



GLOBAL JOURNAL OF SCIENCE FRONTIER RESEARCH: D  
AGRICULTURE AND VETERINARY  
Volume 14 Issue 10 Version 1.0 Year 2014  
Type : Double Blind Peer Reviewed International Research Journal  
Publisher: Global Journals Inc. (USA)  
Online ISSN: 2249-4626 & Print ISSN: 0975-5896

## An Analysis of Credit Utilization and Farm Income of Arable Crop Farmers in Kwara State, Nigeria

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*GJSFR-D Classification :* FOR Code: 070106



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# An Analysis of Credit Utilization and Farm Income of Arable Crop Farmers in Kwara State, Nigeria

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**Abstract-** This article assessed credit utilization among arable farmers in Kwara state, Nigeria and its influence on farm income. The data analyzed were collected from 100 farmers purposively sampled. Despite an average of 11 years experience, 47% of the farmers have not benefited from agricultural credit. Average income per hectare for farmers who were able to access funds for their farm business was higher (₦52,000/\$325) than for those who did not (₦35,430/\$221) however, average loan granted (₦55,550/\$347) was lower than applied for (₦77,900/\$486). Lack of collateral was a major limitation for sourcing for credit. Factors determining farmers' decision to use credit included household size, use of hired labour, cooperatives participation, awareness of credit sources, past loan size, possession of collateral and proximity to the credit lending institution. Policies and programmes directed at enhancing these factors will increase farmers' decision to use agricultural credit.

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## I. INTRODUCTION

In most parts of Sub-Saharan Africa, expanded crop production has been due to expanded planting farm areas for staple crops than from yield increases (Phillip *et al.*, 2008). The implication of this had been large outlays of financial requirements of the farming folks for the needed assets which are predominantly land and labour. Poor farmers tend to resign to subsistence farming because of their inability to acquire required credit support to keep in business (Ammani, 2012). Financing agriculture involves lending money to farmers to stimulate the productivity of the limited farm resources (Muniraj, 1987; Adegeye and Dittoh, 1985; Osuntokun, 1992). Eswaram and Kotwal (1990) suggested that the provision of agricultural credit makes available additional capital that can be used to enhance the level of household's productive and physical capital. Access to credit is expected to enhance farming households' ability to acquire capital intensive

technology and assets to facilitate and improve farming activities resulting in greater capacity to invest in cultivation of high yielding crops and larger farm holdings (Nwankwo, 1983; Palmer and Ojo, 1983; Feder *et al.*, 1985; Emereole, 1995; Nwaru, 2004; Nwaru and Onuoha, 2010; Ammani, 2012). This may in turn lead to efficient resource allocation, increase farmers' technical efficiency and, by implication, increase farmers' profitability. Similarly, Qureshi *et al.* (1996) observed that an increase in credit to agriculture will lead to increase food production and farmers' income because as the demand for credit increases, farmers output also increases, resulting in improvement in their well being. Nwaru and Onuoha (2010) further observed that when agricultural credit is properly extended and utilized, it encourages diversification which stabilizes and often increases resource productivity, agricultural production, value added and net incomes of farmers. Credit is therefore a necessary input in the various aspects of farm operations. Agricultural production needs to rise at least by some six percent per annum for Africa to be able to meet its food needs and for African agriculture to become a real motor for economic development ((Okuneye, 2001; Enweze, 2006).

Nigerian agriculture is abysmally under-financed. Currently agriculture accounts for about 40 percent of the GDP, yet it receives only one percent of total commercial bank loans (Global Agricultural Information Network [GAIN] 2011). This is significantly below the level of other developing countries, e.g. Kenya and Brazil which reportedly registers 6 percent and 18. In Nigeria, 85 percent of the total food production is left in hands of small – scale farmers (Okuneye, 1997) and production employs crude technologies and is labour intensive with little or no forms of savings or storage facilities. With poor socio-economic and production characteristics of the farmers, inconsistent and unfocussed government policies, poor infrastructural base, low level of agricultural investment, poorly developed agricultural research system, under-developed land property rights, low level of technology, inefficient use of resources, natural disasters and lack or insufficient access to credit and other production resources interacting in a synergism to restrict the agricultural sector, the result is low production, low farm income, high prices of food items, inflation,

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underdevelopment and concomitant poverty (Okuneye, 2001). The Federal Government has continued to broaden the economic base of the country through revamping of the agriculture sector. It is anticipated that this will alleviate poverty and generate employment within the nation. The provision of adequate finance, therefore, becomes a necessity to facilitate the extent to which planned projects and programs could be executed in public finance (Adegbite *et al.*, 2008). Farmers were to source credit from commercial and agricultural banks, cooperative societies and government initiated public agricultural credit institutions and schemes. However, only about 11 percent of rural farmers source credit from these formal sources (World Bank 2000; Ammani, 2012). Poor awareness and access to credit coupled with poor fund utilization and repayments have been posited as the major factors militating against the success of existing credit schemes (Binswanger *et al.*, 1993; Agbor, 2004; Phillip *et al.*, 2008). In modern farming business in Nigeria, beyond poor access, efficient utilization of credit is fast becoming a major factor limiting farm productivity and income (Ololade and Olagunju, 2013). It is against this background that this study assessed the determinants of credit utilization and its influence on farm income.

## II. RESEARCH METHODOLOGY

The study was carried out in Irepodun Local Government Area of Kwara State, South-West Nigeria. Kwara state has an area of 35,705 square kilometers and 3,570,500 hectares of cultivable land, making it the largest in South-West Nigeria (Nigeria Bureau of Statistics [NBS] 2009). The study location is within the humid tropical climatic zone of Nigeria, with rainfall as high as 199.1mm which encourages significant agrarian activities. Of the 16 local governments in the state, Irepodun is among the top 6 largest with a population of over 150,000 persons, majority of which practice farming either as primary or secondary occupation (NBS, 2009). Significant cultivation of arable crops such as cassava, maize and leafy vegetables take place in the study area.

Primary data were collected from 100 arable crop farmers growing both maize and cassava (representing arable crops). The farmers were purposively selected. Data gathered were analyzed using descriptive statistics and the Logit regression model.

### a) Model specification

The choice of the logit model is because the dependent variable is a dummy. Following Gujarati (1998), the model is specified as follows:

$$\ln(P_i/(1-P_i)) = \beta_0 + \beta_1 X_1 + \dots + \beta_{17} X_{17} + e_i.$$

Where:

$P_i$  = probability of farmer's decision to access and utilize credit for production

$1-P_i$  = probability of not utilizing credit for production

$\beta_0$  = Intercept

$\beta_i$  (1,2,3,...,17) = Regression coefficients,

$X_i$  (1,2,3,...,17) = Independent variables, and

$e_i$  = error term.

The independent variables specified as factors influencing farmer's decision to access and utilize credit for production and are defined below:

$X_1$  = Gender (Dummy: 1=male, 0=female)

$X_2$  = Age (years)

$X_3$  = Household size

$X_4$  = Education (Dummy: 1=sec.more than sec. edu., 0=less than)

$X_5$  = Farming experience (years)

$X_6$  = Cultivation of other crops besides maize & cassava (Dummy: 1=yes, 0=no)

$X_7$  = Farm size (Ha)

$X_8$  = Labor type (Dummy: 1=Hired, 0=family)

$X_9$  = Labor Cost (₦)

$X_{10}$  = Farm Income (₦)

$X_{11}$  = Other Income (₦)

$X_{12}$  = Cooperative membership (Yes= 1, No=0)

$X_{13}$  = Awareness of credit source (Dummy: 1=yes, 0=no)

$X_{14}$  = Past Loan size (₦)

$X_{15}$  = Collateral Need (Dummy: 1=yes, 0=no)

$X_{16}$  = Loan Interest (%)

$X_{17}$  = Distance to credit source (km)

## III. RESULT AND DISCUSSION

### a) Results of descriptive statistics

Results in Table 1 shows that the majority of the farmers in the study area are above 40 years old (63%) and they are mostly male (73%). The predominance of male farmers is an indication that agribusiness is generally labour intensive and still a strenuous enterprise in Nigeria (Babalola, 2014). Furthermore, the tedious and time-consuming nature of the cultural practices involved in arable cropping discourages most prospective female entrances into the business. The majority of the respondents (63%) had up to secondary education which shows considerable literacy level among the farmers in the study area. This is expected to positively influence their adoption of innovations and utilization of credit (Siyanbola, 2012). Average household size was greater than 6 members. This is above the national average of approximately 5 (Babalola, 2014; NBS, 2009). Household size is expected to vary directly with expenditure (Babalola and Babalola, 2013; Gebremedehin and Scott 2003), thus, with increasing household size, the more likely that

farmers will divert funds originally meant for farm production to cater for domestic household needs. In corroboration with good literacy level, farmers' experience in farming is expected to increase quality and quantity of output by reducing postharvest losses and increase the use of technology. The results showed that, averagely, farmers have up to 11 years farming experience which is relatively long enough for them to

have gained mastery of the enterprise having passed through more than ten production cycles. Although, about 64 percent of the farmers were aware of where to source for agricultural credit and 53 percent have actually sourced for credit, some 36 percent still lack awareness and up to 47 percent have not benefited from agricultural credit.

*Table 1* : Farmers' personal characteristics

Characteristics	Mean ( $\pm$ SD)	Freq n=100	(%)
<i>Gender:</i> Male		73	73
Household size	6.68 ( $\pm$ 2.51)		
Age (years)	45 ( $\pm$ 9.99)		
<i>Educ. level:</i>			
Below secondary		37	37
Secondary & above		63	63
Farming Experience	10.5 ( $\pm$ 6.10)		
farm size	2.68 ( $\pm$ 1.44)		
Belong to Cooperative		52	52
Awareness of credit source		64	64
Sourced/ used credit		53	53
<i>Major income:</i> farm		63	63
*GFI/ season	97,815 ( $\pm$ 45,700)		
<i>Major occupation:</i>			
Farming		59	59
Non- farming		41	41

\* GFI (Gross Farm Income) in naira, N1~ \$ 0.00625

Source: Computed from Field survey (2014).

Furthermore, 52 percent of the farmers participated and have benefited from cooperative membership, 48 percent still do not participate. The importance of cooperatives in providing credit to farmers has been detailed in past studies (Ololade and Olagunju 2013; Nto *et al.* 2011; Ayinde *et al.* 2008). The major occupation of most (59%) of the respondents was farming. Average farm size was 2.68 hectares and average farm income per season was ₦97,815 (approx. \$611). If farming households (average 6 members) without other source of income were to live solely on the farm income for a minimum cropping season of 4 months, individual member of the household will be living below poverty line of \$1 per day. Efforts to

increase farm income therefore are germane in the study area.

Results in Table 2 show the distribution of farmers by awareness of sources of credit. Most of the farmers are aware of the micro-finance bank (60%) and cooperatives (60%) as sources of credit. It is interesting to note that many of the farmers (63%) are not aware of the possibility of sourcing for funds from the Bank of Agriculture (BOA) whose primary mandate is to finance agricultural activities. The most popular informal source of credit among the farmers (46%) was the money lender scheme. Most of the farmers (60%) reported that they got to know about the credit sources through radio programme (Table 3).

*Table 2* : Distribution of farmers by awareness of sources of credit

Credit sources	<sup>†</sup> Freq for	%
<i>Formal sources:</i>		
State govt agric fund	39	39
Micro-finance Banks	60	60
Cooperatives	60	60
Bank of Agriculture (BOA)	37	37
Commercial Banks	14	14
Non-government Organizations NGOs	18	18
<i>Informal sources:</i>		

Produce buyers	40	40
Thrift Collections	39	39
Money lenders	46	46
Friends & family	24	24

*†existence of multipleresponse*

**Table 3 :** Distribution of farmers by media of information of credit sources

Sources of information	†Freq	%
Radio	60	60
Newspaper	42	42
Extension agent	22	22
Research centre	5	5
Cooperatives	52	52
Friends/Relatives	35	35

*†existence of multiplerespons*

The expected effort of the extension agents in providing farmers with useful information relating to agricultural financing and fund management to facilitate commercial production appears to be poor in the study area with only 22 percent of the farmers claiming to have sourced information through extension service.

Results in Table 4 shows that 83 percent of the farmers utilized the loan given to expand their existing farm business. The results also showed that all the

beneficiaries utilized the loan given for agricultural purposes therefore, with more funding commercialization will be encouraged among the farmers. Previous experience of the farmers as recorded in Table 5 showed that 61 percent had applied for loan some times in the past but only 25 percent got the loan as at when needed and only 24 percent paid back as expected despite the fact that they could pay back by installment.

**Table 4 :** Distribution of farmers by mode of utilization of credit if and when accessed

Mode of utilization (n=53)	†Freq	%
To start a new farming business	12	22.6
To expand existing farming business	44	83.0
To fund the regular cultural practices	20	37.7

*†existence of multiple response*

**Table 5 :** Distribution of farmers by their experience with credit

	†Freq	%
Past application for loan	61	61
Got credit as at when needed	25	25
Paid back as expected	24	24
<i>Repayment mode:</i>		
Installment	43	43
Full payment	12	12
Present application for loan	60	60
Qualify for loan	57	57
<i>Present loan beneficiary:</i>		
*Amount applied for (mean)	77,900(±10,050)	
*Amount granted (mean)	55,550(±7,250)	
Need for collateral	57	57
<i>Type of collateral:</i>		
Land	21	21
Building	5	5
Farm asset	18	18

*†existence of multiple response; \* in naira, ₦1 ~ \$ 0.00625*

Out of the 60 farmers that have currently applied for loan, 57 qualified and 53 were granted. However, average loan applied for was ₦77,900 (approx. \$486) but average loan granted was ₦55,550

(approx. \$347). The fact that farmers were not granted the amount of loan applied for and as at when needed, given that agriculture is a time sensitive enterprise, may be responsible for poor repayment response. The need

for collaterals for loan acquisition (especially land asset) was expressed by most of the farmers (57%). Thus, poor farmers who do not have the required asset for collaterals are not able to access credit.

Results in Table 6 shows that average income per hectare for farmers who were able to access and

use funds for their farm business was higher (N 52,000) than income per hectare for those who did not utilize borrowed credit (N35,430). Lack of collateral was reported by the majority of the farmers (74%) as the limitation for sourcing for credit (Table 7). This result is consistent with the findings of Philip *et al.* (2008).

*Table 6* : Income analysis by credit utilization

	Average income N	Average income per Ha N
Farmers with credit utilization	101,907	52,000
Farmers without credit utilization	86,750	35,430

*Table 7* : Distribution of farmers' by limitation to sourcing credit

Limitations	†Freq	%
Fear of inability to pay back	11	11
Lack of collateral	74	74
Lack of awareness of credit source	36	36
Inability to access credit source	46	46
None	16	16

*†existence of multiple response*

*Source: Field Survey, 2014*

#### b) Factors influencing agricultural credit utilization

The data on the determinants of farmers' utilization of agricultural credit were analyzed, using the logit regression model. A number of variables were hypothesized to determine the farmers' decision to utilize agricultural credit in the study area such as socio-economic, farm-level, institutional, awareness variables. The result of the logit model analysis is presented in Table 8. The significance of the diagnostic statistics (chi-squared and log-likelihood values) shows a good fit for the model.

The result showed that the significant and positive determinants of farmers' decision to utilize credit include use of hired labour ( $p < 0.1$ ), participation in cooperatives ( $p < 0.05$ ), awareness of credit source ( $p < 0.1$ ), past loan size ( $p < 0.05$ ) and possession of collateral ( $p < 0.05$ ). In other words enhancing these factors enhances farmers' decision to use credit. Labour costs constitute a significant portion of the cost of production (Ammani 2012) therefore, as farmers

increase scale of production, more funds will be required to hire labour.

Apart from lending out loans to members from members' contributions, the activities of the cooperative societies in helping members secure loan from lending institutions is well known (Babalola 2014; Ololade and Olagunju 2013; Siyanbola 2012). However, many of the farmers still do not participate in cooperative activities (Table 1). Furthermore, significant and negative determinants of farmers' decision to utilize credit include size of their household ( $p < 0.05$ ) and distance away from the credit source ( $p < 0.05$ ). Conversely, reducing these factors will enhance farmers' decision to use credit. The negative influence of large households may be as a result of the action of the credit lending institutions setting a benchmark for the household size of beneficiaries so as to curtail loan diversions. Furthermore, farmers with large households often source farm labour from the households thus saving the huge amount that would have been spent on hired labour.

*Table 8* : Determinants of credit utilization

Variables	Beta Coeff.	S.E.
Gender	0.626	1.665
Age	-0.059	0.128
Household Size	-0.878**	0.456
Education	0.158	1.738
Farming experience	-0.132	0.141
Cultivation of other crops	3.077	2.579
Farm size	0.797	0.517

Labor type	5.062*	2.822
Labor Cost	-0.006	0.017
Farm Income	-0.004	0.024
Other Income	0.273	1.797
Cooperative participation	0.44**	2.778
Awareness	4.230*	2.912
Past Loan size	0.065**	0.027
Possession of Collateral	5.530**	2.846
Loan Interest	0.100	0.192
Distance	-1.738**	0.726
Constant	-4.394	7.458

\*Sig at 10%, \*\*Sig and 5%; Nagelkerke  $R^2 = 0.847$ ;

-2 Log likelihood = 29.163\*\*; Chi-square = 87.489\*\*

#### IV. CONCLUSION AND RECOMMENDATIONS

This study assessed credit utilization among arable crop farmers in Kwara state, Nigeria and its influence on farm income. Major occupation among respondents was farming however, farm income was generally low. The study showed that utilization of credit increased farmers' income. The most popular source of credit among the farming folks was the micro-finance bank and most of the farmers who sourced for credit did so to expand existing farm enterprise however, Loan repayment was poor among the credit beneficiaries. The need for land asset as collateral was reported as major limitation to accessing credit among the farmers. Factors determining farmers decision to use credit included size of household, use of hired labour, membership of cooperatives, awareness of credit sources, past loan size, possession of collateral and proximity to the credit lending institution.

Based on the research findings, it is recommended that government and other stakeholders' efforts should be directed towards policies and programmes that will further enhance those factors that increase farmers' decision to use agricultural credit. The extension agency, cooperative societies and research institutes are well appropriate organs for educating and disseminating agro-allied information and raising awareness. Thus, in collaboration with the financial institution especially the Bank of Agriculture and commercial banks, awareness and education on credit sourcing and management should be incorporated in their package for outreach to the farming folks. Policy arrangement to enable poor farmers, without appropriate landed properties for collateral, to access funds for farming activities should be put in place.

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