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Determinants of Participation in Credit Market among the Farmers in Northern Nigeria

¹Yusuf Ibrahim Kofarmata, ²Dr. Shri Dewi Applanaidu, ³Assoc. Prof. Dr. Sallahuddin Hassan

¹Ph.D Candidate, Department of Economics and Agribusiness, University Utara, Malaysia

²Department of Economics and Agribusiness, University Utara, Malaysia

³Department of Economics and Agribusiness, University Utara, Malaysia

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ABSTRACT

As Nigeria continues to strive hard to enhance its key economic indicators, economic growth alone will not be sufficient in tackling absolute poverty in the country. In fact, poverty eradication requires more fundamental issues being addressed, especially access to agricultural credit by the rural poor as a major factor. Agricultural credit is more than just other resources such as fertilizer and machineries where it provides access to all other resources. It improves farm productivity and farm performance, which lead to a remarkable improvement in farm income and farmers' welfare. Therefore, this study examined the key determinants of demand for agricultural credit in Nigeria. The study is aimed at estimating and identifying the socio-economic variables that are responsible for influencing farmers' decision to participate in credit market. In order to achieve the objectives, primary data was sourced through random sampling. This involves the random selections of the localities and the grass root participants. Our finding reveals that those with higher educational qualification among the farmers are more likely to participate in agricultural credit market than those with lower qualification or non-formal educated farmers. On the other side, higher off-farming commitment was also found to reduce the likelihood of participation in credit market. Consequently, the credit participation model in this study recommends for the provision of extension services to the farmers and changes in key agricultural policy, there by encouraging micro businesses in the rural areas.

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INTRODUCTION

One of the major obstacles facing small-scale farmers in Nigeria is inadequate access to working capital, despite the crucial importance of agriculture in the rural communities (Eze & Ibekwe, 2007). Prior to the discovery of oil in commercial quantities, agriculture was the major dominant sector in the economy. It was the major source of revenue and employing over 60% of the active population as well as providing food and raw materials to industries (Anyanwu, Oyefusi & Oikhenan 1997). However, with the discovery of crude oil in 1950s, agricultural contribution to Gross Domestic Product (GDP) began to decline from over 64% in 1970s to less than 39% in 2012 (CBN, 2013).

For the past four decades, as the result of these problems, the successive government in Nigeria has initiated a series of agricultural policies and programs with the ultimate aim of increasing food production and more chances for rural farmers' access to working capital (credit). Some of these programs and policies were the establishment of Nigerian Agricultural and Cooperative Bank (NACB) in 1973, the development of 11 River Basin Development Authorities in 1977, Agricultural Credit Guarantee Scheme (ACGS) in 1977 and Nigerian Agricultural Cooperative and Rural Development Bank (NACRDB) in 2000 (Akanji, 2001). In spite of these efforts and measures, the supply of capital to this important sector is still inadequate, as most of the small scale farmers have been severely constrained in the credit market (Omonona, Lawan & Oyinlana, 2010).

However, because of low output and price uncertainties associated with farming business in the rural areas, farmers in developing economies cannot afford to self-finance. They have been entangled into vicious circle of poverty i.e. low productivity, low income and investment. Therefore, farm credit either from formal or informal market remains the only alternative to them (Wayne, Joseph & Isaac 2000).

Farm credit has been, over the years, recognized as one of the major input for reviving the agricultural sector in Nigeria (CBN, 2005). This is obvious because it increases the level of productivity, farm profit, efficiency and enhances standard of living in the rural areas (Abu, Odoemenem & Oholi, 2011). Therefore,

Corresponding Author: Yusuf Ibrahim Kofarmata, Ph.D Candidate, Department of Economics and Agribusiness, University Utara, Malaysia
E-mail: yusufkofarmata@yahoo.com

farm credit is one of the crucial inputs considered fundamental in agricultural production (Omonona *et al.*, 2010).

Therefore, this study draws inspiration from past studies to empirically assess and analyse the factors that determines the participation of farmers in credit market in rural Northern Nigeria, with reference to Kano State. However, the specific objectives are to identify and explain the socio-economic characteristic of the farmers in the study in the study area and to analyses the determinants of farmers' participation in credit market in Kano State.

Overview of Public Funding in Nigeria:

In order to increase and enhance the flow of banking and other financial services to rural and urban dwellers in Nigeria, successive governments have in the past initiated a series of financial programs/policies targeted at the poor.

Okpara (2010) stresses that cooperative society's ordinance of 1936 was promulgated by the government in order to support the cooperatives and registered associations among the traders and rural farmers. This has made the cooperatives societies have compulsory savings and lending as some of their goals. The Commercial Bill Financing Scheme (CBFS) of 1962 and the Regional Multi-Commodity Board of 1954 (later called National Commodity Boards in 1977) were among the efforts made by the past governments in order to increase farmers' access to lending and other services. According to Iganiga (2006), Nigerian Agricultural and Cooperative Bank (NACB) were established in 1972 in order to develop the financial institution that can extend loans and financial services to small, medium and large scale farmers. Anthony (2010) argues that Agricultural Development Programs (ADPs) of 1975 was launched in order to increase farming production through the provision of infrastructural facilities and additional funding to agriculture. Others are the Rural Banking Scheme (RBS) of 1977, where banks are required to build a specific number of branches in some strategic identified rural areas with a minimum of at least 40% of the total savings mobilized in these banks lent to the borrowers within those areas.

Furthermore, Okpara (2010) also maintains that Agricultural Credit Guarantee Scheme Fund (ACGSF) and Agricultural Credit support Scheme (ACSS) were established in 1977 for the purpose of agricultural risk mitigation, increase funding and to address collateral base asset problems. Under this program, the CBN guarantees up to 75% of the loan in case of defaulting due to natural hazards outside the management of the farmers. Moreover, Babalola and Adenugba (2011) report that the Nigerian Agricultural Insurance corporation (NAIC) was created in 1988 for the provision of insurance facilities to the farmers in order to cushion the risk effect associated with farming, while the Peoples' Bank of Nigeria (PBN) (established in 1989) was aimed at increasing access to subsidized credit and savings in the informal sector.

Akanji (2001) maintains that among the objectives of Community Banking system (CBS) of 1991 was to develop community-banking habit of taking deposit and the provision of small loans to the people including farmers. The Better Life Program (BLP) for Rural Women, Family Support Program (FSP) and the Family Economic advancement Program (FEAP) was also established in 1987 and 1994 in order to improve rural and agricultural women welfare and incomes through capacity development, enhance entrepreneurial skill, increase their competency and increase access to loan Odi (2013).

Babalola and Adenugba (2011) and Odi (2013) added that among the objectives of National Poverty Eradication Programme (NAPEP) of 2000 was to launch a nation-wide employment creation and skills/capacity development schemes in agricultural and non-agricultural production. In the year 2000, NACB, PBN and FEAP were merged to form the Nigerian Agricultural Cooperative and Rural Development Bank (NACRDB) and later Bank of Agriculture (BON) in 2011. Community Bank metamorphosed into the Microfinance Bank on December 15, 2005 under the supervision of the CBN, with the sole aim of providing banking and financial services to the poor (CBN, 2005; Iganiga, 2006; Iganiga, 2008). Moreover, Commercial Agricultural Credit Scheme (CACS) of 2009 was introduced in order to strengthen the commercial agriculture and the provision of loans for the purpose of cash cropping while the Export Financing Rediscount Facility (EFRF) was created for the provision of loan at concessional rate to commercial farmers and urban dwellers.

During the six Republics, within the framework of the Yaraduas' 7 - point Agenda, the National Food Security Programme (NFSP) was launched in August 2008 with the objectives of ensuring sustainability, access and affordability of qualitative food to all Nigerian citizens (FMAWR, 2010). The government committed ₦200 billion in order to provide long-term loan to private organizations joining with the FMAWR as partners. However, the fund was to be distributed through universal banks, while the Agricultural Development Fund (ADF) would provide short and medium term fund and low cost credit to farmers and micro agencies in order to extend cheap loan to farmers. However, Onugu (2012) observed that most of these policies and programs were frustrated by lack of managerial ability, supervision, misused of resources, bribery, corruption, poor policy implementation and coordination.

Literature Review and Empirical Framework:

Capital is generally identified as one of the most important aspect in agricultural production (Oyedele, Akintola, Rahji & Omonona, 2009). The concept of agricultural credit has been thoroughly defined by several researchers.

Atieno (1995) sees agricultural credit as just lending or borrowing primarily for the purpose of agricultural production, which includes lending to individual farmers, farmers cooperatives or associations and also direct lending to government and non-governmental parastatal for on-lending to grass root farmers. Atieno has identified three types of agricultural credit. The long term credit on the other hand, is purposely meant for making permanent improvement of development in the farm or for the purchase of land. It has a repayment period of more than ten years. On the other side, medium term credit is mainly for the development of farm, which includes the purchase of farm inputs such as tractors with a repayment period between two to ten years. Nevertheless, the short term credit which has amortization period of less than two years is meant for the purpose of planting, purchase of other farming inputs (seasonally) or to meet other farming re-current expenditure like labour. These could further be disaggregated in to production loan for the purpose of crop planting or production; investment loan for the purpose of acquiring farming equipment such as the purchase of tractor, harvester; marketing loan for the purpose of meeting financial shortfalls in order to avoid distress sales of agricultural produce and consumption loan for the purpose of meeting other social expenditure which are attached to rural life like ceremonies and festivals.

Capital which is a crucial input among the factors of production is essential for the development of agriculture and rural development. The extent of access to this golden resource will definitely determine farming decision (Badiru, 2010). However, in the absence of capital from the farmers, credit (loanable fund) is an alternative. Traditionally, capital for investment in agriculture comes from two potential sources, i.e. either from the personal savings of the farmers or farm credit (Udoh, 2005). However, because of low productivity and price shocks associated with farming business in less income countries, farmers are sometime entangle in the vicious cycle of poverty i.e. low yield, low profit, low income and investment. Therefore, agricultural credit either from the formal or informal sources remains the major alternatives to enhance farming activities that can help to break the circle (Wayne *et al.*, 2000).

Imodu and Onakspnome (1992) maintain that credit is an essential input in farming activities, because it enhances ability of poor farmers to expand their production and develop their capacity, as this would raise their profit and ability to settle debt. The need for the provision of agricultural loan to farmers and rural areas is universal (Barry & Robison, 2001). This is because, even in highly developed and sophisticated economies, agricultural loan has been a crucial apparatus for the development of agricultural sector by improving competitiveness and increasing production. It is therefore, pertinent to analyze the factors that increase farmers' participation in credit market.

Studies of determinants of participation in agricultural credit market, amount and constrain are still insufficient in developing economies, yet most of the researches available have identified several factors as the key determinants of credit participation and or to demand from a particular source of credit (formal and informal sectors). These include demographic and socio-economics characteristics of the farmers, regional, social capital characteristics, wealth accumulated from past saving, idiosyncratic and covariate shocks among others could affect the credit participation or demand (Mpuga, 2008; Tang, Guan & Jin, 2010; Udoh, 2005; Yu, 2009). These attributes influence household differently, in such a way that what influences the demand, constraints and participation for credit by a particular individual might be different from other individual.

The result of Canonical Variate Analysis (CVA) by Wayne *et al.* (2000) shows that farming experience, qualification, fear of risk, farming capital, and managerial skills were very much significant variables that influence farmers' decision to use agricultural credit or otherwise.

In line with this, Nwaru (2004) examines the rural credit markets in Imo State, Nigeria, and he reveals that credit demand was significantly influenced by interest rate, education, amount borrowed previously, farm size and gross savings. However, the quantity of credit demanded was influenced by age of the farmers, farm size, qualification, distance from the lending agencies, family members and membership of associations.

From the survey study of rice producing women in Akwa Ibom State, Nigeria, Udoh (2005) estimates the demand function of agricultural credit from the informal sources. His finding reveals that farm expenditure, total income of the farmers, interest rate, education, spouse income and experience of farming influence credit demand.

Mpuga (2008) analyses the demand for agricultural credit in Uganda and found that marital status, age, gender, education, family size and location are the most important significant variables that explain the likelihood to participate in credit market. Meanwhile, a study from Yehuala (2008) in Ethiopia indicates that extension services, experience in borrowing, size of land holdings, number of livestock, collateral, and membership of associations were significant variables that increase farmers to participation in formal agricultural credit market.

Furthermore, Tang *et al.* (2010) found that credit participation in rural China is significantly influenced by the family size, farm size and house hold heads' education. However, the impact of these variables differs invariably by the lending agencies. Cost of borrowing negatively and significantly affects formal credit participation. Off-farming commitment, land holdings and interest rate are the most important factors that decrease the likelihood of farmers to participate in credit market.

Demand for credit and participation in credit market can also be affected by the attributes of the household. As stated by Nwaru (2011), farmers' income, qualification and interest rate determine demand for credit, whereas liquidity, experience in lending and interest rate determine the supply of credit in Nigeria. Meanwhile, in a survey study conducted by Balogun and Yusuf (2011) in Southern Nigeria, he found that organizational membership, meeting attendance, money contribution of the membership, heterogeneity membership, family size, distance of the credit suppliers and interest rate are the most significant variables that influence the participation in credit market.

Olaoye, Ashaolu, Idowu, Akintayo and Talabi (2011) examined the determinants of demand for agricultural credit in Ogun State, Nigeria. They found that education and experience are very significant in relations to demand for credit, whereas short amortization period, shortage of credit, collateral requirement, guarantors and bureaucratic bottle neck or tedious paper work were the major obstacles/constraints to the agricultural credit.

Though, most of these studies generally concentrate on the demand of credit while ignoring the real participation of farmers in credit market, hence, there is need for this study. But the role of agricultural credit would not be under estimated. Because of its potentiality of increasing agricultural produce and general performance of the farms, it will be of greater good to analyse the factors associated with farmers' decisions to participation in agricultural credit market or otherwise. An examination of the problem from the perspective of varying attributes among the sampled farmers with regard to their different credit response will bring more light to this study. Characteristics of different farmers provide a chance to contrast/compare decisions, to underline obstacles and problems attached to the agricultural credit.

Methodology:

This study was conducted in three local government areas of Kano State namely; Dawakin Kudu, Kura and Ungoggo, with population as at 2006 of 225,389, 144,601 and 369,657, respectively (National population Commission, 2006). Most inhabitants of the state in rural areas are farmers (producing crops, such as millet, rice, cassava, millet, melon, sorghum, wheat, sugarcane, groundnut, cassava, and cotton), trader, administrator and other business activities (Okoro & Ujah, 2009). Kano State is chosen because it was regarded as the most extensively irrigated state in the country and has more than three million hectares of cultivable land or more than 18,684 square kilometers (MOE, 2011).

The study population was defined as a group of farmers who have registered with Kano State Agricultural and Rural Development Authority (KNARDA). Based on the official records obtained from KNARDA, 5700 farmers officially registered with agency in each one of the 44 Local Government Areas (LGAs) of the State. This database was used in determining the sample size of this study.

A two-stage cluster sampling technique was used during the survey for the selection of the respondents. The first stage which is called primary unit involves the random selection of one LGAs from each of the three KNARDA zones i.e. Dawakin Kudu from Gaya zone, Kura from Rano zone, and Ungoggo from Danbatta zone, respectively. The second stage, which is called secondary unit, involves the random selection of 57 respondents out of 5700 farmers from each of the three local governments areas to make 171 respondents.

Primary source of data has been used for the purpose of this study. This involves the use of structured questionnaire that has been administered on 171 respondents from the three LGAs of Kano State. It was designed in such a way that will capture the demographic and socio-economic variables of the sampled respondents within the study area.

Since the dependent variable is qualitative in nature which is credit participation or otherwise, binary choice model was adopted for the econometric analysis. To examine the impact of farmers' characteristics on the credit participation, the research estimated logit model for the decision to participate in credit market. Then, the estimable equation is shown by Equation [1].

$$[1] \quad CRP_i = \beta_0 + \beta_1 AGE_i + \beta_2 MAS_i + \beta_3 QLF_i + \beta_4 EXP_i + \beta_5 OCC_i + \varepsilon_i$$

where CRP is credit participation defined by individual i participate in credit market if $CRP = 1$ and individual i does not participate in credit market if $CRP = 0$; AGE is the farmer age in years; MAS represents the marital status of the farmers (1 for male and 0 for female); QLF is the educational attainment of the respondents; EXP represents the years the farmer spent in farming business; OCC is the current occupation of the farmers; and μ_i is the white noised error term.

The assumption made was that farmers are faced with a choice between two alternatives; that is to look for credit or to use their personal savings for agricultural productions. In this research, it is hypothesized that the probability of the farmers deciding on a particular outcome depends on their attributes

RESULT AND DISCUSSION

Table 1 shows the demographic characteristics of the respondents. The results in this Table reveal that 59.06% of the sampled farmers are youths between the ages of 21-39. Only 14.62% of the respondents are above 50 years and 7.02% below the age of 20, and the mean age is 36 years. This means that the respondents in the study area are below the middle age, implying that farming business in the study area is no longer the issue of elderly class. In addition, 60.82% of the respondents are married, and 39.18% are single farmers while the average mean of dependent per household head, years of farming experience, land holdings and farming income was 7, 19 year, 2.63 hectares and ₦160,256.4, respectively.

An inspection on Table 1 further indicates that 51.46% of the respondents practice combined farming system that is for subsistence and commercial purposes. This almost doubles the respondents that are engaged in either subsistence or in commercial farming which accounted for less than 26% and 24% respectively. Though farming system is a new variable introduced in to the model, yet the result is in line with the expectations that some farmers in the study area had no off-farming business. Hence, they are likely to resort to combined system of farming.

Table 1: Demographic Characteristics of the Respondents.

VARIABLE	RANGE	FREQUENCY	PERCENTAGE
Age (years)	≤ 20	12	7.02
	21 – 29	50	29.24
	30 – 39	51	29.82
	40 – 49	33	19.30
	≥ 50	25	14.62
Marital Status	Married	104	60.82
	Single	67	39.18
Households Size	≤ 5	76	44.44
	6 – 10	47	27.49
	10 – 15	24	14.04
	16 – 20	15	8.77
	≥ 21	9	5.26
Farming Experience (year)	≤ 10	36	21.05
	11 – 20	87	50.88
	21 – 30	21	12.28
	31 – 40	17	9.94
	≥ 41	10	5.85
Farming System	Subsistence	43	25.15
	Commercial	40	23.39
	Combined	88	51.46
Farming Income (Naira)	≤ 100,000	91	53.22
	100,001-200,000	59	34.50
	200,001-300,000	0	0.00
	300,001-400,000	10	5.85
	≥ 400,001	11	6.43

Evidence from the statistics on Figure 1 reveals that 38.01% of the total respondents have attended tertiary institutions and 33.33% had secondary qualifications, while 20.47% respondents are without formal education. This is a clear indication that individuals with postgraduate knowledge are now part of the farming society. Implying that, their probability to participate and utilize farm credit is very much higher.

It was inferred from Figure 2 that only 25.15% among the respondents have participated in credit market, while 74.85% source their capital from other sources different from credit market. Assuming these percentages to be the relative frequencies of each group, these can be converted into probabilities of participating in agricultural credit market using rule of thumb. Hence, the probability of getting loan is 0.25 and the probability of not getting a loan is 0.75.

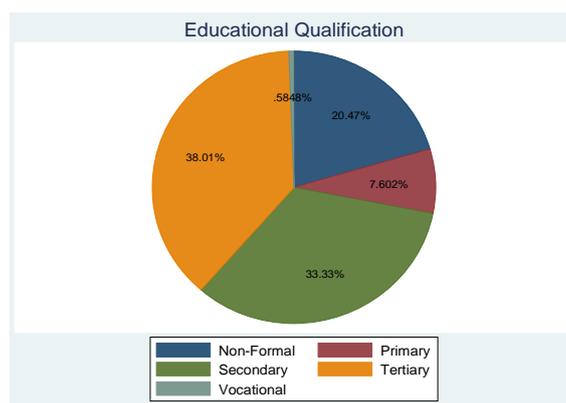


Fig. 1: Educational Qualification of the Respondents.

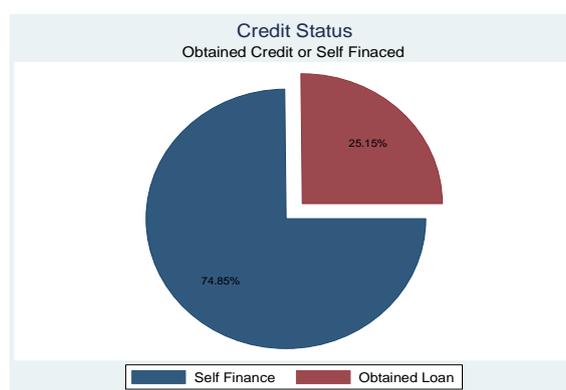


Fig. 2: Credit Status of the Respondents.

Table 2 presents the result of the logit model for participation in agricultural credit market. Four variables, namely secondary, tertiary, civil servant, and self-employed, out of the nine variables that were included in the model are statistically significant at 90% or 99% levels, but all of the variables that are included in the model appeared with the corrected signs as expected.

Table 2: Determinants of Participation in Credit Market – Logit Estimation.

Explanatory Variables	Coefficient	S.E	t-value
Age	-0.020	0.041	-0.488
Marriage	-0.258	0.599	-0.431
Secondary	1.577	0.826	1.909*
Tertiary	2.377	0.861	2.761**
Experience	0.048	0.033	1.455
Business	-1.149	1.038	-1.107
Civil servant	-1.971	1.140	-1.729*
Student	-1.096	1.149	-0.954
Self-employed	-2.049	1.231	-1.665*
Constant	-1.281	1.395	-0.918

Number of obs = 148

LR chi² (9) = 15.040

Prob > chi² = 0.090

Log likelihood = -72.246

Pseudo R² = 0.094

Note: * and ** = mildly significant at 90% and highly significant at 99% respectively. Excluded categories in the regressors are the non-formal educated farmers and unskilled labourers.

As hypothesized and expected that, human capital variables such as educational qualification positively affect the decision to participate in agricultural credit market. Qualificational variables that is secondary and tertiary was positively statistically significant at 90% and 99% levels, respectively. It implies that increasing either of these variables is likely to increase the farmers' probability to participate in agricultural credit market. This suggests that an additional qualification above secondary or any additional level of education at the tertiary level *ceteris paribus*, will increase the likelihood to participate in agricultural credit market by 158% and 238% compared with non-formal educated farmers (the excluded category). This finding is consistent with the result of Tang *et al.* (2010) and in line with Nwaru (2004, 2011), who explains that educated farmers are more

acquiescent to risk taking than non-educated ones because they are better equipped to access, appraise, and understand improved farming techniques. Hence, they are likely to demand for agricultural credit.

The negative significance of the occupational variables suggests that, civil servants and individuals that are self-employed are 197% and 205% less likely to participate in agricultural credit market compared to unskilled laborers (the excluded category). As expected, the probability of not obtaining credit from the civil servants is negatively but statistically significant at 99%. This implies that, the longer for the civil servants stay in service, the more they become promoted and accept more responsibilities; hence, they are less likely to fully participate in farming practice. This result is consistent with the finding of Tang *et al.*, (2010) that individuals with higher off-farming occupation are less likely to participate in agricultural credit market.

In binary dependents models, goodness of fit is always of secondary importance, what matters in binary regressand models are the expected signs of the regression coefficients and their statistical and or practical significance (Gujarati & Porter, 2009). Therefore, one should not over play with it. Looking by the significance of the LR statistic, the least value of log likelihood ratio, the expected sign of the regression coefficient and their statistical significance, reinforces the fact that the model is of good fit.

Conclusion and Policy Implications:

The study titled determinant of participation in agricultural credit market in Northern Nigeria was conducted in three local government areas of Kano State. The rationale for the study are to describe the socio-economic characteristics of the farmers and to examine the factors influencing farmers' participation in credit market. The finding of the study reveals that only 25% of the farmers that have participate in agricultural credit market while the 75% did not partake in credit market. The econometric analysis shows a positive relationship between educational qualification and participation in credit market and negative relation with off-farming commitment and business by the farmers. Based on the implication of the findings the study recommends for the provision of extension services to the farmers at various levels so as to increase the level of their awareness regarding the agricultural credit. Policy makers should also encourage micro businesses in the rural areas. This will help farmers to innovate, increase their incomes and expand the rural market.

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