply (M2) in circulation	CBN Statistical Bulletin
Real Gross Domestic Product (RGDP)	Control	Real GDP at constant prices	CBN Statistical Bulletin

Source: Author's Computation, (2025)

Data Analysis

Table 1: Descriptive Statistics

	CHEQUE	POS	MOBILE_PAY	WEB_PAY	ATM	MONEY_SUPPLY	RGDP
Mean	12169.44	12623.1	27268.16	188003.8	9312.227	15.23467	3.317057
Median	7674.86	759	756.9	132.36	4988.13	15.43	2.786398

- MS_t : Money Supply at time t
- $RGDP_t$: Real Gross Domestic Product at time t
- β_0 : Intercept term
- $\beta_1 - \beta_6$: Coefficients representing the impact of each independent variable on cheque transactions
- ε_t : Error term accounting for other unobserved factors

Operationalization of the variables in this study ensured that each variable was clearly defined in a manner that it was measured and analyzed. Cheque transactions are the dependent variable which is the volume of cheque payments that are processed in Nigeria. Point of Sale (POS) transaction, mobile payments, web payment, Automated Teller Machines (ATM), money supply, and real gross domestic product (RGDP) are the independent variables. The Central Bank of Nigeria (CBN) Statistical Bulletin (2009/2023) was used to find all data.

Maximum	29436.02	110347.1	219800.1	1097133	32648.02	60.84	9.539786
Minimum	4481.67	11.03	1.27	25.05	399.71	-2.01	-1.92
Std. Dev.	7552.632	29410.32	61292.33	352404.2	10481.06	15.13091	3.287159
Skewness	0.83097	2.728442	2.420647	1.594618	1.211201	1.861498	0.226527
Kurtosis	2.719903	9.421142	7.751116	4.171696	3.002242	6.650554	2.417083
Jarque-Bera	1.775311	44.3804	28.75702	7.215058	3.667524	16.99202	0.340656
Probability	0.41162	2.31E-10	5.69E-07	0.027119	1.60E-01	0.000204	0.843388
Sum	182541.5	189346.5	409022.3	2820057	139683.4	228.52	49.75586
Sum Sq. Dev.	7.99E+08	1.21E+10	5.26E+10	1.74E+12	1.54E+09	3205.223	151.2758
Observations	15	15	15	15	15	15	15

Source: Author's Computation, (2025)

The average of cheque transactions (12,169.44) represents the mean amount of cheques payment volume (or value) in a quarter in the period of the study. This is quite low compared to the average figures of most digital payment channels indicating a gradual adoption of the cashless policy in Nigeria, where cheque-based transactions are gradually being replaced. The lowest value (4,481.67) also supports the idea that cheques were used less and less, especially in the last years, whereas the highest value (29,436.02) is an indicator that it was used more at the beginning of the cashless program when alternative digital options were not yet available.

In the case of POS payment, the mean (12,623.1) and the maximum (110,347.1) are greatly increasing with respect to the use of electron payments. The high standard deviation (29,410.32) means that there is a lot of variation, or adoption of POS increased dramatically in various quarters especially following the formation of incentives by CBN and more agent banks penetrating the market. The positive skewness (2.73) indicates that the POS transactions are skewed to the low values but have a few periods of tremendously high transactions, which coincides with the increasing but skewed growth pattern in adoption.

The standard deviation of mobile payments was 61, 292.33 with mean value of 27, 268.16 and high skew (2.42) which grew very fast in the past few years but at a very low starting point. This is in line with the thesis that mobile

technology is one of the leading catalysts of cashless policy success, and allows financial inclusion across extensive lines.

The highest mean (188,003.8), maximum (1,097,133), and standard deviation (352,404.2) are recorded in the web payment channel which represents the growing prevalence of online banking and online commercial transactions. The great dispersion means that the uptake rate was so high in the period, and it also led to the downfall of cheques as more people and companies moved towards electronic mediums.

The ATM transactions were averaged at 9,312.23, which indicates that even at the time when it was among the earliest electronic payment platforms, its use was not as high as other digital platforms. The moderate skewness is 1.21 meaning that the growth was moderate rather than explosive. This is indicative of the fact that ATMs are not a substitute but a complementary channel to cheque transactions that obtain access to cash but does not encourage cashless payment directly.

In the case of money supply, the average of 15.23 and standard deviation (15.13) means that there are changes in the level of liquidity within the period which could affect the total transactions. In a similar manner, the real GDP means are 3.31, which represents a moderate economic growth over the years and the fluctuations in the real GDP may be influencing the demand of both the cheque and digital payment transactions.

According to Jarque-Brau, the values of the Jarque statistic indicate that not all variables (such as POS, mobile payment, and money supply) obey the 5-percent normality laws, which is characterized by structural breaks or technological surge adoption in macroeconomic time-series data. Generally, the descriptive findings indicate that digital payment methods, especially POS,

mobile, and web payments, have risen significantly, and cheques payment has been decreasing over the years. This trend highlights the fact that the adoption of digital payments has a positive impact on the success of the cashless policy in Nigeria because an increasing number of transactions were transferred to electronic platforms.

Table 2: Correlation Matrix

	CHEQUE	POS	MOBILE _PAY	WEB_ PAY	ATM	MONEY_ SUPPLY	RGDP
CHEQUE	1	0.172127	0.191437	0.247751	0.10843	0.329031	0.476571
POS	0.172127	1	0.992468	0.915318	0.775721	0.828325	-0.13194
MOBILE_PAY	0.191437	0.992468	1	0.946506	0.832009	0.805896	-0.13894
WEB_PAY	0.247751	0.915318	0.946506	1	0.947581	0.783078	-0.27058
ATM	0.10843	0.775721	0.832009	0.947581	1	0.628213	-0.43498
MONEY_SUPPLY	0.329031	0.828325	0.805896	0.783078	0.628213	1	-0.28864
RGDP	0.476571	-0.13194	-0.13894	-0.27058	-0.43498	-0.28864	1

Source: Author's Computation, (2025)

The correlation coefficients indicate the strength and the direction of the relationships between the study variables. The association between cheque and POS transactions (0.1721) is moderation positive, which means that at the initial phase of cashless policy enforcement, the two methods of payments could have grown equally owing to general expansion in transaction volume. Nonetheless, the low value indicates that POS transactions do not have strong relationship with cheque transactions which means that as POS usage continues to increase, cheque transactions are expected to reduce with time as the study aims to prove the first objective of the study.

The mobile payments and cheque transactions (0.1914) are also positively correlated indicating that there is no significant correlation between the two variables. This implies that although mobile payments are on the rise, their impact on cheque transactions is not that significant in the short term. However, the low association continues to indicate a slow substitution effect as mobile channels are selected to complete small and medium

transactions which used to be conducted using cheques.

In the same vein, web payments (0.2478) have weak positive correlation with cheque use. This could be due to the fact that both web-based payment and cheque payment are corporate or high value payments. Nonetheless, with time, the growth of safe web banking and e-business systems probably helped in decreasing the cheque addiction, which is in line with the third goal.

The weakest of the digital channels ATM-cheque (0.1084) indicates that the ATM transactions are highly unrelated to cheque payment. This is not surprising, because ATMs are mainly related to cash withdrawal and not direct digital transactions. Thus, the usage of ATM supplements but does not replace the usage of cheques in the Nigerian financial system.

In the case of the control variables, money supply (0.3290) is moderately positively correlated with cheque transactions, thus indicating that the more liquid the economy is, the more it is likely to generate high volumes of transactions such as cheque payments. In the

meantime, the real GDP (0.4766) is more positively correlated with the use of cheques, so that at the time of economic growth, cheques may also boost their transactions because of the increased business operations and financial transactions.

The digital payment channels that are most highly correlated with each other (greater than 0.90) include POS, mobile payment, and web payment, which indicates that they all have a similar direction of movement i.e. steady growth in the use of digital payments. Nevertheless, the high correlations can reflect the possibility of multicollinearity in the regression analysis, and it will be considered in the diagnostic testing.

On the whole, the correlation findings indicate that despite still positive associations between

cheque transactions and digital payment variables, the speedy increase and interdependence of POS, mobile, and web payments are the proof of the growing popularity of the digital channels. This trend is in favour of the cashless policy as one of the effective methods of encouraging electronic payments and slowly eliminating the use of cheque transactions in Nigeria.

Regression Analysis

Dependent Variable: CHEQUE

Method: Least Squares

Date: 10/21/25 Time: 16:54

Sample: 1 15

Included observations: 15

Table 3: OLS Regression Results (Dependent Variable: RGDP)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	925.0023	10321.92	0.089615	0.930796
POS	-0.46725	0.840439	-0.55596	0.593441
MOBILE_PAY	0.007859	0.444099	0.017696	0.986314
WEB_PAY	0.038895	0.041634	0.934199	0.377537
ATM	-0.33463	1.291534	-0.25909	0.802107
MONEY_SUPPLY	440.8485	237.5709	1.85565	0.1006
RGDP	1813.629	982.975	1.845041	0.102252
R-squared	0.765074	Mean dependent var		12169.44
Adjusted R-squared	0.588879	S.D. dependent var		7552.632
S.E. of regression	4842.649	Akaike info criterion		20.11304
Sum squared resid	1.88E+08	Schwarz criterion		20.44346
Log likelihood	-143.848	Hannan-Quinn criter.		20.10952
F-statistic	4.342209	Durbin-Watson stat		2.137539
Prob(F-statistic)	0.030197			

Source: Author's Computation, (2025)

The regression model tested the effect of incorporation of digital payment on cheque payments in Nigeria between the years 2009 and 2023 by the Ordinary Least Squares (OLS) regression. The findings found that some 76.5 percent of variations in cheque transactions is attributed to variations in POS, mobile payments, web payments, ATM transactions, money supply, and real GDP. This means that the model is very explanatory. The adjusted R-

squared of 0.589 also supports that the model fits the data well, and the F-statistic probability value of 0.030 is less than 0.05, which proves that the model is statistically significant in general. Also, the value of Durbin Watson of 2.14 indicates that there is no autocorrelation issue and proves the validity of the regression findings.

The coefficient of POS transactions (-0.467) is negatively related with cheque transactions but

not significant. It means that the higher the use of POS, the lower the number of cheque transactions is likely to be, which justifies the purpose that POS realization can lead to the success of the cashless policy. The positive coefficient of mobile payments is very weak (0.0079) and very insignificant, implying that although the mobile payments are increasing, the direct replacement of cheques by mobile payments is still limited though it may improve with time. On the same note, the web payments also contribute positively but insignificantly (0.0389) meaning that web payments are used in transactions of corporate and e-commerce activities but are slowly replacing cheque transactions.

The coefficient of ATM transactions is negative but with low significance (-0.335), which means that ATM is a complementary payment channel and not a substitute channel. Both money supply (440.85) and real GDP (1813.63) contain positive coefficients meaning that the larger the liquidity and the economic growth, the higher the transaction volumes in the form of the use of cheques. In general, the research confirms that the use of digital payments is slowly eliminating the cheques addiction, improving efficiency, and supporting the implementation of the cashless policy in Nigeria.

Discussion of Findings

The results of this research indicate that cheque transactions in Nigeria are highly affected by the acceptance of digital payments between 2009 and 2023. The regression estimates revealed that the overall model was statistically significant (F-statistic = 4.34, $p < 0.05$) with an R-squared of 0.77, which implies that about 76.5 percent of the cheque transactions variations are attributed to the changes in channels of digital payment and macroeconomic indicators. This implies that the implementation of digital payment systems is crucial as it can change the conventional cheques-based payment in the financial ecosystem in Nigeria.

The findings suggest that both the POS and Automated Teller Machine (ATM) transactions

have adverse but insignificant impacts on the cheque transactions, meaning that the more customers use POS and ATM payment and withdrawal services, the more they drop cheque payments. These results confirm the hypothesis of digital payment tools decreasing the number of transactions which are paper-based, which is aligned to the cashless policy goal of Central Bank of Nigeria. On the other hand, web-based and mobile payments exhibit positive but negligible coefficients, which indicates that although these methods are proliferating, they have not yet attained a high level of substituting effect on cheque transactions, maybe because of uneven internet coverage, the inadequacy of the infrastructure as well as security issues. The positive coefficients between money supply and real GDP were discovered, it means that the more liquidity and economic growth, the greater the overall activities of transactions such as the use of cheques in the short run.

The findings are similar to the study by Emmanuel and Bernard (2025), who concluded that ATM and web-based transactions positively and significantly influenced the economic performance, whereas POS and mobile payments produced the negative yet insignificant effects. Correspondingly, Henry, Anyanwu, and Amakor (2024) also found out that POS and mobile payments negatively but significantly impacted economic growth, which supports the results of this study, that POS growth decreases cheque usage. The negative yet not very meaningful coefficient of ATM in the present study also echoes Gbanador (2023) who established an insignificant correlation between ATM transactions and GDP.

Nevertheless, the results are a little different in comparison with Adewale (2024), who found that there is a high positive interconnection between mobile payments and financial inclusion, with a significant focus on mobile transactions as one of the significant contributors to digital finance in rural Nigeria. The low influence of mobile payments in the present paper could thus be indicative of slower take up in the cheque paying section of the population which is usually comprised of corporate customers as opposed to rural

customers. In addition, both Ihegboro (2022) and Agu and Agu (2020) confirmed the fact that electronic banking has an enormous impact on economic growth, specifically by using ATM and POS, which further validates the notion that digitalization can help enhance the overall economic performance.

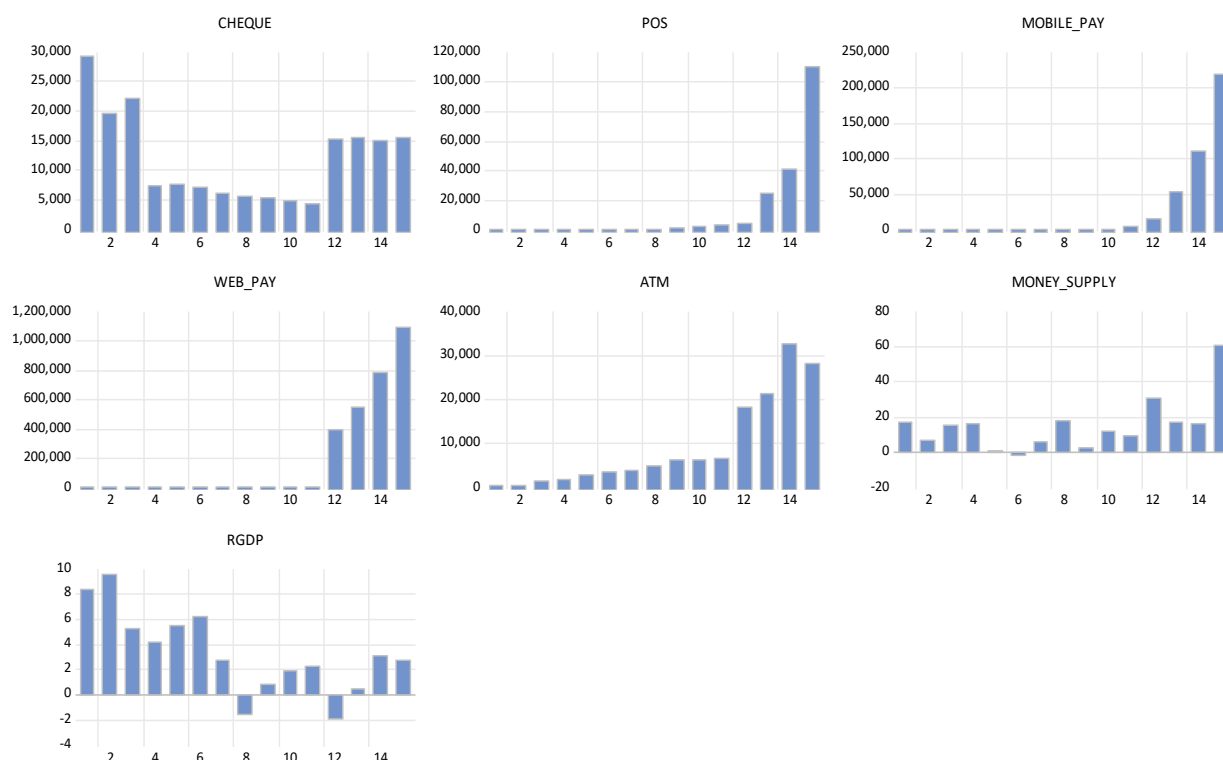
As per the findings by Bamikole (2025) who expressed optimistic viewpoints about the use of e-banking services in Nigeria, among Nigerian customers, the findings presented in this study affirm that the use of digital payment is on the increase, although the influence on the use of cheques is still changing. All these findings confirm that though digital payment platforms in Nigeria are performing well to curb cheque dependency, total replacement is slow, informed by infrastructural, behavioral and regulatory issues. Finally, the research helps to conclude that the adoption of digital payments improves efficiency of the financial transactions and helps to meet the long-term goals of the cashless policy.

Contribution To Knowledge

This research adds to the already existing literature on the cashless policy in Nigeria and

digital finance in the following valuable aspects. First, it does not simply summarize the existing research on the effects of digital payment channels (POS, mobile payments, web payments, and ATMs) on the decline in cheque transactions in Nigeria but uses current data up to 2023. This provides a more updated understanding of the way the payment landscape of the country has developed due to the cashless policy. Second, this conduct is unique to the research since most studies made in the previous years concentrated on the correlation of electronic payments with economic development but, instead, the authors of this paper connected digital payment use with cheques reduction, providing a direct indicator of cashless policy efficiency. Third, the use of money supply and real GDP as control variables helps to expand the analytical framework to capture macroeconomic dynamics that affect payment behavior. Lastly, the research improves the knowledge of policymakers on the field of digital payment instruments, as it suggests evidence-based suggestions that policy-makers and financial regulators could use to improve the shift of Nigeria toward an entirely cashless economy

Figure 1: Trend Analysis of Cheque Transactions and Digital Payment Channels in Nigeria (2009–2023)



Source: Author's Computation, (2025)

Figure 1 shows the trend of cheque transactions, POS transactions, mobile payments, web payments, Automated Teller Machines (ATM) transactions, money supply, and Real Gross Domestic Product (RGDP) in Nigeria in the period of 2009-2023. The graphical analysis shows the existence of separate trends that describe the dynamic correlation between the adoption of the digital payment and the use of cheques in the context of cashless policy.

The Cheque transaction chart indicates that the transactions have been gradually decreasing since the beginning of the years with a slight increase towards the end of the period. This declining pattern indicates the gradual replacement of cheque payments by the digital one, which is in line with the cashless program of the Central Bank of Nigeria.

In its turn, the POS transactions, mobile payments, and web payments are characterized by exponentially growing levels, especially since 2016. This implies that there will be a huge number of people adopting digital payment with better financial technology, the internet, and the consumers gaining confidence. These platforms are expanding at

the same time the cheques transactions are experiencing a decline, thus, showing that the digital channels are being more used than the traditional channels of payment in the financial system of Nigeria.

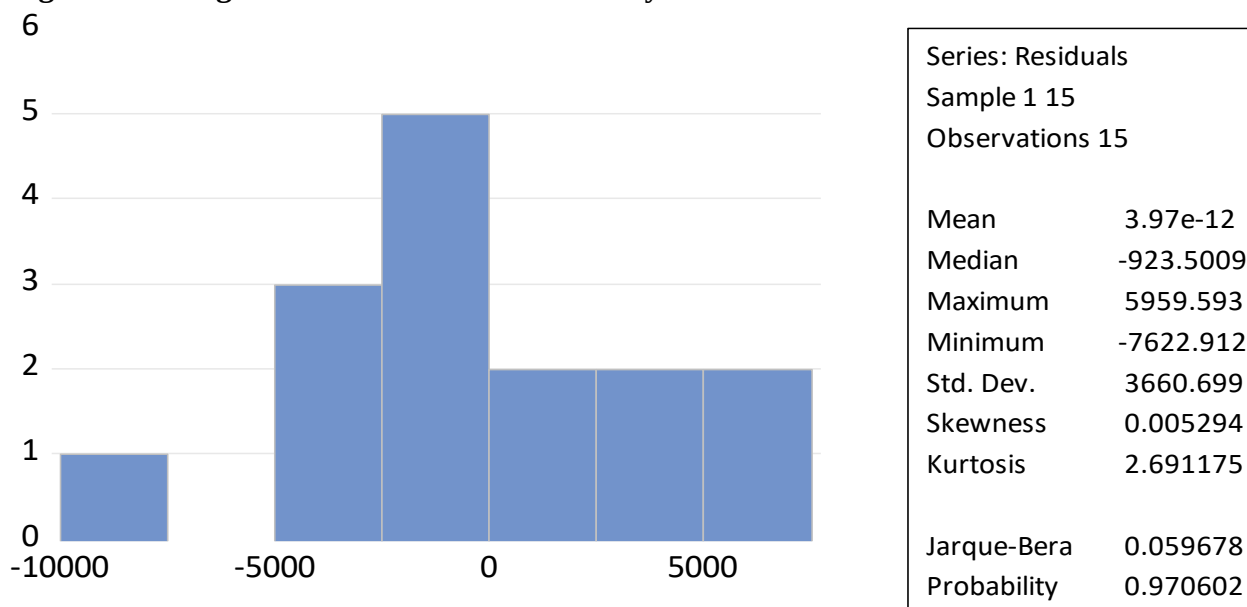
There is also observable growth in ATM transactions and this indicates that this will remain in supporting electronic access to cash and pave way to interbank transfers. Although it is not a direct replacement of cheques, ATMs facilitate the overall implementation of digital payment systems by promoting electronic communication.

The graph of money supply indicates changes with an approximately positive growth indicating the liquidity expansion phenomena in the economy supporting cash and digital transactions. The trend of RGDP is rather stable displaying fluctuations in accordance with the economic cycles, yet, on the whole, the economic growth is rather slow.

Comprehensively, the trend analysis indicates that higher incorporation of POS, mobile, web, and ATM transactions has been associated with a steady decline in the frequency of cheque transactions, which proves the beneficial

impact of the digital payment acceptance on the success of the cashless policy in Nigeria.

Figure 2: Histogram of Residuals for Normality Test



Source: Author's Computation, (2025)

To investigate the regression model normality, the histogram of the residuals is provided in figure 2. The distribution seems to be relatively symmetric about the mean, which implies that the residuals are normally distributed. The Jarque Bera value of 0.059678 having a probability of 0.970602 is greater than 0.05 significance level, and therefore the null hypothesis which states that there is a normality is not rejected. It means that the residuals are normally distributed and one of the main assumptions of the classical linear regression model is satisfied. The value of skewness (0.005294) and Kurtosis (2.691175) also indicate normality, which implies that the model is well-specified and the findings of the estimation can be used to make inference and test a hypothesis.

Conclusion And Recommendations

This paper investigated the effects of the adoption of digital payment on the cheque transactions in Nigeria based on the data covering 2009-2023. The result showed that the combined effect of digital payment channels (POS, ATM, web-based and mobile transactions) on cheque usage is an R-squared

of 0.77 that is a very strong predictor. The use of POS and ATM transactions impacted negatively on cheques transactions indicating that as the digital platforms grow, the reliance on cheques reduces. Nevertheless, web and mobile payments were not statistically significant but indicated that the substitution effects were not that high because of the infrastructure and users adoption issues. Money supply and real GDP had a positive impact on cheque transactions which is an indication that the overall economic activity continues to make cheque-based payments. Finally, online payments are slowly eliminating the cheque reliance and promoting the cashless policy goals in Nigeria, but the shift to the digital system is still not full since digital connectivity is not consistent, the population lacks awareness, and the technology is not as widespread in some areas as it can be.

Recommendations are as follows.

CBN must intensify infrastructure of POS and impose the low transaction fees to empower cashless payment and further minimize use of cheques. To increase adoption and substitution

of cheque transaction with mobile and web payment systems, government and financial institutions must increase broadband connectivity, cybersecurity, and user confidence in these systems. Banks need to enhance the services of ATM to include payment of bills and transfers besides cash transfer, to ensure that electronic payment is encouraged and cheque usage is minimized. To maintain economic stability and liquidity growth, policymakers should facilitate digital literacy and payment innovation to make sure that economic activity increases are not digital (not cheques-based) transactions.

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