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Determinants of Financial Inclusion among Nigerian MSMEs: The Roles of Push Factors

Siti Shoimah[1], Abdullahi Adio Babatunde[2]*, Ahmed Oloruntobi Adekunle[2], Robby Nur Akbar[3]

[1]Department of Management, Faculty of Economics, Islamic University of Darul 'Ulum. Airlangga Street No. 3, Sukodadi, Lamongan, Indonesia
[2]Department of Accounting and Finance, Faculty of Management and Social Sciences, Kwara State University, Kwara State, Nigeria
[3]Department of Management, Faculty of Economics, Merdeka University Malang. Dieng Street No. 2, Malang, Indonesia
*Corresponding Author(s) Email: babatunde.abdullahi@kwasu.edu.ng

Abstract

Financial inclusion of Micro, Small, and Medium Enterprise (MSME) owners has been identified as a vital component of the global development agenda, notably emphasized during the G20 Seoul Summit in 2020. It plays a critical role in fostering economic growth, alleviating poverty, and strengthening financial stability. However, many MSME owners remain financially excluded due to their inherent characteristics and the perceived unattractiveness of financial services. This issue is particularly prevalent in North Central Nigeria, where empirical studies are still limited. This study aims to examine the impact of key push factors on the financial inclusion of MSME owners in North Central Nigeria. The specific objectives were to investigate the effect of financial literacy, size of business, level of education, risk preference, and social network on the financial inclusion of MSME owners in this region. Using a survey design, data were collected from a stratified random sample of 435 respondents, drawn from a population of 11,607 MSME owners. The sample size was determined using the Krejcie and Morgan formula (1970). The results revealed that all five push factors have a significant positive impact on financial inclusion. The study recommends that government initiatives should prioritize financial literacy programs to enhance MSME owners' awareness and engagement with financial institutions.

Keywords: Financial Inclusion, MSME, Push Factors

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INTRODUCTION

Financial inclusion was recognized as a key element of the global development agenda at the G20 Seoul Summit in 2020. The agenda was to promote economic growth, reducing poverty, and enhance financial stability.

The G20 recognized that digital financial services can accelerate economic participation, lower transaction costs, and expand financial access to rural and low-income populations. Women are disproportionately excluded from formal financial systems. Promoting financial inclusion helps women gain economic independence, start businesses, and improve their families' well-being, leading to broader social and economic benefits. Small and medium-sized enterprises (SMEs) are crucial for economic development and job creation. However, many MSMEs owners struggle to have access to financial services because of their peculiar characteristics. Financial inclusion policies such as trader moni, conditional cash transfer and palliative money to mention few were introduced to bridge this financing gap, allowing MSMEs owners to expand, innovate, and contribute to economic growth and development. This access encourages entrepreneurship, investment in education and health, and job creation, all of which contribute to sustainable economic growth and development. Push factors are conditions or circumstances that drive individuals or businesses away from a particular situation or location, such as lack of access to finance or poor infrastructure (Krejcie & Morgan, 1970; Tuesta, 2019; Whyley, 2018)

Financial inclusion in Nigeria's has seen notable improvements but yet challenges persist particularly in the North Central Nigeria as reported by (EFInA Access to Finance (A2F) Survey 2024). This Survey offers valuable insights into the financial behaviors, challenges, and opportunities of individuals and businesses in Nigeria. It also highlights the regional disparities in access to credit, savings, insurance, and digital financial services to support data-driven policy interventions. The North Central zone has a financial exclusion rate of 76%, which is above the national average of 36%. This indicates that 24% of adults in the North Central region are financially included, either through formal or informal financial services. The survey also highlights disparities within the region. For instance, the North Central zone has a higher rate of financial exclusion compared to the North East and North West zones, where exclusion rates are 38% and 47% respectively. Despite all the government effort to improve financial inclusion in Nigeria, there remains a significant portion of the population in the North Central region that is either underserved or entirely excluded from the financial system. Efforts to improve financial inclusion in this region seem to be abortive because of the unattractiveness of the nature of the Nigeria financial system to the MSMEs owners and other institutional investors (Krejcie & Morgan, 1970; Tuesta, 2019). In view of the forgoing, this study attempts to give insight into factors that may contribute either way to the degree of financial of inclusion among MSMEs owners in the North Central Nigeria as it is analyze in the subsequent paragraph.

Financial literacy enables MSME owners to maintain accurate financial records, improving their chances of accessing credit from financial institutions. In North Central Nigeria, poor financial literacy often keeps MSMEs in the informal sector due to inadequate record-keeping and planning. Improved financial knowledge can help them formalize operations and meet financial requirements. It also enhances their ability to use financial services effectively for cash flow management and risk mitigation. Overall, financially literate MSME owners are better positioned to sustain and grow their businesses (Amos, 2023). Despite the availability of financial innovations like mobile and internet banking, many MSME owners in North Central Nigeria remain excluded due to lack of technical skills, fear of risk, or resistance to change. Mistrust in formal financial institutions, often stemming from past experiences with fraud or hidden charges, further discourages engagement. This skepticism limits the adoption of modern financial services. However, when institutions build trust by being transparent and protecting customer funds, MSME owners are more likely to participate. Clear communication and reliability can improve financial inclusion. Trust is essential to encouraging MSMEs to use formal financial systems (Gebrehiwot et al., 2020).

Financial inclusion seems to be influenced by their level of education. The region, which includes states like Benue, Kogi, Kwara, Nasarawa, Niger, and Plateau, has a large number of MSMEs owners, many of which are owned by individuals with low levels of education. MSME owners with higher levels of education may be financially literate, which enables them to understand and navigate the financial system more effectively (Akintola, 2019; Akudugu, 2023; Gbadebo et al., 2025). They are more likely to understand concepts like interest rates, loan terms, savings, insurance, and investment opportunities. This knowledge might allow them to make informed decisions about financial products, which may increase their level of financial inclusion (Sholikin & Sena, 2024).

The role of social networks in promoting financial inclusion in Nigeria is significant. A lack of social connections can contribute to financial exclusion due to limited access to critical financial information. Information about financial products and services often spreads through peer interactions among MSME owners. Engagement between those who hold financial knowledge and those seeking it can influence participation in the financial system. Social networks serve as key channels for improving financial literacy and awareness. They help MSMEs learn how to access and effectively use financial services. Regular meetings and social interactions foster discussions that shape financial behavior and decisions. Some studies (Adekunle, Bekun, et al., 2023; Adekunle, Gbadebo, et al., 2023; Adekunle, 2024) stated that gathering can provide advice and encourage the use of formal financial services. Social influence, as noted by (Krejcie & Morgan, 1970), plays a role in shaping financial choices. Thus, social networks could be powerful tools for enhancing financial inclusion

Size of business plays a key role in influencing the financial inclusion in North Central Nigeria. MSMEs vary from micro to medium-sized enterprises, but many owners, especially those running smaller businesses, feel they don't need formal financial services. Even larger businesses often avoid seeking credit due to high interest rates, short repayment periods, and harsh penalties. The cost of borrowing is perceived to outweigh the benefits, discouraging loan uptake. Poor financial record-keeping also hinders access to credit. As a result, many MSME owners may prefer self-financing over bank loans. Given the factors discussed above, it is important to investigate the effect of push factors on financial inclusion in the North Central Nigeria.

Drawing from the above established research problems, the study attempts to provide answers to the following research questions: To what extent do push factors, including business size, financial literacy, social networks, risk preference, and education level, influence the financial inclusion in North Central Nigeria?

LITERATURE REVIEW

This section focuses on the meaning of the various key variables raised in the research questions, purposely to delineate boundary for their operationalization and measurement. The concept of financial inclusion refers to ensuring that individuals can maximize their wealth, control expenses, and make informed financial choices through access to basic financial services (Central Bank of Nigeria., 2022; 2017) It also involves creating a financial system where all members of society have access to suitable services to manage their resources efficiently (Tuesta, 2019). Conceptualized financial inclusion from three dimensions; financial access is the first dimension, focusing on the ability to obtain credit, deposit, payment facilities, insurance, and risk management services. The second dimension, financial usage, assesses the consistent use of financial products and the practical benefits derived from them. Despite having formal bank accounts, some individuals underutilize these services due to limited banking infrastructure and strict service conditions. The third dimension, financial quality, evaluates how well financial products meet consumers' needs. This includes factors like performance, reliability, features, serviceability, and perceived quality. Various scholars have used these criteria to assess financial inclusion from the demand side (Demirguc-Kunt, n.d; Krejcie & Morgan, 1970). The study emphasizes the use of comprehensive measures of financial inclusion by integrating access, usage, and quality dimensions. However, it narrows its measurement of financial inclusion to only the access and usage dimensions.

Previous studies support the conceptual review of financial inclusion. Investigated factors affecting financial inclusion in Argentina, focusing on supply-side, individual, and perception factors. The study found that income level, personal experience, age, and attitude were key determinants (Shoimah et al., 2024). However, the methodology (surveys, interviews) and data analysis methods (regression models) were not clearly explained, raising questions about the validity and reliability of the findings. Three parameters such as banking penetration, availability of banking services, and usage of the banking system to measure financial inclusion, analyzing the data with panel regression. The study found a positive impact of these factors on financial inclusion in Austria. However, it focused mainly on traditional banking aspects and overlooked important areas like digital financial inclusion, financial literacy, and access to alternative financial services (Benerjee, 2015; Demirguc-Kunt, n.d.)

Push factors can be defined as those factors that drive individuals to adopt innovations or take specific actions, often out of necessity (Bandura, (2022) (*Attitudes, personality factors and household debt decisions: A study of consumer credit. Personality Factors and Household Debt Decisions: A Study of Consumer Credit (June 20, 2010*, n.d.) (Arora, 2018; Cheng, 2020). In financial inclusion, push factors drive MSME owners to seek financial services. The push-pull framework explains the rationale behind customer migration between services, where the push effect motivates individuals to leave a service, and the pull effect attracts them to a new one. Cheng's study showed that individuals tend to switch services if they perceive the alternative as superior. Similarly, explored how push-pull factors influence the Belgian SMEs financial inclusion, using a gender comparative approach with semi-structured interviews of 75 entrepreneurs. The study found both genders were motivated by a mix of push and pull factors, but the small sample size limits the generalizability and reliability of the findings.

Akudugu (2022) and Azure (2021) found that firm size affects financial inclusion and access to finance for SME owners in Luxembourg, with smaller firms receiving less favorable treatment. This suggests a positive correlation between firm size and financial inclusion in Luxembourg. Studies by Cassor (2016); Arora (2018), show that MSME owners in Nigeria prefer self-financing due to fear of debt and business uncertainties like market instability and inflation. This reluctance to borrow influences financial inclusion in Nigeria, especially in the North Central region. Business size is a significant predictor of financial inclusion. Smaller businesses face higher lending risks and costs due to their perceived higher risk, which banks aim to minimize when assessing loan applications (Babatunde, 2024; Babatunde, 2025).

Financial literacy as the ability to understand, evaluate, and communicate information about money and financial services, helping individuals to make informed financial decisions. Similarly, (Ben-Caleb et al., 2019) further describe financial literacy as the capacity to make sound financial decisions regarding money management. Previous studies support this framework. For example, multiple regressions to assess the impact of personal characteristics, such as education, income, and experience, on financial inclusion in Ottawa. The study found a positive relationship between the variables under investigations. However, the study used cross-sectional data, limiting insights into the evolving nature of financial inclusion. Adisty (2020) reported that demand-side factors significantly influenced the decision to switch to online lending, with low financial literacy and switching costs being key barriers. Investigates how financial literacy programs and training can increase financial inclusion, especially for illiterate individuals in Copenhagen. A gender-based push-pull theory to study Belgian MSMEs entrepreneurship, finding that both genders were influenced by a mix of push and pull factors. However, the small sample size limited the generalizability of their findings.

Babatunde, 2025 examines the effect of financial literacy on financial inclusion, moderated by infrastructure, among 11,289 MSME owners in Ondo State, Nigeria. Using exploratory research design, descriptive statistics, and structural equation modeling (PLS-SEM), the study finds that the independent variables explain 76% of the variation in the dependent variable, with a significant standardized regression estimate of 0.74. It also shows that infrastructure partially mediates the relationship, with a coefficient of 0.274. However, the study's focus on Ondo State limits generalizability to other regions, and it doesn't clarify whether rural-urban financial behavior differences were accounted for. Social networks as internet-based platforms like Facebook, Instagram, and WhatsApp used to maintain connections with friends, family, and colleagues. Kilduff et al. (2023) describe social network as a composition of individuals or organizations engaged in interactions like friendship or resource exchange. Studied the determinants of financial literacy in Ukraine. The finding reported that gender, education, occupation, and wealth are key factors, while age and housing have little impact on financial inclusion. Alexander et al. (2020) applied the push-pull theoretical framework to explain why individuals switch services, with the push effect motivating them to leave a service and the pull effect drawing them to a better alternative.

Rahmati et al, (2021) studied the impact of social networks on political socialization and participation among political science students at Islamic Azad University, Tehran. The study employed survey research design and multiple regression analysis. The findings reported that 93% of students use social media, mainly Telegram, Instagram, Facebook, Twitter, and WhatsApp, spending significant study time on these platforms. However, its focus on one university limits the generalizability of the findings. The impact of financial self-efficacy, financial literacy, and social networks on financial inclusion across two regions in Uganda. The study showed that personal and societal capabilities, both independently and together, enhance financial self-efficacy, which in turn boosts financial inclusion. However, the study supports Sen’s capability theory in explaining financial inclusion but needs replication in other regions or countries for broader insights.

Kuada (2019) described risk preference as individual attitude toward risk. Defines risk preference as the level of uncertainty a person is willing to tolerate when making financial decisions. It categorizes individuals as risk-seekers, risk-averse, or moderate. Risk preference reflects how much uncertainty an individual can accept in financial choices. Jaiswal et al. (2023) studied post-GFC credit slowdown. The finding revealed that demand-side factors primarily contributed to the slowdown, due to adequate supply and policy actions by regulatory authorities. However, lower investment demand and global supply bottlenecks weakened demand, highlighting the need for strong policy support to sustain credit demand. Defines the level of education as the highest formal education or degree an individual has earned, ranging from primary school to Ph.D. or professional qualifications like Chartered Financial Analyst. Conceptualizes level of education as the highest degree a person achieves, such as a Ph.D., Master's, or Bachelor’s degree, and other certifications. The findings reported that age, education level, literacy, wealth status, proximity to financial institutions, lack of documentation, mistrust of banks, and social networks significantly influence financial in Ghana.

World Bank conceptualized MSMEs as follows microenterprises: 1–9 employees; small: 10–49 employees; and medium: 50–249 employees. However, the local definition of MSMEs varies from country to country, and is based not only on number of employees, but also by inclusion of other variables such as turnaround and assets. MSMEs play an important role in the wider eco-system of firms. Start-ups and young firms, which are generally small or micro firms, are the primary source of net job creation in many countries and are the driving force of innovation and sustainability in the private sector. There are about 365-445 million MSMEs in emerging markets: 25-30 million are formal SMEs, 55-70 million are formal micro, and 285-345 million are informal enterprises.

Table 1. Classification of Micro, Small and Medium Scale Enterprise

Size	Employment	Asset (#`million) (Excluding land & Building
Micro Enterprise	Less than 10	Less than 10
Small Enterprise	10 – 49	10 less than 100
Medium Enterprise	50 – 199	100 less than 1,000

Source: National Policy on MSMEs by Small and Medium Enterprise Development Agency of Nigeria (SMEDAN), 2022.

The theoretical framework of this study was built upon a synthesis of push-pull Lee`s theory. Push-pull Lee`s theory as outlined by Raphael and Spurgeon (2003) was rooted from human motivation studies. This theory offers a powerful lens for understanding the behavioral and structural drivers behind why individuals and MSMEs either engage with or withdraw from the formal financial sector. For instance, consider a female petty trader in rural Nasarawa State who has never owned a bank account. Her avoidance of formal finance may be driven by push factors such as distance to the nearest bank, financial literacy, size of business, social network, level of education and mistrust stemming from stories of fraud. However, a local mobile money agent offering simple savings products, combined with a community awareness campaign, may act as pull factors that encourage her to open an account and access microcredit to expand her business. Therefore, this theoretical framework not only enriches the understanding of why financial exclusion persists**,** but also highlights what conditions and incentives are necessary to promote greater inclusion, especially among marginalized or rural populations. Therefore, from the above extant literature, the study attempts to provide answers to the hypotheses below:

H_0: There is no significant relationship between push factors in terms of (financial literacy, size of business, level of education, social network and risk preference) and financial inclusion of MSMEs owners.

METHOD

This section outlines the study's research design, population, sample size, and data collection methods. This study employed quantitative, cross-sectional, survey-based study. The study is quantitative and cross-sectional in nature, as it relies on numerical data and statistical analysis to test hypotheses, measure variables, and determine relationships between them at a single point in time, using structured questionnaires distributed to MSME owners.The target population includes all registered MSME owners or managers in Kwara, Niger, Kogi, Nasarawa, Benue, and Plateau States who are members of Nigerian Association of Chambers of Commerce, Industry, Mines, and Agriculture (NACCIMA). As of December 2023, these six states collectively have 11,607 registered members. Abuja was excluded as it did not meet the study's criteria. Only registered MSMEs were included, as formal registration is necessary for accessing credit from banks and government institutions. NACCIMA members are also registered with the Corporate Affairs Commission and comply with SMEDAN standards. These states were selected due to ongoing difficulties in accessing formal financial services, as highlighted in the 2023 NACCIMA report to form the sampling list for the study.

Studying the entire population was impractical, so a sample of 375 MSME owners in North Central Nigeria was selected using the K. Morgan, (1970) sample size table. A stratified probability sampling method was used, grouping respondents into strata by each state such as (Kwara, Niger, Nasarawa, Benue, Plateau, and Kogi) and within each stratum, simple random sampling method was used to select proportionate samples from each strata. To account for a possible 20% non-response rate, an additional 75 participants were added. This brought the final sample size to 450 respondents. The percentage increase in sample size is computed as (375 x 20% = 75). Therefore, the total sample selection for the study is 375 + 75 = 450. This study collected data from respondents at a single point in time using a structured questionnaire. Data analysis was conducted using descriptive and inferential statistics, which was supported by Partial Least Squares Structural Equation Modeling (PLS-SEM). PLS-SEM was chosen due to the exploratory nature of the study, where theory development, prediction, and model building were the primary objectives. Its focus on maximizing explained variance (R^2) makes it ideal for identifying both latent and manifest variables. Aligning this method with the study's constructs enhances methodological credibility and ensures that the approach is seen not merely as convenient, but as methodologically appropriate for the study.

RESULT

This section presents the study's findings based on the analysis of the structural model and path coefficients. It explores the relationships between financial literacy, level of education, risk preference, size of business, social network, and financial inclusion. The analysis reveals the strength and significance of these factors in driving financial inclusion, offering valuable insights for further research and policy development.

Table 2. Descriptive Statistics of the Respondents Profile

Demographics	Frequency	Percentage (%)
Gender		
Male	197	45.3
Female	238	54.7
Age Group		
Less than 25 years	78	18.2
26-35years	160	36.4
36-45years	160	36.2
46years and above	37	9.1
Academic		
First School Leaving Certificate	38	9.1
WAEC /GCE/NECO/SSCE	119	27.1
NCE/OND/A'LEVELS	202	45.6
B Sc. Or it equivalent	38	9.1
Others	38	9.1

Demographics	Frequency	Percentage (%)
Discipline		
Management Sciences	161	36.4
Social Sciences	128	29.1
Pure and Applied Sciences	100	22.9
Art and Humanities	29	7.1
Engineering	17	4.5
Professional Qualifications		
ICAN (Institute of Chartered Accountants of Nigeria)	120	27.4
ANAN (Association of National Accountants of Nigeria)	161	36.4
CIMA (Chartered Institute of Management Accountants of Nigeria)	125	29.1
CFA (Chartered Financial Analyst)	29	7.1
Year of Operation		
1-2 years	199	45.4
3-5years	195	44.4
Above 5years	41	10.2
Staff		
Less than 10 staff	159	36.4
Between 10 – 49 staff	240	54.4
Between 50 – 199 staff	36	9.1
Assets		
Less than #10million	36	9.1
#10million but less than #100million	281	63.6
#100million but less than #1billion	118	27.3

Table 2. indicated the respondents showed a fairly balanced gender distribution, with 54.7% female and 45.3% male, highlighting women's significant role in MSME ownership. Most respondents were aged 26–35 (36.4%) and 36–45 (36.2%), indicating that over 72% are in their prime working years. This younger demographic suggests a higher likelihood of adopting digital financial services. Only 9.1% were aged 46 and above, implying that older individuals may face more challenges in starting or sustaining businesses due to changing business environments and technology. Most respondents (45.6%) have NCE/OND/A'LEVELS, while 27.1% hold secondary school qualifications (WAEC/GCE/NECO/SSCE), and only 9.1% possess a B.Sc. or equivalent. This suggests that most MSME owners have at least a secondary education, which may aid in understanding financial services, though limited tertiary education could impact financial literacy. The dominant academic backgrounds are Management Sciences (36.4%) and Social Sciences (29.1%), indicating relevance to business operations. Fewer respondents come from Pure and Applied Sciences (22.9%) and Arts and Humanities (7.1%), which may signal the need to tailored financial literacy support for these groups.

A significant number of respondents hold professional qualifications, with ANAN (36.4%) and ICAN (27.4%) being the most common, indicating strong financial expertise among MSME owners. Additional certifications like CIMA (29.1%) and CFA (7.1%) further emphasize a focus on financial management. Most MSMEs have been operating for 1–2 years (45.4%) or 3–5 years (44.4%), showing that the majority are relatively new businesses. Only 10.2% have been in operation for over five years. The prevalence of younger businesses highlights a need for financial inclusion efforts targeting early-stage MSMEs. Most businesses (54.4%) employ 10–49 staff, classifying them as small enterprises, while 36.4% have fewer than 10 employees, and only 9.1% are medium-sized with 50–199 staff. In terms of assets, 63.6% of MSMEs hold values between ₦10 million and ₦100 million, 27.3% fall within the ₦100 million to ₦1 billion ranges, and 9.1% have assets under ₦10 million. These figures indicate that while many MSMEs are financially viable, their size and asset levels may limit access to formal credit due to collateral requirements and other barriers.

Table 3 summarizes the measurement model results, evaluating the reliability and validity of constructs related to financial inclusion. It includes constructs like financial literacy, education level, risk preference, size of business, social network. Key metrics reported are factor loadings, Cronbach's alpha, composite reliability (CR), and average variance extracted (AVE), all used to confirm the constructs' reliability and validity.

Table 3. Result of Measurement Model

Construct	Items	Loading	Cronbach's Alpha	CR	AVE
Financial Inclusion	FI_1	0.923	0.979	0.879	0.859
	FI_2	0.850			
Financial Literacy	FL_1	0.913	0.965	0.868	0.704
	FL_2	0.820			

Construct	Items	Loading	Cronbach's Alpha	CR	AVE
	FL_3	0.868			
	FL_4	0.916			
Level of Education	LE_1	0.908	0.917	0.845	0.707
	LE_2	0.911			
	LE_3	0.871			
	LE_4	0.954			
Risk Preference	RP_1	0.615	0.982	0.883	0.705
	RP_2	0.657			
	RP_3	0.776			
	RP_4	0.702			
Size of Business	SB_1	0.700	0.959	0.765	0.791
	SB_2	0.722			
	SB_3	0.779			
Social Network	SN_1	0.915	0.967	0.871	0.71
	SN_2	0.707			
	SN_3	0.891			
	SN_4	0.911			

Note. CR= Composite Reliability; AVE= Average Variance Extracted.

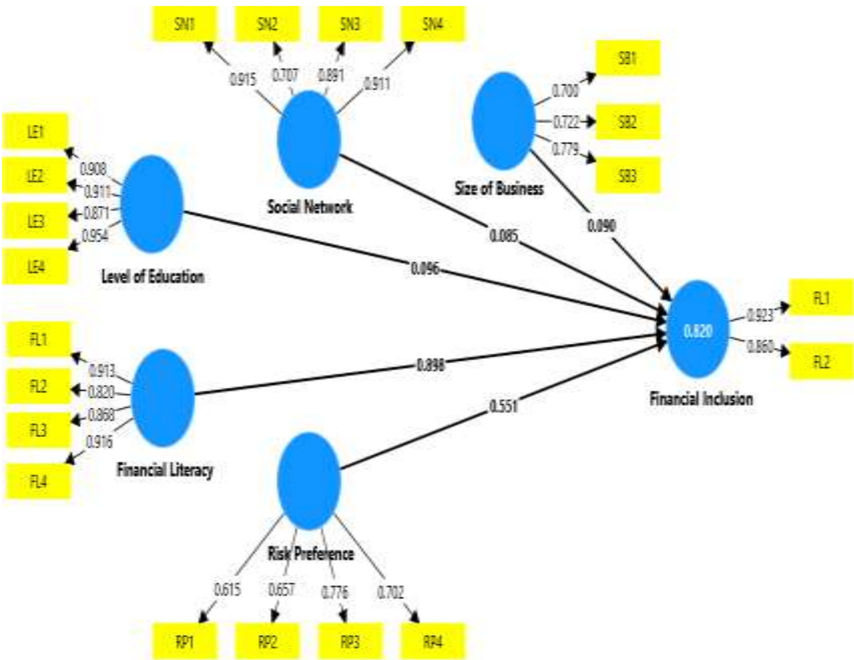

Figure 1. Structural Model of the Research Framework

Table 3 indicates construct validity in this study was assessed using convergent and discriminant validity, the most accepted forms of validity in PLS-SEM. Cronbach's Alpha values exceed the 0.7 cutoff, indicating high internal consistency for all constructs, with FI (0.979) and RP (0.982) demonstrating excellent consistency. Additionally, all constructs have Composite Reliability (CR) values above 0.7, confirming good reliability. The high CR values indicate that the indicators effectively contribute to their respective constructs. Convergent validity is confirmed by AVE values above 0.5, indicating that constructs explain more than half of the variance in their indicators. Strong convergent validity is shown by FI (0.859), and most constructs have AVE values above 0.7. While RP_1 and RP_2 have slightly lower AVE values (0.615 and 0.657), they are still acceptable. Indicator loadings generally exceed 0.7, ensuring strong item reliability. Discriminant validity is assessed using the Fornell and Larcker Criterion, where diagonal values represent the square root of AVE for each construct, and off-diagonal values show correlations between constructs like Financial Inclusion, Financial Literacy, Education Level, Risk Preference, Business Size, and Social Network. Although some items measuring risk preference had factor loadings below the recommended threshold of 0.7 such as (0.615 and 0.657), they were retained due to their theoretical significance in capturing essential aspects of the construct. Additionally, the construct's AVE exceeded 0.5, and the composite reliability was within acceptable limits, thereby supporting the overall validity of the measurement model. Furthermore, loadings between 0.4 and 0.7 are often deemed acceptable when the indicators are theoretically justified and when other reliability and validity metrics, such as AVE and composite reliability, are satisfactory (Hair, Black, Babin & Anderson, 2019). FL_1 and FL_2 are dependent variable which was measured using financial access (I know how to read and understand) and financial usage dimension (I have used my savings account to save for future expenses).

Discriminant validity was evaluated using AVE, as recommended by (F. Hair Jr et al., 2014). Discriminant validity is confirmed when the square root of the AVE for each construct is greater than its correlations with other constructs. In this study, the square roots of the AVE for all constructs exceeded their correlations, indicating sufficient discriminant validity. All constructs meet the Fornell and Larcker Criterion, confirming they are distinct from one another. To assess the significance of the structural model's path coefficients, the PLS algorithm and bootstrapping were used. The PLS algorithm provided the path coefficients and R^2 values, while bootstrapping generated the t-values. Figure 1 presents the path coefficients and R^2 values.

Table 4. Discriminant Validity using Fornell and Larcker Criterion

	1	2	3	4	5	6
1. FI	0.817					
2. FL	0.488	0.802				
3. LE	0.526	0.498	0.700			
4. RP	0.338	0.357	0.379	0.726		
5. SB	0.035	0.235	0.161	0.335	0.821	
6. SN	0.402	0.506	0.426	0.429	0.492	0.720

Table 5 presents The R^2 value for financial inclusion is 0.820, which indicates that the model explains 82.0% of the variance in financial inclusion. This high R^2 value suggests that push factors such as (social network, financial literacy, size of business and level of education) account for 82.0% variability in financial inclusion, making it a well-fitting model. Financial literacy appears to be the strongest predictor of the financial inclusion, followed by risk preference, while the size of business; social network and social network have a weaker but significant effect on financial inclusion.

Table 5. R^2 Value

H_1	Relationship	Beta	St. Error	T-Value	P-Value	R^2	Decision
H_{1a}	FL → FI	0.898	0.096	2.146	0.006	0.820	Supported
H_{1b}	LE → FI	0.096	0.132	3.060	0.000		Supported
H_{1c}	RP → FI	0.551	0.088	2.768	0.004		Supported
H_{1d}	SB → FI	0.090	0.022	4.157	0.001		Supported
H_{1e}	SN → FI	0.085	0.021	2.287	0.003		Supported

Note. that: $p < 0.05$*, $p < 0.01$**, an Acceptance criterion for t-value is 1.96.

The results reveal statistically significant positive relationships between financial inclusion and three key factors: financial literacy ($\beta = 0.898$, $t = 2.146$, $p = 0.006$), level of education ($\beta = 0.096$, $t = 3.060$, $p = 0.000$), and risk preference ($\beta = 0.551$, $t = 2.768$, $p = 0.004$). Each of these relationships satisfies the criteria for statistical significance ($t > 1.96$, $p < 0.05$), thereby supporting hypotheses H_{1a}, H_{1b}, and H_{1c}. These findings indicate that higher levels of financial literacy, education, and willingness to take risks are associated with greater financial inclusion among MSME owners. Additionally, the analysis demonstrates significant positive relationships between financial inclusion and both business size ($\beta = 0.090$, $t = 4.157$, $p = 0.001$) and social networks ($\beta = 0.085$, $t = 2.287$, $p = 0.003$). These results also meet the threshold for statistical significance, lending support to hypotheses H_{1d} and H_{1e}. Collectively, these findings suggest that larger business size and stronger social networks are positively linked to increased financial inclusion among MSME owners in North Central Nigeria.

DISCUSSION

This paragraph discusses the result of the findings with emphases on the research questions highlighted in the preceding paragraph. The a priori expectation of the study was that there is a positive relationship between the size of a business and the financial inclusion of MSME owners. The results align with this expectation, showing a significant positive relationship ($\beta = 0.090$, $p = 0.001$). Hence, the study rejected the null hypothesis and supported the alternative hypothesis. Furthermore, there is considerable support in prior literature indicating that the size of a business significantly influences financial inclusion. Push-Pull Lee's theory also lends credence to these findings, as it assumes that the size of a business may attract MSME owners to access banking services.

Micro-business owners face more barriers, while small and medium-sized businesses have a better chance of accessing financial resources due to formalization and structure of their operations.

The study also hypothesized that there is no significant relationship between the level of education and financial inclusion among MSME owners in North Central Nigeria. However, the results revealed a positive and statistically significant relationship between education level and financial inclusion ($\beta = 0.096$, $p = 0.000$). Consequently, the null hypothesis is rejected, and the alternative hypothesis is accepted. This finding is consistent with previous studies by (Khan et al., 2022), all of which reported a significant positive association between education level and financial inclusion. The Financial Literacy Theory also supports the findings of this study, as it posits that an individual's understanding and effective application of financial concepts significantly influence their financial behavior and decision-making. This theory is particularly relevant in explaining how education contributes to improved access to and utilization of financial services, thereby enhancing financial inclusion.

Equally, a positive relationship between social networks and financial inclusion was established. This implies that social networks are positively associated with financial inclusion, thus supporting and accepting the alternative hypothesis. There is a significant positive relationship between social networks and financial inclusion among MSME owners in North Central Nigeria ($\beta=0.085$, $p = 0.003$). This suggests that MSMEs' distinguished relationships within specific interactions, such as friendly or family relationships, serve as a source of financial information to gain access to financial services. In line with the social network theory and empirical evidence, such information opportunities influence financial inclusion by creating awareness about the location and proximity of financial institutions, the various products and services available, and the required documentation. These specific interactions in which MSME owners are embedded help them navigate the financial system. Such information opportunities positively enhance MSME owners' ability to overcome perceived difficulties related to accessing and using formal financial services, as well as managing their financial goals.

Social network theory provides a strong foundation for understanding how social connections such as (family, friends and business associates) help to gather information about banking services, loan opportunities, and financial products, which subsequently influence financial inclusion among MSME owners. The study's findings mirror those of (Oke & Adamson, 2023), who found that social relationships are an important source of financial information and useful in improving an individual's knowledge about existing financial services. Similarly, (Wang et al., 2023) consistently found that social networks increase the availability of information about sources of financial services, such as credit. Congruently observed that social networks act as a screening device or even guarantors for selecting potential clients in the lending process. Accessing financial services, social networks help to supply information about the availability of bank products and services.

Regarding financial literacy and financial inclusion, the results established a positive and significant relationship between the two, thereby rejecting H_0. The study found that financial literacy positively influences financial inclusion among MSME owners in North Central Nigeria ($\beta=0.898$, $p = 0.006$). This suggests that an improvement in financial skills, knowledge, and understanding of basic financial concepts is associated with increased access to and usage of financial services among MSMEs. This finding is logical, as individuals with greater financial awareness, skills, and knowledge are better equipped to understand the purpose and functionality of financial services. Additionally, MSME owners who comprehend the benefits of financial services are more likely to utilize them effectively, leading to greater satisfaction.

Furthermore, the results indicate that efforts to enhance financial literacy can significantly boost financial inclusion. Increased financial knowledge and skills enable individuals to access financial service providers regardless of their location and improve their ability to engage with banking agents. MSME owners who recognize the value of financial services are more likely to understand the requirements for saving, borrowing, and utilizing other banking facilities, ultimately enhancing their financial participation.

The results support the assumptions of financial literacy theory, which suggests that individuals with a reasonable level of financial knowledge and skills, along with supportive conditions that facilitate the acquisition of these skills, are more motivated to engage in financial inclusion (Morgan & Pontines, 2014). This finding implies that MSME owners believe that acquiring financial knowledge and skills will lead to better outcomes. As a result, MSME owners are more likely to make informed decisions about using formal financial services, thanks to improved awareness of the locations and proximity of financial institutions, the availability of banking agents to provide services, and the necessary documentation and timeliness of services.

The findings are in the line of who found that the complexities arising in the dynamic financial industry requires MSMEs owners to be more active while making financial choices and decisions from an informed perspective. This is despite the fact that a number of MSMEs owners lack the relevant knowledge of financial concepts and the skills required to facilitate their choices and decisions that are most beneficial to improving their financial inclusion. The findings however contradict who argued that a significant portion of MSMEs choice to use formal financial services, especially credit, is attributable to behavioural biases rather than sufficient knowledge and skills for decision-making (Bartlett III & Morse, 2021).

Financial literacy theory add value to this finding as it helps the MSME owners overcome perceived barriers to financial services, such as high costs, lack of documentation, or unfamiliarity with financial institutions. With a greater understanding of these services, MSME owners are more likely to engage with them despite these challenges. Increased awareness, paired with financial literacy, increases the confidence of MSME owners to access credit, savings accounts, and insurance products, thereby enhancing financial inclusion. With regard to risk preference, the result shows a significant positive relationship between the risk preference and financial inclusion of MSMEs owners in the North Central, Nigeria (β=0.551, $p < 0.004$). This finding corroborates with the findings of who reported that MSME owners' risk preferences do not significantly affect their level of financial inclusion. This is often attributed to the fact that even risk-averse MSMEs owners may seek financing out of necessity rather than preference. This is because other factors, like the accessibility and affordability of financial services, outweigh the influence of risk preference on financial behavior. However, the result was not the same with the argument who reported that MSME owners with higher risk tolerance are more likely to apply for loans, as they are less deterred by the uncertainties associated with debt and interest payments. This tendency drives a stronger engagement with financial institutions and services. MSME owners with higher risk preferences are more likely to adopt innovative financial products, such as insurance and investment accounts, due to their openness to financial risk. Their study in emerging markets highlighted that risk tolerance is positively associated with both financial inclusion and financial resilience, as owners seek diverse ways to manage funds and risks for business sustainability.

Portfolio Theory focuses on how individuals can manage risk through diversification in their investment choices. In the context of financial inclusion, portfolio theory is relevant in understanding how MSME owners' risk preferences affect their financial decisions and access to financial services. Financial inclusion is enhanced when MSMEs have access to multiple financial products, such as credit, savings, and insurance that suit their varying risk preferences.

CONCLUSION

This study explores the relationship between push factors and financial inclusion among MSME owners in North Central Nigeria, using the push-pull theoretical framework. The findings offer empirical support to existing theories and literature, contributing to the broader discussion on financial inclusion from the users' perspective. They also provide valuable insights for future research, policymakers, and financial institutions aiming to enhance inclusive financial systems. Based on the findings, the following conclusion is aligning with the study's research questions.

In line with the findings, the study concludes that there is a positive and significant relationship between push factors (financial literacy, business size, risk preference, social network and level of education) and the financial inclusion of MSME owners.

The study also puts forward several key recommendations to enhance financial inclusion among MSME owners. Firstly, it is recommended that the government organize comprehensive financial literacy programs aimed at raising awareness about the importance of financial knowledge and skills, thereby improving MSMEs' understanding of financial concepts and enhancing decision-making capabilities. Secondly, the government should provide MSME owners with access to low-interest loans and grants to support the expansion of their business activities. Thirdly, financial institutions are encouraged to develop customized loan products with flexible repayment terms that reflect the varying risk levels associated with MSME operations. Additionally, the government should promote networking events and digital platforms to facilitate connections between MSME owners, investors, suppliers, and financial institutions, enabling better access to resources and business opportunities. Lastly, the establishment of vocational training centers is essential to equip MSME owners with practical business and financial skills required to sustainably grow and manage their enterprises. These strategic initiatives, if effectively implemented, have the potential to significantly strengthen the financial inclusion of MSMEs in North Central Nigeria.

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