



Socioeconomic determinants of credit demand by small scale enterprises in Kano state, Nigeria

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Abstract

The small-scale enterprises have contributed to the production of goods, generation of income as well as employment to the teeming population in the developing countries. In view of this, this study aims to examine the socioeconomic factors that determining their credit demand in Nigeria. To do this, a logit regression analysis was employed using data gathered from the survey of 404 respondents in the three senatorial zones of Kano state; Kano central, Kano north and Kano south. A random sampling of the enterprises was made and questionnaires were administered to find whether or not they apply for the credit. Factors such as age, collateral, education, gender & collateral were significant in the analysis while the sector enterprise, location where they operate and experience were statistical insignificant in the model. It is recommended that, a policy need to be designed and implemented to bring awareness for enhancing financial sector participation with the view to further improve credit accessibility by the small businesses in Nigeria, particularly Kano state.

Keywords: Small scale enterprises, Credit demand, Logistic regression analysis

Introduction

Credit is believed to be scarce resource passing from a lender to the borrower in form of goods and or services which a promise to repay it in the future time. The ability to secure loan based on trust without payment is what is termed as credit. This can be money or materials used in boosting production activities for enhancing income and employment generation that further lead to the improvement of welfare (Khandker, S. R., Faruquee, 2003; Coleman, 1999).

Developing countries have witnessed the increase in credit demand by small scale enterprises in the recent years which is attributed to an increase in demand for their products as well as the business expansion.

Despite the important role played by these enterprises to income and employment generation using local resources and technology, they still continue to face many financial challenges accessing enough credit for the startup and expansion particularly in the developing countries (Bank, 2008). The commercial banks don't normally serve these enterprises because of their high transaction cost, uncertainty and asymmetric information about their future defined by their characteristics (Bank, 2008).

In view of this, the attentions of researchers and policy makers were attracted in developing countries towards having legislative intervention to end this problem. As a result, the

microfinance program was introduced as an alternative to provide financial services to the small borrowers using banking and non-banking institutions with specialized character based approach in empowering the households excluded by the conventional banks (Aretey, 2008).

The small scale enterprises in this study consist of all small businesses in private sector that offer job opportunities to low-income earners. They include the households such as farmers, street hawkers, petty traders, and various services providers who own and manage small business that employs number of people whose business survival depends on self-generated income with continued difficulties in accessing credit (Magboul, 2016). This study examines the socioeconomic factors in determining small business credit demand using logistic regression analysis. After the introduction, section 2 is a conceptual literature review, section 3 methodology, section 4 is the results and discussions, and section 5 is the findings and conclusion.

Literature Review

Credit Access and Participation

Concept of credit participation and that of credit access was usually used interchangeably to examine factors responsible for determining credit demand by different authors. While credit access is used to describe the willingness of borrowing when satisfying all credit lending requirements irrespective of whether the person borrows or not, the credit participation describes having access from different sources (Doan, Gibson, & John, 2010).

Reviews of Credit Demand

There are many studies on credit demand that made use of analytical and empirical approaches. Studies that used empirical approach to base their model on the behavioral assumption from the theory of economics are (Magri, 2002; Fabbis & Padula, 2004; Mpuga, 2004) while basing the model specifications on the pragmatic assumptions. Fabbis & Padula (2004) used utility maximization constraint as the theoretical framework in introducing the requirements for minimum repayment while

testing the effect of efficiency for the system of judiciary on the demand for credit. Beck & Torre (2006) applied frontier framework access to evaluate the financial outreach system by designing a policy to ensure the increase in lending services outreach in the country. While some studies applied a simple descriptive statistical approach to study credit market participation like the test for differences between means and ANOVA and the cross-tabulation such as (Atiero, 2001; Kong, Turvey, He, Ma, & Meagher, 2007; Shah, Bukhari, Hashim, & Anwar, 2008), others applied RCT for maturity elasticity and price for credit demand by the consumer to examine microfinance program effect or the impact of the new products and the policy (Karlan & Zinman, 2009; Gine & Karlan, 2009; (Karlan, 2008).

Credit Demand Modelss

The models commonly used to analyse demand for credit are the choice models. Different studies used different versions of choice models depending on their dependent variables (DV) in study i.e. the binary, multinomial and probit or logit, etc. For instant, if response variables are measured in continuous terms for the credit borrowed, then truncated distribution version of the models are used in the study. The studies that employed combination of these models in analyzing the factors that determine demand for credit and the amount borrowed consists of Shah, et al., (2008) who applied logistic models (multinomial & binary) in Pakistan for analyzing the determinants of credit market participation. Li, (2010) also applied this model in his study of microcredit for the rural household in China. Similarly, Duman (2009) used the same model to examine small business enterprises in turkey. Messah & Wangi (2011) adopted it to study the factors that determine a borrower's choice between different finance sources in Kenya. Others include Sekyi, Nkegbe & Kunnibe (2014) in Ghana; Mpuga (2004) in Uganda; and Okurut (2006) in South Africa.

Moreover, studies that used probit model are Umoh (2006) in his study of the access to microcredit by small business owners in

Nigeria. Aga & Reilly (2011) in Ethiopia, Zeller (1994) in Madagascar, Okurut (2006) in South Africa that applied Heckman probit model for correcting sample selection bias for microcredit participation among the poor blacks. Moreover, Nguyan (2007) employed the model for selecting two-stage choice in his study of credit market participation in rural Vietnam. Same model was also employed in Uganda by Mpuga (2004), Daniel, Job, and Ithinji (2013) in Kenya, Diagne and Zeller (2001) in Malawi, Dutta and Magableh (2006) in Jordan, and Bending, Giesbert and Steiner (2009) in Ghana respectively. These studies discovered number of demographic, geographic as well as socio-economic factors as responsible for the small business owners to apply for credit. Existing evidences on the small business enterprise credit demand, shows that there is need for further research to use different approach. In view of that, current study has applied a logistic

regression analysis to examine the socioeconomic factors responsible for determining credit demand of these enterprises in Nigeria.

Methodology

Information used in the analysis of this study was gathered during the survey conducted on the small-scale enterprises operating in the three senatorial zones i.e. Kano central, Kano north and Kano south. This involved 404 enterprises that engage in activities such as farming, trading, street hawking and provision of small services like tailoring, barbing, hair plaiting, dying, etc. These enterprises were randomly selected from the study area. A logit regression was used to model their responses on whether or not they applies for a credit as used by Aga & Reilly (2011) in his study. The model is as follows:

$$\Pr(Y = c/X_i) = F(\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots \beta_k X_k) \text{ ----- I}$$

Note: Equation I above is reduced to form Equation II for easy explanation, thus:

$$y_i^* = \beta_i X_i' + \varepsilon_i \text{ ----- II}$$

From Equation II, y_i^* is dependent variable taking the value 1 = apply, or 0 = not apply. X_i is a vector of exogenous variables of i^{th} defined in the study. β_i represents the

coefficients to be estimated in the model and ε_i represents error term. So, estimation of binary is expressed in Equation III as:

$$y = x\beta + \varepsilon, \text{ if } y_j^* > 0 \text{ ----- III}$$

$$y = 0, \text{ otherwise } (y_j^* \leq 0) \text{ ----- IV}$$

The dependent variable y_i^* is observed when event j is observed. β is parameter vector to be estimated while ε is the error term. So equation III represents the logit model specification

when the outcome is limited to the range of zero/one i.e. apply ($y_i^* = 1$) and not apply ($y_i^* = 0$).

Table 1. Variables Definition and Measurement

Variables	Definition	Measurement	Source
C_{Dij}	Outcomelg	Binary;1 if apply, 0 if otherwise	Aga & Reilly (2011); Akudugu (2016); Essien & Arene (2014)
Ag_i	Age	Years for firm owner	Bonnet, Cieply and Dejardin (2016); Chen and Ahmed (2014)
Ed_i	Education level	1= Primary, 2 = Secondary, 3= Diploma/NCE, 4 = BSC/HND, 5 = Postgraduate, 6 = Religious education	Hoque et al. (2016); Akudugu (2016)
Gd_i	Gender	1 male, 0 female	Denkyirah et al. (2016); Hoque et al, (2016); Maso (2014)

En_i	Enterprise	(j =1-4) Agriculture, Manufacturing, Service, Trade.	Mkandawire & Duan (2016)
Ex_i	Experience	Years spent in the business	El-Said et al. (2013)
Lc_i	Location	(j =1, 3) Kano central, Kano north & Kano south	Akudugu et al, (2009)
Cl_i	Collateral	1 collateral, 2 otherwise	Denkyirah et al. (2016)

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Result & Discussion

Logistic Estimates & Marginal Effect Results

Out of 404 respondents selected for the survey, 292 did not apply for credit while

112 applied. Table 2. depicts an estimates of logit model in column (1) while column (2) depicts that of marginal effects results from the seven predictor variables.

Table 2. Logistic Regression and Marginal Effects

VARIABLES	(1) Logit estimate	(2) M/effects of Logit
Age	0.04170*** (0.01450)	0.0071*** (0.0024)
Secondary	0.5150 (0.5330)	0.0790 (0.0761)
Diploma/NCE	0.8791* (0.5101)	0.1430* (0.0740)
BSC/HND	0.8840 (0.591)	0.1440 (0.0911)
Postgraduate	-0.2082 (1.0493)	-0.0270 (0.1310)
Religious education	-0.3980 (0.6381)	-0.0490 (0.0795)
Male	0.8071** (0.3423)	0.1370** (0.0571)
Manufacturing	-0.0507 (0.4282)	-0.00826 (0.0701)
Service	0.6790 (0.4941)	0.1250 (0.0888)
Trade	0.2092 (0.5003)	0.0357 (0.0847)
Collateral	-0.999*** (0.3152)	-0.170*** (0.0517)
Experience	0.02251 (0.0238)	0.00384 (0.00404)
Kano north	-0.1203 (0.3701)	-0.0200 (0.0607)
Kano south	0.1382 (0.3721)	0.0240 (0.0657)
Constant	-2.7980*** (0.9241)	
Observations	404	404

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

It can be seen in column (1) above that, age is significant at 10% level, meaning an additional increase in small entrepreneur age by one year leads to increase his likelihood to apply credit. Marginal effect in column (2) is positive for age indicating that it influences individual to apply for credit at 0.71% level. Beta coefficient for education shows that those with secondary, Diploma/NCE and BSC/HND have more likelihood to apply and also those with Postgraduate and Religious certificates have less likelihood compared to the holders of primary school certificates (reference category). As shown in column (2) by the marginal effects, those having secondary school certificates are more likely to apply by 7.9% and those with a Diploma or NCE are 14.3% while those with a BSC/HND have 14.4% likelihood to apply respectively. However, those with a Postgraduate and Religious certificates have 2.7% and 4.9% less likelihood to apply for the credit.

Gender is another positive significant factor at 5% level explaining that being a male-owner of business enterprise has more likelihood to apply than the female. The results of marginal effect in column (2), shows that being a male entrepreneur has 13.7% more likelihood to apply for a credit than the female counterpart. Beta coefficient of the Manufacturing enterprise is negative and positive for the Trade and Service enterprises respectively. The enterprises in manufacturing sector are less likely to apply for credit than those from the agricultural sector (reference category) while enterprises from service and trade sectors have more likelihood to apply. Results of marginal effect indicates that enterprises from manufacturing industry are less likely to apply for credit by 0.83% than those from service and trade sector who are 12.5% and 3.6% more likely to apply for credit respectively.

Beta coefficient of collateral is negative and significant at 1% level meaning that enterprises who own collateral have more likelihood to apply than those who do not have (reference category). In column (2), result of marginal effect shows that having more collateral assets reduces the likelihood by 17% to apply for

credit. This concurs with a literature which confirms having more collateral assets to reduce the risk of loan repayment default (Essien & Arene 2015; Tadesse, 2014; Mira & Kennedy, 2013; Fatoki & Smit, 2011; Dutta & Magableh, 2006; Pham & Lensink, 2008; Zander, 1992).

The beta coefficient of experience in the business is positive but insignificant. This means that increase in business experience by one year increases the likelihood of credit application by 0.38%. Business location of the enterprise is negative but with a positive coefficient. This means the location where enterprises operate matters. Those that operate at Kano north zone have less likelihood to apply while enterprises at Kano south zone have more likelihood compared to those operating at the Kano central zone (reference category). So those operating at Kano north zone are 2.0% less than those at Kano south zone who are 2.4% more likely to apply.

Diagnostic Estimation Tests

Different diagnostic estimation tests were conducted in this study include; linktest to specify the model error and p-value is 0.439 implying that χ^2 is insignificant meaning that model is specified correctly. The test was conducted for multicollinearity by looking at the VIF and TOL values. VIF values are below 10.0 and for TOL is above 0.1 showing absence of multicollinearity among the variables in the model (Pregibon, 1981). Finally, the lrtest was carried out on model 1 and model 2 where the former was nested into the latter, and the likelihood ratio is 10.44 and the $\text{pro} > \chi^2$ is 0.0012.

Conclusion and Policy Implications

This study examines the factors that determine credit demand by the small business enterprises using the data gathered from the survey of 404 respondents in three senatorial zones in Kano state, Nigeria. Logistic model was used to analyse the data and different estimated diagnostic tests were conducted to test for the variables goodness in the model. After the regression, some factors like age, education, collateral and gender were significant in

determining credit loan, while others like enterprise, location and experience insignificant.

The findings of this study show that age, gender and collateral increase the likelihood of a small entrepreneur to apply for credit. This means that these factors do not constrain him to apply for credit and so no credit constraint from the demand-side as found in this study. This suggests that, most borrowers that face financial challenges in form of credit constraints and rationing are due to the activities of credit lending institutions emanating from the credit supply-side.

Therefore, a legislative intervention is needed here to implement policy and to expand credit supply. Similarly, an awareness campaign need to be initiated to encourage people to borrow credit, this will increase credit market participation in Nigeria and particularly Kano state.

It is therefore recommended that, future researcher should extend his study scope to involve both informal and formal credit lenders in the developing countries to tackle the issues and financial challenges facing the credit markets. The research should be in two ways; in the first way, borrowers' response should be treated as dependent variable while responses of lenders to be used on the supply-side. In the second way, he should use more explanatory variables in replicating the study in another region or country.

References

- 1) Aga, G. and Reilly, B. (2011). Access to credit and informality among micro and small enterprises in Ethiopia. *International Review of Applied Economics*, 25(3), 313–329.
- 2) Alhassan, E. A., Hoedoafia, M. A., and Braimah, I. (2016). The Effects of Microcredit on Profitability and the Challenges on Women Owned SMEs: Evidence from Northern Ghana. *Journal of Entrepreneurship and Business Innovation*, 3(1), 29. <http://doi.org/10.5296/jebi.v3i1.9525>
- 3) Areetey, E. (2008). Paper presented at the seminar to the African finance for the 21st century, Tunisia. In *From informal to formal finance in sub-Saharan Africa: lesson form linkage efforts. Paper presented at the seminar to the African finance for the 21st century, Tunisia*.
- 4) Atiero, R. (2001). Formal and informal institutions lending policies and access to credit by small scale enterprises in Kenya: An empirical assessment. *The African Research Consortium*.
- 5) Bank, W. (2008). *Finance for all: Policies and Pitfalls in Expanding Access. Policy Research Report*.
- 6) Beck, T. and Torre, A. (2006). *The basic analytics of access to financial market services. World Bank Policy Research working paper, 4026*.
- 7) Bending, M., Giesbert, L. and Steiner, S. (2009). *Savings, credit and insurance: household demand for formal financial services in rural Ghana. GIGA. Working paper No.94/2009*.
- 8) Coleman, B. E. (1999). The Impact of Group Lending in Northeast Thailand. *Journal of Development Economics*, 60(1), 105–141.
- 9) Daniel, K., Job, K. and Ithinji, K. (2013). Social capital dimension and other determinants influencing household participation in microcredit groups in Uasin Gishu County, Kenya. *Developing Countries Studies*, 3(3), 213–221.
- 10) Diagne, A., and Zeller, M. (2001). Access to credit and its impact on welfare in Malawi. *Research Report of the International Food Policy Research Institute*, (116), 1–143. Retrieved from <https://www.scopus.com/inward/record.uri?eid=2-s2.0-0035003089&partnerID=40&md5=f7316fa276327022d66ae769f13f912c>
- 11) Doan, T. Gibson, J. and John, H. M. (2010). *What determines credit participation and credit constraints of the poor in the peri-urban Vietnam*.
- 12) Duman, A. (2009). *Determinants of access to credit in microenterprises of turkey, Izmir. Izmir university*.

- 13) Dutta, D. and Magableh, I. (2006). A socioeconomic study of borrowing process: the case of micro entrepreneurs in Jordan. *Applied Economics*, 38(14), 1627–1640.
- 14) Essien, U. A. and Arene, C. J. (2015). An Analysis of Access to Credit Markets and the Performance of Small Scale Agro-based Enterprises in the Niger Delta Region of Nigeria. *International Journal of Food and Agricultural Economics*, 2(3), 105–120.
- 15) Fabbi, D. and Padula, M. (2004). Does poor legal enforcement make household credit constraint? *Journal of Banking and Finance*, 28(10), 2369–2397.
- 16) Fatoki, O. O. and Smit, A. (2011). Constraints to credit access by new SMEs in South Africa: a supply-side analysis. *African Journal of Business Management*, 5(4), 1413–1425.
- 17) Gine, X. and Karlan, D. S. (2009). Group versus individual liability: Long term evidence from Philippines microcredit lending groups.
- 18) Karlan, D.S. and Zinman, J. (2009). *Expanding credit access: Using Randomize Supply decision to estimate the impacts*. London: oxford university press.
- 19) Karlan, D. S. (2008). Credit elasticity in less developed economies: Implications for microfinance. *African Economic Review*, 83(3), 1040–1068.
- 20) Khandker, S. R. and Faruquee, R. R. (2003). The Impact of Farm Credit in Pakistan. *Agricultural Economics*, 28(3), 197–213.
- 21) Kong, R., Turvey, C. G., He, G., Ma, J., and Meagher, P. (2007). Factors influencing Shaanxi and Gansu farmers' willingness to purchase weather insurance. *China Agricultural Economic Review*, 3(4), 423–440. <http://doi.org/10.1108/17561371111192293>
- 22) Li, X. (2010). An empirical analysis of microcredit in china rural households. *Journal of Asian Economics*, 22(3), 235–246.
- 23) Magboul, A. (2016). *Determinants of demand for and supply of credit to small scale enterprises and performance of microcredit markets in Sudan*. Unpublished doctoral thesis,. University of Pretoria.
- 24) Magri, S. (2002). *Italian household's debt: Determinants of demand and supply*.
- 25) Messah, D. B. and Wangi, P. N. (2011). Factors that influence the demand for credit among small scale investors: A case study of Meru Central District, Kenya. *Research Journal of Finance and Accounting*, 2(3), 2222–2847.
- 26) Mira, G. K. and Kennedy, O. (2013). Challenges facing accessibility of credit facilities among women owned enterprises in Nairobi central business district in Kenya. *International Journal of Social Sciences and Entrepreneurship*, 1(7), 377–396.
- 27) Mkandawire, M. and Duan, X. (2016). Factors Influencing Credit Demand among Household Non-Agriculture Enterprises in Malawi. *Open Journal of Business and Management*, 4(2), 312–321.
- 28) Mpuga, P. (2004). Demand for credit in rural Uganda: who cares for the peasants? Paper presented at the conference on growth poverty and human development in Africa. Unpublished Report, university of Oxford, UK.
- 29) Nguyen, C. H. (2007). *Determinants of credit participation and its impact on household consumption: Evidence from rural Vietnam*.
- 30) Okurut, F. N. (2006). *Access to credit by poor in South Africa: Evidence from household data 1005 and 2000 (Working paper, 13/06)*.
- 31) Pham, T. T. and Lensink, R. (2008). Household borrowing in Vietnam. A comprehensive study of default risks of formal, informal and semi-formal credit. *Journal of Emerging Market Finance*, 7(3), 237–261.
- 32) Pregibon, D. (1981). *Logistic regression diagnostics. The Annals of Statistics*.
- 33) Sebu, J. (2013). *Farm household's access to credit: Who needs and who gets?*

- Evidence from Malawi*. University of Kent.
- 34) Sekyi, S., Nkegbe, P. K. and Kunnibe, N. (2014). Participation in the market by small scale enterprises in Ghana: Evidence for Wa Municipality. *Journal of Business Management*, 8(9), 292–299.
 - 35) Shah, S. K., Bukhari, A.T., Hashim, A.A. and Anwar, S. (2008). Determinants of credit program participation and socioeconomic characteristics of beneficiaries: Evidence form Sargode. *The Pakistan Development REVIEW*, 47(4), 947–959.
 - 36) Tabachnik, B. G. and Fidell, S. L. (2007). *Discriminants analysis. Using multivariate statistics*. Boston: Person Education Inc.
 - 37) Tadesse, M. (2014). Fertilizer adoption, credit access, and safety nets in rural Ethiopia. *Agricultural Finance Review*, 74(3), 290–310. <http://doi.org/10.1108/AFR-09-2012-0049>
 - 38) Tonin, C., Dieci, P., Ricover, A., Foresi, S. and Handson, D. (1998). *Financial services for small enterprises in Namibia*.
 - 39) Umoh, G. S. (2006). Empirical investigation of access to microfinance in an emerging economy. *Journal of African Business.*, 7(1–2), 89–117.
 - 40) Zander, R. (1992). Barriers to credit access in rural Sri Lanka.
 - 41) Zeller, M. (1994). Determinants of credit rationing: A study of informal lenders and formal credit groups in Madagascar. *World Development*, 22(12), 1895–1907. [http://doi.org/10.1016/0305-750X\(94\)90181-3](http://doi.org/10.1016/0305-750X(94)90181-3)