

Access to Credit and Loan Repayment by Households of Non-Farmers in Nigeria: New Evidence from Binary Logit Regression

Obed I. Ojonta
University of Nigeria, Nigeria
obed.ojonta@unn.edu.ng

Jonathan E. Ogbuabor
University of Nigeria, Nigeria
jonathan.ogbuabor@unn.edu.ng

Anthony Orji
University of Nigeria, Nigeria
anthony.orji@unn.edu.ng

Onyinye I. Anthony-Orji
University of Nigeria, Nigeria
onyinye.anthony-orji@unn.edu.ng

Ndubuisi Chukwu
University of Nigeria, Nigeria
ndubuisi.chukwu@unn.edu.ng

Emmanuel T. Ideba
University of Nigeria, Nigeria
tochukwuideba@gmail.com

Access to credit is the desire of every developing economy as well as a coping strategy in starting up and expanding businesses. Hence, this study critically examines how access to credit responds to loan repayment by households of non-farmers in Nigeria. To achieve this purpose, some important variables like spending on transport, other business costs, salaries/wages and rent were included in the model. Other variables in the model include age and location for the households of non-farmers. The study shows that loan repayment by households of non-farmers and their place of residence are significant drivers of access to finance in Nigeria while other characteristics of non-farmers such as spending on transport, other business costs, salaries/wages, rent and age are muted throughout.

Keywords: credit access, household, non-farmers, binary logistic regression

JEL Classification: E51, G5

Received 2024/01/25 · Revised 2024/04/23 · Accepted 2024/05/13

Published online 2024/12/30 © Authors



<https://doi.org/10.26493/1854-6935.22.405-422>

Introduction

Access to credit is the desire of every developing economy as well as a coping strategy in starting up and expanding businesses (Anthony-Orji et al. 2023). This in turn can help to reduce poverty and improve the status of payback loans (Ojonta 2022). In this paper, we examine the effect of loan repayment on access to credit by households of non-farmers

in Nigeria. This study also investigates how other variables which were included in the model are influencing access to credit by households of non-farmers in Nigeria. In general terms, Nigeria is one of the developing economies characterised by high levels of poverty, and has indeed been described as the headquarters for poverty in the world (Iheonu and Urama 2019). The level of poverty in Nigeria has been found not only to have affected the general economy of the nation but also the performance of non-farmers' households in terms of access to finance. It has also affected the consumption patterns of the people, as more than 60% of the Nigerian population spend less than one dollar per day on consumption (Pradhan 2012).

Loan repayment processes can also be relevant in explaining the dynamics of access to finance in an economy. Orji et al. (2023) posit that the dearth of loan repayment contributes to Nigeria's continued underdevelopment, as businesses have been unable to take advantage of credit opportunities that could spurred economic growth, created jobs, and reduced poverty. In addition, the nation's economy has been unstable thus far due to a lack of investment possibilities and loan availability, which has also left borrowers with high default rates and poor returns on their investments.

Indeed, the nexus between loan repayment and access to finance by households of non-farmers are serious issues that are of major concern in most developing countries like Nigeria. The issues of loan repayment are a particularly serious impediment in accessing credit for business expansion and profit making as most people in the country consider credit as a windfall (Hassan and Olaniran 2011).

Additionally, a report from the National Bureau of Statistics (NBS 2021) revealed a number of significant issues that have contributed to Nigeria's poor credit availability. Among these are the prevalence of dimensional poverty, insufficient collateral in the case of repayment default, and high interest rates issued to the borrowers. Numerous studies have been discovered in the literature explaining the economic benefits of loan repayment from various perspectives. According to Nwosu, Ojonta, and Orji (2017), loan repayment has a significant impact on various aspects of household welfare, spending habits and improvement of human capital development like the health and education sectors. However, the relevance of loan repayment in enhancing the performance of non-farmers cannot be underestimated. Nkurunziza (2005) believes that when loan repayment becomes impossible for non-farmers, it can cause obstacles and potentially slow down economic growth.

The Nigerian government has provided enormous support to ensure that loan repayment will not further constitute a hindrance to access to finance either for individuals or groups of individuals. This support is made available through provisions for the borrowers to have access to credit at little or no cost in terms of collateral and securities. Other support by the government includes establishment of various intervention schemes such as YOUWIN, which was initiated during the government of President Goodluck Jonathan, and N-Power that was instituted by the immediate past President Muhammadu Buhari's administration. These interventions were established to cushion the effects associated with the sufferings and challenges resulting from lack of access to finance, inadequacies in loan repayment, youth unemployment, and for youths that are willing to engage in small and medium scale businesses (SMEs) but lack the required capital. These government interventions are targeted at building capacity for expansion of social development through access to finance in Nigeria. It is unfortunate, however, that these efforts by the government in ensuring that the citizens of Nigeria are supported in building capacity in terms of loan repayment appear not to be yielding the desired results. The majority of businesses of non-farmers in Nigeria are still facing serious challenges, such as limited availability of access to finance. It is evident that inadequate availability of access to finance by households of non-farmers has been a critical issue in developing countries like Nigeria as the majority of them could not afford to borrow due to their inability to pay back.

Furthermore, debt repayment has grown to be a significant problem for non-farmers in Nigeria. Apart from this, access to finance by households of non-farmers is also challenged by a high level of loan repayment default by households of non-farmers among urban dwellers. This is because the local economy is characterised by many factors such as weak institutions (Ojonta and Ogbuabor 2024) and unemployment (Ojonta and Ogbuabor 2023). Against this background, the objectives of this paper include (i) to investigate how access to credit is responding to loan repayment by households of non-farmers in Nigeria, and (ii) to ascertain how the covariates in the model are impacting access to credit by households of non-farmers in Nigeria.

The next section of this paper reviews various forms of literature, followed by the third section that discusses the data and methodology. The fourth section captures the empirical results and the last section handles the conclusion and policy recommendations.

Review of Relevant and Related Literature

THEORETICAL LITERATURE

This paper, which looks at the relationship between loan repayment and credit accessibility for non-farmers is supported by a number of theories found in the literature. Among these theories are the theory of credit rationing, the theory of imperfect information, and the theory of transaction cost.

Credit Rationing Theory

This theory was first introduced by Stiglitz and Weiss (1981). According to the theory, financial institutions may exhibit reluctance to extend loans to businesses, even if the latter are prepared to bear elevated interest rates. That is, they are unwilling to offer loans to businesses not because they cannot afford the cost of the loan but because of factors like the ability to pay back the loan, symmetric information, transaction costs, and market imperfections.

The Theory of Information Asymmetry

This very important theory was first proposed by Hoff and Stiglitz (1990). According to this theory, information is a key factor influencing how well financial markets perform. Also, the theory posits that the imperfect information problem is what causes unequal access to information in the financial market. According to this theory, moral hazard and adverse selection may result from the financial market's knowledge asymmetry. Three categories are identified by the theory to describe these information difficulties in the financial market: (i) the screen problem, which involves determining the level of default; (ii) the incentive problem, which involves conceiving and guaranteeing that credit contracts are honoured; and (iii) the enforcement problem, which involves observing credit recipients to guarantee loan repayment.

The Theory of Transaction Cost

Benston and Smith (1976) introduced the transaction cost idea. According to the notion, financial intermediaries use technical innovation to their advantage in order to maximize profit and take advantage of economies of scale. The cost of processing and obtaining the data (information) needed to make a decision throughout the transaction process, as well as the costs associated with policing and enforcement, are the main features of the transaction cost theory.

Managing Global Transitions

EMPIRICAL LITERATURE

This section reviews some studies in the literature related to the objectives of our study. The review brought out the nexus between access to finance and other variables both in Nigeria and other economies.

Review of Domestic Empirical Literature

Empirically, Ojonta and Ogbuabor (2021b) investigated the effect of access to credit on the performance of non-farm household businesses, with a focus on input supply in Nigeria. The findings show that input supply promotes credit accessibility in Nigeria. Another study by Asiedu et al. (2013) examined the nexus between gender and accessibility of credit in Sub-Saharan Africa. The outcome of the study confirmed that female-owned firms are more constrained than male-owned firms. Furthermore, Ojonta and Ogbuabor (2021a) conducted a study in Nigeria to ascertain how physical capital can enhance credit accessibility. The outcome of the research shows that physical capital is an essential driver of financial accessibility. A follow-up study from Ojonta, Ogbuabor, and Obiefuna (2024) also revealed how access to credit can be driven by employment in Nigeria, using the binary regression model approach. The results of the research indicate that employment promotes access to credit. Ojonta (2023) also conducted a study on the effect of credit access on non-farm households' total sales in Nigeria. The estimation result of the research shows that access to credit is an important channel in enhancing the improvement of the total sales of firms. Also, Ojonta, Obodoechi, and Ugwu (2021) conducted a study on the relationship between household credit access and start-up capital of an enterprise in Nigeria. The result of the study shows that there is a positive relationship between them. In contrast, Ololade and Olagunju (2013) employed the probit estimation approach to examine how absence of guarantors can effect credit accessibility in Nigeria. At the end, the study confirmed that presence of guarantors is an important channel in enhancing the improvement of access to money. In another recent study in Nigeria, Oke, Kehinde, and Akindele (2020) investigated the relationship between human capital development such as years of schooling and access to loans in Nigeria. The research shows that schooling plays a positive role in influencing access to credit. Enimu, Eyo, and Ajah (2017) employed multiple regression analysis to examine the role of household income in influencing loan repayment of microcredit finance groups in Nige-

ria. The research was achieved through the use of a multi-stage random sampling approach. The result of the research confirmed that household income has a positive relationship with loan repayment of microcredit group members in Nigeria.

Review of Empirical Literature outside Nigeria

Gatti and Love (2008) conducted a study on how access to credit influences firms' productivity in Bulgaria using cross-sectional data. The conclusion of the study shows that access to credit has a positive impact on total firm productivity. Berkowitz and White (2004) examined how the law of personal bankruptcy responds to access to credit in the USA. The study focused on the comparison of small firms within the economy and the finding revealed that cooperative firms are likely to have more access to credit than non-cooperative firms. Munene and Guyo (2013) also carried out a study on the impact of business characteristics on loan repayment default in Kenya. The result showed a significant relationship between profit and loan repayment default. Moreover, Fatoki and Odeyemi (2010) conducted a study for SMES in South Africa in order to examine how microeconomic variables impact access to credit. The research indicated that managerial skills are essential in promoting access to credit in South Africa. A similar study by Musamali and Tarus (2013) in Kenya investigated how firm-specific traits influence access to finance. The study revealed that firm-specific traits are an important factor in influencing access to finance of companies in Kenya. A study developed in Libya by Zarook, Rahman, and Khanam (2013) examined the relationship between access to finance and financial performance with a focus on the level of household income. The research established that higher income households do not necessarily influence access to credit. A similar study in Uganda by Nanyondo et al. (2014) showed a contrary result, that financial performance has a positive effect on access to finance. Kiplimo et al. (2015) also investigated the determinants of small farmers' access to finance in Kenya. The study employed the logit estimation technique and revealed that factors like education level, occupation, and access to extension services affect access to finance positively and significantly. However, the study established that household income and proximity to a credit source affect access to finance negatively and significantly. As a follow up study, Fufa (2016) examined the determinants of small businesses' access to finance and sources of credit in Ethiopia. By employing the logit regression model, the study revealed that firms'

access to finance is greatly determined by the firm's size and age, location, risk-taking propensity, and prevalence of corruption problems. In another study, Chenna, Maria, and Teno (2018) investigated how smallholder farmers respond to loan accessibility in Cameroon. The study utilised the logistic regression model and found that accessing loans has a positive relationship with performance of smallholder farmers.

In sum, from the studies reviewed above, there are none that focused specifically on how loan repayment influences access to credit. This is a serious gap in the literature which our current study fills using the logistic regression model technique. We consider this a valuable addition to the literature.

Data and Research Methodology

THEORETICAL FRAMEWORK

This study hinges on the theory of information asymmetry, which was first introduced by Hoff and Stiglitz (1990). According to this theory, information is a key factor influencing how well financial markets perform. Also, the theory posits that the imperfect information problem is what causes unequal access to information in the financial market. According to this theory, moral hazard and adverse selection may result from the financial market's knowledge asymmetry. The study conducted by Diao, McMillan, and Wangwe (2018) lends some support to this theoretical perspective. The theorists perceived that the role of the information problem as a driver of loan repayment cannot be called negligible. Indeed, the proponents of this theoretical perspective established that harnessing loan repayment is an important channel through which borrowers can have access to finance.

DATA DESCRIPTION

This study employs the Nigerian 2018–19 General Household Survey (Wave 4) sample survey data. It was produced and recorded by the National Bureau of Statistics (NBS) in collaboration with various organisations, including the World Bank, the Ministry of Agriculture and Rural Development, and the National Food Reserve Agency. Based on a multi-stage stratified sampling technique, the survey is a nationally representative study of around 5,000 homes from all 36 states in Nigeria, including Abuja, the country's capital area. In our analysis, however, we only included the 244 homes whose credit access data was reported as

Households of Non-Farmers (HNFS). That is to say, we used the data that was available in this survey with a sample size of 244 because the study was centred on how loan repayment affected households of non-farmers. The study employed the available data in order to prevent anomalies, homogeneity problems, and spurious result traps.

MODEL SPECIFICATION

This study takes the same pattern as Ojonta and Ogbuabor (2021a). The study explained the logistic regression model as a mutually exclusive event estimation model in which the independent variables are either categorical or binary, while the dependent variable chooses a binary form. Based on that premise, this study used a binary logit model to calculate the impact of loan repayment on credit access by households of non-farmers in Nigeria. Given that the availability of credit for companies of non-farmers is a dependent variable that can be classified into two groups, this study employed Astari and Kismiantini's (2019) modelling technique. In this model, represents credit access by HNFS while X_i represents the control variables employed in this study. Hence, the binary logit model is labelled as two outcomes to measure the welfare influence of loan repayment. This implies that the binary logit model is the determinant of the chances that the enterprise i has one of the j not randomly independent access to credit (0 = did not get credit; while 1 = gets credit). Hence, taking the approach by Ojonta, Ogbuabor, and Obiefuna (2024) and Justino, Litchfield, and Pham (2008), these chances can be indicated as:

$$P(\pi_i = j) = \frac{1}{1 + e^{-(z)}} \quad (1)$$

where: $z = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_p X_p$; $\beta_0, \beta_1, \dots, \beta_p$ are regression parameters; π are the model's independent variables, and is the probability that households of non-farmers eventually get credit.

All the explanatory variables in equation (1) are defined as shown in table 1. These variables are also explained as follows:

- X_1 denotes REPAYMENT, which represents loan repayment by households of non-farmers. This value is measured as a binary variable where 1 = yes (if households of non-farmers are non-defaulters of loan repayment) and 2 = No (if households of non-farmers are defaulters of loan repayment). This variable is expected to have ei-

ther a positive or negative relation with households of non-farmers' ability to obtain credit. Studies like Ojonta and Ogbuabor (2021b) and Diao, McMillan, and Wangwe (2018) are consistent with this anticipation that the coefficient of this variable will be positive or negative.

- **TRANSPORT**, represented by the symbol x_2 , stands for the cost of transportation. This is a binary variable; 1 means that the household of non-farmers spent money on transportation, and 2 means the opposite (that the households of non-farmers do not spend money on transportation). According to this study, the coefficient of this variable is expected to have a negative relationship with households of non-farmers' willingness to obtain credit, following Ojonta and Ogbuabor (2021a) and Diao, McMillan, and Wangwe (2018).
- **COST**, represented by the symbol x_3 , stands for spending on other businesses by households of non-farmers. This variable takes a binary form where 1 denotes that households of non-farmers spend on other businesses while 0, otherwise denotes that households of non-farmers do not incur any cost on other business. By a priori expectation, this variable is expected to bring economic benefits to non-farmers, like profit making. Studies by Ojonta and Ogbuabor (2021b) and Odoh and Nwibo (2017) all support this.
- **SALARIES/WAGES**, represented by the symbol X_4 , stands for spending on salaries/wages by HNFS. This variable takes a binary form, where 1 means that HNFS spend from salaries and wages while 2 means that they do not. According to this study, the coefficient of this variable is expected to have a positive or a negative relationship with households of non-farmers' ability to obtain credit. As per the findings of Shehu and Sidique (2014), there was a negative correlation found between the two variables, whereas other research works such as Aziz, Wasim, and Iqbal (2017), Ojonta and Ogbuabor (2021a), and Ayambila, Osei-Akoto, and Ayamga (2017) found a positive correlation.
- **AGE**, represented by the symbol x_5 . This variable takes a binary form, where 1 means an employment age; 0, otherwise.

The residence at which the household of non-farmers is located is indicated by the symbol x_6 for **LOCATION**. Additionally, it is a binary variable with two possible values: 1 if the non-farmers' residence is located in a rural region/area and 2 if it is in an urban region/area. We have a

TABLE 1 Measure of Variables Used in the Binary Logit Regression

Dependent Variable	Variable label	Coding	Expected Sign
Access to credit	CREDIT	1 = yes; 2 = No	Not Applicable
Independent Variables			
Spending on loan repayment (x1)	REPAYMENT	1 = yes; 2 = No	(+/-)
Spending on transport (x2)	TRANSPORT	1 = yes; 2 = No	(+/-)
Spending on other cost of businesses (x3)	COST	1 = yes; 0, otherwise	(+/-)
Spending on salaries/wages (x4)	SALARIES	1 = yes; 2 = No	(+/-)
Age of household of non-farmers (x5)	AGE	1 = decades; 0, otherwise	(+/-)
Household Location of non-farmers (x6)	LOCATION	1 = Rural Area; 2 = Urban Area	(+/-)
Spending on rent (x7)	RENT	1 = yes; 0, otherwise	(+/-)

negative a priori expectation for this variable, in line with Atamanov and Van den Berg (2011). Given that the non-farmers must incur higher costs as a result of this location, this is also in line with economic expectations.

x7 stands for RENT, or the amount the household of non-farmers pays for rent. It is a binary variable that accepts two values: 1 for yes (if the household of non-farmers spends money on rent) and 0, otherwise (if there is no spending on rent). Ojonta and Ogbuabor (2021a) and Seng (2015) obtained negative coefficients for this variable, whereas Diao, Mc-Millan, and Wangwe (2018) obtained positive coefficients. As a result, we generally have a positive or negative a priori expectation for the coefficient of this variable.

The Estimated Results from the Model Technique

THE DESCRIPTIONS OF DATA ANALYSIS

The overview from table 2 articulates the distribution of households of non-farmers (HNFS) in our sample according to defaulters and non-defaulters on loan repayment in both urban areas and rural areas in Nigeria. This table is self-explanatory. It shows that non-defaulters on loan repayment by HNFS have more credit access than defaulters on loan repayment in both urban and rural areas. Table 2 also reveals that HNFS have more frequency of non-defaulters of loan repayment in terms of

TABLE 2 Distributions of Access to Credit by Loan Repayment

Measure of loan repayment	Access to Credit	Non-Access to Credit				Total	
		Urban Region/Area					
Non-defaulters	18	25	9	14	27	39	
Defaulters	14	4	68	92	82	96	
Total	32	29	77	106	109	135	

NOTE: Authors' compilations originating from NBS for 2018 General Household Survey

access to finance while defaulters of loan repayment have less frequency in terms of access to finance in both urban and rural areas. This implies that repayment compliance is a priority for credit access. It also shows that households of non-farmers (HNFS) have more repayment defaulters and fewer repayment non-defaulters in both rural and urban areas. The table also shows that in the households of non-farmers (HNFS) and loan repayment defaulters that are deprived of access to credit are fewer in number than non-defaulters in both rural areas and urban areas. This may suggest that most of the HNFS that are repayment defaulters may have been seeking funds elsewhere, possibly from formal credit markets. The table clearly reveals that HNFS resident in urban areas have more access to credit than their counterparts in the rural areas.

Table 3 shows the distributions of credit access by loan repayment in percentage terms. The percentages reaffirm the results highlighted earlier. For example, it shows that a higher percentage of HNFS in both rural areas and urban areas that do not default in repayment had more credit access than defaulters in both urban and rural areas. It also reveals that a higher percentage of non-farmers in rural areas that do not default in repayment have more credit access relative to their counterparts in urban areas.

Estimation Results and Discussion

The binary logit regression model's results, which are displayed in table 4, unveil the estimation result on how loan repayment and other macroeconomic variables in the model are responding to credit access in Nigeria.

The findings point out that repayment of loans has a coefficient (B) of 1.964 and the p-value of 0.000. The result implies that the effect of loan repayment on access to credit by households of non-farmers is positive and significant at the 1% level, as indicated in table 4. There are two cate-

TABLE 3 Percentage Share of Access to Credit by Loan Repayment

Measure of loan repayment	Access to Credit				Non-Access to Credit			
	(1)	(2)	(3)	(2)	(1)	(2)	(3)	(2)
Non-defaulters	18	56.25	25	86.21	9	11.69	14	13.21
Defaulters	14	43.75	4	13.79	68	88.31	92	86.79
Total	32	100	29	100	77	100	106	100

NOTE: Author's compilations originating from NBS for 2018 General Household Survey, (1) Urban Region/Area, (2) % Share, (3) Rural Region/Area,

gories of repayment here, with the benchmark being 'repayment defaulters'. This result is in line with research conducted by Blanchflower and Evans (2004), who discovered that loan repayment had a major influence on households of non-farmers being allowed for credit accessibility. Atamanov and Van den Berg (2011) and Owoo and Naudé (2014) are just a few of the studies that support this finding.

Table 4 further illustrates how access to credit is driven by location of non-farmers in Nigeria. Recall that this is a binary variable: if an NHF is located in a rural area, it takes on the value of 1, and if an NHF is located in an urban area, it takes on the value of 2.

According to table 4's data, this variable has a positive influence on accessing credit by households of non-farmers in Nigeria. The coefficient and p-value of the variable are 0.598 and 0.076, respectively. These two results suggest that location of non-farmers' households is positive and significant at the 10% level. The outcome of the research is in tandem with studies by Diao, McMillan, and Wangwe (2018), which similarly found a positive coefficient and suggested that households of non-farmers located in rural areas promote credit access participation. This might be because of the advantages of living in a rural region, such as access to inexpensive labour (Okotoni 2003).

The covariates in our model as captured in table 4 include various forms of spending such as: other business costs, salaries/wages, transport, rent and age of the business. The coefficients of these covariates are negative with the exception of the variable RENT, which has a positive coefficient. The results from the p-value revealed that they are all muted throughout. These findings are consistent with Mapunda, Mhando, and Waized (2018) as well as Rijkers and Söderbom (2013), respectively. Also, spending on transport has its coefficient as -0.484 while its p-value is 0.272, which implies that the covariate is not statistically significant. The

TABLE 4 Results of Binary Logit Regression

Observation: 244
Pseudo R-Square: 0.247
Correctly predicted: 78.3
Dependent Variable: Access to credit

Variables	B	Std Error	p-value	Exp(B)
REPAYMENT	1.964	0.36	(0.000)***	7.128
TRANSPORT	-0.484	0.44	0.272	0.616
COST	-0.495	0.356	0.165	0.61
SALARIES	-0.61	0.499	0.222	0.543
AGE	-0.399	0.377	0.289	0.671
LOCATION	0.598	0.337	(0.076)*	1.819
RENT	0.192	0.347	0.58	1.211
Constant	-1.095	0.568	0.054	0.334

NOTE: 1. B: Represents Coefficient Estimation 2. Std Error: Robust Standard Error
3. Exp(B): The Odd ratio computed as exponential of Coefficient 4. p-value: Computed for test of significance ***, * Indicate the significance level at 1% and 10%, respectively.

finding is line with the result of studies by Ojonta and Ogbuabor (2021a), Mapunda, Mhando, and Waized (2018), Okotoni (2003), and Owoo and Naudé (2014), respectively.

Conclusion and Policy Recommendation

The core purpose of this work is to investigate the effect of loan repayment on access to credit by households of non-farmers in Nigeria. The estimation result of the regression as reported in table 4 revealed that loan repayment is positive and significantly impacting credit access by households of non-farmers in Nigeria. The result implies that loan repayment is an unavoidable process in achieving access to credit, which also suggests that the higher the tendency of households of non-farmer to payback their loan the higher will be the tendency for access to credit by households of non-farmers. The policy recommendation is that loan repayment should be encouraged and promoted. This can be achieved by subsidising the interest rate in loan repayment.

In table 4, the outcome of this study also shows that the location for households of non-farmers is positive and significantly impacts credit access in Nigeria. The result means that the residence of non-farmers is an important channel in enhancing improvement of access to loans in Nigeria. The study, however, suggests that policy should focus on improving the locations of non-farmers in Nigeria. This can be feasible

through provision of basic amenities such infrastructural development, regular water supply and subsidising housing schemes. This could be of great help in encouraging the borrowers in accessing credit. Our results from table 4 also indicate that variables like spending on transport, other business costs, salaries/wages, and rent, including years of business by non-farmers in Nigeria, are muted throughout in influencing credit access. The implication of the result means that these variables do not have any form of relationship in terms of access to finance in Nigeria. This study suggests that policy recommendations should be ignored and should not be given attention. This can also go a long way to reduce wastefulness of resources.

Additionally, this paper has some limitations that should be articulated for future study. Indeed, considering the significant influence of loan repayment by households of non-farmers in promoting access to finance in Nigeria, this study could not shed light on how loan repayment could influence credit access using aggregate data. This study was limited to employ dummy or binary variables that have two options of decision, zero or one. Another limitation is that our study could not also shed light on panel data analysis and access sufficient data as quite a number of them are missing. Therefore, we recommend future research to focus on panel data analysis using a model technique that allows both continuous and other various forms of data analysis.

Competing interests

The Authors declare that they have no competing interest.

References

- Anthony-Orji, O. I., A. Orji, J. E. Ogbuabor, and L. C. Uka. 2023. 'Money matters a lot: empirical analysis of financial development, financial inclusion and economic growth in Nigeria.' *International Journal of Economic Policy in Emerging Economies* 17 (1): 100–117.
- Asiedu, E., I. Kalonda-Kanyama, L. Ndikumana, and A. Nti-Addae. 2013. 'Access to Credit by Firms in Sub-Saharan Africa: How Relevant Is Gender?' *American Economic Review* 103 (3): 293–297.
- Astari, D., and Kismiantini. 2019. 'Analysis of Factors Affecting the Health Insurance Ownership with Binary Logistic Regression Model.' *Journal of Physics: Conference Series* 1320.
- Atamanov, A., and M. Van den Berg. 2011. 'Microeconomic analysis of rural nonfarm activities in the Kyrgyz Republic: What determines participation and returns?' MERIT Working Paper, No. 11, United Nations

- University - Maastricht Economic and Social Research Institute on Innovation and Technology.
- Ayambila, S. N., I. Osei-Akoto, and M. Ayamga. 2017. 'Determinants of Non-farm Micro and Small Enterprise Participation in Rural Ghana.' *British Journal of Economics, Management and Trade* 17 (4): 1–12.
- Aziz, B., S. Wasim, and Z. Iqbal. 2017. 'Consumption Behavior and Household Economies of Scale: An Analysis of Variations across Rural-Urban Regions of Pakistan.' *International Journal of Health and Medicine* 2 (3): 6–11.
- Benston, G. J., and C. W. Smith. 1976. 'A Transactions Cost Approach to the Theory of Financial Intermediation.' *Journal of Finance* 31 (2): 215–231.
- Berkowitz, J., and M. J. White. 2004. 'Bankruptcy and Small Firms' Access to Credit.' *The RAND Journal of Economics* 35 (1): 69–84.
- Blanchflower, D. G., and D. S. Evans. 2004. 'The Role of Credit Cards in Providing Financing for Small Businesses.' *Payment Card Economics Review* 2: 77–95.
- Chenna, T. A., A. G. Maria, and M. N. Teno. 2018. 'Determinants of Access to Credit and Performance of Smallholder Farmers in Kumba Municipality, South West Region of Cameroon.' *Asian Journal of Agricultural Extension, Economics & Sociology* 25 (1): 1–12.
- Diao, X., M. S. McMillan, and S. M. Wangwe. 2018. 'Agricultural Labour Productivity and Industrialisation: Lessons for Africa.' *Journal of African Economies* 27: 28–65.
- Enimu, S., E. O. Eyo, and E. A. Ajah. 2017. 'Determinants of loan repayment among agricultural microcredit finance group members in Delta state, Nigeria.' *Financial Innovation* 3 (1): 1–12.
- Fatoki, O., and A. S. Odeyemi. 2010. 'The determinants of access to trade credit by new SMEs in South Africa.' *African Journal of Business Management* 4: 2763–2770.
- Fufa, F. G. 2016. 'Determinants of Access to Credit and Credit Source Choice by Micro, Small and Medium Businesses in Nekemte, Ethiopia.' *International Journal of African and Asian Studies* 28: 11–27.
- Gatti, R., and I. Love. 2008. 'Does access to credit improve productivity? Evidence from Bulgaria.' *Economics of Transition and Institutional Change* 16 (3): 445–465.
- Hassan, M., and S. Olaniran. 2011. 'Developing Small Business Entrepreneurs through Assistance Institutions: The Role of Industrial Development Centre, Osogbo, Nigeria.' *International Journal of Business and Management* 6 (2): 213–226.
- Hoff, K., and J. E. Stiglitz. 1990. 'Introduction: Imperfect information and rural credit markets-puzzles and policy perspectives.' *The World Bank Economic Review* 4 (3): 235–250.
- Iheonu, C., and N. Urama. 2019. Addressing Poverty Challenges in Nigeria. African Heritage Institution. Nigeria. Retrieved from <https://>

- policycommons.net/artifacts/1446469/addressing-poverty-challenges-in-nigeria/2078235/
- Justino, P., J. Litchfield, and H. T. Pham. 2008. 'Poverty Dynamics During Trade Reform: Evidence from Rural Vietnam.' *Review of Income and Wealth* 54 (2): 166–192.
- Kiplimo, J. C., E. Ngenoh, W. Koech, and J. K. Bett. 2015. 'Determinants of access to credit by smallholder farmers in Kenya.' *Journal of Development and Agricultural Economics* 7 (9): 303–313.
- Mapunda, M. E., D. G. Mhando, and B. M. Waized. 2018. 'Credit Access through Warehouse Receipt System and Farm Productivity of Smallholder Coffee Farmers in Mbinga District, Tanzania.' *Journal of Agriculture & Life Sciences* 5 (2): 24–34.
- Munene, H. N., and S. H. Guyo. 2013. 'Factors Influencing Loan Repayment Default in Micro-Finance Institutions: The Experience of Imenti North District, Kenya.' *International Journal of Applied Science and Technology* 3 (3): 80–84.
- Musamali, M. M., and D. K. Tarus. 2013. 'Does Firm Profile Influence Financial Access among Small and Medium Enterprises in Kenya?' *Asian Economic and Financial Review* 3 (6): 714–723.
- Nanyondo, M., V. Tauringana, N. Kamukama, and S. K. Nkundabanyanga. 2014. 'Quality of financial statements, information asymmetry, perceived risk and access to finance by Ugandan SMES.' *International Journal of Management Practice* 7 (4): 324–340.
- NBS. 2021. *Consumption Pattern in Nigeria 2009/10*. National Bureau of Statistics, Nigeria.
- Nkurunziza, J. D. 2005. 'The Effect of Credit on Growth and Convergence of Firms in Kenyan Manufacturing.' CSAE Working Paper No. 1, University of Oxford, Centre for the Study of African Economies.
- Nwosu, E. O., O. Ojonta, and A. Orji. 2017. 'Household consumption expenditure and inequality: evidence from Nigerian data expenditure.' *International Journal of Development Issues* 17 (3): 266–287.
- Odoh, N. E., and S. U. Nwibo. 2017. 'Socio-Economic Determinants of Rural Non-Farm Households Income Diversification in Southeast Nigeria.' *International Research Journal of Finance and Economics* 164 (1).
- Ojonta, O. I., and J. E. Ogbuabor. 2021a. 'Access to Credit and Physical Capital Stock: A Study of Non-Farm Household Enterprises in Nigeria.' *Buletin Ekonomi Moneter Dan Perbankan* 24 (4): 631–640.
- Ojonta, O., and J. E. Ogbuabor. 2021b. 'Credit access and the performance of non-farm household enterprises: evidence from Nigerian data.' *International Journal of Sustainable Economy* 13 (1): 72–86.
- Ojonta, O. I., D. N. Obodoechi, and P. N. Ugwu. 2021. 'Start-up Capital Source and Credit Access Participation of Household Nonfarm Enterprises in Nigeria: Evidence from Logistic Regression Model.' *Managing Global Transitions* 19 (3): 249–267.

- Ojonta, O. I. 2022. 'The influence of delayed payment obligation on purchase decision of household: evidence from Nigerian Data.' *Unisia* 40 (2): 369–390.
- Ojonta, O. I. 2023. 'Influence of credit access on the total sales of household non-farm enterprises in Nigeria: evidence from binary logit regression.' *International Journal of Economics and Business Research* 25 (1): 50–63.
- Ojonta, O. I., and J. E. Ogbuabor. 2023. 'Spending pattern and profit performance : a case study of non-farm household enterprises in Nigeria.' *International Journal of Sustainable Economy* 15 (2): 245–259.
- Ojonta, O. I., and J. E. Ogbuabor. 2024. 'Effects of tourism and institutional quality on infrastructural development in Africa: new evidence from the system GMM technique.' *Business Economics*. <https://doi.org/10.1057/s11369-024-00355-5>
- Ojonta, O. I., J. E. Ogbuabor, and E. C. Obiefuna. 2024. 'Impact of Employment on Access to Credit of Non - agricultural Household Enterprises in Nigeria.' *Journal of the Knowledge Economy* 15 (1).
- Oke, J., A. Kehinde, and A. Akindele. 2020. 'Determinants of access to credit by cocoa farmers in Osun State, Nigeria.' *International Journal of Agricultural Research, Innovation and Technology* 9 (2): 57–61.
- Okotoni, O. 2003. 'Personnel Deployment in the Nigerian Federal Civil Service.' *Journal of Social Sciences* 7 (1): 21–27.
- Ololade, R. A., and F. I. Olagunju. 2013. 'Determinants of Access to Credit among Rural Farmers in Oyo State, Nigeria.' *Global Journal of Science Frontier Research Agriculture and Veterinary Sciences* 13 (2): 16–22.
- Orji, A., E. T. Ideba, P. N. Mba, J. E. Ogbuabor, S. Yakubu, Y. Yakubu, and O. I. Anthony-Orji. 2023 'Does Access to SME Credit enhance Employment Generation in Developing Countries? A New Evidence from Nigeria' *Journal of Xian Shiyou University, Natural Science Edition* 19 (6): 302–324.
- Owoo, N. S., and W. Naudé. 2014. 'Non-Farm Enterprise Performance and Spatial Autocorrelation in Rural Africa: Evidence from Ethiopia and Nigeria.' IZA Discussion Paper No. 8295, Institute of Labor Economics, Bonn.
- Pradhan, H. K. 2012. 'Patterns of Consumption Expenditure in Rural Household: A Case Study of Selected Villages of Sundargarh District of Odisha, India.' Thesis. Department of Humanities and Social Sciences National Institute of Technology, Odisha, India.
- Rijkers, B., and M. Söderbom. 2013. 'The Effects of Risk and Shocks on Non-Farm Enterprise Development in Rural Ethiopia.' *World Development* 45: 119–136.
- Seng, K. 2015. 'The Effects of nonfarm activities on farm households' food consumption in rural Cambodia.' *Development Studies Research* 2 (1): 77–89.

- Shehu, A., and S. Sidique. 2014. 'A Propensity Score Matching Analysis of the Impact of Participation in Non-farm Enterprise Activities on Household Wellbeing in Rural Nigeria.' *UMK Procedia* 1: 26–32.
- Stiglitz, J., and A. Weiss. 1981. 'Credit Rationing in Markets with Imperfect Information.' *The American Economic Review* 71 (3): 393–410.
- Weber, R., and O. Musshoff. 2012. 'Microfinance for Agricultural Firms—Credit Access and Loan Repayment in Tanzania.' *Financial Economics International Development Risk and Uncertainty*, 123rd EAAE Seminar, Dublin. <https://doi.org/10.22004/ag.econ.122552>
- Zarook, T., M. M. Rahman, and R. Khanam. 2013. 'The Impact of Demographic Factors on Accessing Finance in Libya's SMEs.' *International Journal of Business and Management* 8 (14): 55–65.