

## Demand and supply-side determinants of financial inclusion: A case study of micro, small and medium enterprises in southwest Nigeria

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### **Abstract**

This study examined the demand and supply-side factors that influence financial inclusion among micro, small and medium enterprises (MSMEs) in Southwest Nigeria. The study used the survey research design and primary data was sourced with the use of questionnaire. More specifically, the study employed a multivariate regression model. The findings on the determinants of financial inclusion revealed that the major constraint to access to finance by MSMEs was high interest rate charged on loan, while poor infrastructural facilities was a major constraint hindering financial inclusion from the supply-side view. The regression results on demand-side determinants revealed that bank services awareness positively and significantly drives access to, usage and quality of financial services (used as proxy for financial inclusion) of MSMEs. On the other hand, availability of other means of savings aside from bank negatively affects the access to, usage and quality of financial services, income constraint, illiteracy and lack of trust in financial institution negatively drive financial inclusion. Similarly, supply-side determinants such as transaction cost/charges, bank distance, collateral requirements, difficulty to withdraw, and interest rate negatively drive access to, usage and quality of financial services. The study recommends that the borrowing interest rate should be attractive to encourage continuous access to loanable funds. Financial providers should build an effective and well-functioning financial system that offers affordable and sustainable financial services to MSMEs.

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## 1. Introduction

Financial inclusion has received increased attention towards inclusive growth. Accessibility to financing forms a major objective of the Sustainable Development Goals (SDGs) with at least seven of the seventeen SDGs (SDGs 1, 2, 7, 8, 10, 12 & 16) connected to financial inclusion. The importance of financial inclusion stems from its potential as a means for economic growth, inclusive growth, poverty reduction, employment generation, wealth creation, and improving people's welfare (Central Bank of Nigeria (CBN), 2012). World Bank (2018), defines financial inclusion as the process by which all households and businesses, regardless of income level, have access to and can effectively use the appropriate financial services they require to improve their lives. Although, there is general increase in the proportion of adults that has account with financial institutions worldwide, the percentage of adults that has access to finance increased by 7 percent from 62 percent in 2015 to 69 percent in 2017. This shows an additional increase of 515 million adults that have gained access to financial services globally (World Bank Global Findex Database, 2017). Nevertheless, even with this increment, about 1.7 billion adults still remain financially excluded. The World account ownership rate stood at 72 percent for male and 65 per cent for female (CBN, 2017; Global Banking Alliance for Women, 2018; Demircug-Kunt *et al.*, 2018). Financial inclusion rate in Nigeria indicated an increase, while the total adult financial inclusion rate, (adults who use formal and informal financial services) increased by 4.8 per cent points from 58.4 to 63.2 % in 2016 and 2018 respectively, the inclusion rate stood at 64.1% in 2020 (EFInA, 2018, 2020).

The focus of policymakers has shifted from financial development to financial inclusion to reach the unbanked and low-income society (Johnson & Arnold 2012). According to Demircug-Kunt *et al.* (2014), access to finance enables low-income people to borrow, save, and invest in micro, small, and medium enterprises in order to seize economic opportunities. Access to financing is the primary factor influencing the growth of MSMEs and is one of the main reasons in the development of financial inclusion (Ibor, Offiong & Mendie, 2017). Promoting MSMEs' access to financing is crucial and vital in fostering the nation's economic performance and productivity (World Bank 2014). Micro Small and Medium Enterprises (MSMEs) have been recognised by developed and developing countries as the main engine of economic growth. The development of MSME is therefore an essential element in the growth of most countries and holds particular significance for Nigeria (Udechukwu, 2003). MSMEs are the growth-supporting sector that not only contributes significantly to improved living standards but also brings substantial local capital formation and are responsible for driving innovation and competition in developing economies (Small and Medium Enterprises Development Agency of Nigeria (SMEDAN, 2013). Even though the MSMEs sector is very important to the national economy in terms of generating jobs and reducing poverty, many MSMEs are unable to reach their full potential because of a number of factors limit their ability to grow and perform well (Wolday & Ageba, 2004; Gololo, 2017). Limited access to finance is one of the major causes of the Nigerian enterprises underwhelming growth and performance, and the financing gap for MSMEs is influenced by both supply-side and demand-side factors (Wolday & Ageba, 2004; Olowe, Moradeyo & Babalola, 2013).

While finance is obviously not the only problem militating against the growth of the MSME sector, it is certainly the most challenging. Like any other investment in the real sector of the economy, investment in MSMEs is relatively large because of the need for fixed assets such as land, buildings, machinery and equipment. Lack of access to credit has been identified as one of the main obstacles to the development of private sector in developing countries (Chauvet & Jacolin, 2016). To mitigate this challenge, Nigeria's government have introduced various programmes, policies, and the National Financial Inclusion Strategy (NFIS) to encourage easy access to finance, especially for MSMEs. Nevertheless, with these reforms, programmes, and policy initiatives, the exclusion rate from financial access of MSMEs is still on high side (EFInA, 2020).

As financial inclusion is becoming increasingly important, scholars have been assessing its measurement, determinants and effects (Sarma, 2008; Fungacova & Weill, 2015; Olaniyi & Adeoye, 2016). Determinants of financial inclusion can be classified into the demand-side, supply-side and regulatory factors (Yoshino & Morgan, 2016). Supply-side determinants take account of the perceptions of financial providers, like banks and other financial institutions. Demand-side determinants on the other hand recognise the views of individual users, such as firms and households (Wang'oo, 2013). The large financing gap for MSMEs can be explained by several factors on both the demand and supply sides. The supply side, which is financial institutions generally perceive MSMEs as high credit risk enterprises leading to a high default on credit facilities made available to them. Information asymmetry between lenders and MSMEs borrowers were cited as a supply-side determinant (Shinozaki, 2012; Demircug-Kunt, Klapper, Singer, 2013). While demand-side determinants as revealed in the literature are; unstable and low-income levels; inability to meet account opening requirements and high transaction cost; have poor record keeping; lack financial literacy/capability to meet the requirements for credit; and lack appropriate collateral (Barua, Roy & Raychaudhuri, 2016; Noor, 2016; National Financial Inclusion Strategy (NFIS), 2018).

Research on access to finance has largely ignored the supply-side determinants. Scholars on determinants of financial inclusion do not separate the demand-side from supply-side and even those who do so, focused only on demand side of the determinants (Yoshino & Morgan, 2016; Olaniyi & Adeoye, 2016; Ajide, 2017). Financial inclusion determinants that are solely based on supply or demand-side data may result in inconclusive findings and inconsistent policy formulation. Besides, there were few evidence-based studies that investigated the supply and demand sides determinants of financial inclusion on MSMEs, especially in Southwest Nigeria. As a result, this study aims to close the gap by examining various determinants and indicators of financial inclusion using data from both the supply and demand sides. Thus, this study will fill these gaps in the literature by studying evidence-based country-level/micro level determinants of access to and usage of financial products and services by MSMEs. The general objective of this study is to examine the demand and supply-side determinant factors that affect the financial inclusion of micro, small-medium enterprises in Southwest Nigeria.

## 2. Literature review

### 2.1 Theoretical Framework

The mobilization and distribution of funds by financial intermediaries is greatly influenced by the accessibility, affordability, and availability of financial products and services. The earliest theory of financial intermediaries can be traced back to Smith (1776), who argued that growth in an economy is driven by activities of the financial system, because increased production and specialization is facilitated by enhanced resource (credit) acquisition offered by the financial institutions. Bagehot (1873) posits that the industrial revolution in Europe was driven by the financial system which mobilized funds for industry. He emphasized the critical importance of the banking system in economic growth and highlighted circumstance when banks could actively spur innovation and future growth by identifying and funding productive enterprises. Joseph Schumpeter (1911) contends that well functioning banks spur technological innovation by identifying and funding those business owners with the best chances of successfully implementing innovative products and production processes.

Keynes (1930) in his *General Theory* clearly stated that for investments to take place, savings first need to be gathered and this support Schumpeter's view. This view has also been reflected in the Keynesian growth models by Harrod (1939) and Domar (1947), which are based on the financial intermediation theory of banking. Keynes maintained that money takes the form of credit money, and he shared the idea that bank money that is, deposits is created in the form of loans (Keynes 1930). Keynes slightly modified his position to the effect that, like Schumpeter, he highlights the possibility of a twofold origin of finance, arguing that the demand for finance can be met in either of two ways: i) through banks creating new liquidity or ii) through financial intermediaries bringing about an increase in the rate of interest and succeeding in making already existing liquidity available to enterprises. In the Keynesian theory, financial deepening or financial inclusion occurs due to an expansion in government disbursement. In order to reach full employment; the government should inject money into the economy by increasing government spending.

Well- functioning financial institutions and markets provide opportunities for all to have access and make investments by channelling funds to their most productive uses, hence boosting growth, improving income distribution, and reducing poverty. Financial inclusion seeks to overcome the frictions that hinder the functioning of the market mechanism to operate in favour of the poor and underprivileged. Developing the financial sector and improving access to finance enhance business performance, accelerate economic growth and reduce income inequality and poverty. The new-Keynesian analysis emphasizes on the market distortions embedded in the microeconomic, for instance information asymmetries. In relation to financial inclusion, credit constraints will adversely affect financial inclusion. Stiglitz & Weiss (1981) shed lights on the effect of imperfect information about borrowers on credit exclusion, whereby creditors tend to raise interest rates and restrict credit in order to avoid risky borrowers (Dymski, 2005).

### 2.2 Empirical Review on Determinants of Financial Inclusion

Ong'eta, (2019), established that both demand and supply-side related factors influence financial inclusion. Demand related factors include household income level, education, age, financial literacy, gender, and membership of employment guarantee scheme. Interest rates, bank branches, innovation (agent banking and mobile banking), sanitisation of financial products, and advice on money management and debt counselling are all supply-related determinants of financial inclusion. Olaniyi & Adeoye (2016), used different variables and a dynamic panel data method to capture the determinants of financial inclusion in Africa from 2005 to 2014. The study showed that per capita income, literacy, broad money (as a percentage of GDP), internet access, and Islamic banking are significant factors for explaining the level of financial inclusion in Africa. Domestic credit provided by the financial sector (as a percentage of GDP), deposit interest rates, inflation, and population, on the other hand, have insignificant effects on financial inclusion. Similarly, Zins & Weill (2016), examined the individual determinants of financial inclusion in Africa. They used probit estimation on 37 African countries

from the World Bank's Global Findex database. The results showed that being a man, richer, more educated, and older supports financial inclusion in Africa with a greater influence on education and income.

Furthermore, Chikalipah (2017), explored the factors that influence financial inclusion in Sub-Saharan Africa for the year 2014. He identified illiteracy as the most significant barrier to financial inclusion in Sub-Saharan Africa. Using the logit regression technique, Abel, Mutandwa & Roux (2018), investigated the determinants of inclusive finance in Zimbabwe. The finding showed that people's confidence and trust in the financial system, as well as their education, age, literacy, income, and internet access, are significant determinants of financial inclusion. Proximity to financial institution and possession of required documents for account opening were identified as insignificant determinants of financial inclusion in Zimbabwe. Using primary data, Poonam & Chaudhry (2019), examined the determinants of financial inclusion in India. Binary logit regression technique was used to estimate the sample size of 411 households. The evidence shows that age, gender, and occupation have an insignificant negative effect on savings which is used as a proxy for financial inclusion. Education and land ownership had positive, but insignificant effects on savings. The study concluded income is a positive significant determinant of financial inclusion that in the study area. Likewise, Ajuwon, Ikhide & Akotey (2018), studied the role of transaction costs in MSMEs' access to credit in Lagos State, Nigeria. Using a questionnaire survey, in-depth interviews, and yearly financial statements of the banks as data sources, their findings revealed that high interest rate and collateral value were the major constraints to MSMEs' access to funding. They also revealed that financial institutions had a hostile attitude toward MSMEs seeking for a loan. The researchers concluded that Nigerian banks are not cost-effective and they need to do a lot more to reduce lending costs.

Yangdol and Sarma (2019), analysed the demand-side factors influencing financial inclusion across 142 countries, using World Bank's Global Findex database 2014. They revealed that being a woman, not educated, unemployed, and poor were negatively related to financial inclusion for individual adults while higher educational level and income, increased the level of financial inclusion for individuals. Okoroafor and Adeniji (2018), employed supply-side time series data from 1990 to 2016 to investigate the determinants of financial inclusion in Nigeria. The study used Error Correction Model (ECM) and estimated result revealed positive and significant relationship between financial inclusion and GDP per capita, broad money, credit and internet access. The study finds that GDP per capita, the broad money supply to GDP ratio, credit to MSMEs, and internet access are determinants of financial inclusion in Nigeria.

In a recent study, using supply-side data covering the period from 2000 to 2018 and multiple regression techniques, Gbalam and Dumani (2020) study on the determinants of financial inclusion in Nigeria showed that commercial bank branches and deposit interest rates had negative and insignificant impact on financial inclusion. The results also indicated that domestic credit to the private sector, the ratio of rural deposit-to-loans, and the level of interest rate had a positive and significant effect on financial inclusion. The study concludes that domestic credit to the private sector, the ratio of rural deposit-to-loans, and the level of interest rate are the major determinants of financial inclusion in Nigeria. Using primary data and multiple linear regression analysis, Oshora, Desalegn, Gorgenyi-Hegyegyes, Fekete-Farkas & Zeman (2021), examined the determinant factors that influence financial inclusion among SMEs in Ethiopia. The study showed that supply-side factors, demand-side factors, market opportunity, and collateral requirements had a positive effect on firm's access to finance, whereas institutional framework factors and borrowing cost had a negative effect on firm's access to finance.

### 3. Methodology

#### 3.1. Research Design

The study employed survey research design with the use of a structured questionnaire. This instrument was used to gather data on the financial inclusion, determinants of financial inclusion, and socio-economic characteristics of MSME owners. The questionnaires consisted of two sets, one for business owners and the other one for bank officials. The questionnaire for business owners consisted of three sections. Section A addressed background information of the respondents and business profile, socio-economic and demographic characteristics of the respondents. Section B contained questions related to access, usage and quality of financial services and products. A Likert scale ranged from "1" (strongly disagree) to "5" (strongly agree) and also Yes or No questions was asked in this section. Section C contained questions on the demand-side constraints to financial inclusion. The second set of questionnaires was for the financial institutions which were administered to the Bank Operation Managers. It contained questions on supply-side determinants of financial inclusion.

#### 3.2 Study Area

This study was conducted in two selected states Lagos and Ondo in Southwest Nigeria. The two states were purposely selected being the state with the highest financial inclusion rate (Lagos) and state with the highest financial exclusion rate (Ondo). The Southwest zone consists predominantly of Yoruba speaking people. The zone constitutes 35% of the country's population with a total landmass of 76,852 square kilometres.

### 3.3 Study Population

The study population consists of MSMEs in Southwest Nigeria. In Southwest Nigeria, there were nine million eight hundred and eighty-six thousand, five hundred and thirty-eight (9,886,538) MSMEs (SMEDAN, 2017). Out of these Lagos and Ondo states had a total of four million three hundred and ninety-seven thousand, nine hundred and forty-five (4,397,945) MSMEs, constituting 44.5% of the total MSMEs in Southwest Nigeria. There were 22 fully licensed commercial banks in Nigeria. Out of these 22 banks, 12 commercial banks were purposely selected being the participating banks used by the Development Bank of Nigeria to give loans to MSMEs. The banks were purposively selected in each state capital. Simple random sampling technique was used to select one bank branch from each of the sample banks and where there was only one branch of bank, the branch was automatically selected.

### 3.4 Sample Size and Sampling Technique

The sample size for this study was based on the total population of enterprises in the two selected states in Southwest Nigeria totalling 4,397,945. The sample size was calculated using Taro Yamane (1967) formula and adopted by Haftom, Fisseha & Araya (2014). This formula was used because the target population is large and more than 10,000 (Taro Yamane, 1967). It is also a suitable formula for calculating sample size in a finite population. The correct sample size is obtained by using Yamane's formula. If the population size is known, under the Yamane equation there is no need to use the mean and standard deviation. The Yamane formula is given by:

$$n = \frac{N}{1 + Ne^2} \quad (1)$$

Where:

$n$  = Sample size (unknown)

$N$  = is given as the total population size which is equal to 4,397,945.

$e$  = 5% desired level of precision or error margin which equals 0.05

Therefore,

$$n = \frac{4,397,945}{1 + 4,397,945(0.05)^2} \quad (2)$$

$$n = \frac{4,397,945}{1 + (4,397,945 \times 0.0025)} \quad (3)$$

$$n = \frac{4,397,945}{1 + 10,994.8625} \quad (4)$$

$$n = \frac{4,397,945}{10,995.8625} \quad (5)$$

$$n = 399.96 \approx 400 \quad (6)$$

According to Israel (2013), there is a need to give an allowance of about 10% non-response rate from the sample size, ( $400 \times 10\% = 40$ ). Therefore, the total sample for the study was  $400 + 40 = 440$ .

### 3.5 Estimation Technique

The study used descriptive and econometric techniques to analyse the information collected from the respondents in the selected study states. Descriptive statistics including frequency distribution, charts, tables and percentages while ordinary least square regression was employed as econometric procedures. However, access was measured directly using account ownership status of respondents. Quality is a combination of items that include documents required to open an account, affordability/ cost of the transaction, ease of transaction; non-inclusion of hidden charges by the bank; and non-requirement of a minimum sum to open an account. Items representing usage include regularity of taking loans; regularity of saving; regularity of making transfer payments using mobile transfer ATM or POS; and regularity of receiving and making payment with e-banking. In all, financial inclusion is a combination of all items representing its three dimensions.

### 3.6 Model Specification

Following the work of Demirgüç-Kunt, Klapper & Singer (2013) and Ong'eta (2019) model for determinants of financial inclusion is specified as follows:

$$AccessDi = \beta_0 + \beta_1 DD + \beta_2 SocioEco + \varepsilon_t \quad (7)$$

$$AccessDi = \beta_0 + \beta_1 SS + \beta_2 SocioEco + \varepsilon_t \quad (8)$$

$$UsageDi = \beta_0 + \beta_1 DD + \beta_2 SocioEco + \varepsilon_t \quad (9)$$

$$UsageDi = \beta_0 + \beta_1 SS + \beta_2 SocioEco + \varepsilon_t \quad (10)$$

$$QualityDi = \beta_0 + \beta_1 DD + \beta_2 SocioEco + \varepsilon_t \quad (11)$$

$$QualityDi = \beta_0 + \beta_1 SS + \beta_2 SocioEco + \varepsilon_t \quad (12)$$

Where:

AccessDi = Access Dimension ; QualityDi = quality Dimension ; UsageDi = Usage Dimension

DD = Demand-side factors comprises of using other/alternative means to save; illiteracy/ not educated; using some one else's account; income level; awareness about bank services and products; trust and confidence in financial institution.

SS = Supply-side factors consists of collateral requirement; number and simplicity of documents required to open account; bank distance; bank transaction cost; cash withdrawal process.

SocioEco = Socio-Economic factors include: gender, age; marital status; educational level; location, and financial literacy;  $B_0$  = Intercept and  $\varepsilon_t$  = error term.

## 4. Results and Discussion

### 4.1 Socio-economic Characteristics of the Respondents

Respondents were classified based on whether they are formally inclusive, informally inclusive or financially excluded. The financial inclusion of individuals consists of those that are either formally or informally have access to and use financial services and products (EFInA, 2018). From the sample size of 409 respondents, 239 MSME owners were formally included, 149 were informally included and just 21 were financially excluded. This supports the finding of EFInA (2018), which revealed that the Southwest geographical zone has the highest financial inclusion rate compared to other regions in Nigeria. Table 1 shows that the survey respondents were made up of mostly female, 208 (50.9%) and male respondents of 201(49.1%). On the age variable, it is shown in Table 1 that the age of the MSMEs owners varied with access to financial services across the two states. The highest percentage of the age group that are formally included fall into the age 35-44 years (37.7%) follow by age 25-34(25.9%), while a significantly low percentage of the age group above 65 years (4.2%) were formally included. This evidence shows that on average, people who are mostly financially included in the study area are below the age of 50 years. The survey results divide the respondents into six categories for educational attainment, including those with no formal education. From the table, the majority of respondents who uses formal financial service are those with BSc/BA/HND holders (41%) and they also had the highest financial inclusion rate, followed by those with ND/NCE/Diploma. This implies that the respondents were knowledgeable and this has aided their financial inclusion status. Secondary school certificate holders of the respondents have the highest financial exclusion rate of (42.9%) followed by those with no formal education (28.6%). Out of 13 respondents without any formal education, 6 (46%) were financially excluded. However, the greatest percentage of respondents with ND/NCE/Diploma (39.6%) use informal financial services. Besides, the chi-square result shows a significant relationship between educational level and financial inclusion rate.

Similarly, Table 1 shows the results of the distance to the commercial bank. The result reveals the importance of distance in determining financial inclusion. The respondents reporting walking distance below 10 minutes and between 10-20 minutes walking distance has the vast number of those that are formally financially included (29.7% and 36.6% respectively). While most MSMEs owners who are financially excluded (38.1%) reported that banks are far from their places of business location or residence with above 30 minutes walking distance; suggesting that the farther the distance to banks, the greater the likelihood to be financially excluded. The result of the chi-square corroborates the finding as it revealed a significant association between distance to the bank and the decision to be financially included with a value  $\chi^2= 16.4^*$ .

**Table 1.** Profile of the Respondents

	Financially Included (Formal) N <sub>1</sub> = 239		Financially Included (Informal) N <sub>2</sub> =149		Financially Excluded N <sub>3</sub> = 21		All Respondents N <sub>4</sub> = 409		Statistical test
	Count N <sub>1</sub>	%N <sub>1</sub>	Count N <sub>2</sub>	%N <sub>2</sub>	Count N <sub>3</sub>	%N <sub>3</sub>	Total N <sub>4</sub>	%N <sub>4</sub>	
	(N <sub>1</sub> +N <sub>2</sub> +N <sub>3</sub> )								
Demographic									
Gender:									
Male	129	54.0	67	45.0	5	23.8	201	49.1	
Female	110	46.0	82	55.0	16	76.2	208	50.9	$\chi^2= 8.7$
Age (In Year):									
18-24	15	6.3	11	7.4	3	14.3	29	7.1	
25-34	62	25.9	44	29.5	8	38.1	114	27.9	
35-44	90	37.7	59	39.6	6	28.6	155	37.9	
45-54	45	18.8	22	14.8	2	9.5	69	16.9	
55-64	17	7.1	6	4.0	1	4.8	23	5.6	
Above 65	10	4.2	7	4.7	1	4.8	19	4.6	$\chi^2= 10.8$
Educational Level:									
No formal	3	1.3	4	2.7	6	28.6	13	3.2	
Primary school	1	0.4	5	3.4	3	14.3	9	2.2	
Secondary school	48	20.1	26	17.4	9	42.9	83	20.3	
ND/NCE/Diploma	74	31.0	59	39.6	2	9.5	135	33.0	
BSc./ BA/ HND	98	41.0	51	34.2	1	4.8	150	36.7	
Masters/PhD	15	6.2	4	2.7	0	0.0	19	4.6	$\chi^2= 86.3^*$
Walking Distance:									
Below 10 mins	71	29.7	24	16.1	5	23.8	100	24.4	
Between 10- 20 mins	85	36.6	55	36.9	4	19.0	144	35.2	
Between 20-30 mins	42	17.2	39	26.2	4	19.0	85	20.8	
above 30 mins	41	17.2	31	20.8	8	38.1	80	19.6	$\chi^2= 16.4^*$

**Source:** Author's Compilation (2022)

#### 4.2 Demand-side Determinants of Financial inclusion in Southwest Nigeria

Table 2 reveals that the major demand-side constraint to have access to finance by MSMEs is the high interest rate charged on loan with the mean value of 2.82 which was ranked highest, followed by preferring using other alternative means to save ( $M = 2.71$ ), not have trust in formal financial institution ( $M = 2.69$ ), not aware of financial services offered by banks ( $M = 2.63$ ), lack of required collateral ( $M = 2.46$ ), no bank branches closer to me and cost of transaction too high ( $M = 3.31$ ), low income and not regular money to save ( $M = 2.30$ ), not have required documents to open an account ( $M = 2.09$ ), and not educated ( $M = 2.02$ ). This implies that the high interest rate charged on loan repayment is the major factor preventing MSMEs owners to access financial assistance and financial services being offered by the financial institutions. This study is in line with the findings of Ajuwon, Ikhide & Akotey (2018) that, high rate of interest and lack of collateral security, high bank charges,

legal documentation fees are the major factors preventing MSMEs owners to access financial assistance being offered by the financial institution in Nigeria. Prefer to use another means to save and lack of trust in financial institutions were also found to be major factors hindering MSMEs owners to access and use financial services. This support the finding of Mhlanga & Denhere (2021) that trust is a significant factor for financial inclusion in their study on determinants of financial inclusion in Southern Africa. In today's business, building trust with the customers is important even in almost all industries.

**Table 2.** Mean Score on the Demand-side Constraint to Financial Inclusion by the MSMEs

Statement Rank	Mean
Not aware of financial services offered by banks 4 <sup>th</sup>	2.63
Don't have trust in formal financial institution 3 <sup>rd</sup>	2.69
Income is low and not regular money to save 7 <sup>th</sup>	2.30
Not educated so I cannot use any financial product 9 <sup>th</sup>	2.02
Don't have the required documents to open an account 8 <sup>th</sup>	2.09
Don't have the required collateral 5 <sup>th</sup>	2.46
No bank branch close to me 6 <sup>th</sup>	2.31
Cost of the transaction is too high 6 <sup>th</sup>	2.31
Interest rate charges on loan repayment is high	2.82
Prefer using other alternative means to save 2 <sup>nd</sup>	2.71
	1 <sup>st</sup>

**Source:** Author's Compilation (2022)

#### 4.3 Supply-side Determinants of Financial inclusion in Southwest Nigeria

Table 3 also reveals the mean score ranking of the supply-side constraint to financial inclusion. From Table 3, the major constraint to financial inclusion as reported by the financial institution is poor infrastructural facilities, that is, poor internet connectivity in some areas, poor road network and epileptic power supply with the highest mean value of 3.58 which was ranked highest, followed by limited bank branches (M = 2.79), banks do not have adequate information on the creditworthiness of MSMEs business owners (M = 2.58), government regulations and policies on the financial inclusion of MSMEs are not supportive and reliable (M = 2.46), Banks take the financial inclusion initiatives due to the pressure from CBN (M = 2.17), Financial Inclusion of MSMEs is not profitable for banks (M = 2.00), most of the bank's financial products and services do not meet the needs of MSMEs (M = 1.96). This implies that the poor infrastructural facilities are the major constraint hindering financial inclusion from the supply-side view. This study is in line with the findings of Raichoudhury (2020) that found that income and infrastructure are the most important determinants of financial inclusion.



**Table 3.** Mean Score of the Supply-side Constraint to financial inclusion by the Banks

Statement	Mean	Rank
Banks do not have adequate information on the creditworthiness of MSMEs business owners	2.58	3 <sup>rd</sup>
Most of the bank's financial products and services do not meet the needs of MSMEs	1.96	7 <sup>th</sup>
Limited bank branches hinder MSMEs access to banks	2.79	2 <sup>nd</sup>
Poor infrastructural facilities (e.g poor internet connectivity in some areas, poor roads and electricity)	3.58	1 <sup>st</sup>
Government regulations & policies on the financial inclusion of MSMEs are not supportive and reliable	2.46	4 <sup>th</sup>
Financial Inclusion of MSMEs is not profitable for banks	2.00	6 <sup>th</sup>
Banks take the financial inclusion initiatives due to the pressure from CBN	2.17	5 <sup>th</sup>

**Source:** Author's Compilation (2022)

#### 4.4 Demand-side and Supply-side Determinants of Financial Inclusion

Table 4 shows the results of regression estimation on the demand and supply-side determinants of financial inclusion using access, usage and quality dimension of financial inclusion. The results on Table 4 reveals that when the access dimension was used as a proxy of financial inclusion, awareness of financial services, using some else account positively drives financial inclusion across and among the demand-side factors with only awareness of financial services that is significant. On the other hand, illiteracy, other alternative to save, lack of trust, income constraint negatively affects financial inclusion across and among the demand-side factors with only lack of trust in financial institution that is significant. Whereas high transaction cost, bank distance, documents availability, collateral requirement and withdrawal difficulty negatively affect financial inclusion among the supply-side variables. With only bank distance and withdrawal difficulty that are significantly influencing financial inclusion among the supply-side variables.

Similarly, Table 4 reveals that when usage dimension was used as a proxy of financial inclusion, only awareness of financial services positively and significantly drives financial inclusion across and among the demand-side factors. Whereas, illiteracy, other alternative to save, some else account, lack of trust, income constraint negatively drives financial inclusion across and among the demand-side factors with only lack of trust and income constraint that are significantly affecting financial inclusion across and among the demand-side factors. However, high transaction cost, bank distance, documents availability, collateral requirement, withdrawal difficulty and interest rate negatively drive financial inclusion among the supply-side variables, with only high transaction cost, collateral requirement, and interest rate that were significantly influencing financial inclusion among the supply-side variables. Table 4 also reveals that when quality dimension was used as a proxy of financial inclusion, only awareness positively and significantly drives financial inclusion while other alternative to save negatively and significantly drive financial inclusion among the demand-side factors. On the other hand, document availability, collateral requirement and transaction cost positively but not significantly drives financial inclusion among the supply-side variables. While controlling for individual heterogeneity, it can be shown that gender was negatively but not significantly affect financial inclusion for access and quality dimension across demand-side factors, but for usage both for demand and supply-side factors gender positively and non-significantly drive financial inclusion.

**Table 4.** Regression Estimate on Demand-side and Supply-side Determinants of Financial Inclusion using Access, Usage and Quality Dimension

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	Access demand-side	Access supply-side	Usage demand side	Usage supply side	Quality demand side	Quality supply side
Awareness	1.52** (0.57)		0.01* (0.08)		0.21* (0.07)	
Illiteracy	-0.31 (0.53)		-0.11 (0.12)		-0.07 (0.10)	
Other Alternatives to save	-0.69 (0.52)		-0.01 (0.08)		-0.17** (0.07)	
Trust	-0.48* (0.75)		-0.04** (0.12)		-0.05 (0.10)	
Income constraints	-0.69 (0.54)		-0.35* (0.11)		-0.11 (0.09)	
Someone's account	0.45 (0.58)		-0.09 (0.09)		-0.10 (0.08)	
High transaction cost		-0.19 (0.49)		-0.05* (0.07)		0.01 (0.07)
Bank distance		-0.81 (0.21)		-0.09* (0.04)		-0.01 (0.03)
Documents availability		-0.23 (0.18)		-0.01 (0.04)		0.04 (0.03)
Collateral requirement		-0.33 (0.36)		-0.07** (0.07)		0.03 (0.06)
Withdrawal difficulty		-0.83*** (0.50)		-0.09 (0.08)		-0.21** (0.08)
High interest rate		0.05 (0.30)		-0.05** (0.04)		-0.02 (0.04)

Gender	-0.17 (0.47)	0.85 (0.61)	0.03 (0.08)	0.06 (0.07)	-0.01 (0.07)	0.15** (0.07)
Education	0.71* (0.20)	1.06*** (0.56)	0.08** (0.04)	0.22** (0.10)	0.02 (0.03)	0.01 (0.10)
Age	-0.26 (0.18)	-0.12 (0.53)	0.01 (0.04)	-0.08 (0.10)	0.04 (0.03)	-0.08 (0.09)
Constant	4.48** (1.83)	4.05** (1.90)	-0.37 (0.34)	-0.37 (0.31)	0.17 (0.30)	0.04 (0.28)
Observations	408	408	312	312	293	293
R-squared			0.29	0.22	0.27	0.43
r2_p	0.393	0.321	.	.	.	.

Robust standard errors in parentheses \*  $p < 0.01$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.1$

**Source:** Author's computation (2022)

Education on the other hand positively and significantly drive financial inclusion for all the three dimensions (except for quality dimension) and across the demand and supply-side determinant factors of financial inclusion. This collaborates the finding of Sanderson (2018) that educated people can quickly comprehend the various financial products in the market and this as well will increase their likelihood of participating in the formal financial market. Age of the business owners negatively but not significantly affect access and usage financial services both for demand and supply-side factors for access and only supply-side for usage and quality dimensions. Our findings support Abel, Mutandwa & Roux (2018), affirmed that education, age, financial literacy, and income are significant determinants of financial inclusion in Zimbabwe. On the contrary, Poonam & Chaudhry (2019), found that age, gender and occupation have an insignificant negative effect on savings which is used as a proxy for financial inclusion in India.

## 5. Conclusion

The study examined the demand and supply-side determinants of financial inclusion in two selected states in southwest region Nigeria. The findings on the determinants of financial inclusion revealed that the major demand-side constraint to have access to finance by MSMEs was income constraint and high interest rate charged on loan while poor infrastructural facilities was the major constraint hindering financial inclusion from the supply-side view. The regression results revealed that bank awareness positively and significantly drives the financial inclusion of MSMEs. Availability of other means of savings aside from banks negatively and insignificantly affects financial inclusion, income constraint negatively and significantly drives financial inclusion. Similarly on supply-side determinants, high transaction cost; bank distance; collateral requirements; difficulty to withdraw; and high interest rate negatively drive financial inclusion. Thus, the results support the extant literature that constraints from both the users and providers of financial services determine the financial inclusion rate of a country. The study, therefore, recommends that the lending interest rate should be attractive to encourage continuous access to loanable funds. That is, rates that are not too low or excessive that would encourage the economic agent to save and borrow to spur economic activities. More so, effort should be intensified on collateral reform in Nigeria and movable assets such as machinery and equipment that are readily available for MSMEs can as well be used for pledges instead of real estate which may not be available. This will solve the problem of mismatch in the type of assets owned by MSMEs and collateral required by the bank and thus promote easy access to loans.

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