“Impact of financial reforms on digital banking adoption among rural dwellers in South-West Nigeria”

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IMPACT OF FINANCIAL REFORMS ON DIGITAL BANKING ADOPTION AMONG RURAL DWELLERS IN SOUTH-WEST NIGERIA

Abstract

Despite several reforms aimed at financial digitalization, such as the Cashless Policy (CP), Bank verification number (BVN), Linkage of National identification number (NIN) to bank accounts, and the Naira Redesign, a large proportion of Nigeria's rural population remains digitally excluded. This study addresses a pressing gap of whether financial reforms are facilitating sustainable digital banking adoption or compounding existing barriers among rural users in South-west, Nigeria. A cross-sectional survey research design was employed, drawing data from 376 rural dwellers across six South-western states of Nigeria. A structured questionnaire measured rural dwellers' engagement with digital financial services and the influence of key reforms. Using a cross-sectional survey, responses were analyzed through PLS-SEM, where findings revealed that the Cashless Policy ($\beta = 0.192$, $p = 0.008$) and National Identification Number linkage reform ($\beta = 0.332$, $p = 0.000$) significantly enhanced digital banking adoption, while the Bank Verification Number reform ($\beta = 0.069$, $p = 0.396$) and Naira Redesign ($\beta = 0.038$, $p = 0.539$) showed no significant effects. The study concludes that while some reforms have improved financial inclusion, Bank Verification Number and currency redesign policies require a systematic approach to better address rural realities and therefore recommends infrastructure development and user-focused reforms to strengthen rural digital financial participation.

Keywords reforms, inclusion, digitalization, PLS-SEM, rural dwellers

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INTRODUCTION

Nigeria's financial reforms are comprehensive strategies aimed at repositioning the country's economy where the banking sector is pivotal and expected to effectively act as the intermediary among global players in the international financial market (CBN, 2023). Bank reforms in Nigeria are strategic for the effective strengthening of the economy, which promotes financial growth. The financial stability and confidence in the banking system stem from the periodic banking reforms that involve public financial deposits. It involved technological advancements that have encouraged digital transformation to expand financial access. However, a significant portion of the population in Nigeria, in particular, rural dwellers, remains technologically or digitally unreached and hence excluded.

Rural dwellers are the non-urban sector of any region or country, commonly identified by their relatively small settlements lacking modern infrastructure and a heavy emphasis on primary production activities (Babalola & Adagiri, 2020). Overall, rural dwellers are believed to have less access to fundamental services and infrastructure than urban ones, such as adequate roads, housing, schools, hos-

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pitals, libraries, power, and water, all of which would improve their quality of life. The contribution of these rural dwellers to the economy is primarily through agricultural practices and other small-scale businesses, such as carpentry, weaving, sewing, trading, carving, and other traditional arts (Demirguç-Kunt & Klapper, 2013).

The Central Bank of Nigeria (CBN) advocates for and calls for cooperative efforts among stakeholders, including government agencies, banks, and NGOs, to achieve an ambitious 95% financial inclusion target by 2030 (CBN, 2023). It means that the barriers to the impact of financial reforms on digital banking adoption among rural dwellers must be reduced or completely eradicated. Digital banking encompasses services accessed through mobile phones, POS terminals, internet banking platforms, USSD codes, and agency banking models. These platforms are increasingly vital in reaching rural Nigerians who are traditionally excluded from formal banking due to geographical, infrastructural, or socio-economic barriers (Etim et al., 2023). According to the Enhancing Financial Innovation and Access EFInA report (EFInA, 2023), over 45% of Nigerian adults remain financially excluded, with rural dwellers making up a large portion of this population. This study specifically examines the influence of financial reforms on the use of digital banking services among rural dwellers in South-West Nigeria.

1. LITERATURE REVIEW

The CBN implemented the cashless policy (CP) in 2012 to drive a gradual shift from cash transactions to electronic transactions. The policy seeks to minimize cash handling while promoting alternatives such as Point of Sales terminals, Automated Teller Machine use, online banking and card payments (Omotunde et al., 2013; Taiwo et al., 2016). The policy imposes charges on excessive cash withdrawals to discourage bulk cash movement. Theoretically, the reform should reduce banking costs, enhance transparency, and align Nigeria's financial system with global standards (A. Agu & S. Agu, 2020). However, practical implementation has suffered from system failures, poor digital literacy, and resistance among rural populations (Ajayi & Ojo, 1981; Akinyede, 2023). The continued preference for cash highlights a gap between policy design and public readiness. Hence, the long-term success of the cashless policy (CP) depends on infrastructure expansion, behavioral reorientation, and trust-building within underserved communities.

Nigeria's banking sector had long suffered from poor customer verification, identity fraud, and inefficiencies in credit tracking. The 2014 Bank Verification Number (BVN) initiative addressed these challenges by introducing biometric identity verification across all commercial banks in Nigeria. Each customer was assigned a unique number linked to their biometric data, ensuring a single, verifiable identity that transcends multiple accounts. This system aimed to reduce fraud, strengthen Know Your Customer (KYC) frameworks, and create a more transparent banking environment (Taiwo et al., 2016; Claude et al., 2022).

Partial enrolment, especially among rural and informal users, and policy inconsistencies concerning non-signatory beneficiaries of corporate accounts contradict global best practices are some of the gaps encountered (Monye, 2024). Although BVN's effectiveness is further limited by low enrolment among the unbanked and irregularities in inter-bank BVN synchronization. Nevertheless, BVN stands out as a critical security and integrity tool in Nigeria's financial reform arsenal, although it needs broader coverage and stricter compliance for full impact.

The National Identity Number (NIN) was introduced by NIMC in 2007, aimed at addressing this issue by creating a centralized identity database. In 2023, the CBN made the NIN/BVN linkage mandatory for all personal bank accounts, elevating it from a civic requirement to serve as a prerequisite for financial access. The reform now ties digital identity to financial eligibility, reflecting the rising synergy between public infrastructure and private-sector financial systems (CBN, 2023). Nigeria, as a developing economy, must explore financial inclusion not solely for growing the financial sector but more as an engine for driving an inclusive economy (Iriobe et al., 2017). However, sys-

temic exclusions persist among many Nigerians, especially in rural areas, who lack digital literacy, legal documentation, and proximity to enrolment centers. Furthermore, deadlines and the threat of account restrictions triggered panic, which affected voluntary compliance. NIN reform strengthens national security and regulatory transparency; its exclusionary potential must be addressed to prevent marginalization of vulnerable populations (Monye, 2024).

The decision to redesign the ₦200, ₦500, and ₦1,000 notes in 2022 was driven by urgent policy objectives: combating vote-buying, enforcing monetary control, and promoting the adoption of Nigeria's official digital currency (eNaira). The reform of redesigning the naira rapidly escalated into a cash access crisis. Although intended to reduce hoarding and digitize the economy, poor currency distribution, limited adoption of Nigeria's official digital currency (eNaira), and overburdened digital infrastructure led to widespread public frustration. This led to businesses suffering liquidity shortages, and rural dwellers were unable to access banks, resulting in widespread protests due to the reform's social costs (CBN, 2023). However, judicial intervention extended the validity of old notes while public backlash underscored the dangers of poor policy timing and low stakeholder engagement. The failure of Nigeria's official digital currency (eNaira) to fill the gap, combined with technical glitches on mobile platforms, made the reform appear detached from local realities. Ultimately, the naira redesign (NRD) policy reflects the tension between regulatory ambition and implementation pragmatism, offering lessons for future financial reforms in terms of clarity, inclusiveness, and infrastructural preparedness (Monye, 2024).

Digital banking services involve the provision of banking transactions through electronic platforms that allow customers to manage their finances remotely. According to Otioma et al. (2019), the effectiveness of digital banking among rural dwellers depends on factors such as smartphone penetration, network reliability, digital literacy, and transaction affordability. Socio-cultural, educational, and infrastructural limitations influence the mobile platforms' lower entry barriers and adoption.

The efforts to deepen financial inclusion in developing economies, especially among rural and underserved populations, involve theory playing a critical role in shaping policy choices. A key starting point is understanding who truly benefits from financial inclusion. Early frameworks emphasized the poor as the principal beneficiaries (Omar & Inaba, 2020). Feminist economic perspectives, however, have drawn attention to gender gaps, asserting that financial tools empower women and reduce inequality (Ghosh & Vinod, 2017; Swamy, 2014). On the other hand, macro-level economists argue that the financial system and the economy itself benefit more directly from improved capital flows and formalization (Ozili, 2018; Mehrotra & Yetman, 2015).

Systems theory posits that financial inclusion outcomes are contingent upon the alignment of multiple systems, including telecommunications, legal infrastructure, education, and socio-economic norms. A national policy may appear impressive on paper but fail to have an impact if the digital infrastructure or trust in banks is lacking at the community level (Omar & Inaba, 2020). The debate on who should deliver inclusion also shapes the policy landscape. State institutions are trusted in remote areas, and private firms are faster at innovating in urban areas. The delivery theory suggests that a blended approach, which leverages the reach of the state and the agility of Fintech, offers the best path forward (Demirguç-Kunt & Klapper, 2013). Similarly, Public Service Theory suggests that the government should take full responsibility for reaching those who are excluded. It builds trust and demonstrates political will, but also risks inefficiency or politicization. In contrast, financial literacy theory supports demand-side empowerment. Finally, both the finance-growth and special agent theories connect financial inclusion to broader development outcomes. Financial inclusion, when executed well, stimulates investment and boosts GDP.

Nigeria's financial reforms have increasingly emphasized the digitization of financial services as a strategy to deepen financial inclusion and reduce dependency on physical banking infrastructure. The Central Bank of Nigeria (CBN)'s cashless policy (CP), the proliferation of fintech services, and regulatory frameworks surrounding agent bank-

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ing and mobile transactions are all geared toward promoting digital banking, particularly in underserved rural regions.

Ahmad et al. (2022) examined the link between telecommunication, both mobile and fixed mobile money, and the economic growth of 146 countries in a 22-year panel. The findings finally revealed that there is both a direct and indirect link between mobile money and economic growth, and this enhances financial inclusion with its attendant spillover effects on economic growth in the sampled countries. Also, Nma and Callistus (2022) used data from 1981 to 2021 to analyze the influence of financial inclusion on economic growth in Nigeria. The data were taken from CBN statistical bulletins of 2021, and the independent variables evaluated were ATM volume of transactions, POS, online banking technology (WBT), and mobile banking technology (MBT). The ratio of total deposits to GDP indicated financial inclusion. The Granger causality test was performed in pairs. The empirical findings demonstrated that a strong positive association exists between financial inclusion and economic growth in Nigeria. According to the report, even if Nigeria's banking industry faces some difficulties, expanding mobile and online banking services can help the nation's financial inclusion and economic growth.

A broad body of empirical literature evaluates the outcomes of these initiatives. Sani (2024) investigated the naira redesign (NRD) policy and its unintended role in accelerating digital banking reliance. During the period of restricted cash access, many rural dwellers were compelled to explore mobile transfers and USSD platforms. However, his findings reveal that this shift was necessity-driven rather than voluntary, and satisfaction levels remained low due to unreliable platforms and weak support systems, especially in less digitally mature regions like Oyo and Ekiti state.

Otitoju et al. (2023) examined the linkage between digital identity (BVN, NIN) and the uptake of digital financial services. The research suggests that regulatory frameworks requiring digital identification improved security but also imposed entry barriers, especially for the elderly, low-literacy populations, and informal sector workers. It was recommended to use flexible and rural-friendly identity frameworks to support broader adoption of digital banking. Maigari and Yelwa (2023) highlighted the pivotal role of POS agents in Katsina, Nigeria. The study found that POS agents were not only transaction facilitators but also educators and access points for informal users. However, the dependence on agents also created a risk of inconsistent service quality, calling for better agent accreditation, training, and digital monitoring tools.

Accordingly, Eze and Markjackson (2020) evaluated the readiness of rural-dwelling Nigerians for cashless banking and found that desire and willingness are high, provided the tools are affordable, localized, and efficient. They emphasized that many respondents preferred USSD and mobile apps over POS terminals due to their speed, privacy, and independence from third parties (agents). However, limited digital literacy remains a bottleneck, and their findings reinforce the need for targeted digital onboard programs alongside reforms. Chukwuma et al. (2020) reviewed Nigeria's cashless policy and highlighted that while policy implementation succeeded in urban zones, rural rollouts were hindered by digital illiteracy, power failures, and device unavailability. The study highlights the importance of inclusive digital reform design that addresses infrastructure disparities across states.

Ouyang (2021), using evidence from China, demonstrated that platforms such as Alipay facilitated credit access through digital payment history, thereby expanding the financial footprint of underserved users. In Nigeria's rural context, where credit histories are often unavailable, leveraging mobile transaction data for credit scoring can enhance the appeal of digital finance. The study supports the idea that digital reforms must extend beyond transactions to include value-added financial tools, such as microcredit. Anarfo et al. (2020) examined the downside of overregulation in Sub-Saharan Africa. They concluded that while digital banking tools have expanded, rigid financial regulations limit accessibility, especially for unbanked rural users. Nigeria's USSD surcharge debate and delayed network integration have a significant impact. The study recommends establishing regulatory sandboxes to facilitate greater experimentation and flexibility in rural digital finance deployments.

Agbaeze (2020) focused specifically on the elasticity of digital tools such as ATM, POS, and mobile banking. It was observed that ATMs and mobile banking platforms significantly outperform POS terminals in increasing digital adoption. The research suggests that policy should prioritize ATM expansion and mobile network improvements, rather than focusing solely on agent banking, which may suffer from trust and liquidity challenges in rural areas.

2. AIMS AND HYPOTHESES

This study examined the influence of financial reforms on digital banking services adoption among rural dwellers in South-West Nigeria. To achieve this, the following hypotheses were stated.

H_{01}: *Financial reforms (cashless policy, bank verification number, national identity number & naira redesign) do not significantly affect access to bank services among rural dwellers in south-west Nigeria.*

H_{02}: *Financial reforms (cashless policy, bank verification number, national identity number & naira redesign) do not significantly affect digital banking services among rural dwellers in South-West Nigeria.*

H_{03}: *Financial reforms (cashless policy, bank verification number, national identity number & naira redesign) do not significantly influence the quality of financial services among rural dwellers in south-west Nigeria.*

3. METHODS

The study employed a quantitative and expo-facto research design through the use of a self-structured questionnaire administered directly to relevant respondents using a cross-sectional survey method. Administered questionnaires were used to ascertain the influence of financial reforms on residents of rural areas in the southwestern states of Nigeria.

The population of rural dwellers is unknown; therefore, the researcher adopts Cochran's formula to determine the sample size and appropriately examine the impact of financial reforms and financial inclusion in the South-West states of Nigeria. The sampling technique adopted in the study is the stratified, simple random, and purposive sampling method. The stratified sampling method enables the researcher to distribute the questionnaire proportionately across the selected state. Cochran's sample size determination was used to determine the necessary sample size, and the Cochran's formula is expressed as:

$$n = \frac{Z^2 P(1-p)}{e^2}, \tag{1}$$

where Z is the confidence interval (0.05%) or standard Z-score = 1.96, p = population proportion (p = 0.5), q = proportion of the target population (q = 1 – p), and e is the acceptable sampling error (e = 0.05).

$$n = \frac{\left((1.96)^2 (0.5)(0.5)\right)}{(0.05)^2} = 385. \tag{2}$$

The study used a stratified, simple random, and purposive sampling method to distribute the sample across the states participating in the study. The distribution across the states is shown in Table 1

Table 1. Sample distribution across the South-West states

Source: Author's compilation (2025).

States	Population (2006 census)	Purposive Sampling areas	Stratified sampling
Ogun	3,751,140	Olokuta, Odeda	52
Lagos	9,113,605	Imota, Eredo, Igbogbo	127
Osun	3,416,959	Tonkere, Otan-Ile	47
Oyo	5,580,894	Tewure Olokoto-Iju	78
Ondo	3,460,877	Obasooto, Eporo	48
Ekiti	2,398,957	Osan-Ekiti, Esure-Ekiti	33
Total	27,722,432		385

The structure of the questionnaire consists of a five-point Likert scale (Likert, 1961), which ranged from "Strongly Agree" (1) to "Strongly Disagree (5) for all the focal constructs of the study. These were used to reflect the measures of responses to the items. A Likert-type questionnaire assessed respondents' digital banking practices, including

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Source: Researchers (2025).

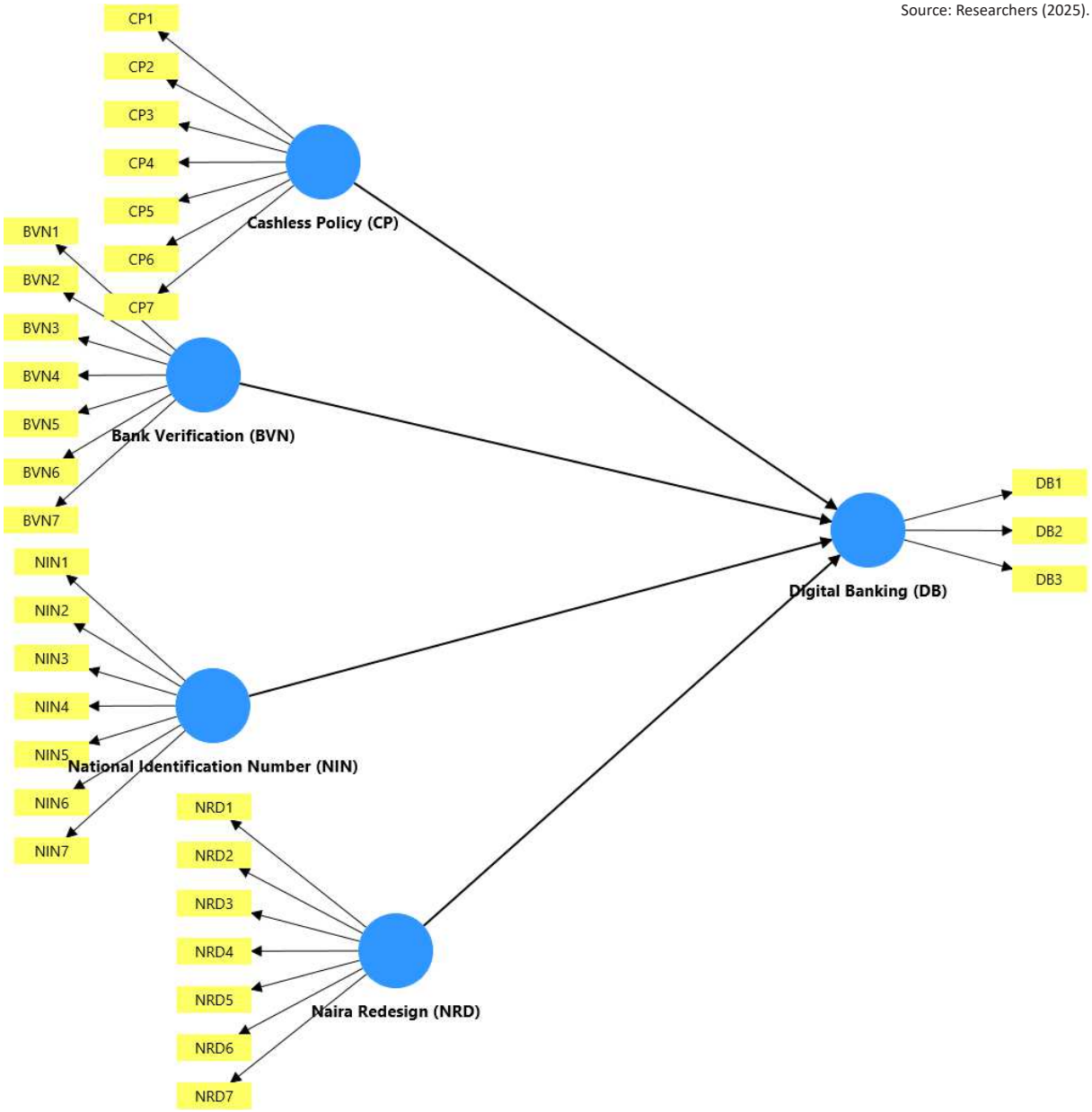

Figure 1. SEM path for financial reforms, inclusion, and digital banking

mobile transfers, ATM use, and e-wallet adoption, and how reforms like Nigeria's official digital currency (eNaira) or BVN influenced these behaviors. Digital banking (DB) is the outcome variable. Reforms like CP, BVN, NIN, and NRD were measured as predictors.

To establish ethical clarity for this study, ethical approval was obtained from the postgraduate school of Redeemer's University via the online ethical approval application. The identities of respondent were kept confidential. The study also acknowledged authors whose studies were used and ensured that there were no fabrications of data, no plagiarism, and no breach of any ethical standards required by the postgraduate school of Redeemer's University., Nigeria.

The study uses the Structural Equation Modeling (SEM) to examine the relationships among the research variables. The SEM diagram is shown in Figure 1.

This model assesses the impact of CP, BVN, NIN, and NRD on Digital Banking (DB). The financial reforms are exogenous constructs influenc-

ing the endogenous variable DB. Observed indicators (e.g., CPi, NRDi) relate to their latent constructs through measurement equations. The diagram captures how reforms designed to enhance transparency, identity verification, and cashless transactions contribute to the adoption of digital banking platforms. It accounts for both measurement and structural components, reflecting the strength and direction of reform impacts on DB. Error terms and factor loadings ensure reliability and validity, with the model helping understand reform effectiveness in digital financial inclusion.

4. RESULTS

Of the 385 questionnaires administered, 376 were duly filled and retrieved, yielding a response rate of 98%, deemed robust enough for meaningful statistical evaluation. The demographic characteristics of the sample were explored using basic descriptive tools such as charts and tabular summaries. For hypothesis testing and model validation, the study adopted the partial least squares structural equation modeling (PLS-SEM) approach, aligning with the inferential aims of the study.

This section analyzes composite reliability, construct validity, factor/cross loadings, and the actual effects of financial reform variables on digital banking services in the study areas.

Table 3 displays the findings related to the composite reliability and construct validity of the latent variables under investigation.

Both Cronbach's Alpha and rho-A coefficients exceed the generally accepted threshold of 0.6 across all variables, indicating sufficient reliability. Likewise, the Composite Reliability values surpass the recommended benchmark of 0.7, further confirming the internal consistency of the items in measuring their respective constructs. These results affirm that the constructs meet the necessary reliability standards. Furthermore, the Average Variance Extracted (AVE) serves as a criterion for assessing construct validity, with a minimum threshold of 0.5 required to demonstrate adequate convergent validity. As shown in Table 2, each construct reports an AVE above this benchmark, thereby validating the adequacy of the convergent validity for all measured constructs.

Table 2. Statistics for reliability and construct validity

Source: SmartPLS-4 (2025).

Constructs	Items	Loadings	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Bank Verification Number (BVN)	BVN1	0.809	0.867	0.870	0.9000	0.601
	BVN2	0.770				
	BVN3	0.782				
	BVN4	0.767				
	BVN5	0.749				
	BVN7	0.773				
Cashless Policy (CP)	CP1	0.737	0.767	0.771	0.851	0.588
	CP2	0.798				
	CP3	0.768				
	CP6	0.763				
Digital Banking (DB)	DB1	0.873	0.6500	0.653	0.851	0.740
	DB2	0.847				
National Identification Number (NIN)	NIN1	0.734	0.873	0.876	0.902	0.569
	NIN2	0.737				
	NIN3	0.738				
	NIN4	0.733				
	NIN5	0.799				
	NIN6	0.742				
	NIN7	0.792				
Naira Redesign (NRD)	NRD2	0.764	0.751	0.753	0.843	0.572
	NRD4	0.739				
	NRD6	0.744				
	NRD7	0.779				

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Table 3. Fornell-Larcker criterion

Source: SmartPLS-4 (2025).

Constructs	DB	BVN	CP	NRD	NIN
Digital Banking (DB)	0.860	–	–	–	–
Bank Verification Number (BVN)	0.458	0.775	–	–	–
Cashless Policy (CP)	0.437	0.625	0.767	–	–
Naira Redesign (NRD)	0.343	0.507	0.451	0.756	–
National Identification Number (NIN)	0.512	0.753	0.557	0.553	0.754

Table 3 contains the discriminant validity, assessed using Fornell-Larcker, HTMT, and cross-loadings. Fornell-Larcker requires each construct's AVE square root (diagonal, bold) to exceed inter-construct correlations.

As shown in Table 3, all constructs satisfy this condition, confirming adequate discriminant validity based on the Fornell-Larcker criterion.

The HTMT criterion, derived from the multitrait-multimethod matrix, stipulates that all ratios must remain below 0.9. As presented in Table 4, all HTMT values fall within the acceptable range, confirming that the constructs meet the discriminant validity requirement under this criterion.

The cross-loading criterion stipulates that each construct should exhibit the highest loading ex-

Table 4. HTMT ratios

Source: SmartPLS-4 (2025).

Constructs	DB	BVN	CP	NRD	NIN
Digital Banking (DB)	–	–	–	–	–
Bank Verification Number (BVN)	0.603	–	–	–	–
Cashless Policy (CP)	0.610	0.761	–	–	–
Naira Redesign (NRD)	0.487	0.624	0.587	–	–
National Identification Number (NIN)	0.678	0.865	0.676	0.683	–

Table 5. Cross-loadings

Source: SmartPLS-4 (2025).

Variable	Digital Banking (DB)	Bank Verification Number (BVN)	Cashless Policy (CP)	National Identification Number (NIN)	Naira Redesign (NRD)
BVN1	0.389	0.809	0.471	0.593	0.437
BVN2	0.400	0.770	0.381	0.521	0.304
BVN3	0.379	0.782	0.556	0.630	0.439
BVN4	0.409	0.767	0.5000	0.613	0.361
BVN5	0.246	0.749	0.485	0.571	0.397
BVN7	0.292	0.773	0.515	0.567	0.417
CP1	0.318	0.396	0.737	0.303	0.326
CP2	0.439	0.508	0.798	0.473	0.415
CP3	0.241	0.449	0.768	0.427	0.329
CP6	0.323	0.552	0.763	0.493	0.308
DB1	0.873	0.434	0.372	0.463	0.336
DB2	0.847	0.351	0.382	0.417	0.252
NIN1	0.372	0.594	0.413	0.734	0.465
NIN2	0.403	0.582	0.410	0.737	0.42
NIN3	0.339	0.561	0.444	0.738	0.377
NIN4	0.450	0.516	0.370	0.733	0.436
NIN5	0.380	0.599	0.432	0.799	0.434
NIN6	0.367	0.537	0.412	0.742	0.404
NIN7	0.390	0.589	0.460	0.792	0.392
NRD2	0.256	0.460	0.445	0.461	0.764
NRD4	0.257	0.383	0.307	0.437	0.739
NRD6	0.230	0.335	0.292	0.383	0.744
NRD7	0.293	0.350	0.310	0.388	0.779

clusively on its own associated measurement items. As shown in Table 5, the cross-loading results confirm that each construct demonstrates the strongest loading on its respective items alone.

The combined assessment using the Fornell-Larcker criterion, HTMT ratio, and cross-loading analysis indicates that the constructs exhibit no issues with discriminant validity, thereby confirming their suitability for inclusion in the SEM analysis.

The R-squared values reveal that the independent variables – cashless policy, BVN, NIN, and Naira redesign reforms – collectively explain 29.9% of the variance in the dependent variable, digital banking. This level of explanatory power is considered acceptable within the context of primary data analysis.

Table 6. R-squared statistics

Source: SmartPLS-4 (2025).

Dependent Variables	R-Square
Digital Banking (DB)	0.299

Additionally, Table 7 presents the goodness-of-fit statistics for the estimated model.

Table 7. Goodness of fit statistics

Source: Smart PLS-4 (2025).

Criteria	Estimated Model	Benchmark
SRMR	0.069	< 0.08
d_ULS	2.037	< HI_{95} =1.74
d_G	0.769	< HI_{95} =1.27
Chi-Square	1646.22	–
NFI	0.689	< 1

The Standardized Root Mean Residual (SRMR) is 0.069, which falls within the acceptable threshold of 0.08, indicating an adequate fit. However, the model fit indices – d_ULS (2.037) and d_G (0.769) – exceed their respective upper confidence limits (HI95 = 1.74 and HI95 = 1.27), and the Normed Fit Index (NFI) falls below the ideal benchmark of 1. Despite these discrepancies, the overall goodness-of-fit indicators suggest that the model demonstrates an acceptable fit to the data.

The test statistics for the path estimates showing the effects of financial reform variables on digital banking are shown in Table 8.

Table 8 presents the hypothesized relationships between financial reforms and digital banking. Cashless policy (β = 0.192, p = 0.008) and NIN reform (β = 0.332, p = 0.000) show significant positive effects, leading to rejection of their respective null hypotheses. In contrast, BVN (β = 0.069, p = 0.396) and naira redesign (β = 0.038, p = 0.539) show no statistically significant impact, and their null hypotheses are retained. Overall, only the cashless policy and NIN reforms significantly influence digital banking services.

5. DISCUSSION

This study assessed the impact of financial reforms on digital banking, and the results revealed that the cashless policy has a direct and significant effect on financial inclusion. This result highlights the significant impact of cashless policy reform on rural dwellers, who are increasingly using digital platforms for financial transactions. Market women, artisans, and local traders now use mobile phones to send and receive money. The action of the CBN shows that the cashless policy has come to stay, and by implication, there is a need for the government and relevant stakeholders to ensure smooth and effective digital platforms, particularly in rural communities. The result here is consistent with those of Agbaeze (2020), Eze and Markjackson (2020), and Ouyang (2021), who postulated that cashless policy significantly influences digital banking services. However, this disagrees with the findings of Chitimira and Ncube (2020) and Claude et al. (2022), who argued against it.

Table 8. SEM results for financial reforms and digital banking services

Source: Smart PLS-4 (2025).

Paths	Coefficients	t-statistics	p-values	Decision on H_0
Cashless Policy → Digital Banking	0.192	2.666	0.008	Reject
Bank Verification Number → Digital Banking	0.069	0.849	0.396	Accept
National Identification Number → Digital Banking	0.332	4.581	0.000	Reject
Naira Redesign → Digital Banking	0.038	0.614	0.539	Accept

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A similar result from Objective Two has also shown that the National Identification Number (NIN) reform has a direct and significant effect on digital banking. There is hardly any digital financial service platform in Nigeria that does not require a NIN before registration. This policy has been fully implemented among financial institutions in Nigeria, and results indicate that it has bolstered the use of digital banking among rural dwellers in the country. This finding aligns with those of Shaikh et al. (2017); Anarfo et al. (2020); Bublyk et al. (2023), who asserted a significant relationship between the financial reform and digital banking, but not in tandem with Chitimira and Ncube (2020); Claude et al (2022), who postulated otherwise.

Additional results from Objective Two also revealed that the Bank Verification Number (BVN) and the naira redesign reforms do not significantly impact the use of digital banking by rural dwellers in South-West Nigeria. This implies that the BVN and recent naira reform do not drive financial inclusion in rural communities. The finding aligns with Chitimira and Ncube (2020), Claude et al. (2022), and Ge et al. (2022), who support this assertion. However, it contradicts Siano et al. (2020) and Otitoju et al. (2023), who claim the contrary.

CONCLUSION

This study assessed the impact of financial reforms on digital banking as a measure of financial inclusion in Nigeria, with a particular focus on rural communities. The findings from Objective Two demonstrate that two major reforms, the cashless policy and the National Identification Number (NIN) initiative, have significantly influenced the adoption and use of digital banking services. The cashless policy, in particular, has transformed financial behavior in rural areas, enabling groups such as market women, artisans, and local traders to perform financial transactions via mobile phones. This highlights the effectiveness of the Central Bank of Nigeria's efforts in driving financial inclusion through digitized payment systems and reducing dependence on cash.

Similarly, the mandatory use of NIN for digital banking registration has enhanced the accessibility and security of financial platforms, encouraging more rural dwellers to participate in the digital economy. This reform has not only enhanced identity verification but also fostered confidence among users, thereby expanding the reach of financial services to underserved regions. On the other hand, the results show that the Bank Verification Number (BVN) and the Naira redesign reforms have had no significant impact on digital banking usage among rural populations. This suggests that while these reforms may serve other regulatory or macroeconomic purposes, their current design and implementation may not directly support the goal of inclusive digital financial access.

Given these findings, it is recommended that policymakers continue to strengthen the cashless policy framework by expanding digital infrastructure and ensuring affordability and ease of use in rural areas. Additionally, there is a need to revisit the implementation of BVN and naira redesign reforms, tailoring them to meet the realities and limitations of rural communities, such as low digital literacy and limited financial awareness, so they can better contribute to inclusive financial development.

IMPLICATION OF FINDINGS

The study found that rural dwellers were affected by some factors that drive financial inclusion in Nigeria. These factors are the cashless policy and the National Identification Number. This implies that rural dwellers find it difficult to access banking services during the Naira redesign in Nigeria. The finding, therefore, suggests that rural dwellers should be considered when actions reshaping financial inclusion are taken by the government. This action, such as the cashless policy and the

national identification number policy implementation by the regulator, should be exercised with caution and subtly implemented with an alternative for rural dwellers pending full implementation. This would enable rural dwellers to gradually adapt to the policy without effect.

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REFERENCES

1. Agbaeze, C. C. (2020). Impact of cashless policy on financial inclusion in Nigeria. *International Journal of Innovation and Applied Studies, 30*(2), 517-526. Retrieved from https://ijias.issr-journals.org/abstract.php?article=IJIAS-20-162-32
2. Agu, A., & Agu, S. (2020). Cashless policy and the Nigerian economy: A disaggregated approach. *International Journal of Humanities Social Sciences and Education,* 7(4), 21-30. http://dx.doi.org/10.20431/2349-0381.0704003
3. Ahmad, M., Ahmed, Z., Yang, X., Hussain, N. & Sinha, A. (2022). Financial development and environmental degradation: do human capital and institutional quality make a difference? *Gondwana Research, 105,* 299-310. https://doi.org/10.1016/j.gr.2021.09.012
4. Ajayi, S., & Ojo, O. (1981). *Money and banking: Analysis and policy in the Nigerian context*. Ibadan: Daily Graphics Nigeria Ltd.
5. Akinyede, O. M. (2023). Financial literacy and entrepreneurship performance. *SSRN*. Retrieved from https://ssrn.com/abstract=4483051

http://dx.doi.org/10.21511/bbs.21(1).2026.05

6. Anarfo, E. B., Abor, J. Y., & Achampong Osei, K. (2020). Financial regulation and financial inclusion in Sub-Saharan Africa: Does financial stability play a moderating role? *Research in International Business and Finance, 51,* 101070. https://doi.org/10.1016/j.ribaf.2019.101070

7. Babalola, A., & Adagiri, I. (2020). Impact of cashless economic policy and financial inclusiveness in Nigeria: An empirical investigation. *Pakistan Journal of Economic Studies, 3*(1), 65-85. Retrieved from https://journals.iub.edu.pk/index.php/pjes/article/download/326/47

8. Bublyk, Y., Shapoval, Y., Shpanel-Yukhta, O., & Brus, S. (2023). Effect of financial access on cashless economy: The case of Ukraine. *Banks and Bank Systems, 18*(1), 91-102. https://doi.org/10.21511/bbs.18(1).2023.08

9. Central Bank of Nigeria (CBN). (2023). *Cash-less Nigeria*. Retrieved from https://www.cbn.gov.ng/Cashless/

10. Chitimira, H., & Ncube, M. (2020). Legislative and other selected challenges affecting financial inclusion for the poor and low-income earners in South Africa. *Journal of African Law, 64*(3), 337-355. https://doi.org/10.1017/S0021855320000182

11. Chukwuma, I. C., Onodugo, I. C., & Ezeamama, M. (2020). Impact of cashless policy on the economic growth of Nigeria. *International Journal of Multidisciplinary Research and Development, 7*(7), 11-17. Retrieved from https://www.allsubjectjournal.com/assets/archives/2020/vol7issue7/7-6-39-860.pdf

12. Claude, B., Baochen, Y., & Yunpeng, S. (2022). The mediating effect of financial literacy and the moderating role of social capital in the relationship between financial inclusion and sustainable development in Cameroon. *Sustainability, 14*(12), 1-24. https://doi.org/10.3390/su142215093

13. Demirguç-Kunt, A., & Klapper, L. (2013). Measuring financial inclusion: Explaining variation in use of financial services across and within countries. *Brookings Papers on Economic Activity, 2013*(1), 279-340. Retrieved from https://www.jstor.org/stable/23594869

14. EFInA. (2023). *Access to financial services in Nigeria survey*. Retrieved from https://efina.org.ng/research/

15. Etim, G. S., Ada, J. A., Eyo, I. E., & Ndem, S. E. (2023). Electronic banking and customers' access to banking services in rural settlements. *Res Militaris, 13*(3), 1161-1171. Retrieved from https://resmilitaris.net/uploads/paper/5b3ee51525fe8675eeb68ee1948e760a.pdf

16. Eze, G. P., & Markjackson, D. (2020). Cashless Policy and Financial Inclusion in Nigeria. *International Journal of Research and Scientific Innovation, 7*(2), 201-207. Retrieved from https://rsisinternational.org/journals/ijrsi/digital-library/volume-7-issue-2/201-207.pdf

17. Ghosh, S., & Vinod, D. (2017). What Constrains Financial Inclusion for Women? Evidence from Indian Micro Data. *World Development, 92,* 60-81. https://doi.org/10.1016/j.worlddev.2016.11.011

18. Iriobe, O., Akinyede, O. M., & Iriobe, G. (2017). Financial Literacy and Financial Inclusion For Entrepreneurship Development in Nigeria. *West African Journal of Business and Management Sciences, 7*(1), 63-69. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3412541

19. Maigari, M. A., & Yelwa, M. M. (2023). Digital transaction: A catalyst for financial inclusion and job creation. *Journal of Digital Marketing and Halal Industry, 5*(1), 57-76. https://doi.org/10.21580/jdmhi.2023.5.1.15001

20. Mehrotra, A. N., & Yetman, J. (2015). Financial inclusion: Issues for central banks. *BIS Quarterly Review*, 83-96. Retrieved from https://www.bis.org/publ/qtrpdf/r_qt1503h.pdf

21. Monye, E. (2024). *Why Nigeria's Controversial Naira Redesign Policy Hasn't Met Its Objectives.* Carnegie Endowment for International Peace. Retrieved from https://assets.production.carnegie.fusionary.io/static/files/Monye_Nigeria_FINAL.pdf

22. Nma, Y. D., & Callistus, O. C. (2022). Effect of financial inclusion on economic growth in Nigeria (2000-2020). *Advance Journal of Financial Innovation and Reporting, 6*(1), 1-14. Retrieved from https://aspjournals.net/ajfir/index.php/ajfir/article/view/22

23. Omar, A., & Inaba, K. (2020). Does financial inclusion reduce poverty and income inequality in developing countries? A panel data analysis. *Journal of Economic Structures, 9,* 37. https://doi.org/10.1186/s40008-020-00214-4

24. Omotunde, M., Sunday, T., & John-Dewole, A. T. (2013). Impact of cashless economy in Nigeria. *Greener Journal of Internet, Information and Communication Systems, 1*(2), 40-43. Retrieved from https://www.gjournals.org/category/all-articles/greener-journal-of-internet-information-and-communication-system/page/3/

25. Otioma, C., Madureira, A. M., & Martinez, J. (2019). Spatial analysis of urban digital divide in Kigali, Rwanda. *GeoJournal, 84*(3), 719-741. https://doi.org/10.1007/s10708-018-9882-3

26. Otitoju, M. A., Safugha, G. F., Vincent, E. O., & Chukwu, C. M. (2023). Review of the Naira redesign and its effect on micro, small, and medium enterprises (MSMEs). *Advances in Applied Sociology, 13*(9), 662-673. https://doi.org/10.4236/aasoci.2023.139042

27. Ouyang, S. (2021). Cashless payment and financial inclusion. *SSRN Electronic Journal.* https://doi.org/10.2139/ssrn.3948925

28. Ozili, P. K. (2018). Impact of digital finance on financial inclusion and stability. *Borsa Istanbul Review, 18*(4), 329-340. https://doi.org/10.1016/j.bir.2017.12.003

29. Sani, A. (2024). Effects of Naira redesign policy on the economic activities of rural communi-

ties: Study of Kontagora rural communities. *Lapai Journal of Economics, 8*(1), 194-204. https://doi.org/10.4314/lje.v8i1.13

30. Shaikh, A. A., Glavee-Geo, R., & Karjaluoto, H. (2017). Exploring the nexus between financial sector reforms and the emergence of digital banking culture – Evidences from a developing country. *Research in International Business and Finance, 42,* 1030-1039. https://doi.org/10.1016/j.ribaf.2017.07.039

31. Siano, A., Raimi, L., Palazzo, M., & Panait, M. C. (2020). Mobile banking: An innovative solution for increasing financial inclusion in Sub-Saharan African countries – Evidence from Nigeria. *Sustainability, 12*(23), 10130. https://doi.org/10.3390/su122310130

32. Swamy, V. (2014). Financial inclusion, gender dimension, and economic impact on poor households. *World Development, 56,* 1-15. https://doi.org/10.1016/j.worlddev.2013.10.019

33. Taiwo, J., Oluwafemi, A., Evawere, A., & Agwu, M. (2016). *Appraisal of cashless policy on the Nigerian financial system.* Department of Banking & Finance, Covenant University. https://doi.org/10.2139/ssrn.3122472

http://dx.doi.org/10.21511/bbs.21(1).2026.05

APPENDIX A

Table A1. Socio-demographic characteristics

Source: Outputs from SPSS version 30 (2025).

Variables	Classifications	Frequency	Percent
Gender	Male	191	50.8
	Female	185	49.2
	Total	376	100
Age	18-25years	69	18.4
	26-35years	106	28.2
	36-45years	147	39.1
	46years and above	54	14.4
	Total	376	100
Education	No formal Education	133	35.4
	Primary	97	25.8
	Secondary	76	20.2
	Tertiary	70	18.6
	Total	376	100
Marital Status	Single	76	20.2
	Married	121	32.2
	Divorced	134	35.6
	Widowed	45	12
	Total	376	100
Occupation	Farmer	62	16.5
	Trader	101	26.9
	Artisan	130	34.6
	Others	83	22.1
	Total	376	100
Monthly Income	Below N20,000	79	21
	N20,001-N50,000	142	37.8
	N50,001-N100,000	91	24.2
	Above N100,000	64	17
	Total	376	100
Bank Account	Yes	264	70.2
	No	112	29.8

Table A2. Statistics for reliability and construct validity

Source: SmartPLS-4 (2025).

Constructs	Items	Loadings	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Bank Verification Number (BVN)	BVN1	0.809	0.867	0.870	0.9000	0.601
	BVN2	0.770				
	BVN3	0.782				
	BVN4	0.767				
	BVN5	0.749				
	BVN7	0.773				
Cashless Policy (CP)	CP1	0.737	0.767	0.771	0.851	0.588
	CP2	0.798				
	CP3	0.768				
	CP6	0.763				
Digital Banking (DB)	DB1	0.873	0.6500	0.653	0.851	0.740
	DB2	0.847				
National Identification Number (NIN)	NIN1	0.734	0.873	0.876	0.902	0.569
	NIN2	0.737				
	NIN3	0.738				
	NIN4	0.733				
	NIN5	0.799				
	NIN6	0.742				
	NIN7	0.792				
Naira Redesign (NRD)	NRD2	0.764	0.751	0.753	0.843	0.572
	NRD4	0.739				
	NRD6	0.744				
	NRD7	0.779				