

Cashless Policy and Economic Growth in Nigeria

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ABSTRACT: *The impeding infrastructural decay, inefficient security system on financial information and the high rate of cybercrime impedes efficient and effective electronic payment system which in turn affects the attainment of objective of cashless policy in Nigeria. In view of this, this study examined the relationship between cashless policy and economic growth of Nigeria. Specifically, the study aimed at ascertaining the relationship between web-based transactions, POS transactions and ATM transactions with real GDP of Nigeria over a period of 10 years (2013-2022). This study adopted the ex-post facto design with data obtained from the Nigerian Stock Exchange fact books, National Bureau of statistics (NBS) and Central Bank of Nigeria statistical bulletins for the various years under study. The collected data for this study were computed and analyzed using descriptive statistics and multiple linear regression tools with the aid of SPSS 20.0 software. The findings revealed that POS transactions and ATM transactions have an insignificant positive relationship with real GDP while web-based transactions showed an insignificant inverse relationship. Based on the analysis of variance (ANOVA), the F-change test suggests that the model is statistically significant ($p\text{-value} = 0.020 < 0.05$). This implies that the joint effect of the predictor variables is statistically significant. In view of this, it is however concluded that cashless policy plays a critical role in improving the economic growth of Nigeria. The study recommended, amongst others, that policymakers should prioritize initiatives that promote secure online transactions, such as implementing robust cyber security measures and ensuring a reliable internet infrastructure.*

KEYWORDS; cashless policy, economic growth, POS, ATM and CBN

INTRODUCTION

The cashless policy in Nigeria, which encompasses web-based transactions, POS transactions, and ATM transactions, has the potential to significantly impact economic growth. Several studies have

examined this relationship and highlighted the various ways in which the cashless policy can stimulate economic growth. One of the key benefits of the cashless policy is the promotion of efficiency in financial transactions. This efficiency leads to a more streamlined business environment, facilitating trade and business transactions, and ultimately stimulating economic growth. POS transactions, which encourage the use of electronic payments instead of cash, also contribute to economic growth. Web-based transactions enable online purchases and payments, reducing transaction costs and increasing convenience for businesses and consumers (Ogbonna & Unah, 2018).

By promoting transparency, reducing leakages, and improving tax collection, POS transactions create an enabling environment for business expansion and attract investments (Nwaka & Adeniran, 2021). This increased business activity can have a positive impact on economic growth. Moreover, the accessibility and usage of ATMs are instrumental in the cashless policy. Enhancing access to ATMs encourages greater utilization of electronic banking services and reduces dependence on physical cash. This, in turn, promotes financial inclusion, mobilizes savings, and provides a solid foundation for productive investments (Nnanna & Dogo, 2019). These factors contribute positively to economic growth by fostering a more efficient and inclusive financial system.

While the cashless policy offers significant potential for promoting economic growth, there are challenges that need to be addressed. Limited infrastructure, especially in rural areas, and inadequate network coverage pose obstacles to the effective implementation of the cashless policy (Nwaka & Adeniran, 2021). Additionally, low levels of financial literacy among some segments of the population may hinder the adoption of electronic payment methods. Overcoming these challenges through investment in technological infrastructure and financial education programs is crucial to fully harnessing the benefits of the cashless policy. In conclusion, the cashless policy, including web-based transactions, POS transactions, and ATM transactions, can have a positive impact on economic growth in Nigeria. The promotion of efficiency, transparency, and financial inclusion through these electronic payment methods stimulates business activity, attracts investments, and fosters a more inclusive financial system. However, addressing challenges related to infrastructure and financial literacy is necessary to maximize the potential impact of the cashless policy on economic growth.

Adu and Williams (2023) argued that cash-based transactions can pose challenges for those living in remote or underserved areas without easy access to physical bank branches or ATMs. By encouraging the adoption of electronic payment methods, such as mobile banking, debit/credit cards, and online transfers, the policy aims to make financial services more accessible to a larger segment of the population, facilitating their participation in economic activities and fostering inclusive growth (Central Bank of Nigeria, 2017). For instance, a study by Adenikinju (2013) found that the policy contributed to a reduction in cash usage and an increase in electronic

transactions, leading to improved efficiency and effectiveness in the payment system. The study also highlighted the potential for increased revenue generation for both the government and financial institutions.

Nigeria as nation has been recognized as having the latent for attaining universal competitiveness based on her economic and demographic settings. But a major constraint to this attainment is the cash base system which nullifies the global trends. The apex Bank CBN in its attempt to salvage this designed a cashless economy with objective of achieving an environment where a higher proportion of transactions are done through the electronic channels. However, the impeding infrastructural decay, inefficient security system on financial information and the high rate of cybercrime impedes or limits efficient and effective electronic payment system which in turn will the negatively affect the attainment of objective of cashless policy in Nigeria as suggested by Ogwumike and Oboh (2021). The laudable nature of cashless policy is not questionable, but the inefficient nature of the network system in Nigeria is too poor to encourage electronic payment channels especially in rural areas where business activities are carried by petty traders in high volumes and there are no network for calls let alone transfers and other services.

Efforts are being made by the government, regulatory bodies, and financial institutions to address these challenges and promote the safe and widespread use of cashless transactions in Nigeria. In conclusion, cashless transactions in Nigeria have become a vital component of the country's financial ecosystem. They offer convenience, speed, transparency, and security, allowing individuals and businesses to engage in various financial activities online. With ongoing developments in digital infrastructure and initiatives to enhance digital literacy, web-based transactions are poised to play an even more significant role in the future of Nigeria's financial landscape.

Several other studies (for instance, Adu & Williams, 2023; Nwani, Nwaimo & Kanu, 2020; Ibe & Odi, 2018; Adu, 2016; Tee & Ong, 2016; Ezeamama, Ndubuisi, Marire & Mgbodile, 2014; Imagha, et. al.,2023) have been carried out in Nigeria on the impact of CBN cashless policy on the economy but lacked consensus. Thus, the results from their studies cannot be replicated and generalised on the whole economy. In view of this, this present study is aimed at bridging this gap by assessing the relationship between cashless policy and economic growth in Nigeria using secondary data relating to the economy generally. Web-based transactions, POS transactions and ATM transactions served as predictor variables for cashless policy while the dependent variable (economic growth) was proxied by real gross domestic product of Nigeria.

The main objective of this study was to examine the relationship between cashless policy and economic growth of Nigeria. However, the specific objectives were to:

To ascertain the relationship between web-based transactions and real GDP of Nigeria

To establish the relationship between POS transactions and real GDP of Nigeria

To investigate the relationship between ATM transactions and real GDP of Nigeria

Conceptual framework

The conceptual relationships between the variables are as shown below.

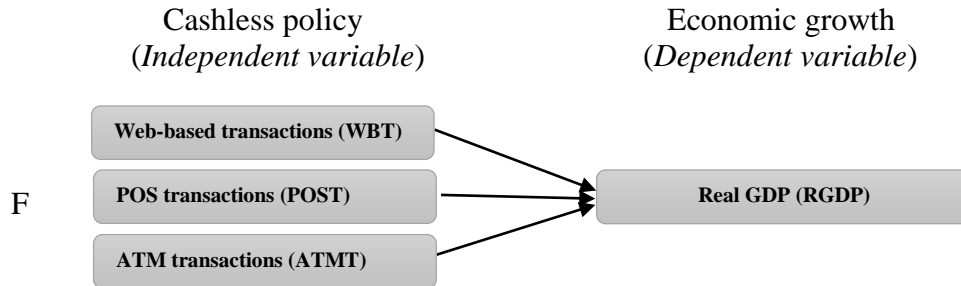


Fig 2.1: Conceptual framework of variables

Source: Researcher's compilation (2024)

Cashless policy in Nigeria

The concept of cashless policy in Nigeria refers to the promotion and adoption of electronic payment systems as an alternative to physical cash transactions. It was introduced by the Central Bank of Nigeria (CBN) as part of its efforts to modernize the country's payment system, enhance efficiency, and reduce the dependence on cash. Nwani, Nwaimo and Kanu (2020) opined that cashless policy is aimed at promoting a more secure, convenient, and transparent payment ecosystem, contributing to economic growth and financial inclusion. One of the key motivations behind the implementation of the cashless policy is to reduce the costs associated with cash handling, such as printing and distribution, security, and the risk of counterfeiting. In its "Roadmap for the Nigerian Payment System" document, the CBN highlights that the shift from cash to electronic payments can result in significant cost savings for individuals, businesses, and the overall economy (Central Bank of Nigeria, 2013). Furthermore, the cashless policy seeks to address issues related to financial inclusion and accessibility.

However, it is important to note that the cashless policy has faced some challenges and criticisms. One major challenge has been the limited infrastructure for electronic payment systems, particularly in rural areas. Additionally, concerns have been raised regarding cyber security, consumer protection, and the need for adequate safeguards to ensure the privacy and security of electronic transactions (Oneill, Bello, Adebisi, & Ogungbire, 2020). To address these challenges, ongoing efforts are being made by the CBN and other stakeholders to enhance infrastructure, promote digital literacy, and strengthen regulatory frameworks for electronic payments as opined by Ogbeide and Fapohunda (2017). In conclusion, the cashless policy in Nigeria aims to promote the use of electronic payment systems as an alternative to cash transactions. It seeks to enhance efficiency, reduce costs, promote financial inclusion, and foster economic growth. While there

have been challenges, the policy has demonstrated positive impacts and ongoing efforts are being made to address limitations and ensure a secure and accessible payment ecosystem.

Web-based transactions

Web-based transactions in Nigeria refer to the process of conducting financial transactions, such as payments and transfers, through internet-based platforms. According to Uzochukwu and Okoli (2016), and Imagha, et. al (2023) with the increasing penetration of internet services and the steady growth of e-commerce, web-based transactions have become an important avenue for individuals and businesses to engage in various financial activities conveniently and securely. Web-based transactions in Nigeria are facilitated by various online payment platforms, such as Paystack, Interswitch, Flutterwave, and Quickteller. These platforms provide users with the ability to make payments for goods and services, transfer funds between bank accounts, pay bills, and even initiate international transactions. The convenience of web-based transactions allows users to carry out these activities from the comfort of their homes or offices, eliminating the need for physical presence at banks or other financial institutions (Nwaka & Adeniran, 2021).

One of the advantages of web-based transactions is the speed of processing. Transactions carried out online are typically processed within seconds or minutes, allowing for instant confirmation and receipt of payment. This is particularly beneficial for e-commerce businesses, as it enables them to provide a seamless customer experience and reduce delays in the order fulfillment process. Additionally, web-based transactions offer a greater level of transparency and security compared to traditional cash-based transactions. Online payment platforms utilize encryption protocols and secure authentication processes, protecting sensitive financial information from unauthorized access. Furthermore, users can easily track and monitor their transaction history, providing a transparent and auditable record of their financial activities. However, it is important to note that challenges exist in the adoption and implementation of web-based transactions in Nigeria. These challenges include inadequate digital infrastructure, low digital literacy rates, and concerns regarding data privacy and cyber security (Adeleye, Omotayo & Omolewa, 2020).

POS transactions

POS (Point of sale) transactions in Nigeria refer to the process of conducting financial transactions using a point-of-sale terminal, typically through debit or credit cards. This method of payment has gained popularity in recent years due to its convenience, speed, and security as suggested by Uzochukwu and Okoli (2016). In Nigeria, POS terminals are widely used by businesses, especially in retail stores, restaurants, and service industries. They allow customers to make payments for products and services by swiping or inserting their debit or credit cards into the terminal, which then communicates with the card issuer to authorize the transaction and transfer funds from the customer's account to the merchant's account. Customers no longer need to carry large amounts of cash and can easily make secure payments using their cards (Nnanna & Dogo, 2019).

In terms of security, according to Imagha, et. al (2023), POS transactions in Nigeria adhere to international standards and employ various security measures to protect sensitive cardholder information. However, challenges persist in the adoption and usage of POS transactions in Nigeria. Limited access to POS terminals in rural areas, occasional network connectivity issues, and the prevalence of cash-based transactions are among the factors that hinder the widespread adoption of POS systems (Dike, 2020). Efforts are being made by the government and financial institutions to address these challenges and promote the use of POS transactions in Nigeria. Initiatives such as the Cashless Policy by the CBN aim to reduce the reliance on cash transactions and encourage the use of electronic payment methods, including POS transactions.

ATM transactions

ATM (Automated Teller Machine) transactions in Nigeria refer to the process of conducting financial transactions using an ATM machine, which allows individuals to withdraw cash, deposit funds, check balances, transfer money between accounts, and perform other banking activities without needing to visit a physical bank branch (Nnanna & Dogo, 2019). ATMs have become an essential part of the Nigerian banking system, providing convenience and accessibility to customers. The Central Bank of Nigeria (CBN) has made significant efforts in promoting the use of ATMs in the country, resulting in their widespread adoption by both banks and customers. One of the main advantages of ATM transactions is the convenience they offer.

Customers can access their bank accounts 24/7 and perform various transactions at their own convenience, eliminating the need to visit a physical bank during working hours. This accessibility has significantly improved customer satisfaction and banking efficiency in Nigeria. ATM usage in Nigeria has seen substantial growth over the years. According to data from the Nigerian Inter-Bank Settlement System (NIBSS), the total volume of ATM transactions increased from about 170 million in 2012 to over 1 billion transactions by the end of 2019 (Nwachukwu, Okeke & Udeh, 2020). This demonstrates the preference of Nigerian consumers for ATM transactions as a convenient and efficient method of banking. The growth in ATM usage reflects the preference of Nigerian consumers for self-service banking. Efforts are being made to improve the accessibility and security of ATM services in order to enhance the overall banking experience for customers in Nigeria.

Concept of economic growth

Economic growth in Nigeria refers to the sustained increase in the country's real Gross Domestic Product (GDP) over a specific period. It is measured by the rise in output, income, employment, and overall economic activity. Economic growth is often seen as a vital indicator of a nation's development and prosperity. Nigeria, as one of the largest economies in Africa, has experienced varying levels of economic growth over the years. Several factors contribute to this growth, including government policies, the performance of key sectors such as oil, agriculture, manufacturing, services, and the overall business environment (Iwayemi, Folarin & Adewuyi,

2018). The discovery and exploitation of crude oil have played a significant role in Nigeria's economic growth. The oil sector has been a major contributor to the country's GDP and export earnings for several decades. However, the reliance on oil revenues as the primary driver of economic growth has made Nigeria vulnerable to external shocks, such as fluctuating global oil prices (Olomola, Adeoti & Babatunde, 2018).

In recent years, there has been an increased focus on diversifying the Nigerian economy to reduce dependence on oil and promote sustainable growth. The government has implemented various policies and programs to develop other sectors such as agriculture, manufacturing, solid minerals, and services. These efforts aim to create a more diversified and resilient economy (Iwayemi, Folarin & Adewuyi, 2018). Challenges exist that have hindered Nigeria's economic growth potential. Issues such as inadequate infrastructure, corruption, insecurity, policy inconsistency, and limited access to finance have impacted the overall economic performance of the country (Onoh, 2020). Addressing these challenges is crucial for sustained economic growth and development in Nigeria. Overall, achieving and sustaining economic growth in Nigeria requires a multifaceted approach that includes diversifying the economy, improving infrastructure, creating an enabling business environment, promoting good governance, and investing in human capital development. These efforts can drive inclusive growth, reduce poverty, and improve the overall standard of living for Nigerians.

Real gross domestic product

Real GDP, or real Gross Domestic Product, is a measure of economic output that takes into account changes in prices over time. It is calculated by adjusting nominal GDP for inflation, providing a more accurate representation of an economy's actual growth. In Nigeria, the introduction of the cashless policy has had implications for real GDP. The cashless policy is an initiative aimed at reducing the use of physical cash in financial transactions, promoting the use of electronic and digital payment systems (Ibe & Odi, 2018). This policy has been implemented to enhance efficiency, reduce corruption, improve financial inclusion, and stimulate economic growth. Introducing electronic payment systems can have positive effects on real GDP. By reducing the reliance on cash, the cashless policy improves transparency, reduces leakages, and facilitates the collection of data for economic planning and decision-making. These factors contribute to a more accurate measurement of economic activity, which is reflected in the calculation of real GDP (Uzochukwu & Okoli, 2016).

The cashless policy also promotes financial inclusion by making banking services more accessible to a larger segment of the population. This increased access to financial services leads to a greater flow of funds, increased savings, and more productive investments, all of which can contribute to higher real GDP (Balli, Basher & Ghassan, 2020). However, the implementation of the cashless policy also comes with challenges. Limited access to financial services, inadequate infrastructure, and low levels of financial literacy among some segments of the population can hinder the

effectiveness of the policy in increasing real GDP. Addressing these challenges and ensuring the policy's inclusivity are crucial for maximizing its impact on economic growth (Ogwumike & Oboh, 2021). In summary, the cashless policy in Nigeria has the potential to positively affect real GDP by improving transparency, promoting financial inclusion, and enhancing the accuracy of economic data. However, addressing challenges related to access, infrastructure, and financial literacy is important to fully realize the benefits of the policy.

Relationship between cashless policy and Real GDP in Nigeria

The relationship between the cashless policy, encompassing web-based transactions, POS transactions, and ATM transactions, and economic growth in Nigeria is multifaceted. The implementation of the cashless policy has the potential to contribute positively to economic growth through various channels.

Firstly, web-based transactions increase efficiency in financial transactions by enabling online purchases and payments. This leads to increased convenience and reduced transaction costs for businesses and consumers. The ease of conducting online transactions promotes economic activity, as it facilitates trade and business transactions, ultimately stimulating economic growth (Ogbonna & Unah, 2018).

Secondly, POS transactions facilitate the transition from cash-based to electronic payments. By encouraging the use of POS machines, the cashless policy promotes transparency, reduces leakages, and improves tax collection. These factors have positive implications for economic growth, as they foster an enabling environment for business expansion and attract investments (Nwaka & Adeniran, 2021).

Lastly, ATM transactions are an integral component of the cashless policy in Nigeria. Increased access to ATMs encourages a greater use of electronic banking services and reduces reliance on physical cash. This accessibility to financial services promotes financial inclusion, enhances savings mobilization, and provides a solid foundation for productive investments, all of which can contribute to economic growth (Nnanna & Dogo, 2019).

However, it is important to acknowledge that challenges exist in the adoption and implementation of the cashless policy. Limited infrastructure, inadequate network coverage, and poor financial literacy among some segments of the population can hinder the effectiveness of these electronic payment methods in driving economic growth. Addressing these challenges through investment in technological infrastructure and financial education programs is crucial for maximizing the benefits of the cashless policy (Nwaka & Adeniran, 2021).

Theoretical framework

Financial inclusion theory by Demirguc-Kunt and Klapper (2012)

The Financial Inclusion Theory, proposed by Asli Demirguc-Kunt and Leora Klapper in 2012, highlights the significance of providing broader access to financial services for fostering economic growth and reducing poverty. This theory posits that when more individuals and businesses have access to formal financial services, they can actively engage in savings, investment, and entrepreneurial activities, leading to positive economic outcomes (Yusuf, 2016). The main aspect of the financial inclusion theory is that increased financial inclusion can contribute to economic growth by stimulating capital accumulation, productivity, and ultimately improving standards of living.

Furthermore, the adoption of cashless transactions improves efficiency and productivity in the Nigerian economy. Digital payments reduce transaction costs, enhance transparency, and streamline financial processes. These efficiency gains benefit various economic sectors, including retail, e-commerce, and services. The resulting productivity improvements can lead to increased economic output and growth, aligning with the principles of financial inclusion (Uzochukwu & Okoli, 2016). Lastly, the cashless policy contributes to the formalization of economic activity in Nigeria. By transitioning from cash-based transactions to digital payments, more transactions become traceable and recorded. This shift promotes transparency and accountability, making it easier for governments to collect taxes, enforce regulations, and implement policies that support economic growth.

Empirical framework

Adu and Williams (2023) examined the effect of cashless policy on financial performance of commercial banks in Nigeria. The objectives include determining the effect of ATM transactions, NEFT transactions, POS transactions, and e-banking transactions on financial performance of commercial banks in Nigeria. The study was panel in nature, requiring data from the annual reports of top five (5) commercial banks in Nigeria. Data were collected for the period between 2013 and 2020. The study utilized E-Views 10 statistical software for the analysis. The study employed regression to investigate how ATM transactions, NEFT transactions, POS transactions, and E-banking transactions have affected performance. The findings revealed that ATM transactions, NIP transaction, mobile banking transactions, and cheque transaction have significant impact of the performance of commercial banks in Nigeria.

Nwani, Nwaimo and Kanu (2020) evaluated the impact of cashless policy on the Nigerian payment system. The operations of a cashless economy were assessed based on the use of Cheques, funds transfer channels and Automated Teller Machines (ATMs). Analysis of data showed that the volume and usage of cheques as a means of financial settlement has failed and was partially replaced by electronic payment systems. Banks are getting more involved in the use of interbank

fund transfers rather than a cash settlement. It was also ascertained that the use of ATM's as a means of financial intermediation is increasing. It is anticipated that the use of ATMs will become even more popular in Nigeria in the near future. To some extent, the outcome of the study has justified the implementation of the cashless policy initiative in Nigeria. However, the innovation and operations of the policy are not without its related limitations. There are various challenges associated with its practice, ranging from poor infrastructural facilities and difficulty in imbibing the e-payment culture due to illiteracy

Madugba (2020) examined the impact of cashless policy on economic growth in Nigeria with the objective of finding out the effect of ATM, POS, RET and WEB on Real Gross Domestic Product in Nigeria. The study employed the ex-post facto and secondary data covering the period 2008 to 2018 gotten from CBN Statistical Bulletin was used for analysis with help of E-view 9 software. Descriptive statistics and multiple regression of least square regression were carried out. This finding of the study showed that ATM, RET and WEB has no significant impact on real gross domestic product while POS was shown to be a significant determinant of real gross domestic product and the study concluded that cashless policy does not impact positively and significantly on economic growth in Nigeria.

Ezeamama, Ndubuisi, Marrie and Mgbodile (2018) examined the impact of central bank of Nigeria cashless policy in Nigeria economy. The objective was to find out if the central bank of Nigeria cashless policy impact positively on Nigeria economy. Survey research designed was adopted and the source of data was primary in which questionnaire was administered to respondents. A total of 500 respondents were selected for the study including traders and students in Lagos state Nigeria. However, this study failed to identify the number of years covered and never stated its major findings.

Ibe and Odi (2018) examined cashless policy models of economic growth: the Nigerian experience. The objective of the study was to find out the effect of cashless policy on Nigeria economy. The ex-post facto research design was adopted and source of data was Central Bank of Nigeria statistical Bulletin and the study covered the period 2009- 2016. The findings of this study show the existence of a long run significant relationship between the variables of cashless policy and economic growth in Nigeria. Also, the ATM seems to be the best and most common means of effecting cashless policy based on the magnitude of its relationship with GDP. Therefore the need to create more awareness to entice the unbanked people into the banking system becomes imperative more so when a large percentage of the Nigerian population is unbanked.

Elechi and Rufus (2016) examined the cashless policy in Nigeria and its socio-economic impact on small scale businesses. The objective of the study was to determine the possible implication of a cashless economy on small scale businesses in Nigeria. With a review of existing literature on the concept of cashless economy and its effect on small scale business. Recommendation on how

to effectively implement the cashless policy in order to encourage small scale business owners to be part of it were highlighted. It was concluded that if necessary measure are not put in place and the necessary stakeholders to the policy carried along with consideration on how the policy may affect them, the cashless policy will adversely affect small scale business and may engineer their failure.

Adu (2016) in his study which had no methodology but its focus was a discussion on origin of cashless policy and its effect both negatively and positively the economy and stakeholders. Among the recommendations made by the study are state's provision of steady electricity and adequate communication is necessary for proper functioning of cashless economy.

A study conducted by Tee and Ong (2016) using data from five European countries Austria, Belgium, France, Germany and Portugal examined the impact of the adoption of cashless payments on their economy as well as to determine the short- and long-run causalities of each payment mode on the economy. The study found causality running among the various payment modes, and that a significant effect of the adoption of cashless payment on the economy of the five countries is evidenced in the long run.

A cross-country study conducted by Zandi, Singh and Irving (2013) using data from 50 countries across the seven continents for the period 2009-2012 examined the impact of long-term shifts to credit and debit cards on economic growth. The study found electronic card payments have a meaningful impact on the world economy with the greatest impact recorded in emerging markets.

Yusuf (2016) examined the relationship between cashless policy and economic growth in Nigeria adopting longitudinal data for non-cash based banking before the cash-less policy and its impact on economic growth and non-cash based banking after cash-less policy and its impact on economic growth. Ordinary least-squares multiple regression models were adopted for the study.. The study found that cheque, point of sale (POS), web and mobile payments as an alternative to cash payments contribute significantly to economic growth. However, their contribution is more evidenced before the introduction of CBN cash-less policy than after the introduction. This may be as a result of the slow rate of growth in the economy stemming from the depreciation of the Naira and falling oil prices.

Mieseigha and Ogbodo (2013) investigated empirical analysis of the benefits of cashless economy on Nigeria's economic development was examined with objective to expose the merits of the cashless economy to Nigeria populace. Considering a sample of 468 out of 520 persons which represent about 90% of the population found that cashless economy has a positive impact on economy development.

Summary of literature review and gap in literature

Numerous studies on the impact of CBN cashless policy in Nigeria have been conducted (Adu & Williams, 2023; Nwani, Nwaimo & Kanu, 2020; Ibe & Odi, 2018; Adu, 2016; Tee & Ong, 2016; Ezeamama, Ndubuisi, Marire & Mgbodile, 2014; Duke II, et. Al, 2013), but they lack consensus and their findings cannot be replicated or generalized to the entire economy. Therefore, this current study aims to address this gap by examining the relationship between cashless policy and economic growth in Nigeria using comprehensive secondary data. Additional gaps in the literature include the need for a broader analysis encompassing various economic aspects and a more cohesive understanding of the overall impact on the Nigerian economy.

Research design

This study adopted the *ex-post facto* design. It is *ex-post facto* given that the relevant materials will be gathered from such sources as textbooks, journal articles, the internet. The study adopted a case study approach which implies that Nigeria is a case study of the study. According to Okpo, and Emenyi (2023); Emenyi, and Okpokpo (2023) and Simeon & Essien, (2021) and Okpo, Umoren and Simeon, (2024), Population refers to the entire group of people, items or things of interest that the researcher wishes to investigate and from which the sample is drawn and studied. Thus, there was no well-defined population for this study. Since this study adopts Nigeria as a case study, the period covered (2013-2022) was adopted as the sample for this study. Hence, the study sample stood at 10 years. This study made use of secondary data obtained from the Nigerian Stock Exchange fact books, National Bureau of statistics (NBS) and Central Bank of Nigeria statistical bulletins for the various years under study. The collected data for this study were computed and analyzed using descriptive statistics and multiple linear regression tools with the aid of SPSS 20.0 software. The decision was based on 5% level of significance. Accept null hypothesis (H_0) if probability value (i.e. P-value or Sig.) is greater than or equals to (\geq) stated 5% level of significance (α); otherwise, reject and accept alternate hypothesis (H_1), if p-value or sig. calculated is less than 5% level of significance (Emenyi and Okpokpo, 2023; Okpo, Umoren and Simeon, 2024; Okpo and Emenyi, 2023; Simeon and Essien, 2021) The null hypothesis will be accepted if the computed p-value is greater than the significant level of 0.05 level ($p > 0.05$). Otherwise, confirm the null hypothesis if the computed p-value is less than or equal to the significant level ($p \leq 0.05$)

Model specification and operationalization of variables

To achieve the stated objectives of the study, as well as testing the study hypotheses, a multiple linear regression model was adopted as follows;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \mu \dots \dots \dots \text{eqn 1.}$$

Where;

Y = Cashless policy (dependent variable)

X = Economic development (explanatory/independent variable)

Explicitly, the equation was defined as:

Cashless policy = f (Economic growth) + μ

Therefore, the broad model for this study was modified as;

$$RGDP = \beta_0 + \beta_1WBT + \beta_2POST + \beta_3ATMT + \mu \dots \dots \dots \text{eqn 2.}$$

Where;

- RGDP = Real gross domestic product
- WBT = Web-based transactions
- POST = POS transactions
- ATMT = ATM transactions
- β_0 = Intercept or regression constant
- $\beta_1, \beta_2, \beta_3$ = Regression coefficients
- μ = Stochastic error term.

Table 3.2 Operationalization of variables

Concept	Proxy	Measurement	Source
Cashless policy <i>(Independent variable)</i>	Web-based transactions	Volume of transactions carried out on the internet either using a card issued by Nigerian banks or internet banking platform.	Madugba (2020), Yusuf (2016)
	POS transactions	Volume of transactions carried out at point of sale using a card issued by Nigerian banks	Madugba (2020), Yusuf (2016)
	ATM transactions	Volume of transactions processed at ATMs nationwide.	Madugba (2020), Duke II et.al (2013)
Economic growth <i>(Dependent variable)</i>	Real GDP	Defined as gross domestic product (GDP) divided by the consumer price index	Madugba (2020), Tee and Ong, 2016; Yusuf (2016)

Source: Author’s compilation, 2024

This study on the cashless policy and economic policy of Nigeria has several limitations that need to be considered. Firstly, the availability and reliability of data could potentially impact the quality of the findings. Secondly, it is important to note that the results may not be generalizable to other countries or regions with different socio-economic contexts. Additionally, establishing a causal relationship between the cashless policy and economic growth is challenging due to the presence of confounding variables.

Other factors such as government policies, external shocks, or market conditions may influence economic growth, making it difficult to isolate the direct impact of the cashless policy. Moreover, the study might have limitations in terms of analysing the long-term effects of the cashless policy, as economic outcomes often take time to materialize. External factors such as global economic trends, political stability, and technological advancements also need to be accounted for. Finally,

the methodology used in the study may introduce biases or limitations that could impact the accuracy and reliability of the findings.

Data presentation

The data comprised of total volume of web-based transactions, POS transactions, and ATM transactions as well as Real GDP of Nigeria for the relevant years (2013-2022). The data is presented in table 4.1 below.

Table 4.1 Dataset

YEAR	RGDP (₦'B)	WBT	POST	ATMT
2013	63,218.72	2,900,473	9,418,427	295,416,724
2014	67,152.79	5,567,436	20,817,423	400,269,140
2015	69,023.93	7,981,361	33,720,933	433,695,748
2016	67,931.24	14,088,247	63,715,203	590,238,934
2017	68,490.98	28,991,097	146,267,156	800,549,099
2018	69,799.94	50,815,901	295,890,167	875,519,307
2019	71,387.83	103,497,007	438,614,182	839,819,922
2020	70,014.37	3,432,692,730	382,845,859	968,433,479
2021	72,393.67	10,321,579,925	2,743,555,841	1,599,187,337
2022	75,768.95	14,063,927,436	3,885,782,065	1,506,991,903

Source: CBN statistics and reports

Data analysis

The data for this were analyzed using descriptive statistics and multiple regression tools.

Descriptive statistics

The descriptive statistics analysis was conducted on each of the dependent and independent variables in the study. However, the descriptive statistics result is presented in table 4.2 below

Table 4.2 Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
RGDP	10	63218.72	75768.95	69518.2420	3337.62757
WBT	10	2900473.00	14063927436.00	2803204161.3000	5137523687.02198
POST	10	9418427.00	3885782065.00	802062725.6000	1360023364.82919
ATMT	10	295416724.00	1599187337.00	831012159.3000	441858058.31207
Valid N (listwise)	10				

Source: SPSS 20.0 Output (2024)

Table 4.2 above presents the descriptive statistics of the various predictor variables namely Web-based transactions, POS transactions and ATM transactions. It also contain the descriptive statistics for dependent variable-Real GDP. The table provides information on the number of observations (N), the minimum and the maximum values, the mean and the standard deviation for

each of the variables. For Real GDP, the dataset consist of 10 observations. The minimum value reported is 63218.72, while the maximum is 75768.95. The mean for this variable is 69518.2420, with a standard deviation of 3337.62757.

Similarly, for web-based transactions, there are 10 observations. The minimum value is 2900473, and the maximum is 14063927436. The mean for this variable is 2803204161.3000 with a standard deviation of 5137523687.02198. Regarding POS transactions, there are 10 observations as well. The minimum value reported is 9418427, while the maximum value is 3885782065. The mean value is 802062725.6000 with a standard deviation of 1360023364.82919.

Finally, ATM transaction has 10 observations with minimum and maximum values of 295416724 and 1599187337 respectively. In addition, the mean value and standard deviation were 831012159.3000 and 441858058.31207 respectively. These figures represent the central tendencies and variability of the variables.

Test of hypothesis

The research hypotheses were tested in this section of the study. The test was carried out using Ordinary least square regression with the model specification shown in the previous section using SPSS version 20 software. The decision rule as stated in the previous section was strictly adhered to. The result of the analysis is as shown thus;

Table 4.3 Model Summary^b

Model	R	R Square	Adjusted Square	R	Std. Error of the Estimate	Durbin-Watson
1	.885 ^a	.784	.676		1899.73214	1.882

a. Predictors: (Constant), ATMT, WBT, POST

b. Dependent Variable: RGDP

Source: SPSS 20.0 Output (2024)

Table 4.4 ANOVA^a

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	78603927.004	3	26201309.001	7.260	.020 ^b
	Residual	21653893.237	6	3608982.206		
	Total	100257820.241	9			

a. Dependent Variable: RGDP

b. Predictors: (Constant), ATMT, WBT, POST

Source: SPSS 20.0 Output (2024)

Table 4.5 Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1 (Constant)	64430.272	1977.740		32.578	.000	59590.917	69269.628		
1 WBT	-5.349	.000	-.823	-.772	.469	.000	.000	.032	31.577
1 POST	2.346	.000	.956	.885	.410	.000	.000	.031	32.406
1 ATMT	5.663	.000	.750	1.865	.111	.000	.000	.223	4.488

a. Dependent Variable: RGDP

Table 4.6 Collinearity Diagnostics^a

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions			
				(Constant)	WBT	POST	ATMT
1	1	3.265	1.000	.01	.00	.00	.00
1	2	.694	2.169	.07	.01	.01	.00
1	3	.029	10.570	.93	.03	.02	.99
1	4	.012	16.556	.00	.96	.97	.00

a. Dependent Variable: RGDP

Source: SPSS 20.0 Output (2024)

Table 4.7 Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	66123.7578	74556.3672	69518.2420	2955.29519	10
Residual	-2905.03833	2062.80835	.00000	1551.12480	10
Std. Predicted Value	-1.149	1.705	.000	1.000	10
Std. Residual	-1.529	1.086	.000	.816	10

a. Dependent Variable: RGDP

Source: SPSS 20.0 Output (2024)

Hypothesis oneH₀₁: Web-based transactions has no significant relationship with real GDP of Nigeria

Based on the decision rule of the study, the null hypothesis one of the study is accepted and the alternate rejected because the p-value of 0.469 shown in table 4.5 is greater than 0.05. The null hypothesis is further rejected because the t-cal value of 0.772 is less than the critical value of t which was 2.228. In addition, a standardized Beta coefficient of -0.823 indicates an inverse relationship between the variables. Therefore, Web-based transactions has an insignificant inverse relationship with real GDP of Nigeria.

Hypothesis two

Ho₂: POS transactions has no significant relationship with real GDP of Nigeria

Based on the decision rule of the study, the null hypothesis two of the study is accepted and the alternate rejected because the p-value of 0.111 shown in table 4.5 is greater than 0.05. The null hypothesis is further rejected because the t-cal value of 1.865 is less than the critical value of t which was 2.228. In addition, a standardized Beta coefficient of 0.956 indicates a positive relationship between the variables. Therefore, POS transactions has a positive insignificant relationship with real GDP of Nigeria.

Hypothesis three

Ho₃: ATM transactions has no significant relationship with real GDP of Nigeria

Based on the decision rule of the study, the null hypothesis three of the study is accepted and the alternate rejected because the p-value of 0.410 shown in table 4.5 is greater than 0.05. The null hypothesis is further rejected because the t-cal value of 0.885 is less than the critical value of t which was 2.228. In addition, a standardized Beta coefficient of 0.750 indicates a positive relationship between the variables. Therefore, ATM transactions has a positive insignificant relationship with real GDP of Nigeria.

DISCUSSION OF FINDINGS

Web-based transaction and real GDP of Nigeria

The study findings revealed that web-based transactions have an insignificant inverse relationship with real GDP of Nigeria. This suggests that there is no significant impact on economic growth through increased online transactions. This implies that the adoption and promotion of online transactions alone may not be sufficient to drive economic growth in the country. It highlights the need to consider additional factors and strategies beyond promoting web-based transactions to stimulate economic growth. This could include addressing issues such as infrastructure development, financial literacy, access to credit, and regulatory frameworks that support a conducive business environment. This position is in line with the findings of Madugba (2020) which showed that WEB transactions have no significant impact on real gross domestic product

POS transactions and real GDP of Nigeria

Conversely, POS transactions have an insignificant positive relationship with real GDP of Nigeria. This implies that the growth of point-of-sale (POS) transactions does not significantly contribute to overall economic growth in the country. This suggests that solely focusing on increasing POS transactions may not be an effective strategy for driving economic development. This position

indicates the need to explore other avenues to stimulate economic growth beyond just increasing POS transactions. This is in consonance with the findings of Madugba (2020) which revealed that POS is significant determinant of real gross domestic product but however concluded that cashless policy has no significantly impact on economic growth in Nigeria.

ATM transactions and real GDP of Nigeria

Similarly, the volume of ATM transactions in Nigeria also have an insignificant positive relationship with Real GDP of Nigeria. This suggests that the growth of ATM transactions does not significantly contribute to overall economic growth. In other words, simply increasing the number of ATM transactions alone may not have a substantial impact on Nigeria's GDP. This finding implies that policymakers and stakeholders should not solely rely on increasing ATM transactions as a solution for driving economic development. This aligns with the findings of Duke II, et. al (2013) and Adu and Williams (2023).. These studies revealed that ATM transactions, NIP transaction, mobile banking transactions, and cheque transaction have significant impact of the performance of commercial banks in Nigeria.

Summary of findings

Below is a summary of this present study's key findings;

1. Web-based transactions has an insignificant inverse relationship with real GDP of Nigeria.
2. POS transactions has a positive insignificant relationship with real GDP of Nigeria.
3. ATM transactions has a positive insignificant relationship with real GDP of Nigeria.

CONCLUSION

Based on the analysis of variance (ANOVA) as shown in table 4.4, the F-change test suggests that the model is statistically significant ($p\text{-value} = 0.020 < 0.05$). This implies that the joint effect of the predictor variables (Web-based transactions, POS transactions and ATM transactions) is statistically significant. In view of this, it is however concluded that cashless policy plays a critical role in improving the economic growth of Nigeria.

Recommendations

Based on the findings, the following recommendations have been put forward.

1. Although web-based transactions showed an insignificant inverse relationship with real GDP, it is essential to focus on improving this aspect. Policymakers should prioritize initiatives that promote secure online transactions, such as implementing robust cyber security measures and ensuring a reliable internet infrastructure. Additionally, efforts should be made to enhance digital literacy among the population to facilitate increased adoption of web-based transactions.
2. While POS transactions showed a positive insignificant relationship with real GDP, there is potential for further development in this area. Policymakers should encourage the

adoption of POS machines by small businesses, particularly in rural and underserved areas. Additionally, efforts should be made to streamline the process and reduce transaction costs associated with POS transactions.

3. Despite the positive insignificant relationship between ATM transactions and real GDP, it is important to focus on removing barriers that hinder the impact of ATMs on economic growth. This includes improving ATM accessibility, especially in remote areas, and addressing connectivity challenges. Policies should also be put in place to promote financial inclusion and educate the general population on the benefits and effective utilization of ATMs.

Contribution to knowledge

The following are among this present study's key contributions to knowledge.

1. It provides empirical evidence on the significance and direction of these relationships, highlighting the impact of these transaction methods on the overall economy.
2. By analyzing the impact of different transaction methods on real GDP, the study offers valuable insights into their relative effectiveness in contributing to economic growth.
3. The study's findings have practical implications for promoting financial inclusion in Nigeria. It provides evidence on the role of web-based transactions, POS transactions, and ATMs in contributing to economic growth, which can be used to develop policies and interventions aimed at increasing access to and usage of these transaction methods among individuals and businesses.

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APPENDICES

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
RGDP	10	63218.72	75768.95	69518.2420	3337.62757
WBT	10	2900473.00	14063927436.00	2803204161.3000	5137523687.02198
POST	10	9418427.00	3885782065.00	802062725.6000	1360023364.82919
ATMT	10	295416724.00	1599187337.00	831012159.3000	441858058.31207
Valid (listwise)	N 10				

Model Summary^b

Model	R	R Square	Adjusted Square	R	Std. Error of the Estimate	Durbin-Watson
1	.885 ^a	.784	.676		1899.73214	1.882

a. Predictors: (Constant), ATMT, WBT, POST

b. Dependent Variable: RGDP

ANOVA^a

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	78603927.004	3	26201309.001	7.260	.020 ^b
	Residual	21653893.237	6	3608982.206		
	Total	100257820.241	9			

a. Dependent Variable: RGDP

b. Predictors: (Constant), ATMT, WBT, POST

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	64430.272	1977.740		32.578	.000	59590.917	69269.628		
	WBT	-5.349	.000	-.823	-.772	.469	.000	.000	.032	31.577
	POST	2.346	.000	.956	.885	.410	.000	.000	.031	32.406
	ATMT	5.663	.000	.750	1.865	.111	.000	.000	.223	4.488

a. Dependent Variable: RGDP

Collinearity Diagnostics^a

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions			
				(Constant)	WBT	POST	ATMT
1	1	3.265	1.000	.01	.00	.00	.00
	2	.694	2.169	.07	.01	.01	.00
	3	.029	10.570	.93	.03	.02	.99
	4	.012	16.556	.00	.96	.97	.00

a. Dependent Variable: RGDP

Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	66123.7578	74556.3672	69518.2420	2955.29519	10
Residual	-2905.03833	2062.80835	.00000	1551.12480	10
Std. Predicted Value	-1.149	1.705	.000	1.000	10
Std. Residual	-1.529	1.086	.000	.816	10

a. Dependent Variable: RGDP