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AN ANALYSIS OF AGRICULTURAL CREDIT MARKET PARTICIPATION AMONG FARMERS IN KANO STATE, NIGERIA

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Abstract
This study examines the determinants of agricultural credit market participation among farmers in Kano State, Nigeria. Despite numerous credit initiatives, access remains limited due to financial exclusion and institutional barriers. Using primary data from 576 respondents and employing a binary Logit regression model, the study identifies key factors influencing farmers' participation in credit markets. The findings reveal that commercialization of farming, access to credit information, bank account ownership, off-farm business activities, and social capital variables such as neighborhood participation and traditional title significantly enhance the probability of credit participation. In contrast, reliance on traditional farming tools reduces access. Ownership of radio or television and residence in urban areas also increase participation, underscoring the role of information and location advantages. The study concludes that information asymmetry and weak institutional frameworks limit credit accessibility. It recommends improving financial inclusion, promoting credit awareness, and strengthening local institutions to facilitate broader and more equitable access to agricultural finance.

Keywords: Agricultural credit, Credit market participation, Financial inclusion, Logit model, Kano State

1 Introduction

The fact that almost 70 percent of Nigerians do not have access to credit and also not covered by the formal financial and banking services of whatever forms [1], suggest that government finance programs do not cover many farmers. This is due to the fact that most of the Nigerian farmers do not only resides in the sparsely rural areas, but also unbanked, and the loans under ACGSF are distributed through commercial banks, which are mostly restricted to few urban centres. That is why inadequate access to farm credit has affected agricultural production in Nigeria [2]. For instance, with reference to the study area – Kano State, Nigeria, evidence from Figure 1 indicates poor performance with respect to agricultural production in the state from 2002 to 2014, respectively. In 2002 and 2004 seasons, the thousand metric tonnes produced from the Kano State are only 1321.06 and 1445.82, respectively. These was later decreased to 1110.43 in 2008 and then increased to 1667.73 and 4822.38 in 2009 and 2013, as evidence from Figure 1. Thus, lack of farm credit remains the major obstacle to agricultural production.

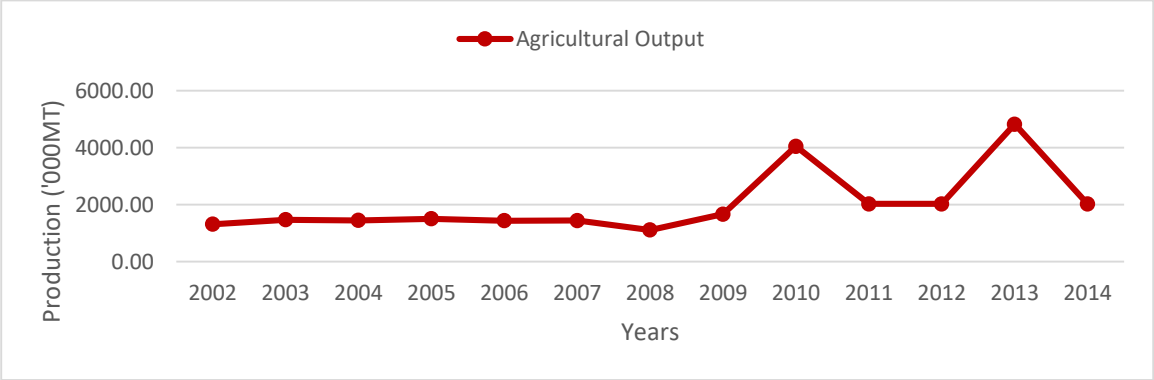

Fig. 1. Agricultural Production of Kano State in Thousand Metric Tonnes, 2002-2014
(Source: [3]

In support of this evidence, the World Bank report indicates that only 5 percent in Nigeria have access to formal loans, and 44 percent have formal bank account, while about two percent obtained loans from the informal source [4]. Besides, empirical evidence from Nigeria reveals that 79.2 percent of farmers were constraints in the agricultural credit market [5]. This is supported by the findings that the extent of credit constraints is 73 percent in India, 71 percent in Congo and 59.9 percent in Ghana ([6]; [7] & [8]). Therefore, with reference to these devastating conditions and given the nature of agricultural credit in Nigeria, this study investigates the factors that explain the probability of farmers' credit market participation and rationing in Kano State, Nigeria.

2 Literature Review

Studies of participation in agricultural credit are still insufficient in developing economies, yet most of the researches available have identified several factors as the key determinants of demand for credit, and/or to demand from a particular source of credit (formal and informal sectors). These includes demographic and socio-economic characteristics of the farmers, regional and social capital characteristics and wealth accumulated from past saving, among others, could affect the demand for credit ([9]; [10]). These attributes influence households differently, in such a way that what influences the demand or participation for credit by a particular individual might be different from other individuals.

Farmers' attributes, which refers to characteristics of farmers such as age, gender, marital status, family size, farming experience, education, and so on, have been reliably found to affect the demand for credit. In a survey study in Burma, India, Ghana and Ireland [11], [12], ([6] & [13]) found that age of a household is positively related to credit demand. However, age of a farmer which is a crucial determinant of credit proved to have a quadratic function. This is evident from the work of [14] and [15] in Pakistan and Vietnam that credit demand increases with age, and decreases as an individual grows older. On the other hand, [16] and [17] found that old farmers are more probable to demand credit. [18] further explained that older farmers have a higher probability of repayment, due to their maturity than younger ones; hence, they are more likely to have access to credit. However, the findings of [19] in U.S., [20] in Ghana and [21] in Uganda indicated that demand for credit is attributed to younger and more energetic individuals and their application is likely to succeed.

Farm characteristics refers to the specific qualities or attributes associated with farmland. Many studies have argued that demand for credit could be influenced by farms' characteristics, specifically farm size ([22]; [23]). In view of that, [20], [11] and [21], found that those with large farms are more likely to demand farm credit than those with small holdings. This result is further supported by [13] and [24] and more recently by [25]. Moreover, [16] further clarified that the probability to demand farm credit increases with the total number of land owned, while [26] and [15] found no link between them.

But in terms of firm growth, access to institutional credit have been reported to encourage growth of an enterprise in Kenya and Rwanda ([27]; [28]). Because firm's growth is reliant upon firm's profit and the ability to utilize inputs efficiently including capital among others. In view of that, the study found that business growth is positively related to credit access. Thus, credit rationing could limit the growth of firms and its size, leading to declining in productivity. In favour of this argument, [29]

found that firm's growth particularly for the new entrant matters a lot in terms of lenders' assessment and decision of whether to supply credit to the firm in question in U.S.

Moreover, farming income in this context has been considered as farms' attributes and was found to affect the demand for credit in various researches. [30] showed that an increase in farming earnings, other things being equal, would generate more saving that could lead to increase in the demand for loan in Southern Nigeria. This finding is supported by [19] in U.S. and [25] in Nigeria, but contradict the finding of [10] who claims that demand for credit is inversely related to farming income among women in Southern Nigeria. While [22] revealed that farming income is neutral in explaining the preference to demand loan in Kenya. Though this contradiction was clarified by [31] that farmers with a higher ratio of farming income are likely to borrow from the informal source and less likely to borrow from the formal source. While an increase in the households' income (from a different source) may discourage informal borrowing and encourage borrowing from the formal source. This argument supports the hypothesis that borrowing from the informal source is higher for farmers with exclusive income from farming while formal borrowing is for households with more diversified activities.

Demand for goods is expected to be affected by its price; in this case, the price of credit is interest rate. In fact, one of the primary institutional attributes that are likely to affect the availability of credit is its price. In this view, previous studies have found that demand for credit increases with decrease in interest rate ([32]; [33]; [30]; [10]). Similarly, [34] and [35] found that an increase in cost of borrowing and bribery decreases demand for farm credit.

[36], [8], and [37] found that an increase in interest rate would distance some borrowers from having access to credit in some part of Congo and Nigeria.

3. Methodology

This section contains information on the sample size and sampling process, method of data collection as well as the specification of model estimated.

3.1. Sample Size

On the part of the sample size, the sample size of the study was determined based on [38]. A population of 271,233 demand a sample size of 384 using the formula in Equation (1).

$$n = \frac{NP(1-P)}{(B/C)^2\,(N-1) + P(1-P)} \quad (1)$$

Where: n is the sample size, N is the size of the population, B is acceptable sampling error or precision, P is the ratio of population expected to choose, C is the Z statistic associated with a confidence level (1.96) corresponds to the 95 percent level. Thus, $N_1 = 271,233,\ p = 0.5, B = 0.05, C = 1.96$. Following the formula in Equation (1), a sample size of 384 was calculated. Though in line with [39], the sample was increased by 50 percent and become 576 to avoid the problem of sample error and size distortion. Notwithstanding, a lower sample size of 178 was recommended using [40]'s G*power statistical package. For the second population, all the 411 credit beneficiaries were taken in to consideration. It is interesting to note that all the beneficiaries were within the selected study areas. Same goes to third population were all the 45 microfinance banks in the State have taken into consideration.

3.2. Sampling Technique

This study used probability sampling technique. From the beginning, respondents were stratified between those participate in credit market and non-participants, in addition to microfinance banks. The second stratification follows the agricultural zones strata for the selection of the respondents. For the population in the first category, respondents were selected from six local governments namely;

Minjibir, Ungoggo, Dambatta, Gezawa, Wudil and Kura selected from three different agricultural zones. The selection of these agricultural zones is justified by the intention of the research to include different zones in the analysis. This is also augmented by the desire of the study to have different responses from urban, semi-urban and rural dwellers. Moreover, this process creates an opportunity in the research to capture and control for the effect of regional opportunities and differences associated with each zone. This stratification is similar to the technique employed by some previous studies ([41]; [42])

The questionnaires were designed from the strand of literature; and have captured all the necessary information needed for the survey. For the population in the third population of the study, the data was collected from all the 45 microfinance banks in the state using questionnaire with the assistance of the Association of Kano State Microfinance Banks.

3.3. Model Specification

This section contains information on the econometric process and procedures that justify the selection of the tools of analysis for the research. The econometric details governing the discrete choice models have been provided.

The research employed [43]'s discrete choice model. Therefore, in order to satisfy the objective and model the rural credit market, first, credit participation is considered as derivative of the qualities of choice that are specific to the decisions of the farmers and the borrowers' attributes. Drawing lessons from [44]; [45]; [46] and [47], this idea can be presented in Equation (2).

$$Y_i = \beta_i X_i + \mu_i \quad (2)$$

Where: Y_i represents credit participation and, it is, the actual observed dummy variable. Y_i defined as:

$Y_i = 1$ if farmer *i* participates in the agricultural credit market in rural Nigeria.

$Y_i = 0$ if farmer *i* does not participates in the agricultural credit market in rural Nigeria.

Equation (2) represents a binary choice model which involves the estimation of the likelihood of participation Y_i given a group of factors (X_i) which are independent to the farmers. Empirically,

$$L_i = log\frac{P_i}{1-P_i} = \beta_1 + \beta_2 X_1 + \varepsilon_i \quad (3)$$

$ln\frac{P_i}{1-P_i}$ is the log (odds) in favour of credit participation, β_1 is the intercept and β_2 is the slope parameters which reflect the impact of changes in the X_1 on the likelihood of credit participation and ε_i is the logistic random variable. Equation (3) assumes that farmers are bound to choose between two alternatives; that is to participate in agricultural credit market or to use their personal resources for agricultural productions. In this research, it is hypothesized that the probability of the farmers to decide on a particular outcome depends on their attributes. Thus, the estimated empirical model is specified as:

$$ln\frac{PCM_i}{1-PCM_i} = \beta_0 + \beta_1 COM_i + \beta_2 TOL_i + \beta_3 INF_i + \beta_4 ACC_i + \beta_5 PNE_i + \beta_6 OFF_i + \beta_7 TTL_i + \beta_8 RTV_i + \beta_9 REG_i + \mu_i \quad (4)$$

Where: PCM_i is a dummy variable taking a value of 1 if an individual participates in credit market, and 0 otherwise; *COM* is the commercial farming; *TOL* is the application of traditional farming tools; *INF* is the credit information, *ACC* is the bank account; *PNE* is neighbourhood or family credit participation; *TRD* is the farmers' entrepreneurial ability or farmers being engaged in other off-farm businesses; *TTL* is the traditional title or a member of community decision circle; *RTV* is the

ownership of radio and television, *RE2* is the regional dummy representing urban, semi-urban and rural areas; and μ_i is the random variable assuming logistic distribution. Logit Model was employed by previous studies ([48]; [49]; [50])

4. Results and Discussion

This section presents the analysis of credit market participation among farmers in Kano State, Nigeria. Specifically, the effects of regressors relative to credit participation have been thoroughly analysed.

4.1. Correlation Analysis

As a culture of econometric modelling, some key variables are examined with a view to check the correlation between them. In addition, it gives out preliminary understanding of the potential problem of the presence of multicollinearity among variables. The correlation coefficients among variables of the model of this study are presented in Table 1. Moreover, the strength of the correlation between regressands and most of the regressors are moderate.

Table 1. Pairwise Correlation Coefficients of Credit Participation Model

	PCM	**COM**	**TOL**	**INF**	**ACC**	**PAR**	**OFF**	**TTL**	**RTV**	**REG**
PCM	1.000									
COM	-0.017	1.000								
TOL	-0.053	-0.029	1.000							
INF	0.366	0.048	-0.036	1.000						
ACC	-0.076	-0.193	0.053	-0.310	1.000					
PAR	0.257	-0.021	0.083	0.407	-0.365	1.000				
OFF	0.027	-0.054	-0.012	0.046	0.234	-0.109	1.000			
TTL	0.155	-0.026	0.226	0.004	-0.051	0.130	-0.169	1.000		
RTV	0.251	-0.207	-0.229	0.240	-0.162	0.208	0.025	-0.030	1.000	
REG	0.021	-0.121	0.028	0.374	0.051	0.173	0.167	-0.123	0.048	1.000

From Table 1, none of the correlation coefficients is close to 0.8 or -0.8, which is the usual threshold for multicollinearity concerns. Hence, all variables can be retained in the regression model without fear of multicollinearity distorting estimates. The coefficients range from -0.365 to 0.407, indicating weak to moderate associations. Most relationships are weak **(**$|r| < 0.3$), suggesting that the variables are relatively independent

4.2. Results of Agricultural Credit Market Participation

This study adopts Logit regression model in order to achieve the objective of the study. More interestingly, together the reported coefficient estimates in Table 2 turned out clear to explain the relationships between participation in agricultural credit market and the explanatory variables included in the model.

Different Logit models have been presented in Table 2 with some key variables that have not been examined in the Nigerian agricultural credit market. The dependent variable for all the models are measured by a dummy variable that takes a value of 1 if a farmer participates in agricultural credit market, and a value of 0 if otherwise. The coefficients of the estimated Logit model (full model) are presented in the second column of Table 2, while estimates of the restricted Logit model are presented at the second to the last column. The last column of Table 2 presents the average marginal effects of the full Logit model. This is because estimates of the crude Logit model have no clear meaning, but

rather the direction of the relationship of the variables included in the analysis. However, marginal effects can be a very revealing means for briefing how changes in response is related to changes in the covariates. It is also worthy to note that for categorical variables, the impact of discrete changesis computed, and all the interpretations are based on marginal effects as presented in Table 2.

The results presented in Table 2 show that all the variables are consistently significant in all the models at different levels with an exception of *RE3* dummy. The coefficient of *COM* is positively significance at five percent indicating that all things being equal, commercial farmers are more likely to participate in agricultural credit market than subsistence farmers. It follows that as farmer changes from subsistence to commercial farming his chances of obtaining agricultural credit increases. But to what extent the success of a farmer being in commercial farming outweigh the predicted success of subsistence farmer with regard to credit participation has been provided by marginal effects. Therefore, the average marginal effects suggest that given two different type of farmers the predicted probability for commercial farmer to participate in agricultural credit market is 0.09 percentage points higher than a subsistence farmer.

In contrast, the coefficient of *TOL* systematically appears negative in Table 2, albeit significant at one percent. The negative appearance of this variable predicts that the probability of receiving agricultural credit for traditional tools users are likely to goes down by 0.08 percentage points compared to mechanized farmers.

In support of these findings, [51] argued that agricultural stagnation could be related with small scale farming, because of the fact there is little production at relatively high cost, due to the application of traditional tools; as such the cultivation system is exposed to traditional methods which discourage economies of scale. In addition, the importance of modern farm implements has been observed by [44] in Madagascar where on average more than a three-quarter of institutional loans were spent on inputs for crop production, off-farm enterprises and farm implements among others. Therefore, in line with the expectation, the probability of participation in credit market increases with agricultural commercialization, and decreases with the application of traditional tools. Even though similar findings to compare or contrast with this result are rarely found in the literature, as the variables has been included to add value to existing knowledge.

Of notable importance among explanatory variables in Table 2 is the statistical significance of *INF* at one percent. The positive sign of this variable implies that the probability of credit market participation increases with an increase in credit information. More specifically, the likelihood of a farmer being supply with farm credit is 0.20 percentage points higher if he is aware with different source of credit than those without credit information. This finding coincide with the assertion of [32] that the width of the unserved credit by the institutional financial lenders is large due to the lack of credit information. Most farmers in Nigeria are financially discriminated due to lack of access to basic information and awareness regarding farm credit. Evidence shows that only less than 1.5 percent farmers in Nigeria were covered by extension services ([52]). This indicates that agriculture in Nigeria is paralyzed with missing information; hence, the probability of a farmer being served by the lending agencies increases with an increase in information. Even though base on the available literature information as a variable has not been used in similar model in general, particularly in agricultural credit modelling in Nigeria, but the finding may be comparable to other studies. More specifically, is consistent with panel and cross-sectional estimates of [53] that credit availability increases with an increase in information sharing among firms in transition countries. Besides, the importance of information has been stressed in consumer confidence studies ([54]).

As expected, the positive and statistical significance of *ACC* coefficient at five percent suggests that bank-account holders among farmers are more likely to participate in agricultural credit market than non-account holders. However, the probability that account holders would participate in credit market is 0.041 percentage points higher than non-account holders. It follows that lending agencies will be more willing to supply loans to farmers whom they have relations with in order to ensure repayment. Because it may be true that the prime motives for having a bank account is to benefit from the range of financial services including credit. This finding stands with position of [55] that having saving account motivates rural household to apply for credit; and the result is consistent with [6]. This finding is important specifically in agricultural credit modelling in Nigeria.

Table 2. Logit Regression Coefficients

Variables	Coefficients	St. Errors	*p*-value	Odds-R	Restricted	M. Effects
COM	**1.218**	0.454	0.007***	**3.382**	0.782	**0.093**
TOL	**-1.015**	0.283	0.000***	**0.363**	-0.472	**-0.077**
INF	**2.571**	0.364	0.000***	**13.085**	2.153	**0.196**
ACC	**0.533**	0.225	0.018**	**1.704**	0.463	**0.041**
PNE	**0.535**	0.313	0.087*	**1.708**	0.872	**0.041**
TRD	**0.922**	0.347	0.008***	**2.514**		**0.070**
TTL	**0.580**	0.303	0.056*	**1.786**	1.205	**0.044**
RTV	**1.819**	0.399	0.000***	**6.165**	1.809	**0.139**
RE2	**2.881**	0.779	0.000***	**17.827**		**0.234**
RE3	0.569	0.774	0.462	1.767		0.026
Constant	**-7.410**	0.991	0.000***	**0.000**	-5.789	

Note: The Modelsin the third and second to the last column are odds ratios of the full Logit model and the restricted Logit model; whilethe model in the last column is the marginal effects estimated from the full Logitmodel. Credit participation is the dependent variable with a value of 1 for those participate and 0otherwise. *COM* is the commercial farming (1=if commercial farmer), *TOL* is the application of traditional tools (1=traditional tools), *INF*is the credit information (1=if aware with different source of credit), *ACC* is the dummy for bank account holding (1=for having bank account), *PNE* is the credit participation of neighbour or family (1=neighbour or family participant), *TRD* is the farmers' entrepreneurial ability or farmer being engaged on other off-farm business (1=if engaged in other off-business or trade), *TTL* is the traditional title or being part of community decision circle (1=if part of the community decision circle or traditional title), *RTV* is the ownership of radio and television (1=if possessed radio or television), *RE2* is the regional dummy representing urban areas (1=if residence of Dambatta Zone or Zone 2)and *RE3* is the regional dummy representing rural areas (1=if residence of Gaya Zone or Zone 3). ***, **and * donate statistical significance at 1%, 5% and 10% respectively.

Turning to the neighbourhood credit participant, some interesting effect has been noticed. With statistical significance of *PNE* at 10 percent, result in Table 2 re-validates the role of social relations and network in Nigerian credit market. Though it is marginally significance, however, the positive sign of this variable envisages that a higher fraction of neighbours or family with a particular farm credit increases the probability of a farmer having the same loan. This suggests that in a setting where financial assets and human capital has been harshly undersized, these social networks appear to play a fundamental role with reference to information access on politics, social and economic opportunities.

Moreover, given the extent of interpersonal trust that prevails at communal level, neighbours and family relate well in such a way that within themselves circulates vital information with respect to loan opportunities and screening procedure.

Going by that, it is inferred from the statistical evidence that an increase in the fraction of one neighbour or family credit participant increases the chances of credit market participation of a farmer by 0.04 percentage points than other competitors. It is worthy to note that this finding has captured some observable credit phenomena through social ties that have not been captured before in agricultural credit market participation. However, the finding is consistence with other field studies elsewhere ([16]; [56]; [57]; [46]).

In accordance with expected prediction, the positive statistical significance coefficients of *TRD* implies that the more the diversification from the agricultural sector, the higher the likelihood to participate in credit market. Therefore, an increase in off-farming business, increases the probability of credit participation by 0.07 percentage points higher than full-time farmer. This is interesting, because applications of credit by household that engaged in other business in addition to agriculture is more likely to be granted by the lenders in comparison to household solely in agricultural sector. Because of the negative shocks which usually affect farming businesses, this type of farmers could be seen by the lending agencies as capable to guarantee repayment from other source. This is not surprising bearing in mind that Nigeria is a typical country characterized by week legal framework where the contractual enforcement is very poor. As such, lenders favoured clients with diversified economic activities. This finding supports the position of [7] and [21], but disagree with the position of some empirical studies who found that an increase in non-farming activities decreases the demand for credit ([58]; [59]).

With the significance of *TTL* at 10 percent, result indicates that having traditional title in your family or being part of the community decision circle has a positive impact on credit market participation. Even though the coefficient has moderate statistical precision, but it predicts that social capital is very critical in Nigeria's rural credit market. It follows that the probability of a farmer being in the community decision circle to obtain loan is 0.04 percentage points compared with other competitors. This shows that loan application of farmers at high social stratum often has very clear advantages over their counterparts. It appears that lending agencies are generally more willing to release credit to households with high social cadre. As such, community leaders in urban and rural areas find it easier to borrow credit from lending agencies. This is not surprising in Nigeria because the decision to seek traditional title or part of the community leadership is mostly driving by the aspiration of getting economic advantage including access to financial services. Even though finding like this has contribute to the literature of agricultural credit market. But the result may be comparable with other studies that network help to improve credit access ([6]; [60]).

Similarly, the coefficient of *RTV* which is a proxy for luxury assets and wellbeing is significantly different from zero in the model. Therefore, possession of luxury items which signal a household wellbeing impact positively on credit participation. The significant coefficient of *RTV* at five percent infers that the chances of credit market participation increases with an increase in the possession of radio and television. This predicts that the probability of credit market participation increases by 0.14 percentage points with possession of radio and television compared to those without these items. It is interesting to note that in developing world like Nigeria, ownership of luxury assets which represents household fortune through the capability to afford connection fees and electric bills, and also represents household's wellbeing positively affects credit participation. This is because possession of television and radio are advantageous in updating households to acquire information about different sources of institutional credits. Noting that the introduction of this variable in the agricultural credit

market participation link well with the prior studies which reveal that ownership of durable assets is positively related to credit access ([15]; [46]). The finding also concurs with those of [61] that physical infrastructure such as telephone and road-network are likely to increase someone's financial inclusion.
The systematic connection between residents of urban areas and credit market participation remains outstanding. The statistical positive significant coefficient of *RE2*at one percent predicts that farmers in big provinces such as Dambatta Zone rely heavily on borrowing as the accessibility of lending institutions is widespread rather than own capital, relative to households at Rano Zone (reference group). Put differently, in comparison to households located at Rano Zone, the probability of a household to participate in agricultural credit market is 0.23 percentage points higher if he is located in Damabatta Zone. Besides, this finding corresponds to those of [21] and [62], and it reflects the capability of farmers in large province to obtain credit within their complex networks, to benefit from the available bank branches. The inclusion of this variable has yields an interesting finding with respect to location in relation to credit market participation in accordance with the theoretical expectations.

Marginal Effects at Representative Values

Marginal effects at representative values obtained from the logit estimates on Table 3 might therefore often be more informative especially with regard to specific variables. It could be instinctively meaningful while explaining how the impacts of some variables vary by other attributes of the households.

Estimates from Model 1 of Table 3 infers that on average a farmer who engaged in extra business activities has predicted 9.3 percent chance of credit market participation. This indicates that by virtue of engaging in extra off-farming business this type of household has an additional 1.7 percent chance of securing loan compared with result in Table 2. It might be explained that diversified farmers were encourage to undertake large scale production through agricultural mechanization. However, the predicted probability of a farmer who possessed radio and television is 11.2 percent on one hand. It appears that the chances of participation in credit by this type of farmers decreases by 2.7 percent than before. On the other hand, the probability of being included in the credit market increases slightly only by 0.6 percent for traditional tools users among farmers who reside in big province like Damabatta Zone, due to the demand and long queue associated with urban borrowing. However, the chances of securing loan for those with access to different source of credit information increases from 19.6 percent in Table 2 to 21.4 percent in Table 3 provided that they are part of the mechanized farmers. Interestingly, these farmers have gained an extra 1.4 percent to their odds due to their information regarding agricultural loans. However, it is worth noting that the coefficient of *TTL* is statistically not different form zero with respect to other varying characteristics. This might be explained by the fact that too much preferences were given to the community leaders initially making their probability to receive credit inelastic with respect to changes on other explanatory variables.

Table 3. Marginal Effects at Representative Values

Model (1) at TOL= 0.368	**Coefficients**	**Standard Errors**	***p*-value**
TRD	**0.093**	0.030	0.002***
TTL	0.036	0.025	0.153
Model (2) at TOL = 0.368			
RTV	**0.112**	0.023	0.000***
RE2	**0.237**	0.038	0.000***
RE3	0.014	0.031	0.660

Model (3) at COM = 0.099			
INF	**0.214**	0.030	0.000***
RTV	**0.113**	0.022	0.000***

Note: dy/dx for factor levels is the discrete change from base level while Note: *** represents 1% level of significance

5. Policy Recommendations and Future Research

Several policy recommendations have been derived from this study based on the reflections of the findings.

For instance, with the increasing influence of neighborhood participation and traditional title highpoint some imperfections in the working of credit market in Nigeria. While in the presence of well-functioning credit market, social network may not properly work. Therefore, government policies should be targeted towards reducing the effects of social relations and be forward-looking to more well-functioning credit market. This can be achieved through measures that can quickly spread information on the credit availability, application procedure and the source of that particular credit. Apart from increasing credit information through electronics and non-electronics medium, incorporating local heads through community re-orientation programs will be worth noting.

Thus, future researches should employ longitudinal data or time-series data covering several years to confirm the findings of this study. This might have given more flexibility in determining credit participation among farmers in Nigeria.

Fifth, due to the institutional specific differences and shocks associated with financial demand in diverse economies, the empirical results presented in this study could not be straightly extrapolated to other economies for effective policy making. Though the rigorous microeconometric approach used in this study is generally worth. But similar studies of credit market participation and credit rationing that may involve some variables used in this study together with institutional variables where data is available could simply be conceived in different countries. This highlights the need for further cross section study.

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