EFFECT OF FINANCIAL INCLUSION ON PERFORMANCE OF SMALL AND MEDIUM ENTERPRISES IN NASARAWA STATE, NIGERIA

By

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ABSTRACT

This study examined the effect of financial inclusion on the performance of small and medium enterprises in Nasarawa State, Nigeria. It used a survey research design, with a population of 10,728 registered SMEs in the state. Out of this, a sample size of 483 was chosen using a mix of purposive and stratified random sampling techniques to select the respondents. The research relied on an adapted questionnaire for data collection, which was then analyzed using partial least squares structural equation modeling. The results showed that the performance of small and medium-sized businesses in Nasarawa State, Nigeria, is positively and statistically significantly impacted by access to financial services. On the other hand, the cost of these financial services has a positive but statistically insignificant impact on the performance of small and medium-sized businesses in Nasarawa State, Nigeria at a 5% significance level. It therefore concludes that both access to and the cost of financial services play a role in influencing SME performance. Based on the findings, it recommended that Nasarawa State's SMEs should strengthen their financial management abilities and bargain for better loan conditions, cheaper interest rates, and fewer transaction costs. By boosting their financial literacy and considering alternative financing options like microfinance or cooperative societies, SMEs can better manage financial costs, easing the pressure on their operations.

Key words: *Access, Cost, Financial Inclusion, Financial Services, Performance, SMEs.*

INTRODUCTION

SMEs are considered a major driver of nation's growth since they create jobs, encourage innovation, and make significant contributions to the national budget. They are the foundation of the economy, which results in the highest creation of jobs, along with reducing poverty levels across the African continent (World Bank, 2022). In Nigeria, SMEs continue to lead the business landscape as they make up the majority of enterprises, make major economic contributions and sustain the livelihoods of millions (SMEDAN, 2021). In Nasarawa State, thousands of SMEs are registered and play a vital role in sustaining the state's economy by generating employment and stimulating local commerce (SMEDAN, 2021). Yet, their growth is held back by persistent problems such as poor access to finance, weak infrastructure, and burdensome regulations, which limit their ability to perform effectively (James & Walter, 2023).

Ensuring that equitable and appropriate financial services are readily accessible to both individuals and has become an essential element in improving the results for small and medium businesses. The accessibility of financial products including insurance, savings accounts, and loans facilitates the expansion of small enterprises, the integration of advanced technologies, and the management of economic adversities (Beck & Cull, 2014; Demirgüç-Kunt et al., 2018). Nevertheless, elevated borrowing expenses and protracted bureaucratic procedures hinder numerous SMEs from securing financial support, thus obstructing their capacity to fully actualize their potential (Queralt, 2020; Pesqué-Cela et al., 2021). When financial services are both affordable and readily accessible, they have the potential to significantly improve productivity, enhance competitiveness, and ensure the long-term viability of small enterprises (Magaji et al., 2022).

Recent efforts in Nasarawa State, including the growth of microfinance banks and the spread of mobile banking platforms, have begun to improve financial access for small firms (James & Walter, 2023). While these developments are encouraging, there is little evidence about how far they have translated into better performance for SMEs. This gap calls for empirical research studies that look at the actual effects of financial inclusion on the expansion and sustainability of SMEs in the state's unique economic setting.

Financial inclusion denotes the availability and efficient utilization of affordable and dependable financial services, encompassing elements such as access, cost, quality, and usage. It is often viewed as a crucial factor in the growth of small businesses, as it supplies the necessary funds for growth, enhances operational efficiency, and fosters long-term sustainability (Demirgüç-Kunt et al., 2018). In Nasarawa State, many small enterprises continue to face challenges in obtaining credit, insurance, and affordable digital banking solutions. These constraints hinder their capacity to sustain consistent cash flow, invest in new prospects, and effectively compete. Amtai et al. (2024) note that although financial access is advantageous, numerous owners fail to fully exploit the services provided due to obstacles like inadequate financial literacy, insufficient infrastructure, and the sparse availability of banking services in rural areas. Adeyemi and Akindele (2023) contend that, even with government initiatives aimed at enhancing financial inclusion, the costs of financial services continue to be significant barrier to its efficiency. In a similar vein, Adeyemi (2019) points out the issue of inadequate financial systems in Nigeria, which hampers economic progress, whereas Oyedokun and Amoo (2023) observe that the financial sector lacks the necessary depth and reach to foster SME development. Adeniran and Adegbaju (2018) emphasize that significant parts of rural communities continue to be entirely excluded from financial services.

Existing studies explored the connection between SMEs' success and financial inclusion has generally concentrated on limited aspects or particular regions. For example, Aterido et al. (2013) investigated financial access and utilization in women-led SMEs, while Harelimana (2017) investigated how financial access affected the performance of SMEs in Rwanda's Muhoza sector. Researches have also been conducted in nations like Uganda (Eton et al., 2021), in Southwest Nigeria (Oke et al., 2023), throughout Sub-Saharan Africa (Kuada, 2021), and specifically in Ibadan, Oyo State (Oyedokun & Amoo, 2023). Nonetheless, numerous studies focused solely on specific aspects of financial inclusion, including access or usage (Aterido et al., 2013; Harelimana, 2017; Amtai et al., 2024). A noticeable gap persists in research that comprehensively analyzes how the intertwined aspects of financial

inclusion access, affordability, quality, and usage influence SME performance in Nasarawa State.

Studies on financial inclusion and the performance of SMEs have consistently increased, but significant gaps persist, especially in Nasarawa State. Abubakar et al. (2024) conducted research in Sokoto State that examined financial literacy, self-efficacy, social networks, and attitudes. Although valuable, their examination did not provide a comprehensive understanding of how access, costs, utilization, and quality of financial services impact SMEs in Nasarawa (Abubakar, et al., 2024). Oyedokun and Amoo (2023) investigated the relationship between SME growth and financial inclusion, focusing on access, usage, and quality; however, their results cannot be extended to Nasarawa because of geographical variations. In a similar vein, Amtai et al. (2024) examined women-owned SMEs in Gombe State, focusing solely on access and usage while neglecting other critical factors that affect different types of SMEs. These studies primarily concentrate on specific aspects of financial inclusion or on certain demographics, like women entrepreneurs, without tackling the overall influence of all key financial inclusion elements. As a result, research that specifically examines how financial services' accessibility, cost, and general quality affect SMEs' performance in Nasarawa State is lacking. The present study seeks to close this gap by providing a detailed, location-specific assessment of financial inclusion and its influence on the growth and sustainability of SMEs in the state.

Therefore, this study looks at how financial inclusion affects SMEs' performance in Nigeria's Nasarawa State. It specifically addressed the following null hypotheses:

H_{O1}: Access to financial services have no significant effect on performance of SMEs in Nasarawa State, Nigeria.

H_{O2}: Cost of financial services have no significant effect on performance of SMEs in Nasarawa State, Nigeria.

To provide a clear flow, the paper is arranged in five sections. Section 2 offers an in-depth review of studies on financial inclusion and SME performance, drawing on evidence from developing countries, with particular focus on Nigeria. Section 3 then explains the research approach, outlining the study design, how data were collected, and the techniques used for analysis. The results are presented in Section 4, where the discussion centres on how the performance of SMEs in Nasarawa State is impacted by financial services costs and access to financing. Additionally, this section links the findings to earlier studies and theoretical perspectives while highlighting their implications for both policy and practice. Finally, Section 5 rounds off the paper by summarising the key outcomes and putting forward practical recommendations informed by the study's results.

LITERATURE REVIEW

Conceptualization of Performance of SMEs

SME performance generally refers to how well a business hits its goals and long-term objectives. This is usually measured by things like profitability, growth, efficiency, and how competitive the business is in its market (Danis et al., 2022). It gives a good idea of how financially and operationally successful small and medium businesses are, as demonstrated by their ability to

make a profit, keep costs in check, and maintain sustainable growth (Oyedokun & Amoo, 2023). According to Kotane and Kuzimina-Merlino (2017) and the World Bank (2018), SMEs performance reflects how well these businesses achieve their desired outcomes, such as profitability and competitiveness. To evaluate this performance, we often look at both financial and non-financial metrics, like sales growth, how well they manage costs, innovation, and customer satisfaction (Fatoki, 2011; Wang, 2019). Wang (2019) also points out that aspects like revenue, number of employees, and asset base give us valuable insights into the operational strength and viability of SMEs. Additionally, SME performance is tied to their contributions to the economy, including job creation, technological development, and growth in local industries (Abbasi, Wang, & Abbasi, 2017). Still, despite their importance, SMEs frequently encounter obstacles like insufficient infrastructure, restricted access to funding, and restricted market opportunities, which can hold them back from achieving the best outcomes (Olayinka, 2022). Ultimately, SME performance is all about their ability to create value, stay competitive, and make meaningful contributions to the wider economy sustainably.

Concept of Small and Medium Enterprises

There isn't a single, precise definition of small and medium businesses (SMEs) in Nigeria because different organizations have different standards. SMEs are defined by the Central Bank of Nigeria (CBN) as companies that employ 11–300 people and have an asset base (excluding land and buildings) worth between ₦5 million and ₦500 million (CBN, 2010). Next up is Nigeria's Small and Medium Businesses Development Agency (SMEDAN), which has a somewhat different take. Small businesses are defined as having 10–49 employees and assets between ₦5 million and less than ₦50 million, whilst medium-sized businesses have 50 - 199 employees and assets between ₦50 million and less than ₦500 million, again excluding land and buildings (SMEDAN, 2022). These definitions are crucial because they help shape policies, determine funding eligibility, and design support programs for the SME sector.

For this study, we'll go with the classification from SMEDAN (2022), as it provides a clearer distinction between small and medium enterprises in Nigeria

Conceptualization of Financial Inclusion

One of the main forces behind economic expansion and empowerment is thought to be financial inclusion. According to Abubakar et al. (2024), it is a means of guaranteeing that people and companies, particularly those belonging to marginalized or vulnerable groups, have access to pertinent and reasonably priced financial services such as credit, insurance, savings, and payment systems, all of which are provided in an ethical and sustainable way. Financial inclusion, according to Oyedokun and Amoo (2023), is a situation in which all people have access to and are able to use official financial institutions to meet their requirements, both personally and professionally. Onaolapo (2015) adds that it's about making financial services easily available and usable for everyone in society. On a larger scale, in order to promote economic growth and lessen poverty, financial inclusion seeks to offer reasonably priced financial goods and services. Access, utilization, cost, and quality of financial services are the four main categories that are typically evaluated (Espinosa-Vega et al., 2020; Pesqué-Cela et al., 2021). We will use the financial inclusion parameters that Espinosa-Vega et al. (2020) and Pesqué-Cela et al. (2021) identified for this study.

Access to Financial Services

One essential component of financial inclusion is having access to financial services, reflecting how easily people and businesses can reach and utilize financial institutions and their offerings. Sarma and Pais (2011) explain access as the ease with which clients can engage with financial service providers, whether that's through physical branches or online platforms. Beck et al. (2014) point out that real access involves more than just having physical or digital options; it also means removing barriers like high costs and strict eligibility criteria that can hinder effective use of these services. A study by Ajayi et al. (2021) found that 77.56% of MSMEs in Nigeria view poor access to finance as their biggest hurdle, which negatively impacts their ability to grow and create jobs. Similarly, Amtai et al. (2024) found that access to financial services significantly boosted growth for women-owned small businesses in Gombe State.

Cost of Financial Services

The cost of financial services refers to the overall expenses, both monetary and non-monetary that individuals and businesses face when accessing and using formal financial products like loans, credit, savings, and insurance. Queralt (2020) explains that monetary costs include interest rates, service fees, and collateral requirements, while non-monetary costs can involve aspects like time, effort, and the administrative steps needed to obtain these services. Oyedokun and Amoo (2023) emphasize that the high costs involved with financial services are a significant barrier to achieving effective financial inclusion in Nigeria. Ruhara et al. (2019) also noted that high interest rates made borrowing harder for SMEs in Rwanda, negatively affecting their expansion. These findings suggest that lowering both monetary and non-monetary costs is essential if we want financial inclusion efforts to truly back SME growth and economic empowerment.

Access to Financial Services and Performance of SMEs

Adeyemi and Akindele (2023) looked at how access to finance impacts SME growth in Ibadan, Southwest Nigeria, using a descriptive research design. They surveyed 163 SMEs, randomly picking 116 for the sample. Data was gathered through structured questionnaires and examined using a Z-test at a 5% level of significance, descriptive statistics, and Pearson correlation. They discovered a strong correlation between SME performance and financial accessibility. But the study was limited by its small sample size and narrow location, which affects how broadly the results can be applied. Similarly, Oke et al. (2023) examined how financial inclusion impacts SME performance in the same area, using a descriptive survey design and random sampling. They gathered data from 163 SME owners and managers through structured questionnaires, analyzing it with Z-tests as well as regression. The findings demonstrated that financial inclusion, particularly credit and loan availability, significantly boosted SME performance. A notable limitation here was that the research focused on a single local government area, limiting its relevance to other regions.

Fomum and Opperman (2023) studied the utilizing a generalized ordered logit model and found that savings, and insurance positively affected turnover across different levels, although the effect of formal insurance was mixed. The study's use of cross-sectional data made it difficult to draw conclusions about causality. Oyedokun and Amoo (2023) also explored how financial inclusion measured through access, usage, and quality relates to SME

performance in Ibadan, Southwest Nigeria. They collected data via quantitative surveys with structured questionnaires and found that all three dimensions positively and significantly impacted SME performance. However, the research was limited by its small sample size and single-location focus. Driciru (2021) looked at how the performance of SMEs in Abuja, Nigeria, is impacted by financial issues such as collateral, inadequate capital, and access to financing. using a survey design. A sample of 348 SMEs was drawn from a total of 2,690 using Taro Yamane's formula. Their data analysis with descriptive statistics and OLS regression revealed no statistically significant relationship, indicating that financial challenges remain despite initiatives. Limitations included reliance on self-reported data and a geographically restricted sample. Likewise, Ajuwon et al. (2021) used information from the World Bank Enterprise Survey (2014) which included 1,024 MSMEs to examine MSME performance and financial access in Nigeria. Their OLS regression showed a negative and significant correlation between credit constraints and employment growth, with 77.56% of respondents citing lack of finance as a primary concern. This study was limited by focusing solely on employment as a performance measure.

Mohammed (2019) investigated the connection between SME performance and financial accessibility in Mbarara Municipality, Uganda. through descriptive and analytical research. While the exact population size wasn't stated, a convenience sampling method was used. Data were collected via questionnaires and analyzed descriptively. They found that although the demand for credit was high, barriers like collateral demands, low financial literacy, and mismanagement of funds were hindering businesses' sustainability. Key limitations were the localized scope and a lack of inferential statistical analysis. Similarly, Ruhara et al. (2018) investigated the relationship between Rwandan company development and financial services accessibility, using secondary data from the World Bank Enterprise Survey (2011–2012). They applied OLS regression and Wald chi-square tests on 241 firms and found a positive correlation between profitability and loan availability. with firm size and age also playing a role in growth. However, the narrow focus on Kigali and Butare limited the broader applicability of their findings.

Cost of Financial Services and Performance of SMEs

Gabriel et al. (2025) researched how cost reduction strategies affect the financial success of small-scale manufacturing companies in Nigeria's Ekiti and Ondo States. They collected information from 200 respondents, including cost accountants and operations managers, using a survey methodology. Their findings indicated that cost reduction tactics, especially investments in technology, positively impacted profitability. However, the study was limited by its narrow geographic focus, affecting how applicable the findings are to other regions in Nigeria. Owusu et al. (2024) looked into the connection between the cost of quality (COQ) and SME financial performance in Ghana, analyzing data from 547 SMEs with PLS-SEM. They found that prevention and appraisal costs positively impacted financial performance, while failure costs had negative effects. The use of a cross-sectional design was a limitation in this study. They discovered that whereas failure costs had a negative influence on financial performance, preventative and appraisal costs had a favorable one. One of the study's limitations was its cross-sectional design, which made it challenging to draw conclusions about causality.

Mukayivara and Rusibana (2024) used a case study approach to examine the effects of cost control procedures on Bralirwa PLC's financial performance in Rwanda. with 58 selected

employees. Their findings revealed strong positive correlations between cost control initiatives like setting standards and financial performance. They concluded that effective cost control enhances organizational outcomes but noted that focusing on a single company limited the broader applicability of their results. Likewise, Mukayivara and Dorothy (2024) examined how the cost of financial services impacts SME performance in Uganda, using a mixed-methods design with 150 SME owners and financial experts.

They found that high transaction fees and hidden charges squeezed profit margins, while high loan interest rates stifled SME growth. Although they recommended greater pricing transparency, the reliance on self-reported data rather than verified financial records posed a limitation.

Rawlings and Nyarko (2023) analyzed how operational costs affect SME profitability in Ghana. They used descriptive research with data from 210 SME owners. Their regression analysis showed that high rental and utility costs significantly harmed profitability, while wages had a moderate effect. They emphasized that good cost management is crucial for SME sustainability but limited their focus to urban SMEs, affecting broader applicability. Chen and Wu (2022) investigated how the costs of financial services influence SME access to credit in China. They studied 150 SMEs using surveys and interviews and found that collateral requirements were the biggest barrier, followed closely by high interest rates. They suggested alternative credit assessment methods, but their lack of inclusion of SMEs relying on informal financing limited their findings. Kipkenei et al. (2022) evaluated the impact of cost control methods on the performance of 173 medium-sized businesses in Kericho Town, Kenya. through a cross-sectional survey. The results demonstrated that cost control systems significantly impacted firm performance, explaining 99.9% of variance. A major limitation was the narrow geographical scope and potential biases from relying on self-reported data.

Theoretical Framework

The resource-based view (RBV) and financial intermediation theory are used in this study. Together, these two frameworks provide an explanation of how financial access might improve the performance of SMEs. The notion of financial intermediation emphasizes how financial institutions link savers and borrowers. while the RBV emphasizes how firms can leverage their resources for competitive advantage and growth. Together, they provide a comprehensive picture of how financial inclusion equips SMEs with essential resources like capital, credit, and financial services that enhance operations and long-term sustainability.

Gurley and Shaw (1960) introduced the idea of financial intermediation theory, which explains how banks and other financial intermediaries reduce transaction costs and close the knowledge gap between savers and borrowers. These institutions are vital for pooling funds, spreading risks, and providing liquidity. Later work by Allen and Santomero (1998) expanded on this theory, stressing how intermediaries help solve problems like adverse selection and moral hazard, thereby improving capital allocation efficiency. Despite its relevance, critics argue that this theory doesn't fully tackle technological changes and innovations in financial services that create new avenues for accessing finance (Scholtens & van Wensveen, 2003). For SMEs in Nasarawa State, this theory is particularly important since it shows how accessible and effective financial services provide the credit, savings, and payment systems that businesses need to invest, manage risks, and grow sustainably.

Developed by Barney (1991) and based on earlier work by Wernerfelt (1984), the resource-based view (RBV) contends that a firm's ability to maintain a competitive edge depends on its ability to acquire and employ valuable, uncommon, difficult-to-imitate, and non-substitutable resources (VRIN) effectively.
The RBV refocuses attention on internal resources rather than external market conditions resources that firms can leverage to achieve superior performance. While the RBV has gained significant traction, critics note its empirical testability is challenging, and proving that resources meet VRIN standards can be difficult (Priem & Butler, 2001). Nevertheless, this framework applies well to SMEs in Nasarawa State, stressing that financial capital, skilled labor, and technology are key resources that firms can utilize to grow and compete. Financial inclusion enhances these internal resources by improving SMEs' access to finance, allowing them to innovate, expand their operations, and strengthen their market positions.

RESEARCH METHODOLOGY

A quantitative survey research design was used in this study. This method enables a methodical analysis of how financial inclusion characteristics impact SMEs in the research region. All of Nasarawa State's registered SMEs make up the study's population. SMEDAN (2021) reports that 10,728 SMEs are registered in Nasarawa State. The Taro Yamane (1967) sample size determination formula was used to calculate the sample size of 386 for this study. To raise the sample size to 483 registered SMEs in Nasarawa State, Nigeria, a 25% alteration rate was introduced (25% of 386 = 97). Purposive sampling and stratified random sample were used in this study The use of stratified random sampling ensured equitable representation of the diverse SME population across the nine LGAs in Nasarawa State, capturing variations in sector, size, and location, while minimising bias and improving generalisability. Purposive sampling complemented this by selecting SME owners or managers with specific expertise relevant to the study's focus on financial inclusion and performance, ensuring rich, contextually relevant data aligned with the study's objectives.

The study was carried out across nine Local Government Areas (LGAs) in Nasarawa State, Nigeria, with three LGAs selected from each of the state's three senatorial districts. In the Nasarawa West Senatorial District, the selected LGAs were Karu, Keffi, and Nasarawa. For the Nasarawa South Senatorial District, the study covered Lafia, Doma, and Awe LGAs. Meanwhile, Akwanga, Wamba, and Nasarawa Eggon were chosen from the Nasarawa North Senatorial District. The selection of these nine Local Government Areas (LGAs) was justified by their status as key commercial hubs. As such, they were chosen due to the concentration of SMEs, business activities, and their roles as economic centres within their respective zones, making them ideal for this study. A structured questionnaire was used to collect data for the study, which was adapted from studies by Shahbandi and Farrokhshad (2019), Damane and Ho (2024), Espinosa-Vega et al. (2020), Pesqué-Cela et al. (2021), Amidži et al. (2014), Queralt (2016), and Kihara et al. (2016). The modification reduced data gathering errors while guaranteeing extensive subject coverage. After being thoroughly examined for validity and reliability, the questionnaire received a Cronbach's alpha of 0.939, which indicates good internal consistency. To further improve the tool and guarantee its applicability and efficacy in the local context, a pilot test was carried out.

The administration of questionnaire was done physically through nine (9) research assistants, one (1) from each of the Selected LGAs. 58 copies of questionnaire were administration to registered SMEs in Karu and Lafia LGAs, 56 copies of questionnaire were administration to

registered SMEs in Keffi and Akwanga LGAs, while, in the remaining LGAs, 51 copies of questionnaire were administration to registered SMEs in each of LGAs (Nasarawa, Doma, Awe, Wamba, and Nasarawa Eggon). Out of the total 483 copies of questionnaire administered, 397 copies constituting 82% the total copies of questionnaire administered were valid for the analysis.

For data analysis, the study utilised Partial Least Squares Structural Equation Modeling (PLS-SEM), an advanced statistical technique well-suited for examining the effect of financial inclusion on SME performance. Because it can handle complicated models with numerous constructs and a variety of SME performance metrics, PLS-SEM is especially suitable. Its ability to simultaneously assess these relationships makes it ideal for this study. Moreover, PLS-SEM is effective for studies with relatively smaller sample sizes and does not require strict assumptions about data distribution.

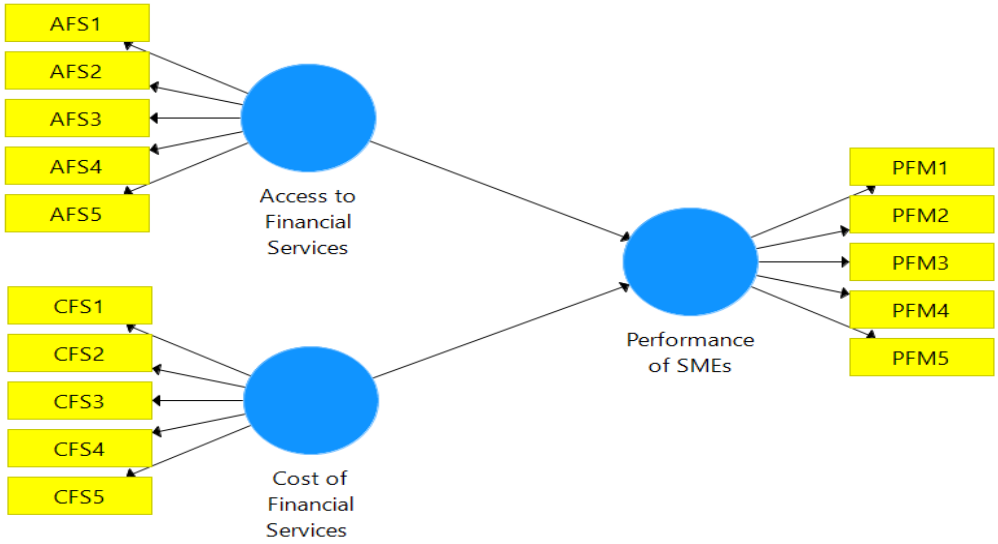

Fig. 1 The Model of the Study
Source: *SmartPLS, 2025*

SmartPLS software was used to perform the PLS-SEM analysis for this investigation. In order to test the hypothesized relationships between financial inclusion factors like access, usage, cost, and quality of financial services and SME performance outcomes like growth, profitability, and resilience, the analysis was conducted in two steps: first, the measurement model was evaluated to ensure the validity and reliability of the constructs related to financial inclusion. By carefully examining both direct and indirect effects, this analytical method allowed for a thorough understanding of the ways in which different aspects of financial inclusion affect the performance of SMEs in Nasarawa State.

Ethical issues were closely followed in order to preserve the integrity of the study process. All participants gave their informed consent, and answer confidentiality was guaranteed. Additionally, participants were made aware of their freedom to leave the study at any time without facing any repercussions. Furthermore, all data collected was anonymised and securely stored to safeguard the privacy of the respondents.

RESULT AND DISCUSSIONS

Assessment of Measurement Model

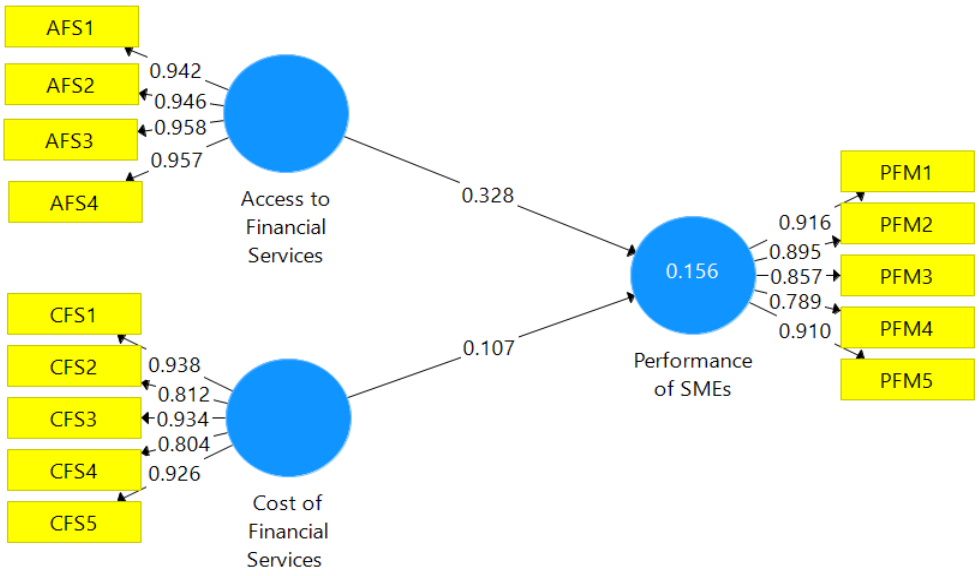

Fig. 2: Measurement model of the study constructs and indicators.
Source: *SmartPLS Output, 2025*

Table 1: Factor Loadings

	Performance	**Access to Financial Services**	**Cost of Financial Services**
Items	Loadings	Loadings	Loadings
PFM1	0.916		
PFM2	0.895		
PFM3	0.857		
PFM4	0.789		
PFM5	0.910		
AFS1		0.942	
AFS2		0.946	
AFS3		0.958	
AFS4		0.957	
CFS1			0.938
CFS2			0.812
CFS3			0.934
CFS4			0.804
CFS5			0.926

Source: *SmartPLS Output, 2025*
Indicators' Loadings

The factor loadings, which are shown in Table 1, provide insight into the caliber of the measurement model employed in this investigation. These loadings reflect how each indicator relates to its respective construct, essentially showing how well each item embodies its underlying concept. For the performance construct (PFM1–PFM5), the loadings range from 0.789 to 0.916, which is a strong sign of convergent validity since all values are above the recommended 0.70 mark (Hair et al., 2020). This means the items effectively reflect what we're trying to measure regarding SME performance. Notably, PFM1 has the highest loading at 0.916, making it the strongest indicator in our model. Such results suggest that our

performance-related items do a good job at capturing the essence of SME performance, especially in terms of financial inclusion (Henseler et al., 2016).

Looking at the access to financial services construct (AFS1–AFS4), the loadings are impressively high, falling between 0.942 and 0.958, showcasing excellent convergent validity (Hair et al., 2020). In this case, these items are reliable indicators of how accessible financial services are. It's worth mentioning that AFS5 was excluded from the model due to a lower loading, which aligns with best practices in PLS-SEM to keep the model robust (Hair et al., 2020). The high values demonstrate how well the remaining factors represent SMEs' access to financial services.

The loadings of the cost of financial services construct (CFS1–CFS5) range from 0.804 to 0.938, which proved a solid level of convergent validity (Henseler et al., 2016). While the lowest loading of 0.804 still meets our acceptable threshold, the highest loading at 0.938 suggests a particularly strong connection. So, these findings confirm that the cost-related items reliably illustrate SMEs' views on the affordability of financial services in Nasarawa State.

Validity and Reliability of the Constructs

Table 2: Construct Reliability and Validity

	Cronbach's Alpha	**rho_A**	**Composite Reliability**	**Average Variance Extracted (AVE)**
Performance of SMEs	0.965	0.966	0.974	0.904
Access to Financial Services	0.929	0.929	0.947	0.783
Cost of Financial Services	0.923	0.943	0.942	0.765

Source: *SmartPLS Output, 2025*

Table 2 provides information about the validity and reliability of the constructs used in the research. Excellent psychometric qualities are displayed by the performance construct. Strong internal consistency and reliability are demonstrated by the Cronbach's alpha (0.965), rho_A (0.966), and Composite Reliability (0.974), all of which are much above the 0.70 cutoff (Hair et al., 2020). Strong convergent validity is confirmed by the Average Variance Extracted (AVE), which is 0.904, over the 0.50 standard (Fornell & Larcker, 1981). These metrics suggest that the measurement items are reliable for additional analysis and reliably capture the performance construct.

For the access to financial services constructs, we see similarly strong reliability and validity. The Cronbach's alpha (0.929), rho_A (0.929), and Composite Reliability (0.947) all exceed the recommended thresholds, indicating high internal consistency (Hair et al., 2020). The AVE of 0.783 shows that this construct accounts for a significant portion of variance in its measurement items, meeting the convergent validity criteria (Fornell & Larcker, 1981). Overall, these results confirm that our questionnaire items effectively capture the access aspect of financial inclusion for SMEs. For the cost of financial services construct, the Cronbach's alpha (0.923), rho_A (0.943), and Composite Reliability (0.942) indicate excellent internal consistency, all exceeding the acceptable thresholds (Hair et al., 2020). The AVE of 0.765 is comfortably above the cut-off of 0.50, which supports strong convergent validity (Fornell & Larcker, 1981). This suggests that this construct reliably measures the

cost aspect of financial inclusion, giving us a solid foundation for further analysis in the study.

Discriminant Validity

Table 3: Heterotrait-Monotrait Ratio (HTMT)

	Performance of SMEs	Access to Financial Services	Cost of Financial Services
Performance of SMEs			
Access to Financial Services	0.545		
Cost of Financial Services	0.395	0.289	

Source: *SmartPLS Output, 2025*

The results of the Heterotrait-Monotrait Ratio (HTMT), which are essential for evaluating the discriminant validity of our constructs, are shown in Table 3. Strong discriminant validity among the study's components is demonstrated by the HTMT ratios displayed, as all values fall well below the conservative cutoff point of 0.85 recommended by Henseler et al. (2015). For instance, the HTMT value between SME Performance and Access to Financial Services is 0.545, indicating a moderate correlation that confirms these concepts are distinct yet related. The HTMT value between Performance of SMEs and Cost of Financial Services is 0.395, which shows a weaker but still relevant relationship. Meanwhile, the HTMT value of 0.289 between accessibility and cost of financial services points to a low correlation, underscoring that these constructs represent different dimensions of financial inclusion.

These findings back up the idea that access, cost, and performance are separate but interconnected elements in this context. They align well with existing literature that highlights the multifaceted nature of financial inclusion and its varied impacts on business outcomes (Beck & Cull, 2014; Sarma & Pais, 2011).

Assessment of the Structural Model

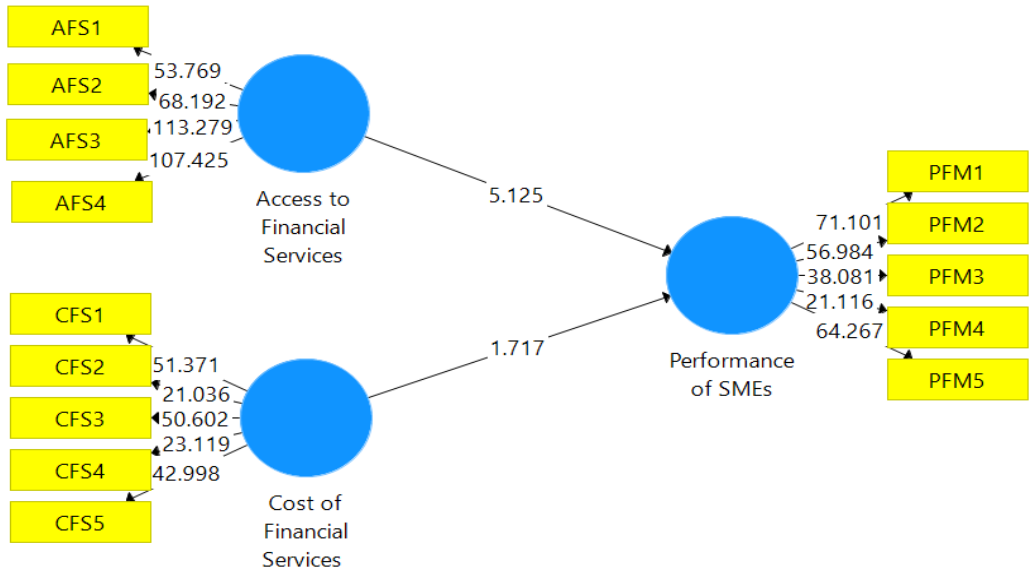

Fig. 3: Measurement model of the study constructs and indicators.
Source: *SmartPLS Output, 2025*

Path Coefficients

The impact of financial inclusion determinants on the performance of SMEs in Nasarawa State is demonstrated by the findings in path coefficient table 4. These results enable the study to assess the hypotheses and make inferences regarding how the cost and availability of financial services affect the performance of SMEs in Nasarawa State.

Table 4: Path Coefficient

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values	Decision
Access to Financial Services -> Performance of SMEs	0.328	0.339	0.064	5.125	0.000	Rejected
Cost of Financial Services -> Performance of SMEs	0.107	0.114	0.062	1.717	0.087	Not rejected

Source: *SmartPLS Output, 2025*

The fig. 3 and Table 4. show the structural model and hypotheses testing result for this study. The table shows the values for Original Sample (O), Sample Mean (M), standard Error, T-statistics, P Value. The beta value, t-values and the corresponding p-value were used in assessing the structural model in this study. This was done through the bootstrapping procedure.

Hypothesis 1: Access to Financial Services and Performance of SME

With a t-statistic of 5.125 and a p-value of 0.000, the path coefficient between SMEs' performance and their ability to access financial services is 0.328. This suggests that better access to loans, savings, and other financial services improves SME performance in Nasarawa State. It also shows that access to financial services has a positive and significant

impact on the performance of SMEs in Nasarawa State at a 5% significant level. SMEs in Nasarawa State perform better when they have more access to financial services (including credit, savings, and payment systems), according to the positive path coefficient value of 0.328 between access to financial services and SMEs' performance. The result is statistically significant since the t-statistic value of 5.125 is significantly higher than the critical value of 1.96, which is the conventional threshold for statistical significance at the 5% level, and the p-value of 0.000 is lower than the conventional significance level of 0.05. This outcome has given enough justification to reject the study's initial hypothesis.

The results of Driciru (2021), who found no statistically significant relationship between financial factors like access to finance, insufficient financing, and collateral and SME performance in Abuja, Nigeria, are in conflict with those of Adeyemi and Akindele (2023), who also reported a positive and significant relationship between access to finance and SME performance in Ibadan Southwest, Nigeria.

As seen through the lens of Financial Intermediation Theory, the outcome bolsters the claim that banks and microfinance organizations are essential in helping SMEs connect with the capital they require to function and expand (Gurley & Shaw, 1960). According to the theory's central tenet, the strong positive correlation implies that SMEs in Nasarawa State are better equipped to overcome financial obstacles and engage in lucrative endeavors thanks to increased access to credit, savings, and financial services.

According to the Resource-Based View (RBV) Theory (Barney, 1991), financial services are a rare, valuable, and unique resource that improves the performance of SMEs. The result indicates that financial inclusion provides SMEs with essential resources such as working capital, investment funds, and risk management tools, enabling them to innovate, grow, and sustain competitive advantage.

Together, both theories affirm that financial inclusion strengthens the resource base of SMEs, thereby driving performance improvements in Nasarawa State.

Hypothesis 2: Cost of Financial Services and Performance of SMEs

For the second hypothesis, the path coefficient for cost of financial services and performance of SMEs is 0.107, with a p-value of 0.087 being higher than the traditional 0.05 significance level and a t-statistic value of 1.717 below the crucial value of 1.96 (the threshold for significance at the 5% level). This suggests that, at the traditional 5% significance threshold, the cost of financial services has a positive but statistically negligible impact on the performance of SMEs in Nasarawa State. This indicates that SMEs in Nasarawa State see a slight improvement in performance when they control the cost of obtaining financial services (such as interest rates, transaction fees, and levies). The second hypothesis of this investigation is hereby accepted as this finding does not provide enough justification for its rejection.

This result is consistent with that of Mukayivara and Dorothy (2024), who also discovered that financial service costs, including interest rates, transaction fees, and hidden charges, have a detrimental influence on the performance of SMEs, although a more pronounced one. There is a stronger correlation between cost management and better SME performance than the weaker, statistically insignificant relationship found in Nasarawa State, according to Gabriel

et al. (2025), who found that cost reduction strategies, particularly technological investments, had a significant and positive impact on the profitability of small-scale manufacturing enterprises in Nigeria.

From the perspective of Financial Intermediation Theory (Gurley & Shaw, 1960), the result suggests that while financial intermediaries like banks provide essential services, the cost of these services (interest rates, fees, and charges) does not significantly constrain SME performance in Nasarawa State. This indicates that although intermediaries facilitate access, the burden of costs may not be substantial enough to hinder growth within the study's context. According to Barney's (1991) Resource-Based View (RBV) theory, cost of financial services can be viewed as a resource constraint that may affect an SME's ability to leverage financial services for competitive advantage.

Multicollinearity Test

Table 5: Inner VIF Values

	Performance of SMEs
Access to Financial Services	1.369
Cost of Financial Services	1.421

Source: *SmartPLS Output, 2025*

The study's structural model's Inner Variance Inflation Factor (VIF) values are displayed in Table 5, which also displays the VIF values for the two predictor constructs - access to financial services and cost of financial services - in connection to the outcome variable, Performance of SMEs. The model's inner VIF (Variance Inflation Factor) values for Access to Financial Services and Cost of Financial Services are 1.369 and 1.421, respectively. These values are significantly below the more conservative cut-off of 5.0 (Hair et al., 2020) or the generally recognized threshold of 3.3 (Diamantopoulos & Siguaw, 2006). Access to Financial Services and Cost of Financial Services are statistically independent and do not unduly affect each other's explanatory power in predicting SME performance in Nasarawa State, according to these results, which also show that there are no significant multicollinearity issues among the predictor variables in the model. This supports the validity of the study's conclusions and validates the model's robustness.

R Square

Tabe 6: R Square

	R Square	**R Square Adjusted**
Performance of SMEs	0.256	0.250

Source: *SmartPLS Output, 2025*

The structural model's R Square values for the endogenous variable Performance of SMEs are shown in Table 6. The combined impacts of financial service cost and access in our model account for approximately 25.6% of the variance in SME performance in Nasarawa State, according to the R Square value of 0.256. This is further supported by the Adjusted R Square value of 0.250, which shows that even after controlling for the number of predictors, the model keeps a similar explanatory power. This suggests that while financial inclusion factors have a moderate effect on SME performance, there's still about 74.4% of the variance that remains unexplained. This could mean that other elements, like entrepreneurial skills,

market access, infrastructure, and government policies, also play significant roles. A low R-square score in social science research does not always mean that the model is defective. As long as some of the explanatory variables are statistically significant, Ozili (2023) states that in empirical social science modeling, an R-square between 0.10 and 0.50 is deemed appropriate. The main goal in social science is often to measure how specific factors impact an outcome rather than predict behavior with pinpoint accuracy. So, even an R-square as low as 0.10 can provide valuable insights into variable relationships if the explanatory variables show statistical significance (Ozili, 2023). Thus, the R-square value for this study is sufficient.

Effect Size

Table 7: F Square

	Performance of SMEs
Access to Financial Services	0.093
Cost of Financial Services	0.010

Source: *SmartPLS Output, 2025*

The F Square values shed light on the magnitude of each predictor's impact on the dependent variable (SMEs' performance). Access to financial services, including credit, savings, and other financial services, has a minimal impact on improving the performance of SMEs in Nasarawa State, according to the F Square value of 0.093 for this variable (Cohen, 1988). On the flip side, the F Square value for Cost of Financial Services is just 0.010, which is extremely low and indicates a negligible effect. This aligns with our earlier finding that there's a statistically insignificant relationship between cost factors and SME performance. Overall, these results show that while access to financial services is an important driver for SME performance, the costs associated with those services don't significantly influence business growth in this study's context.

Model Fit

Table 8: Fit Summary

	Saturated Model	**Estimated Model**
SRMR	0.069	0.069
d_ULS	0.496	0.496
d_G	2.862	2.862
Chi-Square	2467.985	2467.985
NFI	0.633	0.633

Source: *SmartPLS Output, 2025*

Table 8 presents the Fit summary result. These indices provide useful insights into the model's overall quality and how well it represents the observed data. The Fit Summary results show the model's good fit overall, with the Standardised Root Mean Square Residual (SRMR) value being 0.069 for both models, which is below the acceptable limit of 0.08 (Henseler et al., 2016), suggesting a good fit. The d_ULS (0.496) and d_G (2.862) values are also acceptable, as lower numbers typically indicate a better fit. Although the Chi-Square value of 2467.985 is relatively large, it's common for larger sample sizes and complex models since Chi-Square can be sensitive to sample size (Hair et al., 2020). On the other hand, the Normed Fit Index (NFI) is 0.633, suggesting a moderate fit, with values closer to 1 being preferable. Collectively, these fit indices imply that the model does a good job at

representing the data, supporting the robustness of the analysis regarding the effect of financial inclusion on SME performance in Nasarawa State.

Conclusion and Recommendations

With an emphasis on two crucial aspects - access to financial services and the cost of financial services - this study investigated the relationship between financial inclusion and the performance of SMEs in Nasarawa State. The findings demonstrate that SME performance is positively and statistically significantly impacted by access to financial services. This research emphasizes how crucial it is for businesses to have access to credit, savings, and payment systems in order to grow, become more productive, and secure their financial future. Therefore, increasing financial access ought to be viewed as a top policy goal in order to support the expansion of SMEs and the state's long-term viability.
Additionally, the study discovered that although financial services costs improve SME performance, the association is not statistically significant. This suggests that while SMEs can gain from improved cost management of lending rates, fees, and other charges, its impact on performance is not very strong in this particular situation.

Based on these findings, two key recommendations are made. First, SMEs in Nasarawa State should make greater efforts to access formal financial services, including loans, savings, and payment systems. Building stronger relationships with financial institutions, keeping proper financial records, and taking part in financial literacy programmes can help them qualify for a wider range of financial products that support growth, investment, and resilience. Second, even though the effect of financial service costs on performance is weak, SMEs should still work on improving financial management. This can be done by negotiating better loan conditions, reducing interest rates and transaction fees, and exploring alternative financing channels such as microfinance institutions and cooperative societies. Strengthening financial literacy and adopting cost-effective financing options can ease the financial burden on SMEs and support better business outcomes.

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