Adoption of Financial Technologies (FinTech) and its Impact on Financial Inclusion in Nigeria

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Abstract

The rapid adoption of Financial Technology (FinTech) is transforming the Nigerian financial landscape, creating new opportunities for inclusive economic participation. This study examines the adoption of FinTech innovations and their impact on financial inclusion in Nigeria, with particular emphasis on the role of public policy and regulatory frameworks. With over one-third of the population excluded from formal financial services, FinTech presents a powerful tool to bridge this gap through mobile money, digital wallets, peer-to-peer lending, and agent-based banking. Platforms such as Paga, Opay, Flutterwave, Paystack, and Kuda Bank have expanded access to affordable and convenient financial services, especially among rural communities, women, and small and medium enterprises (SMEs). The drivers of this adoption include widespread mobile penetration, youthful demographics, supportive regulatory initiatives, and the growth of innovative technology startups. However, challenges such as cybersecurity risks, infrastructural deficits, regulatory uncertainty, and low digital literacy continue to constrain FinTech's full potential. Comparative experiences, notably Kenya's M-Pesa, highlight Nigeria's capacity to achieve greater financial inclusion if these barriers are effectively addressed. The study concludes that FinTech has become an indispensable catalyst for financial inclusion and recommends stronger governance mechanisms, a more robust regulatory framework, and targeted public administration strategies to promote financial literacy and inclusion among marginalized populations.

Keywords: FinTech, financial inclusion, Nigeria, digital banking, financial technology

1.1 Introduction

Financial inclusion has emerged as a key driver of economic growth and poverty reduction in both developed and developing economies. It refers to the availability and accessibility of useful and affordable financial products and services such as savings, payments, credit, and insurance for individuals and businesses, particularly those traditionally excluded from the formal banking system. In Nigeria, financial exclusion remains a major challenge, with millions of people—especially those in rural communities and the informal sector—having limited or no access to banking services. According to the Central Bank of Nigeria (CBN, 2022), although financial inclusion has improved over the years, about 36% of Nigerian adults were financially excluded as of 2022.

The emergence of Financial Technology (FinTech) offers a significant opportunity to bridge this gap. FinTech refers to the innovative application of digital technologies to deliver financial services in faster, cheaper, and more inclusive ways. The growing adoption of mobile banking, digital wallets, peer-to-peer lending, crowdfunding platforms, and blockchain technologies has created new pathways to serve unbanked and underbanked populations. Nigeria has witnessed remarkable growth in FinTech startups, making it one of Africa's leading FinTech hubs. This trend has the potential to transform financial inclusion by improving accessibility, affordability, and convenience.

From a public administration perspective, financial inclusion through FinTech adoption is not only a matter of economic development but also a governance issue. Government institutions and regulatory bodies such as the Central Bank of Nigeria (CBN), the Nigerian Communication Commission (NCC) and the Securities and Exchange Commission (SEC) play central roles in shaping the policy environment that enables or constrains finTech growth. Effective regulation, public-private collaboration and digital infrastructure provision are therefore essential for sustaining the impact of finTech on financial inclusion in Nigeria.

1.2 Statement of Problem

Despite these opportunities, several barriers hinder the full potential of FinTech in promoting financial inclusion. These include infrastructural deficits, cybersecurity risks, low digital literacy, and regulatory uncertainties. Addressing these challenges is crucial if Nigeria is to harness FinTech for inclusive and sustainable economic growth.

1.3 Objectives of the Study

This paper seeks to:

1. Examine the current state of financial inclusion in Nigeria.

2. Analyze the drivers of FinTech adoption in the Nigerian financial sector.

3. Explore the challenges limiting FinTech's role in promoting financial inclusion.

4. Provide recommendations for enhancing the transformative role of FinTech in Nigeria's financial ecosystem.

1.4 Significance of the Study

This study is significant because it contributes to the ongoing discourse on digital transformation in financial services and its implications for inclusive economic development. It provides insights for policymakers, financial institutions, entrepreneurs, and researchers on how to leverage FinTech to achieve broader financial inclusion goals in Nigeria.

2. Literature Review

2.1 Conceptual Clarifications

2.1.1 Financial Technology

Financial Technology commonly referred to as FinTech describes the use of technological innovations to deliver financial services more efficiently and inclusively. It covers a wide range of application such as mobile money, digital banking, online lending, crowdfunding, blockchain and digital payment platforms. In the Nigeria context, FinTech is often associated with mobile banking apps, agents banking, point-of-sale (POS) terminals and the e-naira initiative (Demirgüç-Kunt, Klapper, Singer, Ansar, & Hess, 2018)).

2.1.2 Financial Inclusion

Financial inclusion is defined by the World Bank (2022) as the process of ensuring that individuals and businesses have access to useful and affordable financial products and services that meet their needs in a responsible and sustainable way. These services include transactions, payments, savings, credit, and insurance. In developing economies, financial inclusion is regarded as an important strategy for poverty alleviation and economic growth (Demirgüç-Kunt et al., 2022). In Nigeria, despite various reforms, millions remain unbanked or underbanked, particularly women, rural dwellers, and low-income earners (CBN, 2022).

2.1.3 Public Administration and Financial Inclusion

Public Administration plays a crucial role in driving financial inclusion by formulating policies, implementing regulatory framework and ensuring that financial sources reach marginalized populations. As noted by Olaopa (2014), agencies like the Central Bank of Nigeria (CBN), the Securities and Exchange Commission (SEC) and the Nigerian Communication Commission (NCC) are central actors in enabling a conducive environment for finTech adoption. Thus, financial inclusion is both a technological and administrative matter.

2.2 Emergence of Financial Technology (FINTECH)

FinTech is broadly described as the innovative use of technology in the design and delivery of financial services (Arner, Barberis & Buckley, 2017). It leverages digital platforms, big data, mobile applications, and blockchain to improve efficiency and expand access. In Nigeria, FinTech has evolved rapidly due to increasing mobile penetration, youthful demographics, and supportive regulatory frameworks such as the CBN's Financial Inclusion Strategy 2020. Notable Nigerian FinTech startups include Flutterwave, Paystack, Paga, Interswitch, Kuda Bank, and Opay, which are transforming payments, lending, and digital banking.

2.3 Types of Fintech Innovations enhancing Financial Inclusion

1. Mobile Money Services – Platforms like Paga and MTN MoMo allow users to perform transactions (deposits, transfer, bill payment) without needing a traditional bank account. They provide convenient and affordable access, especially in rural areas who don't have bank accounts but have mobile phone number. It brings banking to your simcard (GSMA, 2021).

2. Digital Wallets and Mobile Banking Apps – Apps such as Kuda Bank, Opay, Palmpay, Alat by Wema Bank have expanded cashless transactions by enabling instant transfers, bill payments, buying of airtime and savings features through smartphones and also providing 24/7 access to financial service to turn your smartphone to a bank (EY, 2022).

3. Peer-to-Peer (P2P) Lending and Crowdfunding – FinTech firms such as FarmCrowdy and Crowdyvest provide digital platforms where individuals can borrow directly from other individual or group by passing traditional bank and invest in businesses or agricultural projects, thus

expanding access to credit for small businesses. Crowdfunding allow people to raise money from many contributors online for business or project who may not qualify for traditional bank loan e.g. Fairmoney, Carbon (Paylater), Branch, Naijafund (Adegbite, 2021).

4. Blockchain and Cryptocurrency Services – Blockchain technology is being explored in Nigeria to enhance transparency in transactions. Although cryptocurrency (Bitcoin and Ethereum) is under regulatory restrictions yet still active, platforms like Yellow Card and Luno are popular among youths for cross-border remittances (Ndukwe & Ojo, 2022).

5. Agent Banking and USSD Services – Agent networks supported by FinTech solutions bring financial services closer to rural and underserved areas (CBN, 2022). Examples Moniepoint, Palmpay, Opay, uses agents (POS Operators, shop/kiosk) to offer basic banking (cash deposit, withdrawal, transfer, bill payment, airtime and date).

USSD Services – Allow financial transaction using simple short code like GTB – *737#, First Bank *894#, UBA *919#, Zenith Bank *966#, Access Bank *901# etc.

2.5 Theoretical Framework

Two key theories help explain the adoption of FinTech in financial inclusion:

Technology Acceptance Model (TAM): Proposed by Davis (1989), TAM suggests that perceived usefulness and perceived ease of use are the primary factors influencing technology adoption. In the context of FinTech, if users find mobile wallets or digital apps convenient and beneficial, they are more likely to adopt them.

Diffusion of Innovation (DOI) Theory: Rogers (2003) emphasizes how innovations spread among populations through communication and social networks. FinTech adoption in Nigeria has grown rapidly due to peer influence, social media campaigns, and the increasing visibility of mobile banking solutions.

2.6 Empirical Studies

Studies have shown that FinTech adoption contributes positively to financial inclusion in Africa. For example, Jack and Suri (2014) demonstrated how M-Pesa in Kenya lifted households out of poverty by increasing access to mobile money. In Nigeria, Okoye and Ezejiofor (2020) found that mobile banking services significantly improve access to savings and payments among rural populations. Similarly, Akinola (2022) reported that digital lending platforms provide credit opportunities for SMEs often ignored by traditional banks. However, Nwokoye (2021) cautioned that challenges such as fraud, data privacy, and poor internet infrastructure remain major barriers.

3. Methodology

3.1 Research Design

This study adopts a descriptive and analytical research design, relying on secondary data to explore the adoption of FinTech and its impact on financial inclusion in Nigeria. The descriptive approach is appropriate because the study seeks to provide an overview of trends, drivers, barriers, and implications of FinTech adoption, while the analytical component involves evaluating how these factors influence financial inclusion outcomes.

3.2 Data Sources

The study makes use of secondary data obtained from reputable sources such as:

Central Bank of Nigeria (CBN) annual financial inclusion reports.

Nigeria Inter-Bank Settlement System (NIBSS) electronic payment statistics.

World Bank Global Findex Database (2017, 2021 editions).

Reports from FinTech associations such as the FinTech Association of Nigeria (FinTechNGR) and GSMA mobile money adoption surveys.

Scholarly articles, books, and journal publications on FinTech and financial inclusion in Nigeria and Africa.

3.3 Analytical Approach

The study employs qualitative content analysis of existing literature, policy documents, and financial inclusion reports. Comparative analysis is applied to evaluate trends in FinTech adoption and financial inclusion across time, highlighting key milestones such as the introduction of mobile money, rise of digital banking platforms, and regulatory interventions by the CBN. Data from the World Bank and NIBSS are used to illustrate financial inclusion indicators such as the percentage of banked vs. unbanked adults, mobile money penetration, and digital transaction volumes.

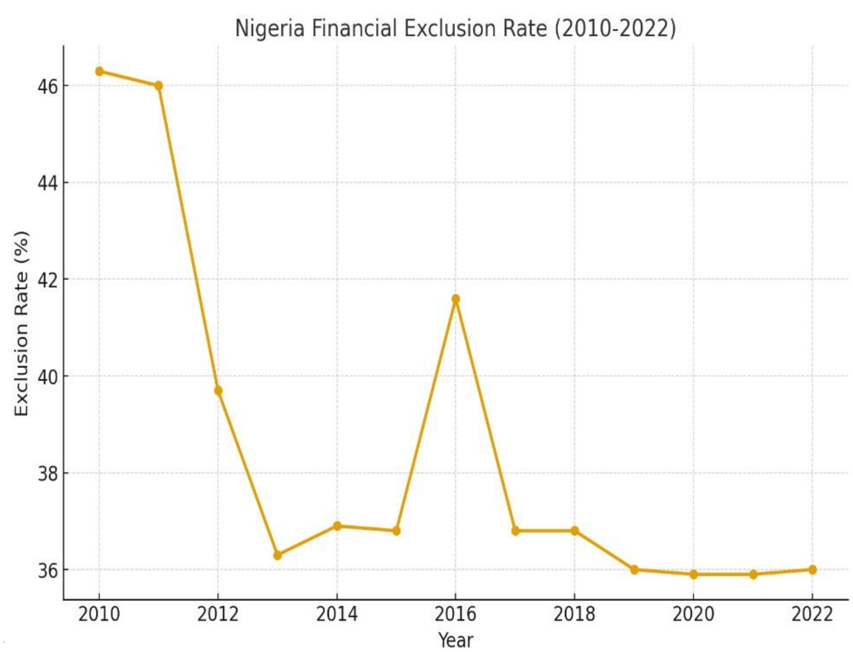
3.4 Scope and Limitations

The scope of this study is limited to Nigeria's FinTech sector and its implications for financial inclusion between 2010 and 2024, a period that witnessed rapid digital transformation in the financial services industry. Limitations include reliance on secondary data, which may not fully capture informal financial practices, and the unavailability of the most recent statistics at the time of writing.

4. Findings and Discussion

4.1 Current State of Financial Inclusion in Nigeria

Financial inclusion in Nigeria has witnessed gradual progress in the past decade, but significant gaps remain. According to the Central Bank of Nigeria (CBN, 2022) as shown in figure 1 below, the percentage of financially excluded adults reduced from 46.3% in 2010 to about 36% in 2022, reflecting the impact of policies such as the National Financial Inclusion Strategy. The World Bank Global Findex Database (2021) reported that only 45% of Nigerian adults owned a bank account, compared to the Sub-Saharan Africa average of 55%. However, the stagnation around 36% since 2018 indicates that millions of Nigerians, particularly women, rural dwellers, and low-income earners, remain excluded from the formal financial system.



Source: CBN Financial Inclusion Strategy Reports.

4.2 Drivers of FinTech Adoption

Several factors have facilitated the rise of FinTech in Nigeria:

1. **Mobile Phone Penetration** – Nigeria has over 200 million active mobile subscriptions (NCC, 2023), creating a platform for mobile banking and digital wallets.

2. **Youthful Demographics** – With over 60% of Nigerians under 30, there is a large tech-savvy population eager to adopt digital financial solutions.

3. **Supportive Ecosystem** – Regulatory frameworks such as the CBN's Payment Service Bank (PSB) licenses and Open Banking Policy have enabled non-traditional players (telecoms, startups) to deliver financial services.

4. Startup Growth – Nigeria hosts over 200 active fintech companies, including Flutterwave, Paystack, Paga, Opay, Moniepoint and Kuda bank, making it africa's leading fintech hub (ey, 2022).

4.3 Impact of Fintech on Financial Inclusion in Nigeria

Fintech has made financial services cheaper, faster, safer, and more accessible, especially for the unbanked and underbanked. Here are the key impacts:

1. **Wider Access to Banking Services:**
   Fintech platforms like Kuda, ALAT, VFD Bank, Rubies provide accounts without physical branches. People in rural areas can now open accounts with just BVN + phone number, no need to travel to a bank.
2. **Agent Banking and POS Expansion:**
   Companies like Moniepoint, OPay, PalmPay, FirstMonie, Access Closa deploy POS agents in almost every community. Villages and rural markets without bank branches now have access to deposits, withdrawals, and transfers.
3. **Cashless Transactions for Students & Youths:**
   Students no longer carry large cash; they can buy items under ₦500 by transfer. Easy to buy data, airtime, pay school fees, contribute for group projects using apps like OPay, PalmPay, Kuda. Safer campus life → reduces risk of theft.
4. **Affordable Micro-Loans & Credit:**

Platforms like FairMoney, Carbon, Branch, PalmPay loans provide instant loans without collateral. Small traders, artisans, and students can get credit for business or personal needs.

5. **Bill Payments & Utility Services Made Easy:**

   With fintech apps (Quickteller, OPay, PalmPay), people can:

   - Pay electricity bills (PHCN/Discos)
   - Pay DSTV/GOTV/Startimes
   - Buy airtime/data instantly. This reduces stress of queuing at service centers.

6. **Boost in E-Commerce and Small Businesses:**

   According to NIBSS (2023) as shown in figure 2 below, the value of electronic payments in Nigeria rose from #1 trillion in 2012 to #600 trillion in 2022, largely driven by fintech adoption. Payment gateways like Flutterwave, Paystack, Interswitch help SMEs accept online payments. Social media vendors use transfer + wallet payments instead of cash on delivery.

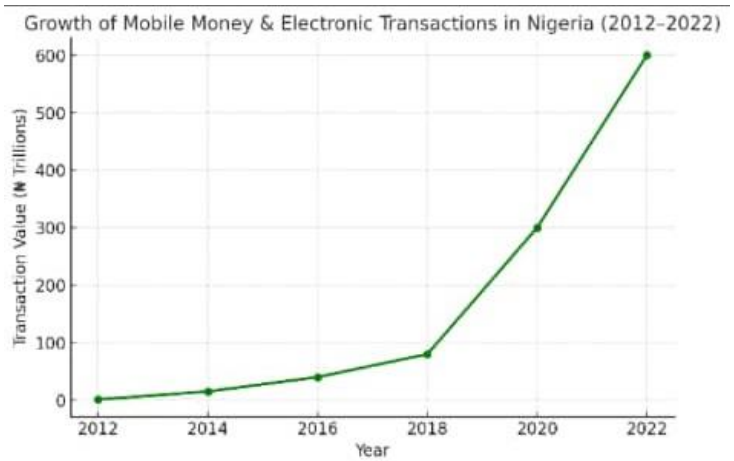


Figure 2: Growth in mobile money and electronic transaction value in Nigeria 2012-2022 (Source: NIBSS Electronic Payment Data)

7. **Cross-Border Payments & Remittances:**

   Apps like Chipper Cash, Send by Flutterwave, Yellow Card (crypto) make it easy for Nigerians to receive/send money across Africa.

   Lower fees compared to Western Union or banks.

8. **USSD Services for the Unbanked:**

Codes like GTBank *737#, First Bank *894#, UBA *919#, *Access 901# allow users without smartphones to transfer money, buy airtime, and check balances. Important for people in rural areas with only basic phones.

9. **Financial Literacy & Digital Inclusion:**

   Fintech apps encourage saving habits (PiggyVest, Cowrywise). Students and young professionals learn to manage money digitally instead of relying only on cash.

10. **Insurance & Risk Protection (InsurTech):**

    Platforms like Casava, Curacel provide affordable digital insurance (health, life, motor) for low-income earners. Expands financial protection to those who never had insurance before.

4.4 Challenges and Barriers

1. **Poor Internet & Power Supply:**

   Many fintech services rely on internet connectivity and electricity, which are still unreliable in rural and semi-urban areas. This limits access for people without stable power or smartphones.

2. **Cybersecurity Risks & Fraud:**

   Increase in online scams, phishing, SIM swaps, fake loan apps. Customers may lose money through fraud due to weak digital literacy. Hackers target fintech platforms and customer wallets.

3. **Low Digital & Financial Literacy:"**

   Many Nigerians, especially in rural areas, struggle to use apps, USSD, or digital wallets. This creates trust issues and makes them prone to fraud.

4. **High Transaction Charges & Hidden Fees**

   Some fintech apps or POS agents charge high transfer fees, withdrawal commissions, or interest rates on loans. This discourages poor or low-income users.

5. **Regulatory & Policy Uncertainty:**

   The CBN ban on crypto (2021–2023) affected blockchain innovations. Constant changes in fintech regulations create uncertainty for startups. Some fintechs operate in "grey areas" where regulations are not yet clear.

6. **Network Failures & Transaction Reversals:**
   Frequent cases of "debited but not credited" during transfers or POS use. Network downtime in banks and telecoms slows adoption and causes frustration.
7. **Exclusion of the Unconnected:**
   Many rural dwellers still lack smartphones, bank accounts, or BVN. Even USSD requires basic literacy, so completely illiterate people may still be excluded.
8. **Data Privacy Concerns:**
   Fintechs collect huge amounts of personal data (BVN, ID, phone number, contacts). Misuse or data leaks could expose users to risks.

9. **Loan Harassment & Exploitation:**
   Some digital loan apps use unethical debt recovery methods — calling borrowers' friends/family, sending shaming messages. Very high interest rates trap users in debt cycles.
10. **Limited Interoperability:**
    Some fintechs don't fully integrate with banks or other platforms, leading to delays and restrictions. Example: Transfer from a wallet may not reflect instantly in a traditional bank.

4.5 Comparative Insights

Lessons from other African countries highlight the potential of FinTech in deepening financial inclusion. For instance, Kenya's M-Pesa has been credited with lifting more than 194,000 households out of poverty by providing mobile money services (Jack & Suri, 2014). Nigeria can replicate such success by addressing regulatory and infrastructural barriers while leveraging its large population and growing FinTech ecosystem.

5. Conclusion and Recommendations

5.1 Conclusion

This study examined the adoption of Financial Technology (FinTech) and its impact on financial inclusion in Nigeria. Findings reveal that despite persistent challenges of financial exclusion, FinTech innovations such as mobile money, digital wallets, peer-to-peer lending, and agent banking are playing a transformative role in expanding access to financial services. Platforms such as Paga, Opay, Flutterwave, Paystack, and Kuda Bank have made banking services more accessible, affordable, and convenient for millions of Nigerians, particularly the unbanked and underbanked populations.

The drivers of this adoption include widespread mobile penetration, youthful demographics, supportive regulatory initiatives, and the growth of technology startups. However, infrastructural deficits, cybersecurity threats, regulatory uncertainty, and low digital literacy continue to constrain FinTech's full potential. Comparative experiences, particularly from Kenya's M-Pesa, demonstrate that Nigeria has the potential to achieve much higher levels of financial inclusion if these barriers are effectively addressed.

In conclusion, FinTech has become an indispensable tool for financial inclusion in Nigeria, and with the right policies, infrastructure, and literacy programs, it can accelerate economic growth, poverty reduction, and social development.

5.2 Recommendation

1. **Improve Infrastructure (Internet & Power):**
   Government and telecom companies should expand broadband coverage and improve network reliability. Encourage solar-powered POS & ATMs for rural areas with poor electricity.
2. **Strengthen Cybersecurity & Consumer Protection:**
   Fintechs must invest in strong encryption, fraud detection, and 2FA (two-factor authentication). CBN & regulators should enforce strict data protection laws. Educate users on safe practices (avoid sharing PINs, recognize scams).
3. **Enhance Financial & Digital Literacy:**
   Organize community outreach programs to teach people how to use apps, USSD, and mobile money safely. Include financial literacy in school curriculum for students. Fintechs should create simple, local language guides for rural users.
4. **Reduce Fees & Improve Transparency:**
   Regulators should cap excessive POS charges and loan interest rates. Fintechs should clearly display transaction charges and interest terms. Encourage competition to drive down costs.
5. **Stable & Clear Regulations**: CBN and SEC should provide friendly policies that encourage innovation (not just restrictions). Establish a fintech regulatory sandbox where

startups can test products under supervision. Encourage collaboration between banks and fintechs instead of rivalry.

6. **Improve Transaction Reliability:**

   Strengthen interbank settlement systems (NIBSS) to reduce failed transactions. Set up real-time monitoring so failed transfers are reversed immediately.

7. **Inclusion for the Unconnected & Illiterate:**

   Expand agent banking and USSD services to rural villages. Develop voice-based transactions in local languages for those who cannot read/write. Encourage community banking models with fintech support.

8. **Data Privacy & Ethical Use**:

   Strict enforcement of the Nigeria Data Protection Regulation (NDPR). Penalties for fintechs that misuse customer data. Users should have the right to opt-out of data sharing.

9. **Curb Loan App Harassment:**

   CBN should regulate digital lending practices and shut down predatory loan apps. Introduce credit bureaus & digital scoring systems so loans are fair and responsible. Promote alternative lending models like peer-to-peer platforms.

10. **Promote Interoperability & Collaboration:**

    Encourage open banking systems so fintechs, banks, and wallets can connect seamlessly. Support cross-border payment systems for easy remittances.

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