The Role of Digital Payment Solutions in Enhancing Financial Inclusion in Nigeria: A Case Study of Agency Banking and Mobile Money Operations

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ABSTRACT

The persistent challenge of financial exclusion in developing economies has led to increased attention on digital payment solutions as potential pathways for expanding access to financial services. This study examined how digital payment solutions impact financial inclusion in Nigeria, with particular focus on accessibility, adoption, and financial well-being outcomes. Using a structured questionnaire administered through convenience sampling, data were collected from 293 respondents aged 18-55 years in South-West, Nigeria. The study employed both descriptive and inferential statistics to analyse the relationships between

digital payment adoption and financial inclusion outcomes. The findings revealed that accessibility and adoption of digital payment solutions were primarily influenced by three key factors: user awareness, mobile network availability, and financial literacy. The study demonstrated that digital payment solutions significantly improved the financial well-being of previously unbanked Nigerians, particularly in areas of payment safety, money transfer accessibility, and financial security. However, systemic barriers including digital inequality and infrastructure limitations affected full adoption. Additionally, the study showed that agency banking and mobile money operations have emerged as transformative tools for financial inclusion, especially in under-reached communities, though their effectiveness was moderated by factors such as network reliability and digital literacy levels. The study concluded that while digital payment solutions offer substantial potential for advancing financial inclusion, their success requires a comprehensive approach addressing both technological and socio-economic barriers. These findings have important implications for policymakers, financial institutions, and development partners working to enhance financial inclusion through digital solutions.

Keywords: Financial Inclusion, Digital Payment Solutions, Agency Banking, Mobile Money, Development Finance

INTRODUCTION

Despite notable advancements in financial technology and policy reforms, a significant proportion of Nigeria's adult population remains excluded from the formal financial system. According to Enhancing Financial Innovation and Access (EFinA, 2023), approximately 36% of Nigerian adults are still unbanked, revealing a persistent challenge to achieving inclusive economic growth and sustainable development. This reality underscores the critical importance of expanding access to formal financial services for underserved populations.

In response, this study investigates the role of digital payment solutions in bridging Nigeria's financial inclusion gap, with particular emphasis on mobile banking, Unstructured Supplementary Service Data (USSD) transfers, and agency banking as mechanisms for enhancing financial access among excluded segments of the population.

Financial inclusion has gained widespread recognition as a cornerstone of poverty reduction, economic empowerment, and social equity. As defined by the World Bank (2025), financial inclusion refers to the availability and accessibility of affordable, useful financial products and services, such as payments, credit, insurance, and savings, delivered responsibly and sustainably. However, Nigeria continues to grapple with multifaceted obstacles that impede the attainment of inclusive financial systems. These include infrastructural deficits, regulatory uncertainties, digital illiteracy, and persistent socio-economic inequalities. In this context, digital payment solutions—encompassing mobile money, digital wallets, agency banking, and online transactions—have emerged as critical enablers of financial access. By leveraging mobile technology and existing retail networks, these innovations allow for secure, low-cost financial transactions without the need for traditional banking infrastructure. This is particularly significant in rural and underserved areas, where formal banking services remain largely inaccessible.

Nigeria's unique socio-demographic profile positions it as a compelling case for examining the effectiveness of digital financial inclusion strategies. With a mobile phone penetration rate of 84% and a median age of 18.1 years (Nigerian Communications Commission, 2024), the country possesses both the technological infrastructure and demographic momentum necessary for widespread adoption of digital finance. Urbanization trends, a growing middle class, and reductions in extreme poverty—such as the 12.1% decline in poor households between 2005 and 2015 (Corall et al., 2016)—further enhance the prospects for digital financial service expansion. Nonetheless, structural and institutional barriers remain deeply entrenched. These include unreliable power supply, limited internet connectivity, low levels of digital and financial literacy, and a regulatory framework that, while evolving, still presents significant compliance challenges (Nnaomah et al., 2024; Omenihu et al., 2024). Moreover, financial exclusion in Nigeria is not solely a function of access to technology, but also of issues related to trust, affordability, and usability (Efobi et al., 2016). Consequently, while agency banking and mobile money offer promising alternatives to conventional banking, their real-world effectiveness requires rigorous, context-specific empirical evaluation. This study contributes to the existing body of knowledge by assessing the impact of these digital payment solutions on financial inclusion outcomes in South-West Nigeria, with a focus on user experiences, adoption dynamics, and socio-economic impact, particularly among youth and low-income populations.

Despite the proliferation of digital payment solutions in Nigeria, a significant gap persists between their availability and meaningful financial inclusion for underserved populations. xisting studies (Idolor & Omehe, 2022; Nnaomah et al., 2024) highlight contradictory findings on the efficacy of these solutions, with some demonstrating positive impacts while others reveal limitations due to infrastructural, regulatory, or adoption barriers. Furthermore, little attention has been paid to how these solutions directly influence the financial well-being of excluded groups, particularly in rural and peri-urban areas where exclusion rates remain highest. This study addresses the gap by critically examining the nexus between digital payment opportunities and limitations of these solutions in promoting financial inclusion (Siddika et al., 2023). The findings of this study have important implications for multiple stakeholders: for policymakers, in designing more effective regulatory frameworks; for financial institutions, in developing more accessible and sustainable digital financial services; and for development practitioners, in designing interventions that can effectively leverage digital solutions to promote financial inclusion. It would also contribute to the broader academic discourse on financial inclusion by providing empirically grounded insights into the effectiveness of digital solutions in addressing financial exclusion in developing economies.

LITERATURE REVIEW

This section reviews existing literature on financial inclusion and digital payment solutions, organised into three key themes: barriers to financial inclusion, current trends in digital payment solutions in developing economies, and the role and impact of mobile money and agency banking. These themes provide a structured framework to understand the opportunities and challenges of digital financial services in Nigeria.

Barriers to Financial Inclusion

Financial inclusion represents a multidimensional concept that extends beyond mere access to financial services. While traditional definitions focused primarily on account ownership, contemporary scholarship emphasizes the quality, usage, and impact of financial services (Demirguc-Kunt, et al., 2017; Singh and Roy, 2015). While these are rational, recent arguments on the subject of financial inclusion indicate that meaningful financial inclusion encompasses both access to and active usage of formal financial services, challenging simplistic metrics often employed in policy discussions as well as sustained economic empowerment (Barajas et al., 2020; World Economic Forum, 2018).

Further, Shair et al. (2024) revealed that measuring financial inclusion through account ownership alone masks significant disparities in service utilisation and financial well-being outcomes. Their research across developing economies demonstrated that account dormancy rates often exceed 30%, suggesting that access does not automatically translate into meaningful financial participation. In Nigeria's context, Seotan and Umukoro (2023) contended that while formal account ownership has increased, regular usage of financial services remains constrained by factors including cost, location, distance, and financial literacy. On this note, there is need for a holistic approach to financial inclusion which emphasizes the need to consider both supply-side factors (availability, accessibility, affordability) and demand-side elements (capability, trust, relevance). Consequently, understanding of financial inclusion requires alignment between financial service provision and user needs, capabilities, and circumstances.

Current Trends in Digital Payment Solutions in Developing Economies

Digital payment solutions, which entails the channels through which individuals can carry out financial transactions without the use of physical currency or transfer, has become the trend in the contemporary banking industry (Hazar and Babuscu, 2023). It also entails a modern approach to financial transactions, enabling the transfer of money through various electronic means. These include mobile wallets, online banking platforms, payment applications, and contactless cards, all designed to facilitate seamless monetary exchanges between parties using digital technology. The advantages of digital payment systems are significant and wide-ranging. They offer unparalleled convenience and speed in transactions, while typically incurring lower costs compared to traditional banking methods (Kulkarni and Taj, 2020).

Enhanced security through encryption and authentication protocols provides peace of mind, while real-time tracking capabilities ensure transparency. The reduced need for physical cash handling and global accessibility has made these solutions increasingly popular worldwide. However, digital payments also come with certain drawbacks. The system's reliance on internet connectivity can be problematic, and users face risks from cybersecurity threats and fraud (Slozko and Pelo, 2015). Technical glitches can disrupt services, while the digital divide excludes those without access to technology (Singh et al., 2016). Privacy concerns regarding data collection and a learning curve for some users present additional challenges (Dingh, 2024). Despite these limitations, digital payment solutions continue to evolve, with ongoing improvements in security and user experience addressing many initial concerns.

Irrespective of the above limitations, digital payments have continued to increase as Khando et al. (2023) noted that, globally, non-cash transactions grew by 14% as of 2019 reaching over 708 billion financial transactions. This implies that there is a growing adoption of digital payments. However, despite these figures, the extent to which these digital payment solutions can promote financial inclusion especially in developing economies remains a matter of scholarly debate. According to a World Bank Report (2023), these solutions have enabled previously unbanked individuals to access financial services, particularly in developing regions resulting in increased capital and revenue base for the banks. In corroboration Osabutey and Jackson (2024) argue, following an empirical study, that digital payments reduce barriers to financial services.

However, critics highlight significant challenges. Ahmad et al. (2020), while acknowledging the significant role that digital payment solutions play in enhancing financial inclusion, observe that digital literacy gaps and infrastructure limitations can actually widen existing financial disparities. Furthermore, Sindakis and Showkat (2024) note that rural communities and the elderly populations in these locations often struggle with digital

adoption, potentially leading to their further marginalisation. Considering the varied impact of context on the role that digital payment solutions plays in financial inclusion, there is need to specifically examine the role in that digital payment solutions play in financial inclusion in Nigeria. This is a gap this study fills. The next section critically reviews literature on the concept of financial inclusion. After that two key forms of digital payment solutions are examined and they include agency banking and mobile money.

The Role and Impact of Agency Banking and Mobile Money Operations

Agency banking is primarily a business model where traditional banks partner with retail agents (like shops, pharmacies, or post offices) extend banking services to underserved persons or areas (Ayadi and Oke, 2023). These agents, acting as bank representatives, can use digital tools to facilitate transactions, but the model itself is not inherently digital. The fact that they can deploy digital channels to provide financial services informs its inclusion in this study. Having noted this, several factors shape the effectiveness of agency banking and these have been identified by scholars. Considering agent banking, success varies considerably based on geographical location, agent capacity, and market dynamics, all of which can enhance financial inclusion (Terfa, et al., 2022). In another study, agent banking implementation, including liquidity management, agent reliability, and service consistency were identified as the key metrics that influence the effectiveness of agency banking. It appears therefore that when agency banking is properly deployed, it results in increased chances of financial inclusion especially in rural areas.

However, recent work by Agbor et al. (2023) critiques the assumption that agent proximity automatically translates to increased financial service usage. They noted that POS terminals, as digital payment solutions adopted by agent bankers, in rural areas showed mixed results in banking adoption. While they did not significantly increase new bank account openings, they proved effective for money transfers and cash deposits. This indicates that the extent to which agency banking significantly results in financial inclusion remains debatable. This informs the focus of this present study to examine the role of digital payment solutions, as mediated by agency banking, on financial inclusion.

On the other hand, mobile money operations have emerged as a crucial component of digital financial inclusion strategies, though their effectiveness varies significantly across contexts. Analysis by Katusiime (2021) revealed that while mobile money can reduce transaction costs and increase financial access, its impact is heavily moderated by technological infrastructure and regulatory frameworks. Furthermore, while youth and urban populations usually show high adoption rates, sustained usage often depends on factors beyond technological access, including trust in digital systems and perceived value proposition (Hakimi, et al., 2023). This implies that the role that mobile money plays in enhancing financial inclusion may not be straightforward. This therefore contradicts the simplistic technological perspective often presented in mobile money discourse. Further, Nyika (2024) identified significant barriers to mobile money effectiveness, including network reliability, digital literacy, and interoperability challenges. The author suggested that while mobile money shows promise for expanding financial access, its impact is often constrained by structural limitations in developing markets.

Against the above backdrop, examining the role of digital payment solutions on financial inclusion should take a more contingent approach. On this note, this present study focused on understanding the structural limitations in depth. It examined factors such as infrastructure challenges (unreliable connectivity, limited agent networks), regulatory barriers (restrictive policies, lack of appropriate frameworks), socioeconomic factors (digital literacy, financial literacy, accessibility), and other market-specific barriers to adoption and usage. By taking this contextual approach (using the case of agency banking and mobile money operations in Nigeria), this study moved beyond just looking at broad adoption metrics, instead investigated on how the digital payment solutions interact with the local environment and the specific obstacles that limit its transformative potential for driving financial inclusion.

Drawing upon the above critical review of existing literature, this study tested three hypotheses (null and alternate) to evaluate the relationships between digital payment solutions and financial inclusion in Nigeria. The hypotheses are as follows:

1. H_0a: Accessibility and adoption of digital payment solutions are not positively influenced by factors such as user awareness, mobile network availability, and financial literacy.

2. H_1a: Accessibility and adoption of digital payment solutions are positively influenced by factors such as user awareness, mobile network availability, and financial literacy.

3. H_0b: Digital payment solutions have not significantly improved the financial well-being of previously unbanked Nigerians.

4. H_1b: Digital payment solutions have significantly improved the financial well-being of previously unbanked Nigerians.

5. H_0c: Agency banking and mobile money operations have not significantly expanded financial inclusion in Nigeria.

6. H_1c: Agency banking and mobile money operations have significantly expanded financial inclusion in Nigeria.

Theoretical Framework

The theory underpinning the roles of digital financial services in financial inclusion draws from multiple complementary yet sometimes conflicting theoretical frameworks. The goal is to demonstrate the complex and multi-layered nature of financial initiatives in developing economies where technological, social, and economic factors intersect in unique ways.

The first theory adopted by this study is Financial Intermediary Theory (FIT). This FIT provides a foundational framework for understanding how digital solutions can reduce transaction costs and information asymmetries (Allen and Santomero, 1998; Gbadebo, 2024). The theory argues that financial intermediaries, such as banks, exist because they efficiently solve information asymmetry problems between lenders and borrowers through specialized expertise in screening and monitoring (Mitchell, 2005). They also reduce transaction costs by pooling funds, diversifying risks, and creating economies of scale in connecting savers with borrowers. While this intermediary function appears to enhance financial inclusion, it often fails to fully account for the unique challenges presented by developing economy contexts such as Nigeria (Osabutey and Jackson, 2024). Despite this, this study explores how digital banking solutions offered by financial intermediaries in Nigeria supports the realization of sustained financial inclusion. This is because financial inclusion tends to improve when reduced transaction costs (through digital banking, simplified documentation, bulk processing) make banking services affordable for low-income and informal sector participants. On the other hand, information asymmetry reductions, through alternative credit scoring and digital footprints, help financial institutions better evaluate previously unbanked customers while managing risks effectively.

This study also adopted the Technology Acceptance Model (TAM). The Technology Acceptance Model (TAM), developed by Fred Davis in 1989, argues that a user's willingness to utilize new technology is primarily determined by two key factors: perceived usefulness, which is the degree to which a person believes the technology will enhance their performance, and perceived ease of use, the extent to which a person believes using the technology will be effortless (Mugo, et al., 2017; Davis, 1989). The model suggests that these perceptions shape users' attitudes toward technology, which in turn influences their behavioral intention to use and actual usage of the system. However, recent critical scholarship by Thompson and Liu (2022) argued that traditional TAM framework inadequately capture the complexity of adoption decisions in developing economies. Their research highlighted how factors such as trust in formal financial systems, social networks, and cultural norms often play more significant roles than the perceived usefulness and ease of use emphasized in classical TAM literature. This critique is particularly relevant in the Nigerian context, Akinwale and Kyari (2020) noted that social trust factors often outweigh technological considerations in digital financial service adoption decisions. Against this backdrop, this study examined how the social factors coupled with perceived ease and usefulness of technological systems promote the utilisation of digital payment solutions, leading to financial inclusion.

METHODOLOGY

This study adopted a quantitative research approach situated within the positivist research paradigm. The

positivist paradigm emphasizes the use of empirical, observable, and measurable data to explain phenomena and test hypotheses. It is particularly suited for studies seeking to establish generalizable relationships between variables through statistical analysis (Chirkov and Anderson, 2018). The adoption of this paradigm aligns with the study's core objective—to assess the role of digital payment solutions in enhancing financial inclusion among adults aged 18–30 in South-West Nigeria using quantifiable data. The choice of a positivist and quantitative orientation also enables a more systematic inquiry, allowing for replication and validation of findings across similar settings. Importantly, it allows the study to reach a wider research population, thereby enhancing the external validity and generalizability of its results.

A cross-sectional survey design was employed to collect data from the target population at a specific point in time. This design is particularly appropriate for exploratory and explanatory studies where the goal is to identify current patterns, relationships, and associations among variables (Khan et al., 2023). It allowed the researchers to capture data on the current adoption, usage patterns, and perceived impact of digital payment technologies within the specified demographic segment.

Population and Sampling Strategy

The study focused on Nigerian adults aged 18–55 residing in three states within South-West, Nigeria: Lagos, Ogun, and Oyo. These states were selected due to their strategic socio-economic relevance and relatively high levels of mobile phone penetration, digital infrastructure, and financial activity. Based on the most recent demographic estimates, the adult population aged 18–55 across these three states was approximately38 million as of 2019 (National Bureau of Statistics, 2020).

A sample of 293 respondents was selected using a stratified random sampling approach to ensure representativeness across the target population. The population was first stratified by state (Lagos, Ogun, Oyo) and age brackets (18–25, 26–35, 36–40, 41–45, 46–50, 51–55) to capture differential adoption patterns and experiences across geographic and demographic segments. Within each stratum, respondents were randomly selected using a sampling frame derived from local community registries and voter lists. This ensures proportional representation based on population estimates for each state and age group. This stratification allowed for balanced representation of urban, semi-urban, and rural areas, as well as diverse age cohorts. To enhance accessibility, convenience sampling was used as a secondary method in cases where random selection was logistically challenging, particularly in rural areas with limited access to registries. This hybrid approach ensured both representativeness and feasibility, addressing the urban-centric bias noted in prior studies while maintaining practical data collection.

Instrument Development and Data Collection

The questionnaire was developed based on a comprehensive review of existing literature on financial inclusion and digital payment solutions (e.g., Demirguc-Kunt et al., 2017; Katusiime, 2021). The study employed a structured questionnaire as the principal instrument for primary data collection. This questionnaire was well structured to explore the relationship between digital payment solutions and financial inclusion among adults in South-West, Nigeria. It was systematically organized into five distinct sections designed to elicit comprehensive and relevant information from respondents.

The first section, Demographic Information, gathered essential background data on respondents, including age, gender, education level, occupation, and income bracket. This information was critical for contextualizing the responses and identifying demographic trends in digital payment adoption. The second section, Financial Inclusion through Agency Banking and Mobile Money, focused on the respondents' usage of financial services provided through non-traditional channels such as mobile money operators and agency banking outlets. It examined the extent to which these platforms have enabled access to financial services for previously underserved populations.

The third section, Accessibility and Adoption Factors, explored the drivers and barriers to the adoption of digital payment solutions. It assessed variables such as internet access, mobile phone ownership, digital literacy, convenience, perceived security, and trust in service providers. The fourth section, Financial Well-being Impact,

examined how engagement with digital payment systems has influenced users' financial behaviours and outcomes, including savings habits, budgeting efficiency, and access to credit. Finally, the fifth section, Additional Information and Open Responses, allowed respondents to share further insights or experiences that may not have been captured through closed-ended questions. This section provided room for nuanced, qualitative feedback that could enrich the quantitative findings.

To facilitate efficient data analysis, the majority of the questions were closed-ended, employing standardized response categories. A 5-point Likert scale was widely used throughout the questionnaire to measure respondents' perceptions, attitudes, level of agreement, frequency of use, and satisfaction with various aspects of digital payment services. This scale ranged from "Strongly Disagree" to "Strongly Agree," providing ordinal data suitable for rigorous statistical evaluation.

Questionnaire Testing

To ensure content validity, the instrument was reviewed by a panel of three experts in financial inclusion and survey methodology, who assessed the relevance and clarity of each item. A pilot test was conducted with 30 respondents from Lagos State, representing diverse age groups, educational levels, and urban/rural locations. Feedback from the pilot test was used to refine ambiguous questions, simplify language for better comprehension, and adjust the Likert scale response options for consistency.

Reliability was assessed using Cronbach's alpha to measure the internal consistency of the questionnaire's Likert-scale items. The analysis yielded an overall Cronbach's alpha of 0.87, indicating high reliability (values above 0.7 are considered acceptable). Subscale-specific reliability was also evaluated: Accessibility and Adoption Factors ($\alpha = 0.84$), Financial Wellbeing Impact ($\alpha = 0.89$), and Agency Banking and Mobile Money ($\alpha = 0.82$). These results confirm the questionnaire's consistency in measuring the intended constructs. Face validity was further ensured through respondent feedback during the pilot test, confirming that the questions were understandable and relevant to their experiences with digital payment solutions.

The data collection process adopted a hybrid approach, combining both online and offline methods to ensure broad reach and inclusivity. Online dissemination of the questionnaire was carried out through popular digital platforms such as WhatsApp, Facebook, Twitter, as well as via email and instant messaging applications. This strategy was effective in reaching tech-savvy respondents across urban and semi-urban areas in Lagos, Ogun, and Oyo States. Concurrently, offline data collection was conducted in selected physical locations within these states to capture responses from individuals who, despite being digitally literate, had limited access to the internet or were more comfortable responding in person. This dual-mode strategy helped ensure a diverse and representative sample, thereby enhancing the credibility and inclusiveness of the data collected.

Data Analysis Techniques

Collected data were analysed using both descriptive and inferential statistical techniques. Descriptive statistics—including frequencies, means, standard deviations, and percentages—were used to summarise and describe the main characteristics of the sample and to identify patterns in the data. These techniques enable researchers to convert raw data into interpretable formats, making it easier to understand trends and relationships (Khan et al., 2023).

Inferential statistics were then applied to test the study's hypotheses and to assess the statistical significance of relationships among the key variables—particularly between digital payment usage and levels of financial inclusion. These methods allow for generalizations about the population based on the sample data, thereby enhancing the robustness of the study's findings (Dolinsek, 2020). Results were presented using tables, which facilitated the visual interpretation of the data and supported clearer communication of the analytical outcomes.

The research findings are situated within the broader literature on financial inclusion and digital transformation in emerging economies. Based on the results, policy recommendations were formulated for stakeholders, including regulatory authorities, financial service providers, and researchers. These recommendations aim to inform efforts to deepen financial inclusion, particularly by leveraging digital payment platforms that address accessibility barriers among young adults.

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Data Presentation and Analysis

This study collected 293 valid responses from the questionnaire which was administered in the research area. This section presents the key demographic features of the data set and the testing of the hypothesis.

Table 1: Demographic Distribution of the Respondents

Item	Details	Frequency (n)	Percentage (%)
Age	18-25 years	31	10.6
	26-35 years	110	37.5
	36-40 years	83	28.3
	41-45 years	45	15.4
	46-50 years	15	5.1
	51-55 years	9	3.1
		293	100
Gender	Male	186	63.5
	Female	98	33.4
	I prefer not to say	9	3.1
		293	100
Educational Level	No formal education	3	1
	Primary education	26	8.9
	Secondary	70	23.9
	Tertiary education	127	43.3
	Post-graduate	67	22.9
		293	100
Location	Urban area	197	67.2
	Semi-Urban	70	23.9
	Rural area	26	8.9
		293	100
Occupational Status	Student	16	5.5
	Self employed	58	19.8
	Private sector	128	43.7
	Public sector	77	26.3
	Unemployed	13	4.4
	Retired	1	0.3
		293	100

Source: Field Survey (2024)

Table 1 provides demographic and socioeconomic insights into the respondents of this study. The age distribution indicated that most respondents (37.5%) were aged 26-35 years, followed by 36-40 years (28.3%).

This showed that majority of participants are within economically active and technology-savvy age groups, which are likely adopters of digital payment solutions. Regarding gender, males dominate the sample, comprising 63.5%, while females represent 33.4%. This gender disparity may highlight gaps in financial inclusion or access to digital payment systems between men and women in Nigeria. Educational levels revealed that 66.2% of respondents have attained tertiary or post-graduate education, suggesting a well-educated sample likely familiar with digital payment technologies. Conversely, only 1% reported having no formal education, underscoring potential challenges to financial inclusion among less-educated populations. In terms of location, urban residents form the majority (67.2%), followed by semi-urban (23.9%) and rural dwellers (8.9%). This distribution reflected the urban-centric nature of digital payment adoption and emphasizes the need to address accessibility in rural areas. Occupationally, private-sector employees account for 43.7%, while public-sector workers make up 26.3%, demonstrating the prominence of formal employment in digital payment usage. Self-employed individuals represent 19.8%, highlighting small business users, while students and unemployed respondents constitute 5.5% and 4.4%, respectively, potentially indicating challenges in adoption within these groups.

The demographic distribution suggests a digitally inclined, urban-centered, and educated respondent base, which aligns with the characteristics of early adopters of digital payment solutions. However, the underrepresentation of rural, female, less-educated, and unemployed groups highlights financial inclusion gaps that digital payment solutions need to address. Strategies targeting these underserved groups are essential for improving financial inclusion in Nigeria.

Hypothesis One

Table 2: Distribution of Responses on Accessibility and Adoption Factors

Statement	SD (%)	D (%)	N (%)	A (%)	SA (%)
I am well aware of the digital payment solutions available to me	0.3	1.7	8.2	71.7	18.1
I receive adequate information about new digital payment services	0.3	6.1	12.6	14.7	66.2
Mobile network coverage in my area is reliable	1	5.5	13.7	64.5	15.4
I experience few network-related problems when using digital payment services	1.7	5.5	12.6	64.2	16
I understand how to use digital payment solutions	0.7	1.4	8.9	61.1	28
I have received training or guidance on using digital payment services	4.1	14.3	15.7	50.5	15.4
The cost of using digital payment services is affordable	1.7	7.2	14.7	54.6	21.8
Digital payment solutions are easy to use	-	3.8	11.3	58.7	26.3

Source: Field Survey (2024)

Note: SD-Strongly disagree; D-Disagree; N-Neutral; A-Agree; SA-Strongly agree

Table 2 indicates that the responses of the respondents strongly support a positive influence of user awareness on digital payment solutions. With an average positive response rate of 85.35% and a weighted score of 1.23 (on a scale from -2 to +2), the respondents demonstrate high awareness and information accessibility. Specifically, 89.8% of respondents are well aware of available digital payment solutions, and 80.9% receive adequate information about new services. In addition, there was also substantial support for the positive influence of mobile network availability. The category achieved an average positive response rate of 80.05% and a weighted score of 0.88. Both reliable coverage (79.9% positive responses) and few network-related problems (80.2% positive responses) indicate strong network infrastructure support for digital payment solutions. Further, the data revealed strong positive indicators for financial literacy's influence, with an average positive response rate of

79.1% and a weighted score of 0.92. This is evidenced by high understanding of digital payment solutions (89.1% positive responses), good perception of ease of use (85% positive responses), positive affordability assessment (76.4% positive responses), and moderate but positive training reception (65.9% positive responses)

Given the comprehensive analysis of the data, the null hypothesis (H_0) was rejected while the alternative hypothesis (H_1) is accepted. This is supported by how all three factors showed strongly positive weighted scores (>0.87 on a scale from -2 to +2), consistently high positive response rates (>79% across all categories), and strong correlations between awareness, availability, and literacy measures.

Hypothesis Two

Table 3: Distribution of Responses on Digital Payment Solutions and Financial Wellbeing

Statement	SD (%)	D (%)	N (%)	A (%)	SA (%)
Digital payment solutions have helped me save money more effectively	1.4	7.2	18.4	62.5	10.6
I can better manage my finances through digital payment solutions	1	3.8	16.4	66.2	12.6
Digital payments have reduced my transaction costs	1.7	13.7	15.4	48.5	20.8
I can now access loans more easily through digital platforms	2.7	6.1	17.7	48.8	24.6
Digital payment solutions have helped me start/grow my business	2	5.5	27.6	44	20.8
I feel more financially secure using digital payment solutions	0.7	6.5	16.7	52.9	23.2
Digital payments have made it easier to receive money from family/friends	0.3	2.7	12.6	57.3	27
I can now make payments more safely than before	-	3.8	13	48	34.5

Source: Field Survey (2024)

Note: SD-Strongly disagree; D-Disagree; N-Neutral; A-Agree; SA-Strongly agree

The data distribution in Table 3 above revealed a strong positive impact with an overall weighted average score of 0.89 (on a scale from -2 to +2) and an average positive response rate of 75.29%. Importantly, the negative response rate is notably low at only 7.39%, suggesting that digital payment solutions have generally improved financial well-being. In terms of financial security and safety, the data shows particularly strong improvements in financial security and payment safety. Payment safety received the highest weighted score of 1.14, with 82.5% of respondents agreeing or strongly agreeing that they can make payments more safely than before. Similarly, 76.1% of respondents reported feeling more financially secure using digital payment solutions, with a weighted score of 0.91. These high scores indicate a significant enhancement in financial security for users. For financial access and management, the data revealed substantial improvements in financial access and management capabilities. First, money transfer accessibility showed exceptional results with 84.3% positive responses and a weighted score of 1.08, indicating significantly improved ability to receive money from family and friends. Second, financial management capabilities improved for 78.8% of respondents, with a strong weighted score of 0.86. Third, loan access showed positive results, with 73.4% of respondents reporting easier access to loans through digital platforms

For the savings and cost benefits variables, the data indicates positive impacts on savings and cost management: 73.1% of respondents reported more effective saving practices while 69.3% experienced reduced transaction costs with the weighted averages for both metrics (0.74 and 0.73 respectively) indicating consistent positive impact. Further, the data distribution also showed positive impact on business development, with 64.8% of respondents indicating that digital payment solutions have helped them start or grow their businesses. While this is the lowest positive response rate among all indicators, it still represents a clear majority and shows a positive

weighted score of 0.76. To reinforce the confidence in the results, the confidence metrics are particularly strong: four (4) indicators showed strong positive results (>75% positive responses), another four (4) indicators showed moderate positive results (60-75% positive responses), no indicators showed weak or negative results, and the consistently low negative response rates (average 7.39%) strengthen the reliability of the positive findings

Based on the above analysis, this study rejects the null hypothesis (H_0) and accepts the alternative hypothesis (H_1). This is due to the fact that there was a significant and positively weighted averages across all eight indicators (all above 0.73). There was also a high average positive response rate of 75.29% with a statistically low average response rate of 7.39%.

Hypothesis Three

Table 4: Distribution of Responses on Digital payment solutions and financial Inclusion

Statement	SD (%)	D (%)	N (%)	A (%)	SA (%)
I have access to agency banking services in my area	3.1	6.5	26.3	54.6	9.6
I have access to mobile money services on my phone	2	4.1	19.5	53.2	21.2
Agency banking points are within walking distance from my residence	2.4	6.8	15.7	58.7	16.4
I can easily locate mobile money agents when I need their services	1.7	5.8	14	61.1	17.4
I feel comfortable using agency banking services	1.7	8.5	18.8	54.9	16
I trust mobile money operations for my financial transactions 293 responses	2	7.5	21.8	53.2	15.4
Agency banking has made it easier for me to access banking services	1	6.1	19.1	54.6	19.1
Mobile money has made financial transactions more convenient	0.7	4.8	17.1	51.9	25.6

Source: Field Survey (2024)

Note: SD-Strongly disagree; D-Disagree; N-Neutral; A-Agree; SA-Strongly agree

The data distribution in Table 4 showed strong positive indicators across both service categories. Mobile money services indicator, for example, demonstrated particularly robust impact with an average positive response rate of 74.75% and a weighted score of 0.86 (on a scale from -2 to +2). The convenience of mobile money received the highest individual score (0.97), with 77.5% of respondents agreeing it has made financial transactions more convenient. Similarly, agency banking shows substantial positive impact with an average positive response rate of 71% and a weighted score of 0.75. The accessibility metrics are especially encouraging, with 75.1% reporting agency banking points within walking distance and 78.5% indicating easy access to mobile money agents. Trust and comfort levels were also positive, though slightly lower, with 68.6% trusting mobile money operations and 70.9% feeling comfortable with agency banking services.

The consistently high positive response rates across all metrics, coupled with strong weighted averages, provided compelling evidence that these financial services have meaningfully expanded financial inclusion. Both service types showed positive impacts across accessibility, convenience, and user comfort, indicating successful penetration into previously underserved areas. On this note, the null hypothesis is rejected while the alternate hypothesis is accepted.

DISCUSSION OF FINDINGS

This study uncovered significant findings on the role of digital payment solutions in promoting financial inclusion in Nigeria, particularly in the South-West region. Firstly, the accessibility and adoption of digital payment systems are closely tied to user awareness, mobile network availability, and financial literacy.

Users who were better informed about how digital payment platforms function and their associated benefits—such as convenience and security—are more likely to adopt them. This awareness mitigates skepticism and fosters trust in digital financial services. Furthermore, reliable mobile network infrastructure is essential for the consistent functionality of these platforms, making it a critical enabler, especially in underserved rural areas. Financial literacy also emerges as a decisive factor, as individuals who understand how to manage digital tools are more confident and capable in their financial decision-making. These findings are supported by previous studies who Gumilar et al. (2024) and Nguyen et al. (2023), who argued that financial literacy is instrumental in sustaining digital finance adoption and improving inclusion in emerging markets like Nigeria.

In addition, this study confirmed that digital payment solutions have meaningfully improved the financial well-being of previously unbanked Nigerians. Users reported significant benefits in terms of safer transactions, greater ease in money transfers, and enhanced financial security. These improvements appear to be broad-based, touching multiple aspects of daily financial life and even supporting small business growth. Such outcomes align with findings from Iwedi (2023) and Iwedi et al. (2024), who highlighted digital banking as a pathway to poverty alleviation and financial empowerment. However, this optimistic view is tempered by contrasting scholarly evidence. Studies such as those by Ouma et al. (2017), Demirgüç-Kunt et al. (2018), and Suri & Jack (2016) cautioned that systemic challenges—such as digital inequality, transaction costs, and cyber risks—can limit or even reverse these gains, especially for vulnerable groups lacking financial literacy or digital access. The study also revealed that agency banking and mobile money operations have significantly extended financial services to the underserved, using local agents and mobile platforms to bypass infrastructural barriers. Despite this progress, limitations such as low digital literacy, poor network reliability, and regulatory gaps persist, as noted by Katusiime (2021), Hakimi et al. (2023), and Nyika (2024). Overall, while the study affirms the transformative potential of digital payment solutions, it also calls for a holistic and inclusive strategy that addresses infrastructural, educational, and regulatory barriers to ensure sustainable and equitable financial inclusion.

CONCLUSION AND RECOMMENDATIONS

This study demonstrated that digital payment solutions and agency banking have significantly enhanced financial inclusion and well-being among previously unbanked Nigerians, particularly in South-West Nigeria, by improving payment safety, money transfer accessibility, and financial security. However, the effectiveness of these solutions depends on critical enablers—user awareness, mobile network availability, and financial literacy which highlights the need for targeted educational and infrastructural interventions. Beyond the immediate benefits, the findings revealed a paradox: while digital financial services (DFS) empower users, systemic barriers such as digital inequality, infrastructure deficits, and regulatory complexities disproportionately hinder vulnerable populations, potentially exacerbating existing socio-economic disparities. This underscores the necessity for a multi-stakeholder approach involving policymakers, financial institutions, and telecom providers to ensure inclusive adoption.

This study contributes to the growing body of literature on financial inclusion by highlighting that while digital payment solutions are pivotal, their effectiveness is limited if structural and behavioural barriers are not simultaneously addressed. It underscores the need for a holistic approach—one that combines technological innovation with targeted interventions such as digital literacy, infrastructural development, and inclusive regulatory policies. The research advocates for future studies to focus on intersectional inequalities in digital financial service (DFS) adoption and the long-term socio-economic effects on marginalized groups, particularly in underserved rural communities, to guide more inclusive and equitable financial systems.

To operationalise these insights, several policy recommendations are proposed. First, the Central Bank of Nigeria (CBN) should collaborate with telecom companies to reduce or eliminate USSD charges for small-value transactions, while the Nigerian Communications Commission (NCC) and state governments should expand high-speed internet coverage in rural areas through public-private initiatives. Furthermore, integrating digital financial literacy into school curricula and adult education can enhance long-term financial capability. Regulatory bodies like the CBN and the Securities and Exchange Commission (SEC) must also enforce strong consumer protection measures against fraud and transaction failures. Lastly, the Federal Government is encouraged to offer tax incentives to fintech companies developing affordable, inclusive technologies, such as offline wallets or voice-activated payment systems, tailored to the needs of rural and low-income users.

Limitations and Future Research

This study provides meaningful insights into the role of digital payment solutions in advancing financial inclusion among adults in South-West Nigeria. However, its findings must be considered within the context of several methodological limitations. The relatively small sample size of 293 participants—predominantly drawn from urban and semi-urban areas—limits the generalisability of the results, especially to rural populations where infrastructural and technological challenges are more pronounced. The use of a cross-sectional design further restricts the ability to draw causal inferences between digital payment adoption and long-term financial well-being. Additionally, the reliance on self-reported data introduces potential response bias, which could affect the accuracy of reported behaviors and perceptions related to digital financial service usage.

To enhance the validity, scope, and applicability of future research, the study recommends several methodological improvements and new lines of inquiry. These include employing nationally representative and demographically diverse samples, conducting longitudinal studies to assess the long-term impact of digital financial services (DFS), and integrating intersectional analyses to explore how gender, age, and socio-economic status shape DFS adoption. Further, experimental approaches should be used to test targeted interventions such as subsidized USSD fees or rural-focused digital literacy programs. Investigating the evolving regulatory environment, especially in conflict-prone areas, is also crucial for ensuring that digital finance initiatives are inclusive, secure, and effective. Collectively, these efforts will strengthen the evidence-based data needed to guide equitable and impactful financial inclusion policies in Nigeria and other developing economies.

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