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## Financial Inclusion and Sustainability of Small and Medium Enterprises in North Central Nigeria

Nafisa Mustapha Gajibo, Nasamu Gambo , Aishatu Haruna Idris, Faiza Haruna Maitala  
Department of Business Administration, Nile University of Nigeria, Abuja

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**Abstract:** *Small and Medium Enterprises (SMEs) are vital to economic development in Nigeria, yet their sustainability is constrained by limited access to formal financial services. While financial inclusion is promoted as a key enabler, its effectiveness remains inconsistent, suggesting the influence of contextual factors. This study investigates the relationship between financial inclusion and SME sustainability in North Central Nigeria. Anchored in Financial Intermediation Theory and the Theory of Financial Inclusion, the research employs a quantitative, cross-sectional design. Data were collected via structured questionnaires from a stratified sample of 575 SMEs across seven states in the North Central region. Using Structural Equation Modelling (SEM) for analysis, the study operationalised financial inclusion through six dimensions: Affordable Banking Services, Banking Diversity, Consumer Protection, Financial Literacy, Inclusive Credit Scoring, and Insurance Uptake. SME sustainability was measured as Operational Efficiency. The results reveal that Banking Diversity ( $\beta = 0.518$ ) has the strongest positive effect on sustainability, followed by Consumer Protection ( $\beta = 0.172$ ). Conversely, Financial Literacy, Inclusive Credit Scoring, and Insurance Uptake showed insignificant or negative relationships. The moderating effect of Business Growth was significant for Consumer Protection and Insurance Uptake, indicating that growing firms benefit more from these mechanisms. The study concludes that the impact of financial inclusion is not uniform but is critically contingent on a firm's growth trajectory and the specific dimension of inclusion being applied. Policy recommendations include promoting diverse financial products, strengthening consumer protection frameworks, and designing growth-sensitive, tiered financial inclusion strategies tailored to different stages of SME development. This research contributes to a nuanced understanding of SME finance in emerging economies by highlighting the conditional nature of financial inclusion's benefits.*

**Keywords:** financial inclusion, SME sustainability, operational efficiency, North central Nigeria, structural equation modelling.

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## INTRODUCTION

Small and Medium Enterprises (SMEs) are widely recognised as engines of economic diversification, innovation, and inclusive employment. In Nigeria, they contribute significantly to GDP and poverty alleviation, particularly in underserved regions. However, their sustainability is severely hindered by poor access to formal financial services, limited credit facilities, and weak institutional frameworks (Babajide et al., 2021). Financial inclusion—ensuring businesses have access to banking, credit, insurance, and savings—is considered a strategic lever for long-term SME sustainability (Adegbite et al., 2021). Despite this, inclusion outcomes remain inconsistent across Nigerian SMEs, particularly in North Central Nigeria. This inconsistency raises critical questions about what enables some SMEs to thrive while others fail, even under the same financial inclusion conditions.

Nigerian studies also fall short of addressing this interaction. Agbim (2020) explored how government policy and financial inclusion influence SME performance in South East Nigeria but ignored growth orientation. Similarly, Ochinanwata et al. (2021) assessed entrepreneurial financing models without evaluating whether SME scalability alters financial utilisation patterns. Even in studies that acknowledge business constraints—such as low digital finance adoption or regulatory inefficiencies—the effect of growth remains unexplored (Soetan, Mogaji, & Nguyen, 2021). As a result, policy recommendations remain incomplete, lacking differentiation between SMEs with latent growth potential and those that are structurally stagnant.

Despite financial inclusion being widely promoted through fintech, agency banking, and microfinance, many SMEs in North Central Nigeria remain financially marginalised. A major limitation lies in their inability to scale operations or manage financial resources effectively (Babajide et al., 2021). Many lack the internal systems and growth orientation to make strategic use of loans, insurance, or remittance channels. Moreover, policy volatility and regulatory inertia exacerbate these challenges, undermining the intended outcomes of inclusion initiatives. In regions with underdeveloped financial infrastructure, this leads to a mismatch between service availability and SME absorptive capacity. Unless business growth is accounted for, financial inclusion alone cannot improve sustainability outcomes.

Business growth is not merely an outcome but a strategic input that can enhance SMEs' ability to capitalise on financial inclusion. High-growth SMEs are more likely to seek and utilise external financing, invest in workforce training, adopt technology, and expand into new markets (Khémiri et al., 2024). Yet, most Nigerian SMEs face structural bottlenecks—such as informality, market fragmentation, and limited scalability—that hinder growth potential (Agbim, 2020). These realities suggest that only SMEs with an enabling internal environment can truly benefit from financial inclusion. Ignoring this moderating role limits the effectiveness of both policy and practice, contributing to persistent SME failures despite growing financial access.

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Additionally, most empirical research targets structured financial environments in developed economies, which lack the institutional complexity of Nigerian markets. These models do not account for informal finance, infrastructure gaps, or sociopolitical volatility, which define SME ecosystems in Nigeria (Adegbite et al., 2021). Furthermore, North Central Nigeria is largely ignored in national-level studies, despite hosting a high density of SMEs with poor access to finance. This creates a geographic and contextual blind spot. By focusing specifically on this region and incorporating business growth into the financial inclusion discourse, this study addresses a critical gap in both literature and policy formulation.

Although recent initiatives have expanded financial access through mobile banking and fintech platforms, they remain disconnected from broader SME development goals. Most policies emphasise inclusion volume (e.g., number of accounts or loans) without assessing inclusion quality or strategic utilisation by SMEs (Soetan et al., 2021). Financial tools must be embedded within business development frameworks to ensure they generate long-term value. Otherwise, SMEs risk becoming over-indebted, underinsured, and financially misaligned. Therefore, a more integrated framework—linking financial inclusion with SME growth—can serve as a catalyst for sustainable development in underserved regions.

This study addresses a fundamental question neglected in both policy and academia: Does business growth moderate the relationship between financial inclusion and SME sustainability? Without this lens, interventions will continue to treat SMEs as a homogenous group, ignoring their differential capacity to translate financial access into operational efficiency. Bridging this knowledge gap is essential for crafting effective inclusion strategies that reflect the realities of Nigerian SMEs. The study contributes to a nuanced understanding of how SMEs in North Central Nigeria can be supported not only to access finance but also to grow sustainably and competitively. The overarching objective of this study is to examine the relationship between Financial Inclusion and the Sustainability of SMEs in North Central Nigeria.

## **LITERATURE REVIEW**

### **Conceptual Review**

#### **Financial Inclusion**

Financial inclusion has been recognised as a critical enabler of economic development, poverty reduction, and SME sustainability in developing economies. It refers to the accessibility, availability, and usage of formal financial services, such as banking, credit, insurance, remittances, and digital payment systems, particularly among underserved populations (Gigauri, 2022). In the context of SMEs, financial inclusion has played a significant role in facilitating access to credit, promoting investment, and enhancing financial stability (Thatsarani, Wei, & Alariqi, 2023). Despite its acknowledged benefits, financial exclusion remains a major challenge in many emerging markets, where businesses struggle with limited access to formal financial systems due

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Publication of the European Centre for Research Training and Development-UK to institutional inefficiencies, weak financial infrastructure, and policy inconsistencies (Niekerk, 2024). Financial inclusion has played a pivotal role in enhancing SME sustainability by facilitating access to credit, insurance, and digital financial services. However, its effectiveness has varied across different business contexts, with SMEs facing structural barriers, technological challenges, and regulatory constraints that have influenced their ability to leverage financial inclusion for long-term growth (Selim, 2024). This study has defined financial inclusion as the ability of SMEs to access and effectively utilise financial services to achieve business sustainability. Understanding how business growth moderates the financial inclusion-sustainability relationship has remained crucial in addressing gaps in SME financial strategies, guiding policy interventions, and ensuring a more inclusive financial ecosystem for small businesses in Nigeria.

### **Theoretical Review**

This study adopts two interlinked theories—**Financial Intermediation Theory** and the **Theory of Financial Inclusion**—to guide its analysis of the moderating role of business growth in the relationship between financial inclusion and SME sustainability in North Central Nigeria. These frameworks provide a theoretical lens to understand how financial structures and access mechanisms support or constrain SME operational efficiency. The selected theories are aligned with contemporary empirical findings and provide a robust foundation for examining the influence of financial systems on SME performance, especially in a region marked by infrastructural and economic challenges (Effiom & Edet, 2023).

The **Financial Intermediation Theory**, originating from Schumpeter's (1911) insights and later formalized by Diamond and Dybvig, emphasizes the critical function of financial institutions as intermediaries that lower transaction costs and mitigate financial risk. This theory is particularly useful for understanding the mechanisms through which banks and fintechs influence credit availability and liquidity for SMEs. In Nigeria, where traditional finance remains restrictive, the role of intermediaries becomes even more significant in shaping entrepreneurial outcomes (Dimnwobi et al., 2023).

Empirical studies affirm that strong financial intermediation fosters SME growth by allocating capital efficiently and encouraging innovation. Developed economies have long benefited from robust financial markets, where SMEs access tailored products, advisory services, and scalable funding solutions. In contrast, weak intermediation in Sub-Saharan Africa, driven by credit market imperfections, regulatory inefficiencies, and interest rate volatility, has constrained SME expansion. These limitations highlight the relevance of examining how business growth can influence the extent to which financial intermediation leads to operational efficiency (Adegboye & Iweriebor, 2023).

In Nigeria, financial intermediation is largely administered by commercial banks, microfinance institutions, and digital platforms. However, SMEs often face restrictive lending conditions including excessive collateral demands and limited credit histories. Despite efforts by the Central

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Bank of Nigeria to stimulate SME access through intervention funds and guarantee schemes, systemic barriers remain. These challenges justify the need for this research to explore how business growth may enhance or weaken the efficacy of financial intermediation in promoting SME sustainability in North Central Nigeria (Babajide et al., 2024).

The **Theory of Financial Inclusion**, developed by Sarma and Pais (2011), offers a multidimensional view of how financial access, usage, and quality improve household welfare and entrepreneurial capacity. The theory argues that financial inclusion is not limited to bank account ownership but encompasses credit scoring, insurance, financial literacy, and consumer protection. It is particularly relevant for this study as it allows for a nuanced understanding of how SMEs interact with financial services across formal and informal channels (Omenihu et al., 2024). Empirical evidence demonstrates that digital finance, mobile banking, and peer-to-peer lending enhance financial inclusion by lowering transaction costs and expanding outreach. However, such innovations remain underutilized in Nigeria due to infrastructural limitations and low financial literacy levels. Integrating financial inclusion theory helps this study interrogate the differential effects of these tools on SME sustainability while considering the moderating effect of business growth (Abdullahi & Othman, 2024).

In North Central Nigeria, financial exclusion persists despite national inclusion policies. Many SMEs continue to rely on informal funding sources, limiting their growth potential. Financial inclusion theory provides the scaffolding to evaluate how subcomponents—such as credit scoring, financial literacy, and insurance—impact operational efficiency. This approach directly aligns with the study’s objectives, offering a granular assessment of the mechanisms that influence SME resilience in underserved regions (Agbim, 2023). Financial Intermediation Theory further enhances this analysis by illuminating how SMEs leverage formal credit systems and structured loan products to maintain liquidity and scale operations. For instance, in more developed regions, SMEs utilize institutional finance to support innovation and workforce expansion. In Nigeria, these opportunities are often restricted, and the theory provides a useful tool to evaluate how financial bottlenecks affect long-term viability. Understanding this dynamic is vital to crafting effective financial frameworks for regional SME growth (Soetan et al., 2023).

Integrating both theories allows this study to assess how financial inclusion constructs like literacy, credit scoring, and insurance interact with financial intermediation mechanisms under varying conditions of business growth. As SMEs grow, their capacity to engage with complex financial products increases, potentially enhancing their sustainability. The dual-theory approach also facilitates a comparative analysis of financially underserved versus well-supported SMEs, revealing disparities in operational efficiency outcomes (Dimnwobi et al., 2023). This framework directly supports the study's seventh objective, which investigates the moderating role of business growth in financial inclusion outcomes. A business experiencing positive growth is more likely to build financial credibility, attract investors, and adopt sophisticated financial tools. Conversely, stagnant or declining businesses may remain excluded regardless of broader inclusion efforts. The

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Publication of the European Centre for Research Training and Development-UK theoretical framework captures this nuance, offering a structured path to measure and interpret these effects across diverse SME profiles (Adegboye & Iweriebor, 2023).

In conclusion, this theoretical framework establishes a coherent base for examining the interplay between financial inclusion and SME sustainability. By synthesizing Financial Intermediation Theory and the Theory of Financial Inclusion, the study is equipped to analyze the structural and behavioral dimensions influencing SME performance. These insights will contribute to refining financial strategies and institutional policies, ultimately enhancing SME access to finance and fostering sustainable development in North Central Nigeria.

### **Empirical Review**

Atta and Ibrahim (2024) explored the relationship between financial inclusion and economic development in Nigeria, using data from the Central Bank of Nigeria and the World Development Indicators. Their study demonstrated both short-term and long-term relationships between financial inclusion and economic growth, supporting the finance-growth theory. However, they noted that financial literacy remains a major barrier to financial inclusion, as many SMEs lack awareness of available financial services. While the study provided strong macroeconomic insights, it did not focus on SME-specific financial inclusion, necessitating further research in SME contexts. Oyewale and Alabi (2024) assessed how financial inclusion influences SME performance in Osun State, Nigeria. Using multiple regression analysis on primary data collected from 450 SMEs, the study found that financial inclusion positively affects SME sales growth, payment infrastructure, and access to finance. However, findings also revealed that many SMEs struggle with poor banking infrastructure, low awareness of financial products, and inconsistent government policies. The study was limited to a single state, making its findings less generalizable to other regions of Nigeria. Future studies should cover a broader geographical scope to provide more comprehensive results.

Ololade (2024) examined the impact of fintech on SME financing in Nigeria and the USA. Findings showed that mobile banking, peer-to-peer lending, and blockchain finance have significantly improved SME access to credit. However, in Nigeria, fintech adoption remains constrained by regulatory bottlenecks, cybersecurity concerns, and lack of digital literacy. The study recommended government interventions to improve fintech regulations and SME awareness of digital finance. A key limitation was its focus on urban SMEs, neglecting the rural digital divide. Future studies should explore rural fintech adoption trends. Bamfo (2024) investigated the factors contributing to the high failure rates of SMEs in Ghana, emphasizing financial constraints as a major determinant. The study employed a qualitative research methodology, utilizing secondary data from academic journals, government reports, and policy documents. Findings revealed that limited access to finance, managerial inefficiencies, regulatory challenges, and infrastructural deficits significantly hinder SME survival. The study recommended improving financial accessibility through tailored credit schemes and financial literacy programs. However, the study

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lacked primary data, limiting its applicability in understanding specific financial inclusion dynamics that directly affect SME sustainability.

Ekechi et al. (2024) conducted a comprehensive review of SME growth strategies in Africa, highlighting the role of financial inclusion, policy support, and technological adoption. Findings emphasized that SMEs leveraging digital finance and fintech solutions experienced higher sustainability levels. However, the study lacked empirical validation through primary data collection, making it difficult to assess the specific challenges faced by SMEs in Ghana.

Agyapong et al. (2024) examined the impact of monitoring and evaluation (M&E) systems on SME growth and sustainability in Ghana. Findings revealed that SMEs with structured M&E systems experienced improved business resilience, financial stability, and digitalization adoption. However, the study did not assess the moderating role of business growth in financial inclusion frameworks, which is critical for SME expansion. Odame et al. (2024) investigated the nexus between financial inclusion and economic growth in Ghana, using panel data from the World Bank and Heritage Foundation. Findings showed that financial penetration drives GDP growth, yet many SMEs remain financially excluded due to regulatory barriers and banking inefficiencies. However, the study did not explore the role of business growth in moderating financial inclusion's impact on SME sustainability, leaving a significant research gap.

Elle (2024) explored the role of mobile network operators (MNOs) in promoting financial inclusion and their impact on sustainable development in Cameroon. Using ordinary least squares regression, the study analyzed data from 1,420 users of MNO services and found that agency banking significantly improves SME access to financial services. The study highlighted that commercial banks and microfinance institutions play a more significant role in financial inclusion than fintech-driven agency banking. However, the research did not examine how business growth moderates the relationship between financial inclusion and SME sustainability, which is crucial for understanding long-term financial resilience. Ekechi et al. (2024) reviewed small business growth strategies in African economies, including Kenya. The study highlighted financial inclusion, fintech adoption, and policy interventions as crucial to SME expansion. Findings indicated that businesses leveraging digital platforms and financial literacy programs experienced higher growth rates. However, the study lacked empirical validation through firm-level analysis, limiting its application to specific SME sectors.

## **Literature Gap**

Despite the growing body of work on financial inclusion and SME performance, a significant gap persists in understanding how business growth moderates this relationship, particularly in Nigeria's North Central region. Most studies have focused on the direct impact of financial access and digital tools on SME survival, yet have failed to examine how firm growth trajectories shape financial inclusion outcomes (Jima & Makoni, 2023). As financial ecosystems evolve with the

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adoption of fintech and inclusive banking reforms, understanding the role of business expansion becomes vital for contextualized policy recommendations in Nigeria (Danladi et al., 2023).

Globally, studies have emphasized the importance of credit scoring systems, insurance access, and affordable banking in facilitating SME sustainability. However, these investigations often overlook how different levels of business growth influence financial behavior and institutional access (Khémiri et al., 2024). The inability to disaggregate findings by business size or growth stage results in a skewed understanding of how financial tools impact SMEs at various life-cycle phases. Thus, studies that explore stratified impacts based on growth differentials are urgently needed (Khémiri et al., 2024).

In African contexts, the discourse remains centered on digital finance and microcredit as tools for improving inclusion. While these initiatives have improved financial access, their effectiveness in enhancing operational efficiency among SMEs at different growth stages remains underexplored (Li & Qamruzzaman, 2023). Furthermore, despite extensive policy interest, empirical studies rarely isolate business growth as a moderating factor. This presents a critical gap in understanding the nuanced effects of financial tools across diverse SME profiles (Li & Qamruzzaman, 2023).

Within the Nigerian literature, several works examine fintech adoption and access to credit but fail to contextualize findings by firm maturity or scalability (Omenihu et al., 2024). Studies also tend to conflate microenterprises with SMEs, despite their vastly different needs and capabilities. As a result, policy prescriptions often lack the precision required to support high-growth enterprises or firms transitioning from informal to formal financial systems (Omenihu et al., 2024).

Most empirical analyses in Nigeria continue to adopt descriptive or qualitative designs, limiting the ability to draw robust causal inferences between financial inclusion and SME performance. The absence of rigorous quantitative methods, such as structural equation modeling (SEM) or dynamic panel models, restricts understanding of moderating variables like business growth (Adegbite & Machethe, 2020). Incorporating these advanced techniques will provide actionable insights into how financial access mechanisms vary across SMEs based on growth patterns (Adegbite & Machethe, 2020).

Geographically, regional variations in financial access are frequently overlooked in national analyses. While SMEs in metropolitan areas benefit from fintech and banking innovations, those in North Central Nigeria continue to struggle with infrastructural and policy barriers (Agbim, 2020). Current literature rarely accounts for these disparities, resulting in generalizations that obscure local realities. There is a need for region-specific research that considers local infrastructure, financial institutions, and SME demographics (Agbim, 2020).

Additionally, concepts like banking diversity, insurance uptake, and affordable credit have not been sufficiently examined as strategic levers within the SME ecosystem. While digital platforms are expanding, their actual usage by different SME segments—especially those experiencing growth—is still not well understood (Okere et al., 2023). More nuanced studies are required to

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assess how growing firms interact with and benefit from varied financial services beyond traditional banking (Okere et al., 2023).

In conclusion, the current literature fails to adequately model the interaction between financial inclusion and business growth as a determinant of SME sustainability. Without distinguishing between static and dynamic enterprises, most studies offer incomplete guidance for financial policymakers and development institutions. This study addresses that gap by explicitly examining how business growth moderates financial inclusion's impact on operational efficiency and long-term SME resilience in North Central Nigeria.

## **METHODOLOGY**

This study adopted a quantitative, cross-sectional research design to examine the relationship between financial inclusion and SME sustainability in North Central Nigeria. This study focused on small and medium enterprises (SMEs) operating in North Central Nigeria, specifically in Benue, Nasarawa, Kogi, Kwara, Niger, Plateau, and the Federal Capital Territory (FCT) Abuja. According to the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN, 2023), the total population will comprise 119,851 small enterprises and 10,011 medium enterprises, making a combined total of 129,862 SMEs across the selected states. These businesses will be drawn from various sectors, including manufacturing, trade, agriculture, services, and technology, which will be essential in contributing to economic development and employment generation in the region. Yamane's (1967) formula for sample size determination was applied. Thus, the total sample size is 575. The study employed Structural Equation Modelling (SEM) using ADANCO to analyze the relationships between financial inclusion, business growth, and SME sustainability in North Central Nigeria. SEM is a robust multivariate statistical technique that allows for the simultaneous estimation of multiple relationships between observed and latent variables.

## **RESULTS AND DISCUSSION**

The first research question explored the extent to which financial inclusion dimensions—Affordable Banking Services (ABS), Banking Diversity (BD), Consumer Protection (CP), Financial Literacy (FL), Inclusive Credit Scoring (ICS), and Insurance Uptake (IU)—affect the operational efficiency of SMEs in North Central Nigeria. The structural model revealed mixed outcomes, with some constructs displaying strong and positive impacts, while others demonstrated weak or negative effects. Among these, Banking Diversity emerged as the most influential predictor, recording the highest path coefficient ( $\beta = 0.518$ ) and a large effect size ( $f^2 = 0.660$ ). This finding confirms that access to a variety of financial services—such as savings, credit, overdrafts, and investment products—equips SMEs with the flexibility to optimise cash flow, mitigate risks, and invest in growth opportunities. These results resonate with the conclusions of Mohammed and Bunyaminu (2022), who identified banking diversity as a cornerstone of SME competitiveness in Ghana, while also aligning with Olowofela's (2022) emphasis on the critical

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role of financial inclusion in driving SME expansion across Nigeria. The cross-country parallels underscore that when SMEs diversify their banking relationships, they achieve more efficient financial management, reinforcing the finance-growth nexus.

Consumer Protection ( $\beta = 0.172$ ;  $f^2 = 0.020$ ) also had a positive though moderate impact, reflecting SMEs' reliance on transparent, reliable, and secure financial ecosystems to foster trust. Firms that perceive the financial system as safe are more likely to engage with formal institutions, thereby improving record-keeping, planning, and operational resilience. This aligns with Atta and Ibrahim (2024), who highlighted the importance of financial literacy and protection mechanisms as enablers of financial inclusion. However, in the Nigerian context, CP's modest effect implies that regulatory frameworks and enforcement mechanisms may not yet be sufficiently robust to transform business outcomes at scale.

On the other hand, Affordable Banking Services ( $\beta = 0.014$ ;  $f^2 = 0.000$ ), Financial Literacy ( $\beta = -0.063$ ;  $f^2 = 0.004$ ), Inclusive Credit Scoring ( $\beta = -0.037$ ;  $f^2 = 0.001$ ), and Insurance Uptake ( $\beta = -0.084$ ;  $f^2 = 0.004$ ) failed to significantly influence operational efficiency. Their weak or negative coefficients suggest persistent barriers in the diffusion and practical utility of these constructs. The rejection of hypotheses associated with these variables implies that mere affordability of banking services is insufficient if SMEs cannot integrate them meaningfully into business processes. Similarly, while financial literacy is theoretically pivotal, its negative coefficient highlights potential structural misalignments, such as training programmes that are either generic or poorly tailored to SME realities. This observation corroborates Garba et al. (2022), who found that insurance uptake remains low among Nigerian SMEs due to mistrust and a perception of insurance as a sunk cost rather than a risk management tool. Comparable patterns are seen in Cameroon, where Tapang (2023) and Lontchi et al. (2022) noted that financial literacy deficits limit SMEs' ability to translate inclusion into tangible growth.

Collectively, these findings point to a dual reality: while structural pillars like Banking Diversity can propel SME efficiency, peripheral or underdeveloped dimensions such as insurance and literacy may create friction if not aligned with SME needs. The evidence suggests that financial inclusion alone does not automatically generate operational efficiency but must be contextually relevant, practically accessible, and trust-inducing to yield impact.

The first research question investigated the extent to which financial literacy influences the relationship between financial inclusion and SME sustainability in North Central Nigeria. The findings indicated that financial literacy, though conceptually pivotal, had an insignificant and negative path coefficient ( $\beta = -0.063$ ;  $f^2 = 0.004$ ). This outcome reveals that literacy in its present form neither enhances SMEs' operational efficiency nor strengthens their financial inclusion outcomes. This result is contrary to theoretical expectations rooted in financial capability frameworks, which posit that literacy equips entrepreneurs with the knowledge to make informed

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financial decisions, thereby improving sustainability (Frimpong et al., 2022). The paradox of a negative coefficient suggests that while SMEs may possess some degree of financial awareness, the knowledge acquired is either superficial, generic, or disconnected from their operational realities. Similar challenges have been documented in other African contexts. Mossie (2023) in Ethiopia and Tapang (2023) in Cameroon observed that literacy alone does not translate into meaningful SME financial inclusion when training programmes are supply-driven rather than context-sensitive. In Nigeria, the persistence of this challenge reflects a mismatch between the design of literacy programmes and the real financial obstacles faced by SMEs, such as high collateral demands or informal lending practices. The findings therefore underscore the need for SME-oriented financial literacy models tailored to specific growth stages and sectoral realities. This contributes to the literature by demonstrating that literacy is not an automatic enabler of sustainability but a conditional factor that requires integration with supportive institutional frameworks.

The second research question assessed the extent to which inclusive credit scoring influences SME sustainability within the framework of financial inclusion. The results revealed a weak and statistically insignificant negative effect ( $\beta = -0.037$ ;  $f^2 = 0.001$ ), indicating that inclusive credit scoring does not meaningfully advance SME operational efficiency in the study area. This suggests that existing credit scoring mechanisms remain poorly adapted to the realities of SMEs, particularly micro and small-scale enterprises, which often lack formal documentation or collateral required for favourable evaluations. This aligns with Oppong et al. (2023) in Ghana, who found that SMEs frequently face exclusion due to inadequate financial records despite credit scoring initiatives designed to expand access. Similarly, Enebeli-Uzor and Mukhtar (2023) in Nigeria highlighted that while digitalisation in banking enhances inclusion, high lending rates and systemic biases in credit assessment continue to limit SME access. In the North Central Nigerian context, the ineffectiveness of inclusive credit scoring reflects both institutional weaknesses in financial intermediation and SME-level deficiencies in formal record-keeping. Theoretically, these findings challenge assumptions of credit access as a linear function of scoring inclusion, underscoring that inclusivity in methodology must be matched with structural reforms in banking practices and SME capacity building.

The third research question examined the extent to which consumer protection contributes to financial inclusion and SME sustainability. The results showed a positive and significant effect ( $\beta = 0.172$ ;  $f^2 = 0.020$ ), confirming that consumer protection mechanisms play a meaningful role in fostering SME operational efficiency. SMEs that trust the financial system, perceive transparency in financial products, and experience grievance redressal are more likely to participate in formal financial services, thereby enhancing sustainability. This finding resonates with Atta and Ibrahim (2024), who highlighted the role of institutional trust in enabling financial inclusion at the macroeconomic level, and Garba et al. (2022), who demonstrated that risk protection frameworks enhance SME resilience. However, the modest effect size in this study suggests that although

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protection mechanisms exist, they are not sufficiently entrenched or uniformly enforced to generate large-scale transformation. In line with Wansi and Burrell (2023) in Cameroon, it becomes evident that policy frameworks must not only legislate protection but actively enforce it to secure trust among SMEs. This study contributes by empirically confirming that protection is a non-financial but critical enabler of SME sustainability in Nigeria's financial inclusion architecture.

The fourth research question explored whether insurance uptake enhances access to financial services and SME sustainability. Contrary to expectations, the findings indicated a negative and insignificant effect ( $\beta = -0.084$ ;  $f^2 = 0.004$ ). This result suggests that insurance services, as currently designed and delivered, do not foster SME efficiency or resilience. Instead, they may represent additional costs that SMEs are unwilling to bear given their fragile profit margins and mistrust in insurance providers. This finding echoes Garba et al. (2022), who revealed that while insurance literacy positively predicts SME sustainability, uptake remains low due to scepticism about claim settlement and perceived irrelevance of insurance products to SME realities. A similar sentiment was documented in Tanzania by Chrisostom et al. (2024), where SMEs reported limited benefit from formal loans and risk products due to excessive costs and procedural inefficiencies. In the Nigerian context, the rejection of insurance reflects a systemic trust deficit and the lack of tailored products that align with SME needs. This study therefore extends the literature by demonstrating that insurance uptake, though theoretically significant in risk management, may have counterproductive effects if poorly aligned with SME priorities and institutional realities.

The fifth research question examined the extent to which affordable banking services serve as a strategic tool in moderating the relationship between financial inclusion and SME sustainability. Findings revealed that affordable banking services had no significant effect ( $\beta = 0.014$ ;  $f^2 = 0.000$ ). Despite policy emphasis on affordability as a driver of inclusion, SMEs in the study area did not perceive reduced banking costs as a substantial enabler of efficiency or sustainability. This result corroborates Tunbosun et al. (2023), who noted that rural SMEs in Nigeria remain excluded despite CBN's affordability policies, largely due to infrastructural deficits and low penetration of banking networks. Similarly, Oyewale and Alabi (2024) found that transaction costs, though burdensome, are overshadowed by structural issues such as poor awareness and infrastructural inadequacies. Theoretically, this study demonstrates that affordability is not a sufficient condition for financial inclusion; it must be combined with accessibility, convenience, and tailored service delivery. Thus, the insignificance of affordable banking services highlights a structural gap between policy frameworks and SME realities.

The sixth research question assessed the extent to which banking diversity influences SME sustainability. Results revealed that banking diversity is the strongest predictor of operational efficiency ( $\beta = 0.518$ ;  $f^2 = 0.660$ ), confirming its centrality in the financial inclusion-sustainability nexus. Access to diverse financial products—ranging from savings and loans to overdrafts,

Publication of the European Centre for Research Training and Development-UK investment opportunities, and fintech services—empowers SMEs to tailor financial strategies to specific operational needs, thereby enhancing efficiency and resilience. This finding corroborates Mohammed and Bunyaminu (2022) in Ghana and Olowofela (2022) in Nigeria, both of whom emphasised the importance of diversified financial services in enabling SME competitiveness. Similarly, Njagi and Mutwiri (2024) in Kenya demonstrated that SMEs leveraging multiple financial channels experienced improved cash flow management and growth. By empirically confirming banking diversity as a dominant driver of sustainability in Nigeria, this study not only supports but also extends the finance-growth theory, showing that diversity in financial intermediation is a more powerful determinant of SME outcomes than affordability or literacy alone.

## **CONCLUSION AND RECOMMENDATIONS**

The findings of this study lead to an important conclusion: financial inclusion has the potential to enhance SME operational efficiency in North Central Nigeria, but its effects are neither uniform nor automatic. Among the dimensions considered, Banking Diversity. SMEs that access a wider range of financial services are more resilient, efficient, and adaptive, while firms experiencing growth are more likely to formalise practices, exploit financial opportunities, and achieve economies of scale. However, the study also demonstrates that other dimensions such as Financial Literacy, Inclusive Credit Scoring, and Insurance Uptake are not translating into measurable performance benefits. This reflects structural and contextual weaknesses, including inadequate tailoring of financial products, limited trust in financial institutions, and insufficient institutional enforcement of consumer rights. The moderation analysis further reveals that as SMEs grow, they may outgrow or bypass certain financial mechanisms, emphasising the importance of aligning financial tools with firm size and maturity. In conclusion, financial inclusion is not a one-size-fits-all solution for SMEs. Its success depends on the diversity of services available, the robustness of consumer protection, and the growth trajectory of enterprises. For policymakers and practitioners, the challenge lies in ensuring that financial inclusion policies are embedded in broader strategies of SME development and are responsive to the evolving realities of enterprise growth.

Based on the findings, several recommendations can be advanced. First, policymakers should prioritise enhancing Banking Diversity by promoting a range of products that cater to SMEs at different stages of development, including savings, credit, digital platforms, and advisory services. Financial institutions should be encouraged to innovate and deliver flexible, context-appropriate solutions that go beyond affordability to address usability and reliability.

Second, strengthening Consumer Protection frameworks is essential. Regulators must ensure that SMEs can engage with financial systems without fear of exploitation or non-transparency. Stronger enforcement of fair practice laws, quicker grievance mechanisms, and education campaigns on rights and responsibilities can build trust and increase uptake of financial services.

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Third, programmes that address the weaknesses of Financial Literacy, Inclusive Credit Scoring, and Insurance Uptake need to be recalibrated. Literacy initiatives should be more practical, experiential, and SME-focused, rather than generic. Credit scoring systems must integrate informal credit histories and SME realities, while insurance providers should design products that are affordable, accessible, and responsive to business risks.

Finally, interventions must be growth-sensitive. As firms expand, their financial needs evolve, and policies should reflect this dynamism. Tiered financial inclusion strategies that distinguish between micro, small, and medium firms will ensure that the tools offered remain relevant, thereby maximising their contribution to operational efficiency and sustainability.

### **Consideration for Future Research**

While the study makes significant contributions, it also opens avenues for future research. One limitation is the concentration on SMEs in North Central Nigeria, which may restrict generalisability. Future studies should extend the analysis to other regions or conduct cross-country comparisons to examine whether similar patterns hold in different institutional, cultural, and financial contexts. Such comparative research would enrich understanding of how regional peculiarities shape the outcomes of financial inclusion.

Another area for future exploration lies in the measurement overlap identified among constructs such as Consumer Protection, Financial Literacy, Credit Scoring, and Insurance Uptake. The high intercorrelations suggest that respondents may perceive these elements as parts of a single financial ecosystem rather than distinct constructs. Future research should refine measurement instruments, perhaps through qualitative approaches or mixed methods, to disentangle these dimensions and clarify their empirical boundaries.

Moreover, the study's reliance on self-reported survey data, though robustly analysed, leaves room for triangulation with objective financial performance indicators. Future research could integrate accounting records, transaction histories, or credit bureau data to validate or extend the findings. Additionally, longitudinal designs would provide deeper insight into how financial inclusion and growth dynamics evolve over time, offering stronger evidence of causality.

Finally, the unexpected negative results for Financial Literacy, Credit Scoring, and Insurance Uptake call for further investigation. Future studies should examine the underlying causes of these counterintuitive outcomes, possibly exploring issues of trust, awareness, product design, and cultural attitudes toward formal finance. By addressing these areas, future research can build on the foundation of this study to refine theory, improve practice, and advance the transformative potential of financial inclusion in emerging economies.

## REFERENCES

- Abdullahi, A., & Othman, A. H. A. (2021). Financial inclusion enhancement through the adoption of Islamic microfinance in Nigeria. *International Journal of Ethics and Systems*. <https://doi.org/10.1108/ijoes-02-2021-0040>
- Addy, W. A., Ofodile, O. C., Adeoye, O. B., Oyewole, A. T., Okoye, C. C., Odeyemi, O., & Ololade, Y. J. (2024). Data-driven sustainability: How FinTech innovations are supporting green finance. *Engineering Science & Technology Journal*. <https://doi.org/10.51594/estj.v5i3.871>
- Adegbite, O., & Machethe, C. (2020). Bridging the financial inclusion gender gap in smallholder agriculture in Nigeria: An untapped potential for sustainable development. *World Development*, 127, 104755. <https://doi.org/10.1016/j.worlddev.2019.104755>
- Adegbite, O., Machethe, C., & Anderson, C. L. (2021). Revisiting the measurement of financial inclusion of rural smallholder farmers in Nigeria. *Agricultural Finance Review*. <https://doi.org/10.1108/AFR-07-2020-0099>
- Adegboye, A., & Iweriebor, S. (2023). Does access to finance enhance SME innovation and productivity in Nigeria? *African Development Review*. <https://doi.org/10.1111/1467-8268.12351>
- Agarwal, S., Alok, S., Ghosh, P., & Gupta, S. (2019). Financial inclusion and alternate credit scoring: Role of big data and machine learning in fintech. *FEN: Behavioral Finance (Topic)*. <https://doi.org/10.2139/ssrn.3507827>
- Agbim, K. C. (2020). Government policy, financial inclusion and performance of SMEs in South Eastern Nigeria. *International Economic Review*, 6(2), 69–82. <https://doi.org/10.15678/IER.2020.0602.05>
- Ahmad, I., Alni, R., Arni, S., & Mamduh, H. M. (2023). Financial literacy to improve sustainability: A bibliometric analysis. *Studies in Business and Economics*, 18(2), 24–43. <https://doi.org/10.2478/sbe-2023-0043>
- Aitken, R. (2017). ‘All data is credit data’: Constituting the unbanked. *Competition & Change*, 21(3), 274–300. <https://doi.org/10.1177/1024529417712830>
- Ali, E., Anshari, M., Hamdan, M., Ahmad, N., & Surieshtino, Y. (2023). Green finance for sustainable development: A bibliographic analysis. *2023 International Conference on Sustainable Islamic Business and Finance (SIBF)*, 46–49. <https://doi.org/10.1109/SIBF60067.2023.10379915>
- Babajide, A., Osabuohien, E., Tunji-Olayeni, P., et al. (2024). Financial literacy, financial capabilities, and sustainable business model practice among small business owners in

- Babajide, A., Osabuohien, E., Tunji-Olayeni, P., Falola, H., Amodu, L., Olokoyo, F., Adegboye, F., & Ehikioya, B. (2021). Financial literacy, financial capabilities, and sustainable business model practice among small business owners in Nigeria. *Journal of Sustainable Finance & Investment*, 13(7), 1670–1692.  
<https://doi.org/10.1080/20430795.2021.1962663>
- Bagreeva, E., & Barakina, E. (2019). Improving the system of consumer protection in the Russian market in the context of achieving leadership in digitalization. *Proceedings of the 4th International Conference on Social, Business, and Academic Leadership (ICSBAL 2019)*.  
<https://doi.org/10.2991/icsbal-19.2019.20>
- Bojadzievska-Danevska, A. (2024). Investigating the relation between FinTech and sustainable banking. *Entrepreneurship*, 12(1). <https://doi.org/10.37708/ep.swu.v12i1.5>
- Burchi, A., Włodarczyk, B., Szturo, M., & Martelli, D. (2021). The effects of financial literacy on sustainable entrepreneurship. *Sustainability*, 13(9), 5070.  
<https://doi.org/10.3390/SU13095070>
- Carayannis, E., Grigoroudis, E., Sindakis, S., & Walter, C. (2014). Business model innovation as antecedent of sustainable enterprise excellence and resilience. *Journal of the Knowledge Economy*, 5, 440–463. <https://doi.org/10.1007/s13132-014-0206-7>
- Chaturvedi, R., Darokar, H., Patil, P. P., Kumar, M., Sangeeta, K., Aravinda, K., & Kadhim, A. A. (2023). Maximizing towards the sustainability: Integrating materials, energy, and resource efficiency in revolutionizing manufacturing industry. *E3S Web of Conferences*.  
<https://doi.org/10.1051/e3sconf/202345301036>
- Danladi, S., Prasad, M., Modibbo, U. M., Ahmadi, S. A., & Ghasemi, P. (2023). Attaining sustainable development goals through financial inclusion: Exploring collaborative approaches to fintech adoption. *Sustainability*, 15(17), 13039.  
<https://doi.org/10.3390/su151713039>
- Dimnwobi, S. K., Madichie, C. V., Ekesiobi, C. S., & Asongu, S. (2023). Financial development and renewable energy consumption in Nigeria. *Renewable Energy*.  
<https://doi.org/10.1016/j.renene.2022.04.150>
- Effiom, L., & Edet, S. (2020). Financial innovation and the performance of small and medium scale enterprises in Nigeria. *Journal of Small Business & Entrepreneurship*, 34, 141–174.  
<https://doi.org/10.1080/08276331.2020.1779559>
- Gorondutse, A. H., Arshad, D., & Alshuaibi, A. S. I. (2020). Driving sustainability in SMEs' performance: The effect of strategic flexibility. *Journal of Strategy and Management*.  
<https://doi.org/10.1108/JSMA-03-2020-0064>

Publication of the European Centre for Research Training and Development-UK

- Gould, B. G. B. (2024). The role of consumer empowerment and its comparison in financial inclusion in the Global South. *Asian Journal of Economics, Business and Accounting*. <https://doi.org/10.9734/ajeba/2024/v24i121615>
- Grady, R. (2012). Consumer protection in the financial sector: Recent regulatory developments. *Jassa—the Finsia Journal of Applied Finance*, (36). [https://consensus.app/papers/consumer-protection-in-the-financial-sector-recent-grady/45641d52057b5a31a1331c0bae340b00/?utm\\_source=chatgpt](https://consensus.app/papers/consumer-protection-in-the-financial-sector-recent-grady/45641d52057b5a31a1331c0bae340b00/?utm_source=chatgpt)
- Huang, L. (2024). Green bonds and ESG investments: Catalysts for sustainable finance and green economic growth in resource-abundant economies. *Resources Policy*. <https://doi.org/10.1016/j.resourpol.2024.104806>
- Huang, S., Cheng, M., & Shu, Z. (2024). Role of social capital and financial inclusion in sustainable economic growth. *Research in International Business and Finance*, 67, 102525. <https://doi.org/10.1016/j.ribaf.2024.102525>
- Ibrahim, S. S., & Aliero, H. M. (2020). Testing the impact of financial inclusion on income convergence: Empirical evidence from Nigeria. *African Development Review*. <https://doi.org/10.1111/1467-8268.12413>
- Iftikhar, R., Ashfaq, M., Akhtar, S., Frimpong, S. E., & Iftikhar, R. (2024). Empowering sustainable development: The role of financial literacy and social capital in bridging financial inclusion in developing nations. *Journal of Innovative Research in Management Sciences*. <https://doi.org/10.62270/jirms.v5i2.79>
- Jima, M. D., & Makoni, P. (2023). Causality between financial inclusion, financial stability and economic growth in Sub-Saharan Africa. *Sustainability*, 15(2), 1152. <https://doi.org/10.3390/su15021152>
- Katchasuwanmanee, K., Cheng, K., & Bateman, R. (2016). Simulation based energy-resource efficient manufacturing integrated with in-process virtual management. *Chinese Journal of Mechanical Engineering*, 29, 1083–1089. <https://doi.org/10.3901/CJME.2016.0714.080>
- Khémiri, W., Attia, E., & Chafai, A. (2024). How financial inclusion moderates the curvilinear nexus between tangible investment and sustainable firm growth: New evidence from the Middle East and North Africa Region. *Sustainability*, 16(6), Article 2573. <https://doi.org/10.3390/su16062573>
- Khoiruddin, M., Rahmah, N., & Utami, T. (2023). Analysis of sustainability and inclusive strategies in achieving profitability: Studies on banking listed on the Indonesia Stock Exchange. *International Journal of Multidisciplinary Research and Analysis*. <https://doi.org/10.47191/ijmra/v6-i8-62>

- Li, Z., & Qamruzzaman, M. (2023). Nexus between environmental degradation, clean energy, financial inclusion, and poverty. *Sustainability*, 15(19), 14161. <https://doi.org/10.3390/su151914161>
- Liang, Y., Lu, X., Li, W., & Wang, S. (2018). Cyber physical system and big data enabled energy efficient machining optimisation. *Journal of Cleaner Production*. <https://doi.org/10.1016/J.JCLEPRO.2018.03.149>
- Liu, H., Yao, P., Latif, S., Aslam, S., & Iqbal, N. (2021). Impact of green financing, FinTech, and financial inclusion on energy efficiency. *Environmental Science and Pollution Research*, 29, 18955–18966. <https://doi.org/10.1007/s11356-021-16949-x>
- Lobozynska, S., Skomorovych, I., & Vladychyn, U. (2020). State policy of consumer protection in the digital financial services market in Ukraine. *Finanse i Prawo Finansowe*. <https://doi.org/10.18778/2391-6478.S.2021.05>
- Machikape, K., & Oluwadele, D. (2024). Advancing financial inclusion and data ethics: The role of alternative credit scoring. In *Lecture Notes in Computer Science* (Vol. 14422, pp. 229–241). [https://doi.org/10.1007/978-3-031-71412-2\\_17](https://doi.org/10.1007/978-3-031-71412-2_17)
- Malady, L. (2016). Consumer protection issues for digital financial services in emerging markets. *Banking & Insurance eJournal*. <https://doi.org/10.2139/SSRN.3028371>
- Mhlanga, D. (2022). The role of financial inclusion and FinTech in addressing climate-related challenges in the industry 4.0: Lessons for sustainable development goals. *Frontiers in Climate*, 4. <https://doi.org/10.3389/fclim.2022.949178>
- Mirza, N., Umar, M., Afzal, A., & Firdousi, S. (2023). The role of FinTech in promoting green finance, and profitability: Evidence from the banking sector in the Eurozone. *Economic Analysis and Policy*. <https://doi.org/10.1016/j.eap.2023.02.001>
- Njuguna, R., & Sowon, K. (2021). Poster: A scoping review of alternative credit scoring literature. *ACM SIGCAS Conference on Computing and Sustainable Societies*. <https://doi.org/10.1145/3460112.3471972>
- Ochinanwata, N., Ezepue, P., Nwankwo, T. C., Ochinanwata, C., & Igwe, P. (2021). Public–private entrepreneurial financing partnership model in Nigeria. *Thunderbird International Business Review*, 63(6), 743–755. <https://doi.org/10.1002/tie.22194>
- Okere, K., Ibe, G. I., Muoneke, O., & Nwaeze, N. (2023). Environmental sustainability, small and medium enterprises, and finance in Africa: A triplicate relationship. *Environmental Science and Pollution Research*, 30, 41359–41378. <https://doi.org/10.1007/s11356-022-25012-2>
- Olaleye, B. R., Lekunze, J., Sekhampu, T. J., Khumalo, N., & Ayeni, A. A. W. (2024). Leveraging innovation capability and organizational resilience for business sustainability among

Publication of the European Centre for Research Training and Development-UK

- 
- SMEs: A PLS-SEM approach. *Sustainability*, 16(21), 9201.  
<https://doi.org/10.3390/su16219201>
- Omenihu, C. M., Brahma, S., Katsikas, E., et al. (2024). Financial inclusion and poverty alleviation: A critical analysis in Nigeria. *Sustainability*, 16(9), Article 8528.  
<https://doi.org/10.3390/su16198528>
- Omenihu, C. M., Brahma, S., Katsikas, E., Vrontis, D., Siachou, E., & Krasonikolakis, I. (2024). Financial inclusion and poverty alleviation: A critical analysis in Nigeria. *Sustainability*, 16(19), 8528. <https://doi.org/10.3390/su16198528>
- Paspalj, D. (2025). Managerial styles and digital innovation for sustainable business growth. *Journal of Agronomy, Technology and Engineering Management (JATEM)*.  
<https://doi.org/10.55817/tnen6732>
- Patel, A., & Satapathy, S. (2023). Empowering digital banking services and enhancing financial inclusion using smart and robust fintech software solutions. *2023 World Conference on Communication & Computing (WCONF)*, 1–9.  
<https://doi.org/10.1109/WCONF58270.2023.10235246>
- Pratiwi, L. R. E., & Krisnawati, A. (2021). The role of digital consumer protection in mediating the effect of mobile money usage towards financial inclusion. *International Journal of Science and Management Studies (IJSMS)*. <https://doi.org/10.51386/25815946/ijsms-v4i5p116>
- Rahmati, A. (2024). The synergy between fintech and Islamic banking: Expanding access to financial inclusion. *Al Mashaadir: Jurnal Ilmu Syariah*.  
<https://doi.org/10.52029/jis.v5i1.215>
- Razavi, R., & Elbahnasawy, N. G. (2025). Unlocking credit access: Using non-CDR mobile data to enhance credit scoring for financial inclusion. *Finance Research Letters*.  
<https://doi.org/10.1016/j.frl.2024.106682>
- Razavi, R., & Elbahnasawy, N. G. (2025). Unlocking credit access: Using non-CDR mobile data to enhance credit scoring for financial inclusion. *Finance Research Letters*.  
<https://doi.org/10.1016/j.frl.2024.106682>
- Saini, A. (2024). Digital finance-fintech and its impact on financial inclusion in India. *International Journal of Innovative Science and Research Technology (IJISRT)*.  
<https://doi.org/10.38124/ijisrt/ijisrt24apr2261>
- Senaya, G. M. (2024). Financial literacy and its role in promoting sustainable investment. *World Journal of Advanced Research and Reviews*.  
<https://doi.org/10.30574/wjarr.2024.24.1.2986>

Publication of the European Centre for Research Training and Development-UK

- Simumba, N., Okami, S., Kodaka, A., & Kohtake, N. (2021). Spatiotemporal integration of mobile, satellite, and public geospatial data for enhanced credit scoring. *Symmetry*, 13(4), 575. <https://doi.org/10.3390/sym13040575>
- Singh, A., & Sharma, L. M. (2023). Fintech and financial inclusion: Transforming underserved access to financial services. *International Journal of Tourism and Hotel Management*. <https://doi.org/10.22271/27069583.2023.v5.i2a.71>
- Soetan, T. O., Mogaji, E., & Nguyen, N. P. (2021). Financial services experience and consumption in Nigeria. *Journal of Services Marketing*. <https://doi.org/10.1108/JSM-07-2020-0280>
- Spescha, A., & Woerter, M. (2019). Innovation and firm growth over the business cycle. *Industry and Innovation*, 26(3), 321–347. <https://doi.org/10.1080/13662716.2018.1431523>
- Sun, Y., Gozgor, G., Lau, C.-K., & Soliman, A. M. (2024). Inclusive finance and sustainability: The dynamic spillover effects of uncertainties on access to credit. *Research in International Business and Finance*. <https://doi.org/10.1016/j.ribaf.2024.102628>
- Surminski, S., & Oramas-Dorta, D. (2014). Flood insurance schemes and climate adaptation in developing countries. *International Journal of Disaster Risk Reduction*, 7, 154–164. <https://doi.org/10.1016/j.ijdr.2013.10.005>
- Tebo, P. V. (2005). Building business value through sustainable growth. *Research-Technology Management*, 48(5), 28–32. <https://doi.org/10.1080/08956308.2005.11657335>
- Turner, D. (2023). Consumer protection and good customer outcomes in an evolving financial services ecosystem. *Journal of Financial Compliance*. <https://doi.org/10.69554/xebr3464>
- Vuong, G. T. H., Barky, W., & Nguyen, M. H. (2024). Stabilizing the national banking system through digital financial inclusion, creative innovations, and green finance in low-financially developed economies. *Journal of Open Innovation: Technology, Market, and Complexity*. <https://doi.org/10.1016/j.joitmc.2024.100434>
- Yang, C., & Masron, T. A. (2022). Impact of digital finance on energy efficiency in the context of green sustainable development. *Sustainability*. <https://doi.org/10.3390/su141811250>
- Yu, L., & Aleksandrova, M. V. (2021). Weather index insurance: Promises and challenges of promoting social and ecological resilience to climate change. *Discussion Paper*. <https://doi.org/10.23661/BP14.2021>
- Zhang, R. (2025). Green finance and ESG investment strategies under climate risk management. *Economics and Management Innovation*. <https://doi.org/10.71222/00d71j98>
- Zhu, K., & Guo, L. (2023). Financial technology, inclusive finance and bank performance. *Finance Research Letters*. <https://doi.org/10.1016/j.frl.2023.104872>

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