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Impact of Cashless Policy Measures on Financial Inclusion in Nigeria

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Abstract

The current study examines the impact of cashless policy measures (digital payment platforms, point-of-sale (POS) terminals, and debit and credit cards) on financial inclusion in Nigeria. For this purpose, it adopted a cross-sectional research design. The target population comprised Nigerians of various age groups, gender, income levels, and from different geographic locations in the country, who use digital banking services. Using Taro Yamane's sample size determination, a total of 400 customers (respondents) were drawn from the population comprising the customers of commercial banks in Nigeria, which stood at 122,231,000 as of 2021. The study employed simple random sampling technique. This was to ensure that the findings remained representative of the entire population. Both primary and secondary methods of data collection were used. Regression analysis was employed to assess the relationship between cashless policy and financial inclusion, while controlling for demographic variables. The study found that digital payment platforms, such as electronic funds transfer (EFT) and debit and credit cards have a significant positive influence on financial inclusion. Contrary to expectations, the study found that a point-of-sale (POS) terminal seemingly has no significant impact on financial inclusion. It is recommended that governmental entities and regulatory authorities should recognize and endorse the significance of digital payment platforms in augmenting financial inclusivity. The implementation of effective policies and regulations, the cultivation of an environment that supports innovation, and the provision of incentives to financial institutions are key strategies to facilitate the advancement of digital financial services.

***Keywords*:** banking services, cashless policy, digital payment platforms, electronic funds transfer, financial inclusion, and point-of-sale terminals

Introduction

The Nigerian government implemented cashless policy initiatives with the aim to enhance the accessibility to financial services. The cashless policy

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was implemented by the Central Bank of Nigeria (CBN, 2012). The objective was to diminish the nation's reliance on physical currency and promote the utilization of alternate modes of payment. The Cashless Nigeria Project is an ongoing project which encompasses the extensive use of debit and credit cards, mobile banking, and electronic funds transmission. The expansion of digital financial services has been facilitated by the licensing of mobile money providers, resulting in improved accessibility to mobile phone banking. The effectiveness of electronic payments has been enhanced through investments in the payment system infrastructure, including Real-Time Gross Settlement (RTGS) and the National Electronic Funds Transfer (NEFT).

The implementation of cashless policies has effectively made financial services available to individuals who were previously excluded from the banking system. This has been achieved through the expansion of banking agent networks and the proliferation of mobile money services tailored to cater the needs of underserved communities. The utilization of digital financial services by Nigerians, along with an accompanying surge in financial education, has contributed to an enhanced level of financial literacy among the population. Whereas, the implementation of electronic payment systems has resulted in a reduction of expenses related to the handling and transit of physical currency. Consequently, the accessibility of banking services for individuals with lower incomes and also for small enterprises has been enhanced. The potential benefits of a cashless society in terms of economic expansion include the eradication of paper transactions, the mitigation of the underground economy, and the augmentation of tax revenues.

The adoption of cashless policies and the promotion of financial inclusion have progressed gradually, as there has been an increasing recognition and comprehension of the advantages and disadvantages associated with modern financial systems and digital transactions.

The term ‘cashless’ denotes the substitution of conventional cash transactions with electronic ones within the framework of monetary policy. Digital payment platforms have experienced a surge in popularity in recent times due to their capacity to enhance financial inclusivity and transparency of economic transactions, as well as by mitigating the expenses associated with cash management. One notable advancement in the banking industry is the provision of mobile access for consumers to manage their checking,

savings, and loan accounts. The prevalence of electronic payment cards, such as debit and credit cards, has been on the rise in nations with limited access to traditional banking services. These cards are commonly used at point-of-sale (POS) terminals and for online transactions.

Digital currencies serve a dual purpose, that is, as a medium of exchange and as a store of value. They enable the electronic movement of funds between bank accounts through various channels, such as the internet, mobile phones, and automated teller machines (ATMs). Notable instances of digital currencies include Bitcoin, Ethereum, and Ripple.

Furthermore, the implementation of a cashless system potentially enhances the transparency of financial transactions, thereby alleviating the burden of monitoring incoming and outgoing funds. Numerous nations face significant challenges pertaining to corruption and money laundering; nonetheless, the cashless approach can offer potential solutions. In pursuit of this objective, governments and financial institutions globally have implemented a diverse array of legal measures aimed at promoting cashless transactions. Nevertheless, it is imperative to exercise caution in ensuring that these rules are executed in a manner that benefits all individuals.

Overall, cashless policy measures and financial inclusion have been implemented to leverage digital technologies, reduce cash dependency, and expand access to financial services with the aim to enhance efficiency and transparency and to create economic opportunities for individuals and businesses.

Statement of the Problem

There has been a major shift in Nigeria's financial sector beyond an economy based on cash and towards a cashless one. This transition has become a top priority for governments, nonprofits, and enterprises that care about expanding people's access to financial services. There might be several obstacles in Nigeria's shift to cashless policy measures. Many Nigerians, especially those who reside in villages, lack easy access to the traditional banking options.

Indeed, about 65% of Nigerians do not use banking services, according to the Central Bank of Nigeria (2020). The introduction of cashless policy by the Nigerian government, therefore, is aimed to encourage financial inclusion and to minimize fraud in the Nigerian financial system. In view of the above discussion, this study seeks to find out whether the

implementation of cashless policy measures and the use of digital payment platforms has enhanced financial inclusion in Nigeria in Nigeria.

Research Questions

The current study seeks to answer the following research questions.

1. Whether the use of digital payment platforms enhances financial inclusion in Nigeria?
2. Whether the use of debit and credit cards enhances financial inclusion in Nigeria?
3. Whether the point–of-sale (POS) terminals enhance financial inclusion in Nigeria?

Objective

The main objective of this study is to assess the effects of the cashless policy measures on financial inclusion among Nigerians. The sub-objectives are as follows:

1. To ascertain if the use of digital payment platforms enhances financial inclusion in Nigeria.
2. To determine if the use of debit and credit cards enhances financial inclusion in Nigeria.
3. To find out if point-of-sale (POS) terminals enhance financial inclusion in Nigeria.

Research Hypotheses

1. There is no significant relationship between the use of digital payment platforms and financial inclusion in Nigeria.
2. There is no significant relationship between the use of debit and credit cards and financial inclusion in Nigeria.
3. There is no significant relationship between the POS terminals and financial inclusion in Nigeria.

Literature Review

Cashless Policy Measures

Cashless policy measures are defined as a set of initiatives and regulations implemented by the Nigerian government to enhance the use of

digital payment systems for the sake of financial inclusion and to discourage the use of real cash. Hence, the strategy promotes the use of payment cards, mobile payment systems, and online banking, as well the use of other digital payment platforms, over and above the use of real cash in transactions made by both consumers and enterprises (Musa, 2022). Different nations may be motivated to implement cashless legislation for different reasons. Musa (2022) stated the various objectives of cashless policy measures.

1. Reducing cash-related crimes: Cashless transactions can mitigate the risks associated with handling large amounts of physical currency, which can be a target for theft and counterfeiting.
2. Enhancing financial inclusion: Digital payment systems can make accessible financial products and services for those who may not have the opportunity to use traditional banking facilities, thus promoting financial inclusion.
3. Increasing transparency: Since electronic transactions create a trail of electronic evidence, it's simpler to keep control on money flows, potentially reducing corruption and tax evasion.
4. Boosting economic growth: Cashless transactions can contribute to the formalization of the economy and facilitate easier recording of economic activities, leading to better economic planning and policymaking.
5. Improving convenience: Digital payment methods can offer faster, more secure, and convenient ways to make transactions, reducing the need to carry physical cash.

Digital Payment Systems

Digital payment systems refer to technology-based platforms and processes that enable individuals and businesses to make financial transactions electronically, replacing the traditional cash and check-based payments. Online banking, mobile wallets, EFT, and cryptocurrencies such as Bitcoin are some of the many services that fall under the umbrella of digital payment systems. The broad adoption of electronic payment methods is attributable to their perceived safety, speed, and efficiency (Jones & Johnson, 2019).

Financial Inclusion

Rapid economic growth and poverty reduction necessitate the provision of financial services to a broad segment of the population. The concept of 'financial inclusion' pertains to the accessibility and utilization of financial services by individuals and enterprises, particularly those situated at the periphery or excluded from conventional financial institutions. The indicators of financial inclusion encompass the total number of bank customers, bank branches, automated teller machines, and point-of-sale terminals (Nanda & Kaur, 2016).

Empirical Studies

Omodero (2021) examined the impact of Fintech on the financial sector, specifically focusing on the transformative effects it has had on the economy, as well as the utilization of digital currency. The widespread recognition and comprehension of Fintech developments, specifically e-money solutions, inside Nigeria's financial industry remains limited. Despite the numerous economic advantages associated with this innovation, physical currency continues to be extensively utilized for financial transactions. The tendency to conduct transactions involving deposits and withdrawals from bank accounts through the utilization of physical currency remains, specifically in the form of cash. The electronic money products offered by banks comprise the independent variable, whereas the dependent variable is the Gross Domestic Product (GDP). The dataset encompasses the time period 2006-2019 and is subjected to analysis using various multiple regression techniques, while employing E-views software. The findings indicate that the various electronic money (e-money) solutions offered by the banks have a notable positive impact on the economy, with the exception of POS systems, which have not yet gained widespread acceptance

Muotolu and Nwadialor (2019) conducted a study to assess the impact of the cashless policy reforms implemented by the Central Bank of Nigeria on the financial outcomes of deposit money banks inside the country. A sample of 14 banks in Nigeria was randomly chosen and their panel data spanning from 2012 (the initial implementation of the policy in Nigeria) to 2017 was obtained. The study revealed that cashless policy measures have increased the total value of transactions conducted through various electronic banking products. Electronic banking products includes; ATMs,

POS terminals, online banking, national rapid payment systems, and EFT platforms.

Ogbeide (2019) carried out a study to assess the effects of cashless policy initiatives on economic growth and financial inclusivity of Nigeria. The data was obtained from the Economic Reports and Statistical Bulletin of the Central Bank of Nigeria. Subsequently, the ordinary least squares (OLS) method was employed to examine the collected data. The findings indicated that the association between the cashless policy measures and financial inclusion in both urban and rural regions of Nigeria was consistently weak. The study also revealed that the implementation of cashless policy measures in Nigeria yielded a discernible rise in consumer deposits held at commercial banks. In metropolitan regions, a notable and statistically significant association was found to exist between the density of ATMs and specific indicators of financial inclusion.

Mamudu and Gayovwi (2019) conducted an analysis to examine the possible advantages and disadvantages of a cashless economy, along with the primary obstacles linked to its implementation. They employed quarterly time series data to examine the adoption of cashless policy measures and their impact on the Nigerian economy. The variables used as proxies for this analysis included check clearing, ATM payments, POS transactions, web and internet transfers, mobile payments, and NEFT. The findings revealed the existence of a long-term association among the variables CHEV, ATMV, POSV, MOBP, and GDP based on Johansen cointegration technique. Additionally, the results obtained from the Phillips-Perron test indicated that all variables, except for NEFT, were stationary at level/first difference. NEFT, on the other hand, was found to be integrated at level 1(0). Furthermore, the Johansen cointegration technique revealed that NEFT exhibited integration at level 1(1). The regression analysis suggested that the implementation of cashless policy measures, including the use of ATMs, online banking, and NEFTs, has a significant and favorable impact on the Gross Domestic Product (GDP) of Nigeria.

Ene et al. (2019) examined the effects of electronic banking on financial inclusion in Nigeria, yielding noteworthy results. Financial inclusion has garnered extensive global endorsement as a crucial catalyst for inclusive economic growth and development. The study revealed that electronic banking has enhanced financial inclusion in Nigeria.

During the early 2000s, governmental and banking-associated financial institutions explored strategies to reduce dependence on physical currency and to enhance the prevalence of electronic transactions, in response to the advent of the digital era and the expansion of electronic payment systems. The primary aim was to enhance the efficiency and cost-effectiveness of financial transactions, concurrently with augmenting their transparency.

Research Gap

Existing literature on the topic often lacks a thorough investigation of how cashless policy measures affect different segments of the population. To fill this gap, it is needed to determine if this policy contributes to widen or deepen preexisting income gaps, particularly for disadvantaged populations, low-wage employees, and rural residents. In Nigeria, there is lack of resources discussing the safety and reliability of online payment systems. Hence, people's trust in the safety of cashless transactions, procedures used to avoid fraud, and the prevalence of hacking needs to be determined. The effectiveness of cashless policy initiatives over the long term is not yet known. Consequently, this study addresses the knowledge gap concerning the impact of the Central Bank of Nigeria's cashless policy initiatives on the country's efforts to broaden access to formal financial services.

Theoretical Framework

The TAM theoretical framework, was propounded by Davis et al. (1989), serves as the backbone of this investigation. In the domain of technological innovation, a tool known as the Technology Acceptance Model (TAM) has been established with the aim to simulate how customers respond to and make use of a new technology that helps the economy to advance. According to this concept, there are a number of elements that form the basis of consumers' judgements regarding when and how they utilize a new piece of technology. Davis et al. (1989) defined ‘perceived ease-of-use’ as “the degree to which a person believes that using a given system would be devoid of effort.” Davis et al. (1989) created the model that Pikkarainen et al. (2004) later employed.

Methodology

The target population comprised Nigerians of various age groups, gender, and income levels, and from different geographic locations, who use digital banking services. The study focused on specific subpopulations,

such as urban and rural residents or individuals with varying levels of financial literacy. The current study adopted the cross-sectional research design. This design allows the researchers to collect data at a single point in time, making it suitable to assess the prevailing impact of cashless policy measures on financial inclusion in Nigeria.

Sample Size

Using Taro Yamane's (1967) process for calculating sample size, a total of 400 customers (respondents) were drawn from the population of the customers of commercial banks which stood at 122, 231,000, as of 2021 (Sasu, 2023).

$$n = \frac{N}{1 + N(e)^2}$$

where n = sample size

$$n = \frac{122,231,000}{1 + 122,231,000\ (0.05)^2}$$

$$n = \frac{122,231,000}{1 + 122,231,000\ (0.0025)^2}$$

$$n = \frac{122,231,000}{1 + 305,577.5}$$

$$n = \frac{22,232,000}{305,577.5 \quad n = 400 \text{ Sample size}}$$

The study employed the simple random sampling technique to ensure that the findings remained representative of the entire population. Moreover, stratified sampling technique was used to stratify the sample based on demographic groups (age, income, education) in order to account for diversity. This involved using a random number generator to select participants from different strata. The data comprised both primary and secondary data. The researchers designed a structured questionnaire to collect data on financial inclusion indicators, such as access to banking services, usage of digital financial tools, and financial literacy. Regression analysis was employed using regression models to assess the relationship between cashless policy and financial inclusion, while controlling for demographic variables. Further, difference-in-differences (DID) was used to compare the financial inclusion outcomes for regions with cashless policy

(treatment group) and regions without cashless policy (control group), before and after its implementation. Content analysis was used to analyze qualitative data from the Nigeria Inter-Bank Settlement System (NIBSS), while social network analysis was employed to explore the network effects of the adoption of digital financial services. Moreover, semi-structured interviews were conducted with key stakeholders, including policymakers, financial institutions' representatives, and grassroots organizations to gather qualitative insights into the impact of cashless policy. Secondary data was collected by utilizing existing data sources, such as financial inclusion reports, policy documents, and banking statistics to supplement the primary data.

Data Analysis Techniques

The study used descriptive statistics was used to present the data on financial inclusion indicators. An inferential statistical test (regression analysis) was used to determine whether there were any significant differences in financial inclusion indicators between groups (for instance, before and after policy implementation, urban vs. rural). Regression analysis was performed to identify factors significantly associated with changes in financial inclusion, controlling for relevant covariates. Content analysis was used to analyze the qualitative data collected through interviews, identifying themes and patterns.

Regression Modeling

Multiple Linear Regression Model:

Financial Inclusion=$\beta 0+\beta 1\times$ digital payment platforms Electronic Funds Transfer (EFT)

$+\beta 2\times$ debits and credits cards $+\beta 3\times$ POS terminals $+\beta 4\times$Barriers$+\epsilon$

Financial Inclusion: Dependent variable

Cashless Policy: Independent variable representing the impact of the policy (0 = No Impact, 1 = Impact).

Digital payment Platforms: Electronic Funds Transfer (EFT), debits and credits cards, point-of-sale (POS) terminals

Barriers: Control variables to account for potential confounding factors

$\beta 0$: Intercept

β1, β2, 3β3, 4β4: Coefficients to estimate the impact of each variable

ϵ: Error term

Regression Analysis

Regression analysis was performed using statistical software namely R, Python (with libraries such as NumPy, Pandas, and stats models), and specialized regression software. Coefficients were interpreted to determine the impact of the cashless policy while controlling for other variables.

Data Analysis and Results

Table 1

Model Summary [b]

Model	*R*	R^2	Adjusted R^2	Std. Error	Durbin-Watson
1	.564[a]	.318	.313	.603	.171

Note. a. Predictors: (Constant) fraud incidents comprise a major barrier preventing cashless policy measures from reaching their full financial inclusion potential. These measures are aimed to increase the use of digital payment systems for financial inclusion in Nigeria.
b. Dependent Variable: Financial Inclusion

Table 2

ANOVA[a]

Model		Sum of Squares	*df*	Mean Square	*F*	Sig.
1	Regression	64.086	3	21.362	58.715	.000[b]
	Residual	137.163	377	.364		
	Total	201.249	380			

Note. a. Dependent Variable: Financial Inclusion
b. Predictors: (Constant), digital payment platforms, Electronic Funds Transfer (EFT), debit and credits cards, POS terminals

Table 3

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	*t*	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.595	.128		12.434	.000

Model	Unstandardized Coefficients		Standardized Coefficients	*t*	Sig.
	B	Std. Error	Beta		
Digital payment Platforms (Electronic Funds Transfer (EFT),	.410	.038	.546	10.863	.000
Debits and credits Cards	.438	.024	.570	11.584	.000
, Points of sales (POS) Terminals	.012	.065	.009	.178	.859

Note. a. Dependent Variable: financial inclusion

Research Questionnaire, 2023

The regression analysis examined the relationship between various independent variables (digital payment platforms, debit and credit cards, and POS terminals) and a dependent variable, namely financial inclusion, based on a linear regression model. The value of the constant (intercept) is 1.595. This is the estimated value of the dependent variable (financial inclusion) when all independent variables are zero. The standardized coefficients (Beta) represent the relative importance of all independent variables after standardizing them. They depict the extent to which the dependent variable changes in standard deviation units when the independent variable changes by one standard deviation. Digital payment platforms have the highest standardized coefficient (0.546), followed by debit and credit cards (0.570). It indicates that these variables have a stronger impact on financial inclusion as compared to POS terminals (0.009), which has a very weak impact.

Discussion

The coefficient for EFT is 0.410. In indicates that for each unit increase in EFT, the dependent variable (*financial inclusion*) was estimated to increase by 0.410 units. The t-value is 10.863. The associated *p*-value is very small (0.000), indicating that this variable is statistically significant in predicting financial inclusion. The result of the analysis shows the statistical significance of digital payment platforms, particularly EFT, in predicting financial inclusion in Nigeria.

This finding is in line with study conducted by Fernandes et al. (2020) who's finding also revealed that the use of digital payment systems has been acknowledged as a crucial element in facilitating financial inclusion and broadening the reach of financial services for both individuals and enterprises. Moreso study conducted by Amari and Jarboui (2021) who's finding also revealed that the implementation of the government's cashless policy and the advancement of digital financial services, such as EFT, have played a significant role in fostering the expansion of digital financial inclusion in MENA nations also aligned with the finding of this study. Studies conducted by Amari and Jarboui (2021) as well as Fernandes et al. (2020), emphasized on the significance of digital payment platforms in facilitating individuals' ability to access and utilize financial products and services, hence fostering the advancement of financial inclusion.

The coefficient for the variable debit and credit cards is 0.438. The analysis suggests that for every one-unit rise in the use of debit and credit cards, there was an estimated *increase of 0.438 units in financial inclusion*. The t-value of 11.584, along with the corresponding *p*-value of 0.000, suggests that the variable under consideration holds substantial statistical significance in its ability to predict financial inclusion.

This finding is in line with study conducted by Eldomiaty et al. (2020) who's finding also revealed that debit and credit cards influences financial inclusion. Their finding indicated that the control of corruption, government effectiveness, political stability, and voice and accountability have a substantial impact on the level of financial inclusion. Their also shows credit and debit card ownership as a determinant of financial inclusivity.

Although the statistical significance of POS terminals in predicting financial inclusion may be limited, they can nonetheless contribute to the advancement of entrepreneurship and the growth of businesses. The adoption of POS terminals may be impacted by various incentives and efforts designed to foster and encourage financial inclusion. Moreover, there exists a substantial correlation between financial inclusion and income disparity, potentially serving as a means to alleviate poverty. Hence, although POS terminals may not serve as an exclusive factor in determining financial inclusion, they do form an integral component of a wider range of financial services that have the potential to foster increased inclusion and stimulate economic progress.

The analysis suggests that EFT and debit and credit cards have a significant positive influence on financial inclusion. Any increase the use of these payment methods is associated with/results in higher levels of financial inclusion. On the other hand, POS terminals *do not have a significant impact on financial inclusion*, as indicated by their small coefficient and high *p*-value.

How has the policy increased the number of people with access to banking services in the country?

Table 4

Cashless Policy and Financial Inclusion in Nigeria 2017 - 2022

S/N	Years	Number of Active Bank Customers (Million)
1.	2017	40.4
2.	2018	48.4
3.	2019	61.2
4.	2020	88. 6
5.	2021	122.3
6.	2022	153.2

Note. Sources: Nigeria Inter-Bank Settlement System (NIBSS), National Bureau of Statistic Nigeria, 2017-2022.

According to the Nigeria Inter-Bank Settlement System (NIBSS), 40.4 million adult Nigerians had accounts with money deposit banks in 2017. This number increased to 48.4 million in 2018, 61.2 million in 2019, 88.6 million in 2020, 122.3 million in 2021, and 153.2 million in 2022. The country counted more than 200 million inhabitants and the adult population comprised more than half of the country's population, as of 2021.

Conclusion

This study proves that digital payment platforms, such as EFT and debit and credit cards, have a significant positive influence on financial inclusion. The increased use of these payment methods is associated with/results in higher levels of financial inclusion, as they provide individuals with convenient and secure ways to access formal financial services. On the other hand, POS terminals *do not have a significant impact on financial inclusion*, as indicated by their small coefficient and high *p*-value. While POS terminals play a crucial role in promoting cashless transactions, their direct contribution to financial inclusion may be limited.

Several reasons, including Nigeria's rapidly growing population, which translates into a larger customer base for banks, contribute to the steady rise in the use of financial services. The need for checking and savings accounts grows as more and more people enter the labor force. Furthermore, the government and financial institutions in Nigeria have been making efforts to broaden the use of digital payment systems to promote financial inclusion. More individuals, especially in rural and underserved areas, are using formal banking services thanks to a number of governments sponsored initiatives and policies (such as the National Social Investment Programme, Social Conditional Cash Transfer, Trade Money, and others). The number of people with bank accounts has increased as a result of government programs that promote formal financial inclusion and the use of banking services. Remittances from Nigerians working and living abroad are substantial. To better receive and handle them, many recipients opt to create bank accounts.

Recommendations

The study recommends that

1. Government and regulatory bodies should acknowledge and support the role of digital payment platforms in enhancing financial inclusion. This involves creating a conducive regulatory environment, fostering innovation, and offering incentives for financial institutions to promote digital financial services.
2. Government and regulatory bodies should strengthen data protection and security regulations to instill trust in digital payment platforms. Ensuring that customer data is secure and users have control over their personal information is vital for their widespread adoption
3. Government and regulatory bodies should also ensure that POS terminals are distributed widely, including in rural and underserved areas. Local businesses and financial institutions should collaborate to expand their reach. The regulatory bodies should make POS terminals affordable for small businesses, especially in regions with low income levels.

Knowledge Contribution

Policymakers, financial institutions, and other stakeholders in Nigeria who are working to expand the access to inclusive financial services can benefit greatly from the findings of this study. Further research is needed to

explore the broader implications of POS terminals on financial inclusion and to identify strategies for maximizing their impact.

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