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FINANCIAL TECHNOLOGY (FINTECH) AND THE EXPANSION OF RURAL BANKING SERVICES IN SOUTH-WEST NIGERIA

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Abstract
The study examined the extent Financial Technologies (FinTech) Electronic-Payments (E-payments) services in commercial banks have influenced the success of rural banking policy in Southwest, Nigeria. It was motivated by the problem of low permeation of rural dwellers banking in the South-West of Nigeria, making financial inclusion policy a herculean task. The specific objectives were, therefore, to ascertain the extent to which Fintech Credit Cards (E-Payment), Automated Teller Machines (ATM), and Fintech Point of Sales (POS) influence the adoption of modern financial technology services by rural dwellers in Southwest, Nigeria. Exploratory research design was adopted for the study, while data analysis were through multiple regression statistical tool. Results obtained indicate that: Fintech credit cards (e-payment), Automated Teller Machines (ATM), point of sales (POS), services could significantly make rural banking attractive to rural dwellers in the South-West of Nigeria. Based on these, it was recommended among other things that: Fintech services operators should reduce all the bureaucratic bottlenecks that make rural banking unattractive to rural dwellers in parts of Nigeria, and use fintech to reduce the socio-economic distance between rural and urban dwellers in the country.

Keywords: *Fintech Services Adoption, Credit Cards, E-Wallets, E-Checks, ATMs, POS, Rural Banking.*

1.1 Introduction
Since Nigeria's independence, banking sector development has remained largely urban-focused, resulting in persistent financial exclusion of rural populations. This imbalance

informed the introduction of the Rural Banking Scheme (RBS) in 1977, aimed at promoting rural savings mobilization, credit access, and financial inclusion (Angahar, 2013; Okigbo, 1976). Despite this intervention, challenges such as weak rural savings culture, limited credit availability, and low utilization of formal banking services continue to undermine rural financial development (Okorie, 2022).

Evidence shows that bank branch distribution in Nigeria still prioritizes urban centres, leaving rural areas significantly underbanked (Central Bank of Nigeria [CBN], 2020). Although informal financial systems—such as *esusu* and cooperatives—remain dominant in rural Nigeria, formal financial institutions are essential for sustainable development due to their role in transaction monetization and economic modernization (Okorie, 2018). Scholars emphasize that effective rural banking policies must reflect rural socio-cultural realities, reduce rural–urban disparities, and incorporate financial education and gender inclusion strategies (Adekanye, 2016; Anyanwu, 2016; Essien, 2014).

Nigeria's transition towards a cashless economy, supported by high mobile phone penetration, has accelerated the adoption of electronic banking platforms, including ATMs, POS terminals, mobile banking, and electronic fund transfers (CBN, 2013; Nigerian Inter-Bank Settlement Systems [NIBSS], 2015). Financial Technology (FinTech) firms have become central to this transformation by offering faster, more accessible, and technology-driven financial services. However, the extent to which FinTech innovations have effectively expanded rural banking services remains insufficiently explored, particularly in South-West Nigeria.

1.2 Statement of the Problem

Empirical evidence indicates that rural households in South-West Nigeria rely predominantly on informal financial mechanisms, with limited engagement with conventional and microfinance banks (Oluwatusin & Olofinsao, 2020). This preference is attributed to poor bank presence, lack of trust, cultural misalignment, and limited financial literacy among rural dwellers (Anyanwu, 2016). Despite broad consensus that financial inclusion drives rural income growth, employment generation, and poverty reduction, access to institutional finance in rural Nigeria remains critically low (CBN, 2005). These persistent gaps raise concerns regarding the effectiveness of FinTech-enabled banking services in addressing rural financial exclusion.

1.3 Objectives of the Study

This research aims to evaluate the extent FinTech Electronic-Payments (E-payments) services in commercial banks have influenced the success of rural banking in Southwest, Nigeria. The specific objectives of the research include:

1. To ascertain the extent to which Fintech Credit Cards (E-Payment) services has made rural banking attractive to rural dwellers in the South-West of Nigeria.
2. To ascertain the extent to which Fintech Automated Teller Machines (ATM) services has been acceptable to the rural dwellers in Nigeria.
3. To ascertain the extent to which Fintech Point of Sale (POS) terminals services has been adopted by rural dwellers in Nigeria.

1.4 Research Questions

The following research questions are raised for the study:

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1. To what extent has Fintech Credit Cards (E-Payment) services made rural banking attractive to rural dwellers in the South-West of Nigeria?

2. To what extent has Fintech Automated Teller Machines (ATM) services reduced the socio-economic distance between the rural and urban dwellers in Nigeria?
3. To what extent has Fintech Point of Sale (POS) terminals services factored-in special training for rural banks' staff on the cultures and traditions of the rural dwellers in Nigeria?

1.5 Research Hypotheses

To address above objectives, the following null hypotheses were postulated:

Ho_1: Fintech Credit Cards (E-Payment) services have not significantly made rural banking attractive to rural dwellers in the South-West of Nigeria.

Ho_2: Fintech Automated Teller Machines (ATM) services have not significantly reduced the socio-economic distance between the rural and urban dwellers in South-West of Nigeria.

Ho_3: Fintech services do not significantly factor-in special training for rural banks' staff on the cultures and traditions of the rural dwellers in South-West of Nigeria.

1.6 Significance of the Study

The study contributes to the growing literature on financial technology adoption and rural financial inclusion in Nigeria. Its findings are expected to inform financial institutions, policymakers, regulators, and academics, particularly in advancing Nigeria's cashless policy and strengthening rural banking strategies in the country (CBN, 2013; NIBSS, 2015).

1.7 Scope of the Study

The study focused on rural communities in South-West Nigeria, covering key stakeholders such as farmers, traders, artisans, and social institutions, and examining their adoption of FinTech-driven banking services.

2.0 Literature Review

2.1 Theoretical Framework

The study is anchored on Rogers' Diffusion of Innovation (DOI) Theory. The DOI theory explains how innovations are communicated through specific channels over time among members of a social system (Sampaio et al., 2012). It emphasizes that the acceptance or rejection of an innovation depends largely on individuals' attitudes and perceptions toward it (Alqahtani & Wamba, 2012). Rogers (2003) distinguishes adoption as individual acceptance and continued use of an innovation, while diffusion reflects the cumulative spread of adoption across a social system over time. Accordingly, adoption represents individual behavioural evaluation, whereas diffusion captures the collective sociological process (Sathye, 1999; Evans et al., 2006).

Empirical studies indicate that DOI has been widely applied in examining technology adoption across domains such as internet banking, mobile banking, and electronic payment systems (Venkatesh et al., 2003). Given the limited Nigerian literature on rural adoption of cashless technologies such as POS and ATMs, DOI is adapted in this study to explain the uptake of FinTech-enabled rural banking services in South-West Nigeria.

2.2 Application of DOI to the Study

The DOI theory identifies five innovation attributes - relative advantage, compatibility, complexity, trialability, and observability, that influence adoption decisions (Comer & Kendall, 2013). The innovation-decision process follows five stages: knowledge, persuasion, decision, implementation, and confirmation (Sang & Tsai, 2009). DOI has proven effective in explaining IT adoption across multiple disciplines (Sahin, 2006; Zhang et al., 2015). Its flexibility allows adaptation to both formal and informal environments (Straub, 2009).

In the rural Nigerian context, electronic banking represents a significant innovation. Its diffusion depends on perceived usefulness, ease of use, cultural compatibility, and simplicity, which are key propositions of the DOI. Hence, DOI provides a suitable framework for analysing FinTech adoption among rural dwellers.

2.3 Rural Banking Scheme in Nigeria

Nigeria's Rural Banking Scheme (RBS) emerged from the 1976 Okigbo Financial Review Committee, which recommended compulsory rural branch expansion by commercial banks to channel credit to rural areas (Udochi, 2008). The scheme commenced in 1977, aiming to mobilize rural savings, extend credit to small-scale enterprises, promote agricultural development, and reduce rural–urban migration (Angahar, 2013).

While early phases recorded moderate success due to economic growth and bank profitability (Obilor, 2013; Anyanwu, 2016), later phases suffered setbacks caused by economic recession, weak infrastructure, low patronage, and poor supervision (Essien, 2014). Despite notable initiatives such as agricultural loan schemes by UBA and First Bank, the sustainability of rural banking remained constrained by profitability concerns, infrastructural deficits, and security challenges (Goldsmith, 2009; Adekanye, 2016).

2.4 Rural Finance Experience in Nigeria

Nigeria's rural finance initiatives—including NACB, community banks, and the People's Bank of Nigeria (PBN)—were largely supply-driven and agriculturally focused. Although these institutions achieved wide outreach and relatively high repayment rates, they failed to attain financial sustainability due to political interference, rigid interest-rate controls, and weak financial systems orientation. Consequently, rural access to formal finance remains limited despite decades of intervention.

2.5 Informal Rural Banking Mechanisms

Informal financial systems such as esusu/adashi, ROSCAs, and itinerant banking dominate rural finance. Despite high implicit interest rates, rural users favour these mechanisms due to accessibility, flexible repayment schedules, and alignment with livelihood patterns. These characteristics provide important lessons for FinTech providers seeking to design inclusive rural financial products.

2.6 Rural Banking Behaviour in South-West Nigeria

Empirical evidence indicates that informal financial channels dominate rural banking in South-West Nigeria, with only a minority using conventional banks (Oluwatusin & Olofinsao, 2016). Limited rural bank presence, operational complexity, and loss of trust in formal institutions explain this preference.

2.7 Empirical Review

Several studies confirm that perceived ease of use, social influence, and effort expectancy significantly influence adoption of POS, ATMs, and other FinTech tools (Onyedimekwu &

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Oruan, 2016; Omotayo & Dahunsi, 2015). These findings align with TAM, UTAUT, and DOI propositions (Venkatesh et al., 2003; Taylor & Todd, 1995).
Studies on rural finance and microcredit reveal mixed outcomes, with limited productivity gains where access to complementary inputs and modern technologies is lacking (Okorie, 2022; Angahar, 2013). More recent FinTech literature highlights the transformative role of digital technologies in financial inclusion, consumer decision-making, and financial ecosystem sustainability (Gimpel et al., 2018; Pousttchi & Dehnert, 2018; Stöckli et al., 2018; Pongsakorn & Kraiwanit, 2021).

Overall, existing evidence supports the relevance of DOI in explaining FinTech adoption and underscores the need for context-sensitive, culturally compatible, and user-friendly digital banking solutions for Nigeria's rural populations.

3.0 Research Methodology

This study adopted a descriptive survey research design, suitable for social science investigations that systematically collect and analyse data without manipulating variables (Eboh, 2009). The design enabled the generation of quantifiable data for statistical inference through structured questionnaires (Onodugo, 2010).

Area and Sources of Data

The study was conducted in rural communities across the six states of South-West Nigeria, with findings expected to be generalizable subject to socio-cultural differences. Primary data were collected using structured questionnaires, complemented by secondary data sourced from scholarly literature, institutional libraries, and official databases including CBN and NIBSS.

Population, Sample Size, and Sampling Technique

The population comprised POS users in selected shopping malls, as service users are best positioned to evaluate service quality (Kasim, 2005). Given the unknown population size, Cochran's (1977) formula for infinite populations was applied, yielding a sample size of 384 respondents**,** proportionately distributed across the study area. Purposive, convenience-intercept, and snowball sampling techniques were employed due to the sensitive nature of financial data and access constraints, consistent with prior financial technology studies.

Research Instrument and Data Collection

A self-administered questionnaire, adapted from validated technology-adoption scales, was used. The instrument comprised demographic and issue-based sections aligned with established adoption models. Data were collected using a mixed-mode approach (online and offline) to enhance response rates (Couper, 2000).

Validity and Reliability

Instrument validity was ensured through expert review, while reliability was confirmed via a pilot study and Cronbach's Alpha ($\alpha = 0.865$), indicating strong internal consistency.

Data Analysis

Data were analysed using multiple regression analysis. The analysis was conducted using SPSS**,** following established guidelines (Hair et al., 2006; Ullman, 2007).

4.0 Data Presentation, Analysis and Findings

4.1 Questionnaire Distribution

Out of 400 questionnaires administered, 345 valid copies were retrieved, representing an 86.25% response rate, while 13.75% were not returned. All analyses were therefore based on the 345 usable responses, indicating a strong response level for quantitative inference.

4.2 Demographic Characteristics of Respondents

The sample was predominantly male (63.76%)**,** with females constituting 36.23%. Respondents were fairly distributed across age groups, with the majority falling between 15–45 years (77.93%)**,** reflecting an economically active population. Occupationally, business owners/self-employed respondents (38.02%) formed the largest group, followed by civil/public servants (33.3%), farmers (10.8%), students (10.3%), and the unemployed (3.8%).

Geographically, Lagos State accounted for the highest proportion of respondents (27.54%**),** while the remaining five South-West states contributed 14.49% each, ensuring regional balance. Educational attainment was relatively high, with over 48% holding tertiary or postgraduate qualifications, supporting informed responses.

4.3 Awareness and Usage of Financial Technologies

Awareness of financial technologies (POS, ATM, mobile banking) was exceptionally high (97.1%). However, actual usage lagged behind, as only 70.43% reported using such services. POS usage specifically stood at 68.12%, while 31.88% had never used POS facilities. Frequency analysis further revealed low financial deepening, with only 18.26% using fintech services regularly, 50.72% sparingly, and 31.01% never**.**

Perceived usefulness was moderate: 61.74% agreed that fintech services were useful, while 38.27% were either neutral or disagreed.

4.4 Perceived Impact of Fintech Services

Results showed that 53.04% of respondents agreed that fintech credit card (e-payment) services enhanced rural banking attractiveness. Similarly, 53.91% agreed that ATM services reduced rural–urban socio-economic distance. Conversely, 68.12% indicated that POS services had not incorporated culturally sensitive training for rural bank staff.

4.5 Hypotheses Testing

The multiple regression analysis revealed a moderate explanatory power ($R^2 = 0.172$; $F = 18.506$; $p < 0.01$), confirming the joint significance of fintech variables. Fintech credit cards ($p = 0.001$) and ATM services ($p = 0.004$) significantly influenced rural banking attractiveness and reduced socio-economic distance, respectively. POS services also showed a significant effect ($p = 0.001$) regarding staff training considerations. Consequently, all the null hypotheses were rejected.

4.6 Summary of Findings

The study establishes that fintech services, particularly e-payments and ATMs, significantly enhanced rural banking attractiveness and inclusion in South-West Nigeria. Nonetheless, regular usage remains low, cultural adaptation is inadequate, and a substantial proportion of rural dwellers remain financially excluded, indicating that national and global financial inclusion targets have not yet been fully achieved in Southwest, Nigeria.

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4.7 Discussion of Findings

Guided by the Diffusion of Innovation Theory (DOI), this study examined how FinTech services influence rural banking outcomes in South-West Nigeria. DOI explains technology adoption through attributes such as relative advantage, compatibility, complexity, trialability, and observability (Rogers, 2003). The findings demonstrate that FinTech adoption in rural areas is largely driven by perceived advantages and visibility of benefits, while compatibility-related challenges remain evident.

The significant influence of FinTech credit card (e-payment) services on rural banking attractiveness reflects the relative advantage attribute of DOI. Rural dwellers increasingly perceive e-payment platforms as superior to traditional banking due to convenience, speed, and reduced transaction costs. This perception enhances the attractiveness of rural banking institutions and supports prior studies that link digital payments to improved financial inclusion and service accessibility in developing economies (Aker & Mbiti, 2019; Ozili, 2018).

Similarly, the finding that ATM services significantly reduce the socio-economic distance between rural and urban dwellers aligns with the observability and trialability dimensions of DOI. ATMs provide visible, tangible access points for financial services, enabling rural users to experience the benefits of banking technologies firsthand. This contributes to social and economic integration by minimizing the need for physical movement to urban centers, thereby narrowing long-standing rural–urban disparities (Rogers, 2003; World Bank, 2022).

However, the study reveals that POS services have not adequately incorporated culturally sensitive training for rural banking staff, indicating weak compatibility between the innovation and the rural socio-cultural environment. DOI emphasizes that innovations poorly aligned with users' cultural values and social practices face slower or incomplete adoption. This finding explains the observed gap between high awareness of FinTech services and low levels of regular usage among rural respondents, corroborating earlier evidence that contextual misalignment limits sustained FinTech diffusion in rural Africa (Donovan & Park, 2020).

Overall, the findings confirm DOI's central proposition that successful diffusion of financial innovations in rural contexts depends not only on awareness but also on compatibility with local realities. Without deliberate institutional and capacity-building interventions, FinTech adoption in rural Nigeria is likely to remain shallow despite widespread exposure.

4.8 Recommendations

Based on the findings of this study, the following recommendations are proffered:

1. The Fintech services operators should reduce all the bureaucratic bottlenecks that make rural banking attractive to rural dwellers in parts of Nigeria.
2. Fintech services must be packaged and delivered in such a way as to significantly reduce the socio-economic distance between the rural and urban dwellers in the country.
3. Fintech services operators should factor-in special culture-sensitive financial technologies' trainings for their staff on the cultures and traditions of the rural dwellers in parts of the country, so as to arrest the technophobia amongst some of them, which is inhibiting their acceoptance of fintech services.
4. Efforts should be made by the federal and state governments to ensure that rural communities in Nigeria are in the United Nations' Sustainable Development Goals of financial inclusion for all.

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