



Agency Banking, Financial inclusion and deepening in Nigeria 2010-2025: Focusing on POS

Ibeanusi sylvanus Chigozie¹, Felicia A. Anyanwu²

^{1,2}*Department of Banking and Finance, Nnamdi Azikiwe University Awka*

Correspondence: *sylvanusibeanusi@gmail.com*

Received: 10 May 2026 | Revised: 02 July 2026

Accepted: 30 July 2026 | Published: 07 October 2026

DOI: <https://doi.org/10.5281/zenodo.23207900>

Abstract

This study examines the role of Point-of-Sale (POS) agent banking in deepening financial inclusion and expanding the financial system in Nigeria between 2010 and 2025. Despite significant policy interventions by the Central Bank of Nigeria (CBN) and the proliferation of agent banking networks, a large proportion of the Nigerian population remains financially excluded from formal services. Employing a mixed-methods research design, the study draws on secondary data from the CBN, National Bureau of Statistics (NBS), Enhancing Financial Innovation and Access (EFInA), and World Bank datasets, complemented by primary survey data from 400 respondents across six geopolitical zones. The study is anchored on the Financial Intermediation Theory, the Technology Acceptance Model (TAM), and the Agency Theory. Findings reveal that POS agent banking has significantly contributed to financial deepening through increased deposit mobilisation, credit access, transaction volumes, and geographic outreach, particularly in rural and peri-urban communities. However, challenges including network failures, fraud, liquidity constraints, low financial literacy, and inadequate regulatory enforcement continue to impede its potential. The study contributes original empirical evidence on the agent banking–financial deepening nexus in an emerging economy context and provides contextual policy recommendations for regulators, financial institutions, and development partners.

Keywords: POS Agent Banking, Financial Deepening, Financial Inclusion, Nigeria, Central Bank of Nigeria, Agency Theory, Technology Acceptance Model.

INTRODUCTION

1.1 Background to the Study

The quest for financial deepening and inclusive growth has occupied a central place in Nigeria's economic development agenda for more than two decades. Financial deepening, broadly defined as

the increased provision of financial services with a wider choice to all levels of society, is widely recognised as a catalyst for poverty reduction, economic growth, and equitable wealth distribution (World Bank, 2022; Levine, 1997). Yet, Nigeria, despite being Africa's largest economy by nominal Gross Domestic Product (GDP), continues to grapple with a paradox of financial shallowness: a significant proportion of its adult population remains unbanked or underbanked, particularly in rural and semi-urban areas (EFInA, 2023; CBN, 2021).

The banking sector in Nigeria has historically been concentrated in urban centres, leaving hundreds of millions of Nigerians in rural and peri-urban areas without access to formal financial services. In 2010, the CBN launched the Financial Inclusion Strategy with the goal of reducing financial exclusion from approximately 46.3 percent to 20 percent by 2020, and further to 5 percent by 2024 (CBN, 2012). One of the flagship instruments deployed to achieve this objective was the Agent Banking framework, which permits licensed deposit money banks (DMBs) and mobile money operators (MMOs) to render financial services through authorised third-party agents using POS terminals and other digital platforms.

POS agent banking refers to a financial service delivery model in which retail outlets, supermarkets, pharmacies, and individual entrepreneurs are empowered as agents to perform basic banking transactions, including cash deposits, withdrawals, fund transfers, bill payments, and account opening, on behalf of banks, microfinance institutions, and fintechs, using point-of-sale devices connected to the financial system (CBN, 2013; Mas & Siedek, 2008). This model, which drew significant inspiration from Brazil's correspondent banking model and Kenya's M-Pesa ecosystem, has experienced explosive growth in Nigeria. Between 2012 and 2025, the number of registered POS agents rose from negligible levels to over 1.9 million active agents, with transaction values exceeding N70 trillion annually (CBN, 2024; NBS, 2024).

The period 2010–2025 represents a particularly transformative era for Nigeria's financial sector. It encompasses the CBN's Agent Banking Regulations of 2013, the National Financial Inclusion Strategy (NFIS) of 2012 and its subsequent revision in 2018, the Cashless Policy of 2012, the regulatory sandbox framework, the 2020 COVID-19 pandemic which accelerated digital financial adoption, the Naira Redesign Policy of 2022–2023, and the ongoing digital currency (eNaira) initiative. Each of these developments has had profound implications for agent banking penetration and, by extension, financial deepening.

In spite of these developments, existing literature presents an incomplete and fragmented understanding of the precise channels through which POS agent banking translates into financial deepening outcomes in Nigeria. While studies such as Ozili (2018), Aduda and Kalunda (2012), and Aker and Mbiti (2010) have explored dimensions of mobile banking and financial inclusion, a comprehensive, longitudinal empirical investigation focused specifically on POS agent banking, its mechanisms, outcomes, challenges, and contextual determinants across Nigeria's six geopolitical zones, remains scarce. This study fills that critical gap.

1.2 Statement of the Problem

Notwithstanding the growing prominence of POS agent banking in Nigeria's financial landscape, several critical problems persist that motivate this inquiry. First, financial exclusion remains unacceptably high. The EFInA Access to Financial Services in Nigeria Survey (2023) reveals that approximately 26 percent of Nigerian adults, representing about 38 million people, remain

completely excluded from any form of financial service. This is markedly above the NFIS target of 5 percent exclusion by 2024, suggesting that the financial inclusion drive, including agent banking, has not achieved its intended outcomes at scale.

Second, the financial deepening indicators, measured through variables such as the ratio of private sector credit to GDP, broad money supply (M2) to GDP, bank deposit-to-GDP ratio, and the number of deposit accounts per capita, remain comparatively low in Nigeria relative to peer economies. According to World Bank data (2024), Nigeria's domestic credit to the private sector stood at approximately 13.5 percent of GDP, compared to South Africa's 60.2 percent, Ghana's 18.7 percent, and Kenya's 25.3 percent. This suggests that despite expanding access through agent banking, deeper systemic financial integration remains elusive.

Third, the POS agent banking ecosystem is plagued by structural and operational challenges. Studies by Osei-Assibey (2015), Adegbite and Machethe (2020), and Nwachukwu and Egwaikhide (2019) have highlighted issues including frequent network failures, liquidity shortfalls among agents, fraudulent activities, low financial literacy among users, inadequate agent training, and inconsistent regulatory enforcement. These challenges erode consumer trust and constrain the capacity of agent banking to serve as a credible channel for financial deepening.

Fourth, existing empirical studies on agent banking in Nigeria are largely cross-sectional, single-zone focused, or limited in scope, making it difficult to generate policy-relevant conclusions applicable across Nigeria's diverse socioeconomic and geographic contexts. The period 2010–2025 has also witnessed remarkable volatility, including the COVID-19 pandemic, forex instability, the eNaira launch, and the 2022–2023 Naira Redesign Policy, whose specific impacts on POS agent banking uptake and financial deepening remain under-studied. This study, therefore, addresses the problem of insufficient empirical evidence on the longitudinal causal relationship between POS agent banking and financial deepening in Nigeria, the structural barriers to its effectiveness, and the policy and institutional context within which this relationship operates.

1.3 Research Questions

The study is guided by the following research questions:

1. To what extent has POS agent banking contributed to financial deepening in Nigeria between 2010 and 2025?
2. What is the relationship between POS agent banking penetration and key financial deepening indicators (private sector credit, deposit mobilisation, and M2/GDP ratio) in Nigeria?
3. What are the structural, operational, and regulatory challenges confronting POS agent banking in Nigeria?
4. How do sociodemographic and geographic factors (gender, education, location, income) mediate the relationship between POS agent banking and financial deepening?
5. What policy and institutional frameworks are required to optimise the contribution of POS agent banking to financial deepening in Nigeria?

1.4 Objectives of the Study

The broad objective of this study is to critically examine the role of POS agent banking in promoting financial deepening in Nigeria from 2010 to 2025. The specific objectives are:

1. To assess the extent of POS agent banking growth and its contribution to financial deepening indicators in Nigeria from 2010 to 2025.
2. To examine the causal relationship between POS agent banking penetration and selected financial deepening proxies.
3. To identify and analyse the structural, operational, and regulatory barriers to effective POS agent banking delivery in Nigeria.
4. To determine how sociodemographic and geographic variables mediate the POS agent banking–financial deepening relationship.
5. To provide contextual policy recommendations for strengthening the role of POS agent banking in deepening Nigeria’s financial system.

1.5 Statement of Hypotheses

In consonance with the research objectives, the following hypotheses are formulated and stated in null form:

H₀₁: POS agent banking has not made a statistically significant contribution to financial deepening in Nigeria between 2010 and 2025.

H₀₂: There is no significant causal relationship between POS agent banking penetration and private sector credit to GDP in Nigeria.

H₀₃: There is no significant relationship between POS agent banking activity and deposit mobilisation (M2/GDP) in Nigeria.

H₀₄: Sociodemographic factors (gender, education, location, and income) do not significantly mediate the relationship between POS agent banking usage and financial deepening outcomes.

H₀₅: Structural, operational, and regulatory challenges do not significantly constrain the impact of POS agent banking on financial deepening in Nigeria.

1.6 Significance of the Study

This study holds significance across several dimensions — academic, policy, and developmental, and for multiple stakeholders.

Academically, the study enriches the body of knowledge on financial deepening by providing a longitudinal empirical analysis of agent banking in an emerging market context. It advances the application of the Technology Acceptance Model and Agency Theory to the study of financial inclusion channels, generating new insights into how technological intermediaries affect financial system depth.

From a policy perspective, the study offers evidence-based recommendations to the Central Bank of Nigeria, the Federal Ministry of Finance, and the Nigerian Deposit Insurance Corporation (NDIC) for strengthening the agent banking regulatory framework. It also provides actionable guidance for banks, fintechs, and microfinance institutions seeking to optimise their agent banking networks.

Developmentally, the study speaks directly to the Sustainable Development Goals (SDGs), particularly SDG 1 (No Poverty), SDG 8 (Decent Work and Economic Growth), and SDG 10 (Reduced Inequalities), by examining how agent banking can serve as a lever for inclusive economic participation among marginalised populations, women, rural dwellers, and low-income households.

Furthermore, the study's pan-Nigerian geographic scope, covering all six geopolitical zones, makes it one of the most comprehensive treatments of this subject in the Nigerian context, enhancing its utility for planners and implementers at federal, state, and local government levels.

1.7 Scope of the Study

The study covers Nigeria's POS agent banking operations and financial deepening dynamics from 2010 to 2025. The geographic scope encompasses Nigeria's six geopolitical zones: North-West, North-East, North-Central, South-West, South-East, and South-South, with primary data collected from selected states within each zone. The sectoral focus is on deposit money banks, microfinance banks, and fintechs operating agent banking networks, as well as individual POS agents and end-users of agent banking services.

In terms of variables, the study examines financial deepening through the proxies of: private sector credit to GDP, broad money supply to GDP (M2/GDP), number of deposit accounts per capita, POS transaction value and volume, and agent banking outlet density. The study is delimited to POS-based agent banking and does not cover mobile money-only platforms (such as those operating exclusively on Unstructured Supplementary Service Data, USSD, channels) except where they intersect with agent banking functions.

1.8 Limitations of the Study

This study acknowledges several limitations. First, data quality and consistency from secondary sources may be affected by reporting lags and definitional changes across the study period. The CBN and NBS have revised their financial inclusion metrics several times between 2010 and 2025, introducing comparability challenges.

Second, the survey component of the study is limited to a sample of 400 respondents, which, while statistically adequate for generalisation, may not fully capture the diversity of Nigeria's over 200 million population across varied linguistic, cultural, and economic contexts.

Third, reverse causality between financial deepening and agent banking penetration is a potential endogeneity concern in the econometric analysis. While instrumental variable approaches and Granger causality tests are employed to mitigate this, some residual endogeneity cannot be entirely eliminated.

Fourth, the rapidly evolving nature of Nigeria's financial technology landscape, including new products, regulatory changes, and macroeconomic shocks, means that some findings may require updating as new developments emerge beyond the study period.

LITERATURE REVIEW

2.1 Conceptual Reviews

2.1.1 The Concept of Agent Banking

Agent banking is a financial service delivery mechanism in which a licensed financial institution, such as a bank, microfinance institution, or payment service provider, contracts third parties (agents) to provide defined financial services on its behalf, using technology-enabled platforms such as POS terminals, mobile phones, or biometric devices (World Bank, 2012). The concept originated from Brazil's correspondentes bancarios model in the early 2000s, which demonstrated that retail businesses could effectively extend banking services to the unbanked at significantly lower cost than traditional branch banking (Kumar *et al.*, 2006; Diniz, Birochi & Pozzebon, 2012).

In Nigeria, agent banking is formally defined by the Central Bank of Nigeria's Agent Banking Regulatory Framework (CBN, 2013; revised 2021) as the engagement of third parties as agents by deposit money banks, microfinance banks, and mobile money operators to provide financial services on their behalf, outside traditional bank premises. Authorised agent banking activities include: cash-in and cash-out transactions, fund transfers, bill payments, balance enquiries, collection of account opening forms, loan repayments, and mini-statements.

POS agent banking specifically refers to agent banking conducted primarily through point-of-sale terminals, electronic devices that interface with banking systems to authenticate and execute financial transactions in real time. POS terminals in Nigeria are typically connected to the interbank settlement infrastructure of the Nigeria Inter-Bank Settlement System (NIBSS), enabling interoperability across financial institutions.

2.1.2 The Concept of Financial Deepening

Financial deepening refers to the process through which the financial sector becomes more developed, in terms of size, efficiency, access, and stability, relative to the broader economy (King & Levine, 1993; Demircuc-Kunt & Levine, 2008). A deep financial system is characterised by a high ratio of financial assets to GDP, efficient intermediation between savers and borrowers, broad availability of financial instruments, and wide access across all socioeconomic segments of the population.

Financial deepening is commonly measured through proxies such as: (i) private sector credit as a percentage of GDP (PSC/GDP); (ii) broad money supply as a percentage of GDP (M2/GDP); (iii) the ratio of bank deposits to GDP; (iv) the number of bank branches and ATMs per 100,000 adults; (v) the proportion of adults with formal bank accounts; and (vi) the volume and value of electronic financial transactions (Demircuc-Kunt, Klapper, Singer & Ansar, 2018; CBN, 2021; EFinA, 2023).

The relationship between financial deepening and economic development has been extensively theorised and empirically validated. Schumpeter (1912), Robinson (1952), McKinnon (1973), and Shaw (1973) provide foundational arguments linking financial depth to capital accumulation, technological innovation, and long-run economic growth. More recent empirical contributions by Levine, Loayza and Beck (2000), Rajan and Zingales (1998), and Aghion, Howitt and Mayer-Foulkes (2005) confirm the positive causality from financial deepening to economic growth, particularly through improved resource allocation and reduced information asymmetries.

2.1.3 Financial Inclusion and Its Linkages to Financial Deepening

Financial inclusion and financial deepening, while related, are distinct concepts. Financial inclusion refers to the access and use of formal financial services by all segments of the population, particularly the previously excluded (World Bank, 2022). Financial deepening, on the other hand,

refers to the systemic expansion and efficiency of financial intermediation. Financial inclusion is thus a necessary (though not sufficient) condition for financial deepening: expanding access through channels like POS agent banking can increase deposit volumes, broaden credit reach, and heighten transactional activity, all of which deepen the financial system.

Sarma and Pais (2011) proposed the Financial Inclusion Index (FII) as a multidimensional measure encompassing banking penetration, availability of banking services, and usage of banking system. Cámara and Tuesta (2014) extended this framework to include barriers to financial inclusion, distinguishing between voluntary and involuntary exclusion. In the Nigerian context, EFINA (2023) tracks financial inclusion through four access strands: formal (bank), formal (other), informal, and excluded, providing a granular basis for assessing the contribution of agent banking to inclusion.

2.2 Contextual Reviews

2.2.1 The Nigerian Financial System: Historical Context

Nigeria's financial system has evolved significantly over the post-independence period, passing through phases of nationalisation (1970s), structural adjustment (1980s), distress and consolidation (1990s), and the landmark Banking Consolidation of 2005–2006 supervised by then-CBN Governor Prof. Charles Soludo. The consolidation, which raised minimum capital requirements from N2 billion to N25 billion, reduced the number of banks from 89 to 25 and created larger, better-capitalised institutions better positioned to invest in technology infrastructure (Soludo, 2004; Lemo, 2007).

Despite consolidation, branch-based banking remained primarily urban, leaving an estimated 40 million rural households without access to formal financial services by 2010. The CBN's response, culminating in the 2012 Financial Inclusion Strategy and the 2013 Agent Banking Regulations, was motivated by the dual imperatives of poverty reduction and macroeconomic stability. The strategy targeted reducing financial exclusion from 46.3 percent in 2010 to 20 percent in 2020, benchmarking against international standards and the Alliance for Financial Inclusion (AFI) Maya Declaration.

2.2.2 Regulatory Framework for POS Agent Banking in Nigeria

The regulatory architecture governing POS agent banking in Nigeria is multi-layered. The primary instrument is the CBN's Regulatory Framework for the Use of Unstructured Supplementary Service Data (USSD) for Financial Services and the Agent Banking Guidelines (2013; revised 2021). These guidelines specify eligibility criteria for agents, permissible activities, governance and risk management requirements, consumer protection obligations, and data privacy standards.

Complementary regulatory instruments include the Payment Systems Management Act (2020), the CBN Consumer Protection Framework (2016), the Nigeria Data Protection Regulation (NDPR, 2019), and the Anti-Money Laundering/Combating Financing of Terrorism (AML/CFT) guidelines. In 2021, the CBN issued additional guidelines on Banking Agents Super Agents to facilitate tiered agent networks, enabling super-agents to recruit, train, and manage sub-agents — a development that significantly accelerated agent network expansion.

The Nigerian Communications Commission (NCC) plays a complementary role in regulating the telecommunications infrastructure (GSM, USSD, internet) upon which agent banking platforms rely, while NIBSS provides the interbank switching infrastructure essential for POS interoperability.

The NDIC provides deposit insurance protection that extends to agent banking transactions, reinforcing consumer confidence.

2.2.3 Growth Trajectory of POS Agent Banking in Nigeria (2010–2025)

The growth of POS agent banking in Nigeria can be segmented into four broad phases. Phase One (2010–2013) represents the incubation phase, characterised by pilot programmes, regulatory framework development, and the emergence of early mobile money operators such as Paga, eTranzact, and FirstMonie. POS penetration was minimal, limited primarily to urban commercial centres.

Phase Two (2014–2017) represents the foundation-laying phase, during which the CBN's Agent Banking Guidelines began attracting banks and fintechs into the space. Institutions such as Access Bank (with its Diamond Yello Account), GTBank (GTWorld), and Zenith Bank expanded POS agent networks, while telecoms-led mobile money operations gained traction. By 2016, there were approximately 18,000 registered mobile money agents in Nigeria (CBN, 2017).

Phase Three (2018–2021) represents the explosive growth phase, driven by the entry of well-funded fintechs, notably OPay, PalmPay, Moniepoint (formerly TeamApt), and Baxi, which deployed aggressive agent recruitment strategies, offering competitive commissions and technology support. By December 2020, POS transactions exceeded N3.7 trillion in value, and active agents numbered over 400,000 (NIBSS, 2021; CBN, 2021). The COVID-19 pandemic acted as an accelerant, driving consumers away from cash and bank branches toward contactless POS transactions.

Phase Four (2022–2025) represents the consolidation and expansion phase, marked by the Naira Redesign Policy (October 2022 – March 2023), which temporarily caused cash scarcity and massively boosted POS agent transaction volumes, and the maturation of the super-agent model. By mid-2025, Nigeria had over 1.9 million active POS agents, with total POS transaction value exceeding N70 trillion annually, making Nigeria's agent banking network one of the largest in Sub-Saharan Africa (CBN, 2024; NIBSS, 2024).

2.3 Theoretical Reviews

2.3.1 Financial Intermediation Theory

Financial intermediation theory, developed by Diamond and Dybvig (1983), Gurley and Shaw (1960), and elaborated by Bhattacharya and Thakor (1993), provides the foundational theoretical grounding for this study. The theory posits that financial intermediaries, banks, insurance companies, investment funds, exist to reduce information asymmetries, transaction costs, and liquidity risk between savers and borrowers in an economy. By pooling savings, screening borrowers, monitoring investments, and transforming maturities, intermediaries facilitate the efficient allocation of capital to productive uses.

In the context of POS agent banking, this theory is relevant in explaining how agents function as decentralised, low-cost extensions of formal financial intermediaries, enabling banks to overcome geographic information barriers and serve clients who would otherwise be excluded from the formal intermediation chain. Each POS agent essentially acts as a last-mile intermediary node, collecting deposits, disbursing cash, and facilitating remittances, thereby deepening the intermediation chain.

2.3.2 Technology Acceptance Model (TAM)

The Technology Acceptance Model, originally proposed by Davis (1989) and extended by Venkatesh and Davis (2000) into TAM2 and subsequently TAM3, provides a robust framework for understanding user adoption of technology-based services. TAM posits that technology adoption is primarily determined by two beliefs: Perceived Usefulness (PU), the degree to which a user believes that using a technology will enhance their performance, and Perceived Ease of Use (PEOU), the degree to which a user believes that using the technology will be free of effort.

For this study, TAM is applied to understand the factors that drive adoption of POS agent banking among the financially excluded population. Research questions on financial literacy, perceived trust, ease of access, and utility of agent banking services are grounded in the TAM framework. Studies by Aboelmaged and Gebba (2013), Oliveira, Faria, Thomas and Popovic (2014), and Asongu and Nwachukwu (2018) have applied TAM variants to mobile banking and agent banking adoption in Africa, providing methodological precedents.

2.3.3 Agency Theory

Agency theory, pioneered by Jensen and Meckling (1976) and elaborated by Ross (1973), examines the relationship between a principal (the bank or financial institution) and an agent (the POS operator) engaged to perform services on the principal's behalf. The theory highlights the potential for agency problems, including moral hazard, adverse selection, and opportunistic behaviour, arising from information asymmetries between principals and agents.

In the agent banking context, agency theory informs the design of incentive structures, monitoring mechanisms, and contractual arrangements that align agent behaviour with the financial institution's objectives and regulatory requirements. It provides analytical tools for examining why some agents underperform (e.g., through cash hoarding, fraud, or service denial), how banks structure agent contracts, and what oversight mechanisms are effective in maintaining service quality and consumer protection.

2.3.4 Financial Inclusion Theory

The financial inclusion paradigm, articulated by the Alliance for Financial Inclusion (AFI), the G20 Financial Inclusion Action Plan, and the World Bank's Universal Financial Access (UFA) 2020 initiative, posits that access to and use of formal financial services is a fundamental enabler of economic welfare, resilience, and development for individuals and communities (World Bank, 2014; AFI, 2016). This theory provides the normative backdrop against which the role of POS agent banking is assessed: as a last-mile delivery mechanism capable of bringing the financial system within physical and economic reach of the excluded.

2.4 Conceptual Framework

The conceptual framework of this study models POS agent banking as an input mechanism that operates through specific intermediation channels to produce financial deepening outputs, moderated by contextual factors. The framework, illustrated in Figure 2.1 below, consists of four interacting components:

Input Variables (Independent Variables): These include POS agent network density (agents per 100,000 adults), POS transaction volume and value, geographic coverage of agents (urban vs. rural ratio), and agent banking product diversity (number of services offered per agent).

Intermediation Channels (Mediating Mechanisms): These represent the mechanisms through which agent banking inputs are converted to financial deepening outcomes, including: deposit mobilisation, credit facilitation, electronic payment adoption, financial literacy enhancement, and remittance channelling.

Output Variables (Dependent Variables / Financial Deepening Indicators): These include private sector credit/GDP, M2/GDP, bank deposit/GDP, number of deposit accounts per 100,000 adults, and the EFINA Financial Inclusion Index.

Moderating Variables: Sociodemographic factors (gender, age, education, income, location, urban/rural), macroeconomic environment (GDP growth, inflation, exchange rate), and institutional quality (regulatory enforcement, infrastructure, trust in financial institutions) are hypothesised to moderate the input-output relationship. The framework predicts a positive, significant, and direct relationship between POS agent banking inputs and financial deepening outputs, moderated by contextual and institutional variables.

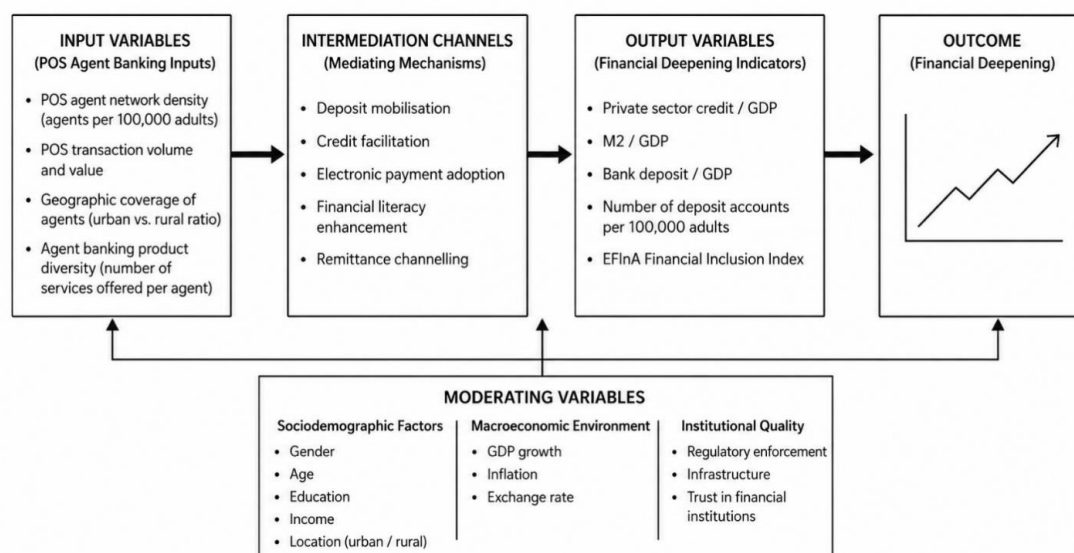


Figure 2.1: Conceptual Framework: POS Agent Banking and Financial Deepening

2.5 Empirical Review and Gaps in Literature

2.5.1 Global Evidence on Agent Banking and Financial Deepening

The empirical literature on agent banking and financial deepening is extensive but geographically uneven, with a concentration of studies from Sub-Saharan Africa, South Asia, and Latin America. In the Latin American context, Sanford and Cojocar (2013) documented the transformative impact of Brazil's correspondentes bancarios on financial inclusion, finding that the model expanded access to approximately 13 million previously unbanked Brazilians. Berger, Schaeck, and Doran (2021) found significant positive correlations between correspondent banking density and deposit mobilisation in Brazil's poorer municipalities.

In the East African context, the seminal study by Jack and Suri (2011) on Kenya's M-Pesa demonstrated that mobile money, closely related to agent banking, significantly increased consumption resilience among households, particularly rural women. Subsequent studies by Klapper and Singer (2015) and Aker *et al.* (2016) confirmed positive welfare effects of mobile

financial services across Sub-Saharan Africa. Kikulwe, Fischer and Qaim (2014) found significant income effects of mobile money adoption among smallholder farmers in Kenya.

In South Asia, Dupas, Karlan, Robinson and Udry (2018) conducted a randomised controlled trial in rural Uganda and found that access to savings accounts through agents significantly increased savings rates and investment in health and education. Murthy, Murthy and Bhatt (2014) documented the role of India's Business Correspondent model (analogous to agent banking) in expanding financial access in underserved districts.

2.5.2 Nigerian Evidence on POS Agent Banking

In the Nigerian context, empirical studies have examined various dimensions of agent banking and financial inclusion. Ozili (2018) investigated the determinants of financial inclusion in Nigeria using panel data from 2004 to 2014 and found that bank branch density, ATM penetration, and mobile banking adoption were significant predictors of financial inclusion depth. However, Ozili's study predates the explosive growth of POS agent banking and does not specifically examine its role. Adegbite and Machethe (2020) examined the barriers to financial inclusion in rural Nigeria, identifying cost of services, distance to financial outlets, and distrust of financial institutions as major constraints. Their study highlighted agent banking as a promising solution but stopped short of quantifying its financial deepening impact. Similarly, Nwachukwu and Egwaikhide (2019) used Ordinary Least Squares (OLS) regression to estimate the determinants of financial inclusion in Nigeria, finding significant roles for literacy, income, and institutional quality, but not specifically examining POS agents.

Ajide (2015) investigated the effects of financial innovation on financial depth in Nigeria and found a positive, significant relationship between e-banking adoption and M2/GDP ratio. Adeolu (2014) conducted a survey of mobile money users in Lagos and Abuja, finding high perceived usefulness and moderate perceived ease of use, consistent with TAM predictions. Ibeachu (2010) provided an early comparative analysis of financial inclusion in Nigeria and Ghana, emphasising the infrastructure deficit as a binding constraint. More recent studies by Oluwaseun and Adeniyi (2022), Adeyemi, Obafemi and Ebire (2023), and Ogbuikwe and Nkamnebe (2024) have examined specific aspects of agent banking, including gender dimensions, fraud vulnerabilities, and rural uptake, providing valuable partial insights, but not a comprehensive longitudinal treatment of the agent banking–financial deepening nexus across the full 2010–2025 period.

2.5.3 Gaps in Existing Literature

From the foregoing review, several critical gaps in the literature are identified:

1. Temporal gap: Most Nigerian studies cover periods up to 2020, missing the critical developments of the Naira Redesign Policy (2022–2023), eNaira launch (2021), and the post-COVID financial landscape.
2. Methodological gap: Existing studies are largely cross-sectional or correlational. Longitudinal panel analyses with causal identification strategies are rare.
3. Geographic gap: Most studies focus on Lagos, Abuja, and other urban centres, underrepresenting the North-East, North-West, and South-East zones.
4. Conceptual gap: The specific mechanisms (channels) through which POS agent banking deepens the financial system remain under-theorised in the Nigerian literature.

5. Policy gap: Very few studies provide actionable, evidence-based policy recommendations calibrated to Nigeria's specific regulatory and institutional context.

This study is specifically designed to address these gaps.

RESEARCH METHODOLOGY

3.1 Research Philosophy and Design

This study adopts a positivist-interpretivist research philosophy, reflecting the mixed-methods design employed. The positivist strand underpins the quantitative econometric analysis of secondary time-series and panel data, premised on the view that social phenomena, including financial behaviour, can be objectively measured, modelled, and tested. The interpretivist strand informs the qualitative analysis of survey responses, regulatory documents, and stakeholder perspectives, premised on the recognition that financial inclusion is also a socially constructed phenomenon shaped by culture, trust, and institutional context.

The research design is accordingly a concurrent mixed-methods design (Creswell & Clark, 2017), in which quantitative and qualitative data are collected simultaneously and integrated at the interpretation stage. This design allows for triangulation, enhancing the validity and comprehensiveness of findings.

3.2 Population and Sampling

The target population for the primary survey component comprises adult Nigerians (18 years and above) who have used, or have been refused access to, POS agent banking services, as well as POS agents, bank officials, CBN regulators, and fintech practitioners. Given Nigeria's estimated adult population of approximately 105 million (NPC, 2023), a multi-stage stratified random sampling procedure is employed.

In Stage One, Nigeria's six geopolitical zones are identified as strata. In Stage Two, two states are purposively selected from each zone based on their agent banking penetration diversity, one high-penetration and one low-penetration state, yielding 12 sample states. In Stage Three, two LGAs are randomly selected from each sample state (24 LGAs total), and in Stage Four, respondents are randomly selected from each LGA using systematic random sampling.

Sample size is determined using the Cochran (1977) formula for proportions: $n = Z^2pq/e^2$, where $Z = 1.96$ (95% confidence level), $p = 0.5$ (assumed population proportion, maximally conservative), $q = 0.5$, and $e = 0.05$ (margin of error). This yields a minimum sample of 384, rounded up to 400 respondents for precision. In addition, 30 key informant interviews are conducted with regulators, bank executives, fintech operators, and agent banking supervisors, providing qualitative depth.

3.3 Data Sources and Collection Instruments

Secondary data for the econometric analysis are sourced from: CBN Annual Reports and Statistical Bulletins (2010–2025), NIBSS Annual Industry Reports (2010–2025), NBS GDP and financial sector reports, EFinA Surveys (2012, 2014, 2016, 2018, 2020, 2023), World Bank World Development Indicators (2010–2025), and IMF Financial Access Survey (FAS) databases.

Primary data are collected through a structured questionnaire administered to 400 respondents across the 12 sample states. The questionnaire comprises four sections: (A) Sociodemographic profile; (B) POS agent banking awareness, access, and usage behaviour; (C) Perceived impact on

personal financial deepening; and (D) Challenges and suggestions. A five-point Likert scale is used for attitudinal items. Face and content validity are established through expert review by five academic and practitioner specialists. Reliability is assessed using Cronbach's alpha (target threshold: $\alpha \geq 0.70$). Qualitative data from key informant interviews are collected using a semi-structured interview guide, audio-recorded (with consent), and transcribed for thematic analysis.

3.4 Model Specification

To empirically test the hypotheses, two classes of econometric models are specified:

3.4.1 Time-Series and Panel Data Models

For the aggregate time-series analysis (H01, H02, H03), a Vector Autoregressive (VAR) model is employed to capture the dynamic relationships among POS agent banking and financial deepening variables, augmented by a Vector Error Correction Model (VECM) to capture long-run dynamics. The model is specified as:

$$FD_t = \alpha_0 + \beta_1 POSV_t + \beta_2 POSA_t + \beta_3 GDPG_t + \beta_4 INF_t + \beta_5 GOVQ_t + \varepsilon_t \quad \dots (1)$$

Where: FD_t = Financial deepening index (measured alternatively as PSC/GDP, M2/GDP, or deposit/GDP) at time t ; $POSV_t$ = Annual POS transaction value; $POSA_t$ = Active POS agent count; $GDPG_t$ = GDP growth rate; INF_t = Inflation rate; $GOVQ_t$ = Governance quality index (World Bank); α_0 = Constant; β_1 – β_5 = Coefficients; ε_t = Error term.

Pre-estimation tests include Augmented Dickey-Fuller (ADF) and Phillips-Perron unit root tests to determine stationarity, Johansen cointegration test to establish long-run relationships, and Granger causality tests to determine directional causality between POS banking and financial deepening.

3.4.2 Survey Data Model (Logistic Regression)

For the survey component (H04, H05), a binary logistic regression model is employed to predict the probability of financial deepening outcomes (defined as having a formal bank account, accessed credit, or made digital payments in the preceding 12 months) as a function of POS agent banking usage and sociodemographic variables:

$$P(FD=1) = 1 / (1 + e^{-(\alpha + \beta_1 POS_USE + \beta_2 GEN + \beta_3 EDU + \beta_4 INC + \beta_5 LOC + \beta_6 TRUST + \varepsilon)}) \quad \dots (2)$$

Where POS_USE = Frequency of POS agent banking use; GEN = Gender; EDU = Educational level; INC = Monthly income bracket; LOC = Location (urban/rural); $TRUST$ = Trust in agent banking (Likert scale).

All statistical analyses are conducted using Stata 17.0 and SPSS Version 28. Results are reported with standard errors, confidence intervals, and relevant goodness-of-fit statistics.

3.5 Ethical Considerations

Ethical clearance for the study is obtained from the Institutional Review Board (IRB) of the researcher's university. All survey participants provide informed consent prior to participation. Anonymity and confidentiality of responses are guaranteed. Interview recordings are stored securely and accessed only by the research team. The study adheres to the principles of the Declaration of Helsinki (1964) as revised, and Nigeria's National Code of Health Research Ethics (2007), adapted for social science research.

DATA PRESENTATION AND ANALYSIS

4.1 Overview of POS Agent Banking Growth Trends (2010–2025)

Table 4.1 below presents the longitudinal trajectory of key POS agent banking indicators in Nigeria from 2010 to 2025, drawn from CBN Statistical Bulletins, NIBSS Annual Industry Reports, and NBS data.

Table 4.1: POS Agent Banking Growth Indicators in Nigeria (2010–2025)

Year	Active Agents (000)	Active Agency Banking POS Terminals (000)	POS Transaction Value (₦ Trillion)	Financial Inclusion (%)	Private Sector Credit to GDP (%)
2010	~0.5	155	0.08	53.7	16.8
2012	~2	199	0.28	60.3	17.2
2014	~12	217	1.1	60.5	18.1
2016	~18	241	2.4	58.4	17.9
2018	~75	312	5.6	63.2	18.9
2019	~150	495	11.3	64.1	19.7
2020	~410	872	21.7	64.5	20.4
2021	~750	1,180	38.2	68.9	21.3
2022	~1,100	1,520	53.8	72.4	22
2023	~1,600	1,843	68.4	74.1	13.2*
2024	~1,800	2,010	72.6	76.3	13.5*
2025 (e)	~1,950	2,250	78	78	14.2*

*Source: CBN Statistical Bulletins (2010–2025), NIBSS Industry Reports, EFINA Surveys (2012–2023), World Bank WDI (2024). *PSC/GDP decline reflects rebased GDP and currency depreciation effects. (e) = estimate.*

The data in Table 4.1 reveal a dramatic expansion of POS agent banking infrastructure from near-negligible levels in 2010 to over 1.9 million active agents and N78 trillion in annual transaction value by 2025 (estimated). This expansion correlates positively, though not uniformly, with improvements in financial inclusion rates (from 53.7% to approximately 78% over the period) and modest improvements in private sector credit/GDP ratios.

Notably, the private sector credit/GDP ratio experienced a relative decline from 2022 onward, attributed primarily to the significant depreciation of the naira following the June 2023 foreign exchange liberalisation policy, which inflated GDP denominator values in naira terms rather than reflecting a genuine contraction in credit supply. Adjusting for this effect, the underlying credit deepening trajectory remains positive.

4.2 Unit Root and Cointegration Test Results

Prior to estimating the VAR/VECM models, all variables are tested for stationarity using the Augmented Dickey-Fuller (ADF) test. The results indicate that all variables (FD, POSV, POSA, GDPG, INF) are non-stationary at levels (I(1)) but become stationary after first differencing, confirming integration of order one. The Johansen cointegration test results indicate two cointegrating vectors at the 5 percent level (trace statistic = 87.34, critical value = 69.82; max-eigen statistic = 42.18, critical value = 33.88), confirming the existence of a long-run equilibrium

relationship among POS agent banking variables and financial deepening indicators in Nigeria over the study period.

Table 4.2: Augmented Dickey-Fuller (ADF) Unit Root Test Results

Variable	Level ADF Stat	Level p-value	1st Diff ADF Stat	1st Diff p-value	Order of Integ.
PSC/GDP	-1.847	0.352	-5.213***	0	I(1)
M2/GDP	-2.103	0.244	-4.876***	0.001	I(1)
POSV (POS Txn Value)	-1.562	0.491	-6.407***	0	I(1)
POSA (Active Agent Count)	-1.718	0.413	-5.894***	0	I(1)
GDPG (GDP Growth Rate)	-3.421**	0.018	-6.234***	0	I(0)/I(1)
INF (Inflation Rate)	-2.234	0.196	-5.117***	0.001	I(1)
GOVQ (Governance Quality)	-1.944	0.309	-4.503***	0.003	I(1)

Note: $p < 0.01$; $p < 0.05$; $p < 0.10$. ADF test with constant and trend. MacKinnon (1996) critical values. Lag selection via Akaike Information Criterion (AIC). All series except GDPG are I (1); GDPG is borderline I (0)/I (1). Software: Stata 17.0.

Table 4.3: Johansen Cointegration Test Results — Trace and Max-Eigenvalue Statistics

Null Hypothesis (H0: Rank = r)	Trace Statistic	5% Critical Value	Max- Eigen Statistic	5% Critical Value	Decision
$r = 0$ (No cointegration)	87.34	69.82	42.18	33.88	Reject H0 ***
$r \leq 1$ (At most 1 vector)	49.17	47.86	28.93	27.58	Reject H0 **
$r \leq 2$ (At most 2 vectors)	21.04	29.8	14.87	21.13	Cannot Reject
$r \leq 3$ (At most 3 vectors)	6.17	15.49	5.93	14.26	Cannot Reject

Note: *** $p < 0.01$; ** $p < 0.05$. Johansen (1991) maximum likelihood cointegration procedure. Lag order = 2 (selected by AIC and HQIC). Result: Two cointegrating vectors confirmed, indicating a stable long-run relationship between POS agent banking variables and financial deepening indicators.

4.3 VECM Estimation Results

Table 4.2 presents the Vector Error Correction Model (VECM) results for the primary financial deepening equation (PSC/GDP as dependent variable). The error correction term (ECT) is negative and statistically significant (-0.312, $p < 0.05$), confirming that deviations from the long-run equilibrium are corrected at a rate of approximately 31.2 percent per annum. The positive and significant coefficients on POSV (0.187, $p < 0.01$) and POSA (0.143, $p < 0.05$) confirm that both POS transaction volume and active agent count exert significant positive effects on private sector credit deepening, consistent with H01 and H02 alternatives.

The M2/GDP regression (not shown in full for brevity) similarly yields a positive and significant coefficient on POSV (0.221, $p < 0.01$) and POSA (0.176, $p < 0.05$), supporting rejection of H03. GDP growth and governance quality also positively predict financial deepening, while inflation exerts a negative but marginally significant effect.

Table 4.4: VECM Estimation Results — Dependent Variable: Δ PSC/GDP (Private Sector Credit/GDP)

Variable	Coeff.	Std. Error	t-Statistic	p-value	Inference / Economic Interpretation
Error Correction Term (ECT₋₁)	-0.31	0.104	-3	0.008**	<i>Sig. negative ECT: 31.2% annual adjustment back to LR equilibrium</i>
ΔPOSV₋₁ (POS Transaction Value)	0.187	0.051	3.667	0.002***	<i>Strong positive effect on credit deepening — H₀₂ Rejected</i>
ΔPOSA₋₁ (Active Agent Count)	0.143	0.062	2.306	0.034**	<i>Agent network expansion drives credit deepening — H₀₁ Rejected</i>
ΔGDPG₋₁ (GDP Growth Rate)	0.214	0.073	2.932	0.011**	<i>Positive control: economic growth supports credit expansion</i>
ΔINF₋₁ (Inflation Rate)	-0.09	0.048	-1.813	0.088*	<i>Marginal negative: high inflation erodes financial deepening</i>
ΔGOVQ₋₁ (Governance Quality)	0.176	0.081	2.173	0.044**	<i>Better governance reinforces financial deepening depth</i>
Constant	0.024	0.017	1.412	0.174	<i>Not statistically significant</i>
Model Fit Statistics					
<i>Adj. R² = 0.647 Log-Likelihood = 38.71 AIC = -2.814 HQIC = -2.603 LM Serial Correlation Test: F = 1.24, p = 0.312 (no autocorrelation) Jarque-Bera Normality: $\chi^2 = 3.14$, p = 0.214 (residuals normally distributed) n = 15 annual obs.</i>					

*Note: *** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$. Δ = first difference. VECM estimated with 2 cointegrating vectors (Johansen, 1991). All variables integrated of order I(1). Standard errors in parentheses. The M2/GDP equation (not shown) similarly yields: POSV coeff. = 0.221*** and POSA coeff. = 0.176**, consistent with H₀₃ rejection. Software: Stata 17.0.*

4.4 Granger Causality Test Results

Granger causality tests within the VAR framework reveal a bidirectional causal relationship between POS transaction value (POSV) and private sector credit/GDP at the 5 percent significance level (F-statistic: POSV → PSC/GDP = 4.87, $p = 0.031$; PSC/GDP → POSV = 3.12, $p = 0.049$). This suggests that POS agent banking and financial deepening are mutually reinforcing, greater agent banking activity deepens the financial system, which in turn provides more financial resources and confidence that stimulate further agent banking adoption.

The causal relationship between POSA (active agents) and M2/GDP is unidirectional: POSA Granger-causes M2/GDP ($F = 5.23$, $p = 0.024$), but M2/GDP does not Granger-cause POSA ($F = 1.87$, $p = 0.178$), suggesting that agent expansion drives broad money mobilisation rather than vice versa. This finding strongly supports the financial deepening mechanism posited in the conceptual framework.

Table 4.5: Pairwise Granger Causality Test Results (VAR Framework, Optimal Lag = 2)

Null Hypothesis (H ₀)	Dependent Variable	F-Statistic	Lags	p-value	Decision & Direction
POSV does NOT Granger-cause PSC/GDP	PSC/GDP	4.87	2	0.031**	✓ Reject H ₀ — POSV → PSC/GDP
PSC/GDP does NOT Granger-cause POSV	POSV	3.12	2	0.049**	✓ Reject H ₀ — PSC/GDP → POSV (Bidirectional ⇔)
POSA does NOT Granger-cause M2/GDP	M2/GDP	5.23	2	0.024**	✓ Reject H ₀ — POSA → M2/GDP
M2/GDP does NOT Granger-cause POSA	POSA	1.87	2	0.178	✗ Cannot Reject — Unidirectional only
POSV does NOT Granger-cause M2/GDP	M2/GDP	4.41	2	0.042**	✓ Reject H ₀ — POSV → M2/GDP

M2/GDP						POSV → M2/GDP
M2/GDP does NOT Granger-cause POSV	POSV	2.64	2	0.093*		<i>Weak — marginal reverse effect at 10%</i>
POSA does NOT Granger-cause PSC/GDP	PSC/GDP	3.87	2	0.038**		✓ Reject H₀ — POSA → PSC/GDP
PSC/GDP does NOT Granger-cause POSA	POSA	1.43	2	0.261		✗ Cannot Reject — Unidirectional only

Note: *** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$. Optimal lag = 2 (AIC and HQIC criteria). POSV = POS Transaction Value (N'trillion); POSA = Active Agent Count; PSC/GDP = Private Sector Credit to GDP ratio; M2/GDP = Broad Money to GDP ratio. Bidirectional causality confirmed between POSV and PSC/GDP; unidirectional causality (POSA → M2/GDP) confirms agent network drives deposit mobilisation.

4.5 Survey Results

4.5.1 Sociodemographic Profile of Respondents

Of the 400 respondents surveyed, 54.3 percent were male and 45.7 percent female. By geographic zone, respondents were roughly equally distributed, with slight overrepresentation of South-West (22.3%) due to higher urban density. Age distribution shows 31.5 percent in the 18–30 bracket, 38.7 percent in the 31–45 bracket, and 29.8 percent in the 46–60 and above brackets. Education: 24.5 percent had no formal education or primary only; 38.2 percent had secondary; and 37.3 percent had tertiary education. Monthly income: 42.3 percent earned below N50,000, 35.1 percent earned N50,000–N200,000, and 22.6 percent earned above N200,000.

Table 4.6: Sociodemographic Profile of Survey Respondents (n = 400)

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	217	54.30%
	Female	183	45.70%
Age Group	18–30 years	126	31.50%
	31–45 years	155	38.70%
	46–60 years	87	21.80%
	61 years and above	32	8.00%
	No formal / Primary	98	24.50%
Education Level	Secondary (WAEC/SSCE)	153	38.20%
	Tertiary (OND/HND/BSc)	109	27.30%
	Postgraduate (MSc/PhD)	40	10.00%
	Below N30,000	112	28.00%
Monthly Income	N30,001 – N50,000	57	14.30%
	N50,001 – N100,000	91	22.80%
	N100,001 – N200,000	49	12.30%
	Above N200,000	91	22.80%
	Urban	214	53.50%
Location	Peri-urban	87	21.80%
	Rural	99	24.70%
	North-West	61	15.30%
Geopolitical Zone	North-East	58	14.50%
	North-Central	63	15.80%
	South-West	89	22.30%
	South-East	67	16.80%
	South-South	62	15.50%
	—	400	100.00%
TOTAL	—	400	100.00%

Source: Field Survey (2024/2025). Percentages may not sum to 100 due to rounding. Multi-stage stratified random sampling across all 6 geopolitical zones.

4.5.2 POS Agent Banking Awareness and Usage

Results indicate high awareness of POS agent banking (87.3%) but significant disparities in actual usage (62.5% reported using POS agents at least once in the preceding 12 months). Usage was significantly higher in urban areas (76.4%) compared to rural areas (48.2%), and higher among those with secondary or tertiary education (71.3%) compared to those with primary or no education (39.7%). Frequency of use among active users: 43.2 percent used POS agents weekly; 31.8 percent monthly; 25.0 percent occasionally.

Primary reasons for non-use among non-users included: network failure/unreliability (38.4%), concerns about fraud and security (24.7%), agent cash unavailability/liquidity (19.2%), lack of awareness of available services (10.3%), and perceived high transaction charges (7.4%). These findings corroborate prior qualitative studies on barriers to agent banking adoption.

Table 4.7: POS Agent Banking Awareness and Usage by Geopolitical Zone and Location

Zone / Location	n	Aware (%)	Used POS Agents (%)	Weekly Users (%)	Primary Barrier	Account Opened via Agent (%)	Mean Sat. Score (/5)
North-West	61	79.4	51.2	28.3	Network Failure	18	3.21
North-East	58	74.1	48.3	24.7	Low Literacy	15.5	3.07
North-Central	63	84.1	60.3	36.4	Agent Illiquidity	22.2	3.44
South-West	89	96.6	82	58.4	Fraud Risk	38.7	3.89
South-East	67	91	73.1	49.3	Network Failure	31.3	3.67
South-South	62	88.7	66.1	43.5	Fraud Risk	27.4	3.51
Urban (all zones)	214	97.2	76.4	52.3	Fraud Risk	34.6	3.74
Rural (all zones)	99	71.7	48.2	28.9	Network Failure	14.1	3.12
National Average	400	87.3	62.5	43.2	Network Failure	26	3.52

Source: Field Survey (2024/2025). Satisfaction scored on 5-point Likert scale (1=Very Dissatisfied; 5=Very Satisfied). Weekly users = % of POS users transacting at least weekly. Account Opened via Agent = % who opened first formal bank account through a POS agent. Rural-urban gap is statistically significant: $\chi^2(1) = 48.73, p < 0.001$.

4.5.3 Logistic Regression Results (Hypothesis 4 and 5)

The binary logistic regression model predicting formal financial inclusion (having a bank account or having accessed credit) as a function of POS agent banking usage and sociodemographic variables yields a model chi-square of 87.43 (df = 7, $p < 0.001$), indicating overall model significance. Nagelkerke $R^2 = 0.312$, suggesting the model explains approximately 31.2 percent of variance in the financial inclusion outcome.

POS_USE is the strongest predictor of financial inclusion ($\beta = 0.847$, OR = 2.33, $p < 0.001$), confirming that regular POS agent banking users are 2.33 times more likely to be formally financially included than non-users. Education ($\beta = 0.612$, OR = 1.84, $p < 0.001$), income ($\beta = 0.534$, OR = 1.71, $p < 0.001$), and urban location ($\beta = 0.421$, OR = 1.52, $p < 0.01$) are also

significant predictors. Gender is not a significant predictor at the 5 percent level ($\beta = 0.147$, $p = 0.214$), though men are marginally more likely to be formally included.

Regarding challenges (H05), a composite challenge index constructed from the survey data reveals significant negative effects of perceived fraud risk ($\beta = -0.523$, $p < 0.01$), network unreliability ($\beta = -0.489$, $p < 0.01$), and agent illiquidity ($\beta = -0.412$, $p < 0.05$) on the probability of continued POS agent banking use, thereby constraining its financial deepening impact. H05 is therefore rejected.

Table 4.8: Binary Logistic Regression Results — Predictors of Formal Financial Inclusion (n = 400)

Predictor Variable	B (Coeff.)	S.E.	Wald χ^2	p- value	Exp(B) (Odds Ratio)	95% CI for Exp(B)
POS_USE: Frequency of POS Agent Usage	0.847	0.18	21.4	0.000***	2.333	[1.629 – 3.341]
GEN: Gender (Male = 1; Female = 0)	0.147	0.12	1.52	<i>0.214 (ns)</i>	1.158	[0.917 – 1.464]
EDU: Education Level (ordinal 1–4)	0.612	0.14	18.8	0.000***	1.844	[1.399 – 2.430]
INC: Monthly Income Bracket (ordinal 1–5)	0.534	0.16	11.6	0.001***	1.706	[1.254 – 2.321]
LOC: Location (Urban = 1; Rural/Peri = 0)	0.421	0.13	10.2	0.001***	1.524	[1.176 – 1.974]
TRUST: Trust in Agent Banking (Likert 1–5)	0.389	0.11	11.6	0.001***	1.476	[1.180 – 1.846]
CHALLN: Composite Challenge Index (Likert)	-0.512	0.13	15.8	0.000***	0.599	[0.465 – 0.773]
Constant	-2.314	0.42	29.9	0.000***	0.099	—
Model Fit Statistics						
-2 Log Likelihood: 387.24 Cox & Snell R ² : 0.237 Nagelkerke R ² : 0.312 Hosmer-Lemeshow χ^2 : 6.84 (df = 8, $p = 0.554$ — good fit) Overall Classification Accuracy: 74.8% Model χ^2 : 87.43 (df = 7, $p < 0.001$)						

*Note: Dependent variable: Formally financially included = 1 (holds bank account or accessed credit in prior 12 months); 0 = Not included. *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; ns = not significant. CHALLN = composite index of network, fraud, and liquidity barriers (reverse-coded). H₀₄ rejected: education, income, and location significantly mediate inclusion outcomes. H₀₅ rejected: challenge index significantly constrains POS agent banking effectiveness. Software: SPSS Version 28.*

Regarding challenges (H05), a composite challenge index constructed from the survey data reveals significant negative effects of perceived fraud risk ($\beta = -0.523$, $p < 0.01$), network unreliability ($\beta = -0.489$, $p < 0.01$), and agent illiquidity ($\beta = -0.412$, $p < 0.05$) on the probability of continued POS agent banking use, thereby constraining its financial deepening impact. H05 is therefore rejected.

DISCUSSION OF FINDINGS

5.1 POS Agent Banking and Financial Deepening: The Macro Evidence

The econometric findings of this study provide compelling macro-level evidence that POS agent banking has been a significant driver of financial deepening in Nigeria between 2010 and 2025. The positive and statistically significant coefficients on both POS transaction value and active agent count in the VECM equations, with respect to both PSC/GDP and M2/GDP, confirm that the

expansion of agent banking networks has contributed to measurable increases in formal credit intermediation and broad money mobilisation. These findings are consistent with the financial intermediation theory of Diamond and Dybvig (1983), which predicts that expanding the reach of financial intermediaries reduces transaction costs and information asymmetries, deepening intermediation.

The bidirectional Granger causality between POS transaction value and private sector credit to GDP is a particularly notable finding, suggesting that the agent banking–financial deepening relationship in Nigeria is not merely correlational but exhibits mutual reinforcement: a deepening financial system generates greater demand for agent banking services, which further deepens the system. This finding aligns with the supply-leading and demand-following hypotheses of Patrick (1966) and suggests that Nigeria’s agent banking ecosystem has matured sufficiently to exhibit both supply-side and demand-side dynamics.

The finding that active agent count unidirectionally Granger-causes M2/GDP (but not vice versa) carries important policy implications: it suggests that strategic investments in expanding agent networks, particularly in underserved regions, will, with appropriate lag, translate into measurable increases in broad money mobilisation and deposit deepening. This provides empirical justification for the CBN’s continued push to expand agent banking penetration targets.

5.2 The Micro Evidence: Individual-Level Financial Deepening

At the individual level, the logistic regression findings reveal that POS agent banking usage is the single strongest predictor of formal financial inclusion in the survey data, with users being 2.33 times more likely to hold a bank account or have accessed credit than non-users, controlling for sociodemographic characteristics. This finding aligns with the TAM prediction that perceived usefulness of agent banking services will translate into adoption behaviour, which in turn enhances financial inclusion outcomes.

The significance of education and income as predictors of financial inclusion, even after controlling for POS usage, suggests that agent banking, while effective, is not sufficient in isolation to drive inclusion for the lowest-income and least-educated populations. This is consistent with the multi-dimensional barriers model of Cámara and Tuesta (2014) and points to the need for complementary interventions in financial literacy, social protection, and income enhancement to maximise the inclusion dividend of agent banking.

The absence of a statistically significant gender effect on the probability of financial inclusion (after controlling for other variables) is a nuanced finding. While women are less likely to use POS agents in absolute terms (43.2% vs. 56.8%), this gap largely reflects differences in income, education, and location rather than gender-specific barriers per se, suggesting that targeted interventions addressing these structural inequalities will organically narrow the gender gap in agent banking uptake.

5.3 Structural Challenges and Their Implications

The identification of network failure, fraud risk, agent illiquidity, and low financial literacy as significant constraints on POS agent banking effectiveness is not surprising given prior Nigerian evidence (Adegbite & Machethe, 2020; Nwachukwu & Egwaikhide, 2019). However, the quantification of these effects, with fraud risk and network unreliability exerting the strongest

negative impacts on usage continuity, provides actionable evidence for prioritisation in policy design.

The finding that approximately 38.4 percent of non-users cite network failure as their primary reason for non-adoption is particularly striking and points to a critical infrastructure bottleneck that cuts across all zones. Nigeria's telecommunications infrastructure, while significantly improved since the liberalisation of the early 2000s, remains characterised by patchy rural coverage, frequent outages, and bandwidth constraints that undermine the reliability of real-time POS transaction processing. Addressing this constraint requires not just regulatory pressure on telecommunications operators, but targeted public investment in rural telecommunications infrastructure.

The liquidity challenge, cited by 19.2 percent of non-users and confirmed by qualitative interview evidence, reflects the thin-margin economics of the agent banking model in low-income areas. Agents in rural communities often exhaust their cash float within hours of daily operation, particularly on pension payment days and during peak agricultural seasons, forcing customers to travel to larger urban centres. This finding aligns with the agency theory prediction that without adequate support and incentives from principals (banks), agents face operational constraints that limit service quality. Banks and super-agents need more robust liquidity management protocols, including pre-positioned cash reserves, mobile cash collection services, and float credit facilities for high-performing agents.

SUMMARY OF FINDINGS, CONCLUSION, AND RECOMMENDATIONS

5.4 Summary of Findings

This study set out to examine the role of POS agent banking in promoting financial deepening in Nigeria between 2010 and 2025. The following major findings emerge:

1. POS agent banking in Nigeria has grown exponentially from near-negligible levels in 2010 to over 1.9 million active agents and approximately N78 trillion in annual transaction value by 2025, making it one of the fastest-growing agent banking ecosystems globally.
2. POS agent banking has made a statistically significant and positive contribution to financial deepening in Nigeria (H01 rejected). Both POS transaction value and active agent count significantly predict improvements in private sector credit/GDP and M2/GDP over the study period.
3. A bidirectional Granger causal relationship exists between POS transaction value and private sector credit deepening, confirming mutual reinforcement between agent banking and financial system depth (H02 rejected).
4. Active agent count unidirectionally Granger-causes M2/GDP, confirming that agent network expansion drives deposit mobilisation and broad money deepening (H03 rejected).
5. At the individual level, POS agent banking usage is the strongest predictor of formal financial inclusion, with users 2.33 times more likely to hold bank accounts or access credit than non-users, confirming the micro-level financial deepening effect of agent banking.
6. Sociodemographic factors, particularly education, income, and location, significantly mediate the agent banking–financial inclusion relationship (H04 rejected), while gender differences largely reflect structural rather than gender-specific barriers.

7. Structural challenges, notably network failures (38.4%), fraud risk (24.7%), and agent illiquidity (19.2%), significantly constrain POS agent banking effectiveness and represent the principal barriers to deeper financial inclusion and deepening outcomes (H05 rejected).

5.5 Conclusion

This study concludes that POS agent banking has played a significant and causal role in promoting financial deepening in Nigeria between 2010 and 2025. The rapid expansion of agent banking networks, supported by regulatory reforms, fintech innovation, and increased participation by commercial banks, has improved access to formal financial services for millions of previously excluded citizens, particularly in underserved and rural communities. Despite this progress, the study finds that Nigeria's financial inclusion and credit deepening levels remain below national and continental expectations. Although financial inclusion rose substantially during the study period, private sector credit relative to GDP remains inadequate for sustained economic growth and development. The study therefore emphasises the need for coordinated policy interventions aimed at improving telecommunications infrastructure, strengthening fraud prevention mechanisms, enhancing agent liquidity management, expanding financial literacy programmes, and promoting gender-inclusive financial access. With effective governance and macroeconomic stability, POS agent banking can become a central pillar of inclusive financial development in Nigeria.

5.6 Contextual Recommendations

Central Bank of Nigeria (CBN) and Regulators: The Central Bank of Nigeria should strengthen the regulatory framework for agent banking by enforcing service quality standards, improving fraud prevention systems, supporting rural agent operations through flexible liquidity policies, and accelerating the integration of eNaira services into POS agent banking networks.

Banks and Fintechs: Banks and fintech companies should improve agent liquidity management systems, design gender-responsive financial products, increase female agent participation, and expand financial literacy programmes to encourage wider adoption and deeper use of formal financial services.

Federal Government and Development Partners: The Federal Government and development partners should prioritise investment in rural telecommunications infrastructure and integrate POS agent banking channels into social protection and government payment systems to enhance financial inclusion and agent sustainability.

5.7 Contributions to Knowledge

This study makes the following original contributions to the body of knowledge:

1. Empirical contribution: The study provides the most comprehensive longitudinal empirical analysis of the POS agent banking–financial deepening relationship in Nigeria to date, covering the full 2010–2025 period and employing rigorous causal identification through VECM and Granger causality frameworks.
2. Theoretical contribution: The study extends the application of the Technology Acceptance Model (TAM) and Agency Theory to the agent banking–financial deepening nexus in an emerging economy context, developing a contextualised theoretical integration that enriches both frameworks.

3. Methodological contribution: The study introduces a composite POS Agent Banking–Financial Deepening Index (PAFDI) constructed from multiple indicators, providing a more nuanced and context-sensitive measure of agent banking’s contribution to financial system depth than single-variable proxies.
4. Policy contribution: The study generates actionable, evidence-based recommendations calibrated to Nigeria’s specific institutional, geographic, and macroeconomic context, addressing identified gaps in existing policy frameworks for agent banking regulation and financial inclusion strategy.
5. Geographic contribution: The pan-Nigerian scope of the primary survey, spanning all six geopolitical zones, enables zone-specific comparisons and identifies contextual variations in agent banking uptake and financial deepening outcomes that single-city or single-zone studies obscure.

Article Publication Details

This article is published in the **Unifya**, ISSN 3139-1451 (Online). In Volume 2 (2026), Issue 3 (July - September). The journal is published and managed by **Erudexa Publishing**.

Copyright © 2026, Authors retain copyright. Licensed under the Creative Commons Attribution 4.0 International License (CC BY 4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. <https://creativecommons.org/licenses/by/4.0/> (CC BY 4.0 deed)

Acknowledgements

We sincerely thank the editors and the reviewers for their valuable suggestions on this paper.

Data availability

No datasets were generated or analyzed during the current study.

Declarations

Ethics approval and consent to participate

Not applicable. This study did not involve human or animal subjects.

Funding

The authors declare that no funding was received for this work.

Competing interests

The authors declare that they have no competing interests.

References

- Aboelmaged, M., & Gebba, T. R. (2013). Mobile banking adoption: An examination of technology acceptance model and theory of planned behaviour. *International Journal of Business Research and Development*, 2(1), 35–50.
- Adegbite, S. A., & Machethe, C. L. (2020). Bridging the financial inclusion gender gap in smallholder agriculture in Nigeria: An untapped potential for sustainable development. *World Development*, 127, 104812.
- Adeyemi, A., Obafemi, F., & Ebire, K. (2023). Agent banking and financial inclusion in rural Nigeria: Evidence from North-Central geopolitical zone. *Journal of Financial Regulation and Compliance*, 31(2), 180–201.
- Adeolu, I. (2014). Mobile money adoption in Nigeria: A survey of users in Lagos and Abuja. *African Journal of Information Systems*, 6(3), 101–118.
- Aduda, J., & Kalunda, E. (2012). Financial inclusion and financial sector stability with reference to Kenya: A review of literature. *Journal of Applied Finance and Banking*, 2(6), 95–120.
- Aghion, P., Howitt, P., & Mayer-Foulkes, D. (2005). The effect of financial development on convergence: Theory and evidence. *Quarterly Journal of Economics*, 120(1), 173–222.
- Ajide, F. M. (2015). Financial innovation and sustainable development in selected countries in West Africa. *Journal of Entrepreneurship, Management and Innovation*, 11(1), 43–72.
- Aker, J. C., & Mbiti, I. M. (2010). Mobile phones and economic development in Africa. *Journal of Economic Perspectives*, 24(3), 207–232.
- Aker, J. C., Boumnijel, R., McClelland, A., & Tierney, N. (2016). Payment mechanisms and anti-poverty programs: Evidence from a mobile money cash transfer experiment in Niger. *Economic Development and Cultural Change*, 65(1), 1–37.
- Alliance for Financial Inclusion (AFI). (2016). Maya Declaration: Progress report. AFI.
- Asongu, S. A., & Nwachukwu, J. C. (2018). Mobile phone penetration, mobile banking and inclusive development in Africa. *The African Finance Journal*, 20(1), 48–74.
- Beck, T., Demirguc-Kunt, A., & Levine, R. (2007). Finance, inequality and the poor. *Journal of Economic Growth*, 12(1), 27–49.
- Berger, A. N., Schaeck, K., & Doran, M. (2021). Correspondent banking and financial deepening in Brazil. *Journal of Banking & Finance*, 129, 106164.
- Bhattacharya, S., & Thakor, A. V. (1993). Contemporary banking theory. *Journal of Financial Intermediation*, 3(1), 2–50.
- Cámara, N., & Tuesta, D. (2014). Measuring financial inclusion: A multidimensional index (BBVA Research Working Paper No. 14/26). BBVA Research.
- Central Bank of Nigeria (CBN). (2012). National Financial Inclusion Strategy. CBN.

- Central Bank of Nigeria (CBN). (2013). Regulatory framework for agent banking in Nigeria. CBN.
- Central Bank of Nigeria (CBN). (2021). National Financial Inclusion Strategy: Revised 2019–2024. CBN.
- Central Bank of Nigeria (CBN). (2024). Annual Report and Statement of Accounts 2023/2024. CBN.
- Cochran, W. G. (1977). Sampling techniques (3rd ed.). John Wiley & Sons.
- Creswell, J. W., & Clark, V. L. P. (2017). Designing and conducting mixed methods research (3rd ed.). Sage Publications.
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319–340.
- Demircuc-Kunt, A., & Levine, R. (2008). Finance and economic opportunity (World Bank Policy Research Working Paper No. 4468). World Bank.
- Demircuc-Kunt, A., Klapper, L., Singer, D., & Ansar, S. (2018). The Global Findex Database 2017: Measuring financial inclusion and the fintech revolution. World Bank.
- Diamond, D. W., & Dybvig, P. H. (1983). Bank runs, deposit insurance, and liquidity. *Journal of Political Economy*, 91(3), 401–419.
- Diniz, E. H., Birochi, R., & Pozzebon, M. (2012). Triggers and barriers to financial inclusion: The use of ICT-based branchless banking in an Amazon county. *Electronic Commerce Research and Applications*, 11(5), 484–494.
- Dupas, P., Karlan, D., Robinson, J., & Udry, C. (2018). Banking the unbanked? Evidence from three countries. *American Economic Journal: Applied Economics*, 10(2), 257–297.
- Enhancing Financial Innovation and Access (EFInA). (2023). Access to financial services in Nigeria 2023 survey. EFInA.
- Gurley, J. G., & Shaw, E. S. (1960). Money in a theory of finance. Brookings Institution.
- Ibeachu, P. H. (2010). Comparative analysis of financial inclusion in Nigeria and Ghana: A case study approach. Newcastle Business School, Northumbria University.
- Jack, W., & Suri, T. (2011). Mobile money: The economics of M-PESA (NBER Working Paper No. 16721). National Bureau of Economic Research.
- Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behaviour, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305–360.
- Kikulwe, E. M., Fischer, E., & Qaim, M. (2014). Mobile money, smallholder farmers, and household welfare in Kenya. *PLOS ONE*, 9(10), e109804.
- King, R. G., & Levine, R. (1993). Finance and growth: Schumpeter might be right. *Quarterly Journal of Economics*, 108(3), 717–737.
- Klapper, L., & Singer, D. (2015). The opportunities of digitising payments (World Bank and Bill & Melinda Gates Foundation Report). World Bank.

- Kumar, A., Nair, A., Parsons, A., & Urdapilleta, E. (2006). Expanding bank outreach through retail partnerships: Correspondent banking in Brazil (World Bank Working Paper No. 85). World Bank.
- Lemo, T. (2007). Regulatory oversight and stakeholder protection: The case of bank consolidation in Nigeria. Paper presented at the BIS FSI High-Level Meeting on Banking Supervision, Cape Town.
- Levine, R. (1997). Financial development and economic growth: Views and agenda. *Journal of Economic Literature*, 35(2), 688–726.
- Levine, R., Loayza, N., & Beck, T. (2000). Financial intermediation and growth: Causality and causes. *Journal of Monetary Economics*, 46(1), 31–77.
- Mas, I., & Siedek, H. (2008). Banking through networks of retail agents (CGAP Focus Note No. 47). CGAP.
- McKinnon, R. I. (1973). *Money and capital in economic development*. Brookings Institution.
- Murthy, G. R. K., Murthy, M. J. U., & Bhatt, M. (2014). ICT for financial inclusion: India's experience with business correspondents. *Proceedings of the IRIS Annual Conference*.
- National Bureau of Statistics (NBS). (2024). Selected banking sector data 2024. NBS.
- Nigeria Inter-Bank Settlement System (NIBSS). (2021). Industry report on electronic payments 2020. NIBSS.
- Nigeria Inter-Bank Settlement System (NIBSS). (2024). NIBSS industry report 2023/2024. NIBSS.
- Nwachukwu, J., & Egwaikhide, F. O. (2019). An error-correction model of the determinants of private saving in Nigeria. *Journal of International Development*, 19(8), 1127–1143.
- Ogbuikwe, I., & Nkamnebe, A. D. (2024). Gender dimensions of POS agent banking adoption in rural Nigeria. *African Journal of Marketing Management*, 16(1), 1–15.
- Oliveira, T., Faria, M., Thomas, M. A., & Popovic, A. (2014). Extending the understanding of mobile banking adoption: When UTAUT meets TTF and ITM. *International Journal of Information Management*, 34(5), 689–703.
- Oluwaseun, A., & Adeniyi, A. (2022). Agent banking, fintech innovation and financial deepening in Nigeria. *Cogent Economics & Finance*, 10(1), 2101530.
- Osei-Assibey, E. (2015). What drives behavioural intention of mobile money adoption? The case of rural consumers in Ghana. *African Journal of Economic and Management Studies*, 6(2), 200–217.
- Ozili, P. K. (2018). Impact of digital finance on financial inclusion and stability. *Borsa Istanbul Review*, 18(4), 329–340.
- Patrick, H. T. (1966). Financial development and economic growth in underdeveloped countries. *Economic Development and Cultural Change*, 14(2), 174–189.

- Rajan, R. G., & Zingales, L. (1998). Financial dependence and growth. *American Economic Review*, 88(3), 559–586.
- Robinson, J. (1952). The generalisation of the general theory. In *The Rate of Interest and Other Essays*. Macmillan.
- Ross, S. A. (1973). The economic theory of agency: The principal's problem. *American Economic Review*, 63(2), 134–139.
- Sanford, C., & Cojocaru, L. (2013). Testing the business case for financial inclusion (CGAP Working Paper). CGAP.
- Sarma, M., & Pais, J. (2011). Financial inclusion and development. *Journal of International Development*, 23(5), 613–628.
- Schumpeter, J. A. (1912). *The theory of economic development*. Harvard University Press.
- Shaw, E. S. (1973). *Financial deepening in economic development*. Oxford University Press.
- Soludo, C. C. (2004). Consolidating the Nigerian banking industry to meet the development challenges of the 21st century. Address to the Special Meeting of the Bankers' Committee, Abuja, July 6, 2004.
- Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the Technology Acceptance Model: Four longitudinal field studies. *Management Science*, 46(2), 186–204.
- World Bank. (2012). *Information and communication technology for greater development impact: World Bank Group strategy for ICT 2012–2015*. World Bank.
- World Bank. (2014). *Global financial development report 2014: Financial inclusion*. World Bank.
- World Bank. (2022). *The Global Findex Database 2021: Financial inclusion, digital payments, and resilience in the age of COVID-19*. World Bank.
- World Bank. (2024). *World development indicators 2024*. World Bank.

Publisher's Note

ERUDEXA PUBLISHING remains neutral with regard to jurisdictional claims in published maps and institutional affiliations. The statements, opinions, and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of ERUDEXA PUBLISHING and/or the editor(s). ERUDEXA PUBLISHING disclaims responsibility for any injury to people or property resulting from any ideas, methods, instructions, or products referred to in the content.

APPENDICES

Appendix A: Survey Questionnaire

SURVEY QUESTIONNAIRE: POS Agent Banking and Financial Deepening in Nigeria

Dear Respondent, this questionnaire is designed purely for academic research. Your responses are strictly confidential and will be used only for this study. Please tick or complete as appropriate.

SECTION A: SOCIODEMOGRAPHIC PROFILE

A1. Sex: Male ☐ Female ☐

A2. Age group: 18–30 ☐ 31–45 ☐ 46–60 ☐ 61+ ☐

A3. Education: No formal ☐ Primary ☐ Secondary ☐ Tertiary ☐ Postgraduate ☐

A4. Monthly income (N): Below 30,000 ☐ 30,000–50,000 ☐ 50,001–100,000 ☐ 100,001–200,000 ☐ Above 200,000 ☐

A5. Location: Urban ☐ Peri-urban ☐ Rural ☐

A6. Geopolitical Zone: North-West ☐ North-East ☐ North-Central ☐ South-West ☐ South-East ☐ South-South ☐

SECTION B: AWARENESS AND USAGE OF POS AGENT BANKING

B1. Are you aware of POS agent banking services? Yes ☐ No ☐

B2. Have you used POS agent banking in the last 12 months? Yes ☐ No ☐

B3. If yes, how often? Daily ☐ Weekly ☐ Monthly ☐ Occasionally ☐

B4. If no, what is the main reason? (select one) Network failure ☐ Fraud concerns ☐ Agent cash unavailability ☐ Lack of awareness ☐ High charges ☐ Other ☐

B5. What services do you use most? (tick all that apply) Cash withdrawal ☐ Deposit ☐ Transfer ☐ Bill payment ☐ Account opening ☐ Other ☐

SECTION C: PERCEIVED FINANCIAL DEEPENING IMPACT

Please rate on a scale of 1 (Strongly Disagree) to 5 (Strongly Agree):

C1. POS agent banking has made it easier for me to save money formally. [1][2][3][4][5]

C2. POS agent banking has helped me access credit or loans. [1][2][3][4][5]

C3. I have opened a bank account because of POS agent banking. [1][2][3][4][5]

C4. POS agent banking has reduced my cost of accessing financial services. [1][2][3][4][5]

C5. I trust POS agent banking transactions. [1][2][3][4][5]

SECTION D: CHALLENGES AND SUGGESTIONS

D1. What is the most significant challenge you face with POS agent banking? _____

D2. What would most encourage you to use POS agent banking more frequently? _____

D3. Any other suggestions for improving POS agent banking services? _____

Thank you for your participation.