

Impact of Credit Access on Crop Farmers' Well-being in Osun State, Southwestern Nigeria

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Abstract

The role of credit in improving the well-being of farmers cannot be overemphasized and it has been discovered to be of great importance for the development of agriculture in Nigeria. Unfortunately, there has been low rate of its accessibility which consequentially affecting well-being of farmers in rural area. This study thus investigated the impact of credit access on crop farmers' well-being in Osun state, Southwestern, Nigeria and data were collected using structured questionnaire administered to 150 farmers selected by multistage sampling techniques. The result shows that the crop farmers were in their active economic productive age with mean age 41years and majority obtained credit from Agricultural Credit Cooperative. Determinant factors influencing crop farmers' access to credit in the study areas were age ($p < 0.10$), marital status ($p < 0.05$) and years of membership in farmers' association ($p < 0.01$) while significant credit variables affecting farmers' well-being were amount of credit needed ($p < 0.01$), credit purpose ($p < 0.01$), credit ration ($p < 0.01$), interest rate ($p < 0.10$) and disbursement lag ($p < 0.01$). Thus, the study recommended that farmers should be encouraged to form groups for credit accessibility and use it for the farming purpose meant for to improve their well-being.

Keywords: Credit, Credit Status, Credit Access, Well-being, Crop Farmers.

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1.0 Introduction

Agriculture has remained the dominant contributor to the rural sector of the Nigerian economy owing to its source of employment to about 60% of the workforce and array of commodities produced across the different regions of the country. Similarly, the production supported by its high population density, diverse and favourable climatic conditions, rich soil type has placed Nigerian in vantage position in the production of certain crops (notably cassava, yam cowpea), livestock and fishing in Africa (Abdullahi, 2003, Manyong et al, 2005). Today, Agriculture in Nigeria is increasingly recognized as central to sustainable economic development as it plays a very significant role in addressing food insecurity, poverty and human development challenges (Amaza and Maurice, 2005). In the bid to meet food production target however, farmers are particularly in need of credit for investment in agriculture towards expanded production and boosting the country's food self-sufficiency ratio.

According to Adegeye and Dittoh (1985), credit is described as the process of obtaining control over the use of money, good and services in the present in exchange for a promise to repay at a future date. Williams *et al.* (2007), defined credit as the trust which allows one party to provide resources to another party where that second party does not reimburse the first party immediately, thereby generating a debt, but instead arranges either to repay or return those resources (or other materials of equal value) at a later date. Credits may be financial or they may consist of goods and services (Ashaolu *et al.*, 2011). It accessibility plays a crucial role in agricultural rural development, productivity, growth, economic of scales, food security, utilities to satisfy wider market and standard of living by breaking vicious cycle of poverty (Ololade and Olagunju, 2013; Ayegba, 2013; Ugwumba and Omojola, 2013). Credit has capacity to facilitate optimal input use unlike credit-constrained farmers who are more likely to use lower levels of inputs in production (Omonona *et al.*, 2010; Benjamin *et al.*, 2015). The facilitation of optimal use of inputs generates precursor for increased productivity, income and enhanced wellbeing. Wellbeing has been defined as a dynamic state that is enhanced when people can fulfil their personal and social goals... both in relation to objective measures, such as household income, educational resources and health status; and subjective indicators such as happiness, perceptions of quality of life and life satisfaction (Statham and Chase, 2010). Though, this may depend on the impact of economic activities in which the farmers are involved and what enhances the well-being of a particular farmer may be of negative impact to others.

Most farmers in rural communities live in squalor and very poor standard of living which are attributed to lack of enhanced social well-being or scarcity of human basic needs. This worsening standard of living of farmers in the country can be traced to a number of factors ranging from lack of access to endowments such as employment, education, health care facilities, good food, potable water, proper sanitation system, poor infrastructural development, and inadequate access to land and capital or credit (Bola, 2012). These factors had remained disincentive to most farmers in their effort to increase productivity and improve their well-being (CBN 2002;

Ugbajah, 2011). In recognition of the importance of credit access to adoption behavior and improved productivity of farmers, there have been several initiatives targeted at facilitating access of farmers to micro-credits. These efforts were more pronounced with the Agricultural Transformation Agenda (ATA) of the immediate past regime with such schemes such as the Growth Enhancement Support (GES) scheme, outgrowers' scheme or contract farming and other programmes targeted at commodity value chain development (infrastructure development, capacity development, science and technology, access to financial services). The targets of these schemes are conspicuously itemized in the policy documents establishing these various schemes, but worthy of focus is the ability of these schemes to achieve the stated objectives. This study is thus designed to assess the status of the access of farmers to credit, its determinants and the effect on well-being of farmers.

2.0 Methodology

The study was conducted in Osun State, Southwestern Nigeria. The state comprises of thirty Local Government Areas and it is located between longitudes 4°15' to 4°45' east of the Greenwich Meridian and latitude 7°35' to 7°55' north of the equator. Osun state lies towards the west and east of Ekiti and Oyo State respectively. It is bounded in the north by Kwara state and in the south by Ondo State respectively. The state exhibits two distinct seasons: these are the rainy season which starts from early or mid-April to October and the dry season from November to March. Primary data were collected for this study with the aid of well-structured questionnaire from 150 farmers selected by multi-stage sampling technique. The first stage was random selection of one Osun State Agricultural Development Programme (OSSADEP) zone. The second stage was random selection of three local government areas from the zone while the third stage was random selection of one hundred and fifty farmers from the list of farmers obtained in OSSADEP office for the study. Data collected were analyzed using descriptive statistics such as frequencies, percentages and means while logit and tobit regressions were specified to examine the determinants of credit access and the effect on well-being of farmers respectively

3.0 Analytical Framework

3.1 Logit Regression Model

The term "logit" refers to the natural logarithm of the odds (log odds) which indicates the probability of falling into one of two categories on some variable of interest (Wooldridge, 2009). It is a univariate binary model use given that the dependent variable is dichotomous. According to Harrell (2001), binary logit has only two categories in the response variable, that is, 0 when a farmer is having no access to credit and 1 when having access to credit. In this study, since only two options are available, namely "access to credit" or "no access to credit" a binary model will be set up to define $Y=1$ for situation where the farmer accessed credit and $Y=0$ for situations where the farmer did not access credit from either formal or informal credit sources. Predictor variables are a set of socioeconomic and demographic status indicators and dwelling endowment of the farmers. They contain both dichotomous and continuous variables. Assuming that X is a vector of explanatory variables and p is the probability that $Y=1$, two probabilistic relationships as stated by Wooldridge (2009) can be considered as follows:

$$P(Y = 1) = \frac{e^{\beta x}}{1 + e^{\beta x}} \tag{1}$$

$$P(Y = 0) = 1 - \frac{e^{\beta x}}{1 + e^{\beta x}} = \frac{1}{1 + e^{\beta x}} \tag{2}$$

Wooldridge (2009) concluded that since Equation (2) is the lower response level, that is, the probability that farmers did not access credit from formal and informal credit source, this will be the probability to be modeled by the logistic procedure by convention. The equation presents the outcome of the logit transformation of the odds ratios which can alternatively be represented as:

$$\log it[\theta(x)] = \log \left[\frac{\theta(x)}{1 - \theta(x)} \right] = \alpha + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_k x_k \tag{3}$$

and thus allowing its estimation as a linear model for which the following definitions apply: θ = logit transformation of the odds ratio; α = the intercept term of the model; β = the regression coefficient or slope of the individual predictor (or explanatory) variables modeled and X_i = the explanatory or predictor variables. In relation to Equation (3) the analysis will generate the odd ratios using the maximum likelihood procedure (Field, 2005). The logistic regression in this study can be specified as:

$$Y_i = \alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \beta_6 x_6 + \beta_7 x_7 + \mu \tag{4}$$

where, Y_i = the dependent variable defined as the access to credit by crop farmers = 1 and 0 otherwise; α = constant and intercept of the equation; X_1 = age of farmers in years; X_2 = marital status of farmers (1 = single, 2 = married,

3 = divorced and 4 = widow/widower); X_3 = household size; X_4 = education in years; X_5 = membership of farmers association(years); X_6 = experience in years; X_7 = total income from farming per year (naira) and U_k = error term.

3.2 Tobit Regression Model

Tobit regression model which was originally developed by Tobin (1958) and used by many researchers such as Adejobi (2004), Austin and Edward (2003), Omonona (2000) and Rahji (1999) has been described as an extension of Probit model (Gujarati, 2004). The model was used to evaluate effect of credit on well-being of farmers. It is explicitly expressed as follow:

$$Y_i = \alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \beta_6 x_6 + \beta_7 x_7 + \mu \quad (5)$$

Where; Y = Farmers' well-being score ; β_0 is the intercept and $\beta_1 - \beta_8$ are the regression coefficients that explain the effect of credit on well-being; μ is the error term while $X_1 - X_8$ are the independent variables specified and defined below: X_1 = Amount of credit needed in naira; X_2 = Credit purpose (farming = 1, non-farming = 2, both = 0); X_3 = Borrowing experience (if satisfactory = 1, otherwise = 0); X_4 = Credit ration (received amount applied for = 1, otherwise = 0); X_5 = Interest rate in percentage; X_6 = Collateral security (if yes = 1, otherwise = 0); X_7 = Disbursement lags (if timely = 1, otherwise = 0); X_8 = Repayment period in months; μ = Error term.

4.0 Results and Discussion

4.1 Personal Characteristic of Farmers

Table 1 shows that the mean age of the crop farmers in the study area was 41 years but specifically, 38.7% were in the age range 31-40 years, 26.7% were between 41-50 years and 20.0% were above 50 years of age. This indicates that about 80.0% of the respondents fall within the age group of 50 years or less. Oyediran *et al.* (2013) opined that respondents in this category are within the economically active population and therefore constitute a good labour force with the expectation that they would be good managers of limited available resources and can withstand rigors associated with farming activities. About 83.0% were male and 17.3% were female. The low percentage of women might be because crop production is considered men's job as women folks dominate processing and marketing.

Also, 80.0% of the farmers in the study area were married, 46.7% had secondary education while 38.7% had tertiary education. Asiabaka (2002) revealed that educational level is a very important determinant in adoption of innovation. Majority (44.0%) of the farmers had 4-6 members, 30.0% between 7-9 members while 18.0% had 1-3 members. The mean household size was 6 members and Agbamu (2000) stated that the large number of persons in a family pave way for use of family labour in farming enterprise. In terms of experience, 42.7% of the farmers had 6-10 years of experience and 32.0% had 1-5 years. The mean experience was approximately 8 years. This shows that the respondents were relatively not new in the crop production business and crop farming is not a new means of livelihood to the people in the study area as their mean farm size was 2 acres and 86.7% were members of farmers association. Sodeeq *et al.*, (2016) reported that more experienced farmer could predict the future outcome of production with some probability by considering performance of past years.

Table 1: Personal Characteristic of Crop Farmers in the Study Area.

Variable	Frequency (n = 150)	Percentage
Age in years		
21-30	22	14.6
31-40	58	38.7
41-50	40	26.7
>50	30	20.0
Mean	41	
Sex		
Male	124	82.7
Female	26	17.3
Marital Status		
Single	18	12.0
Married	120	80.0
Divorced	8	5.3
Widow	4	2.7
Education		
Primary	22	14.6
Secondary	70	46.7
Tertiary	58	38.7
Household size		
1-3	27	18.0
4-6	66	44.0
7-9	45	30.0
10-12	12	8.0
Mean	6	
Experience		
1-5	48	32.0
6-10	64	42.7
11-15	27	18.0
15 and above	11	7.3
Mean	8	
Farm Size (acres)		
1	76	50.7
2	34	22.7
3	40	26.7
Mean	2	

Source: Field Survey, 2018.

4.2 Information on Credit Status of Crop Farmers

Table 2 reveals that 23.3% of crop farmers obtained credit from Agricultural Credit Cooperative, 20.0% obtained from farmers' association and 13.3% of the farmers obtained credit from relatives and families. This result is in consonance with Adebayo and Adeola (2008) who opined that cooperative society was the most source of credit to famers and contrary to the study carried out in Nsukka Local Government Area of Enugu State by Akinagbe and Adonu, (2014) which revealed that majority of farmers got their credit through friends and relations. Higher percentage (34.6%) of farmers had received credit 1-6 times while others (22.0%) had received for more times. However, only 26.7% of farmers obtained credit for farming purpose, 16.6% obtained for paying school fees while 3.3% obtained credit for purpose of meeting social ceremony obligations. Similar finding of credit diversion was reported by Anyiro and Oriaku (2011) and this habit could have a negative impact on well-being. On the amount of loans applied for and obtained by farmer, 26.7% applied for ₦300,000 or less, 16.6% applied for ₦301,000-₦400,000 and others applied for more than ₦400,000. Approximately seventeen percent (17.3%) received ₦201,000 - ₦250,000, 12.7% received ₦151,000-₦200,000 and 10.6% received less than ₦50,000. About 34.0% of the farmer claimed that interest rate on credit received was between 6-25% and 40.0% claimed collateral was through guarantor.

Table 2: Information on Credit Status of Crop Farmers

Variable	Frequency (n = 150)	Percentage (%)
Sources of Credit		
None	65	43.4
Farmers association	30	20.0
Agric. credit cooperative	35	23.3
Relative and family	20	13.3
No of Time Loan Received		
None	65	43.4
1-3	36	24.0
4-6	16	10.6
7-9	10	6.7
10-12	14	9.3
13-15	9	6.0
Purpose of Credit		
None	65	43.4
Farming	40	26.7
Payment of child school fees	25	16.6
Social ceremony obligations	5	3.3
Building	15	10.0
Amount of Loan Needed		
None	65	43.4
≤300,000	40	26.7
301,000-400,000	25	16.6
401,000-500,000	10	6.7
501,000-600,000	7	4.6
>600,000	3	2.0
Amount of Loan Received		
None	65	43.4
≤50,000	16	10.6
51,000-100,000	10	6.7
101,000-150,000	14	9.3
151,000-200,000	19	12.7
201,000-250,000	26	17.3
Interest Rate		
None	65	43.4
<5	22	14.6
6-25	50	33.3
26-40	13	8.7
Security		
None	65	43.4
Guarantor	60	40.0
Farm land	20	13.3
Landed property	5	3.3

Source: Field Survey, 2018.

4.3 Determinants of Credit Access by Crop Farmers in the Study Area.

Table 3 reveals determinant factors influencing crop farmers' access to credit in the study areas using logistic regression analysis. Age, marital status and membership of farmers' association in years were found significant at 10%, 5% and 1% respectively. Similar result was reported by Kiplimo *et al.*, (2015) who concluded that marital status and membership had significant effect on access to credit. Age and marital status were negatively related to farmers' access to credit while year of membership was positive. As age of the farmer increases, the probability of access to credit reduces by 2.4% and this implies that younger farmers have access to credit more than the older farmers. Not being married reduces the probability of access to credit by 86.3% and this might be due to the fact that they are the majority group. Also, increase in years of membership increases the probability of access to credit by 56.07% and this means that new members are not likely to have access to credit until their commitment are ascertain. Nwankwo (2017) estimates shows that these were very important socioeconomic determinant variables of access to agricultural loan. However, household size, education, experience and income were not significant factors influencing crop farmers' access to credit.

Table 3: Factors Influencing Credit Access of Crop Farmers in the Study Area.

Variable	Coeff.	Std. Error	t-ratio	p-value
Constant	0500407	1.1532	0.433943	0.66433
Age	-0.0244	0.0124	1.1017	0.065758*
Marital status	-0.8632	0.4362	-1.9786	0.047858**
Household size	-0.0418	0.0362	0.8058	0.437316
Education	-0.0299	0.0305	-0.97953	0.327316
Membership	0.5607	0.1266	11.1932	0.00123***
Experience	-0.0042	0.0139	-0.29953	0.76453
Income	0.2828	0.2935	-0.96356	0.335267

Source: Field Survey, 2018.

4.4 Well-being Status of Crop Farmers in the Study Area.

The level of well-being is made up of various components that cannot be solely approximated through economic indicators. Areas of well-being range from the need of adequate income to meet basic needs to people's social involvement and interactions with others. Deprivation in one area can have significant impacts on the overall well-being of individuals and household. The human well-being indicators as stated in "human resources and skills development, indicators of well-being, Canada" include housing status, education status, income status, health facilities status, safety and security status as well as social cohesion status is presented in table 4. The result reveals that safety and security of farmers ($\bar{X} = 4.28$) and their social cohesion ($\bar{X} = 4.26$) in the area were very good as no cases of crime, violence, social vices and rancor reported. This indicates that there is harmonious and peaceful coexistence between families in the area irrespective of affiliations. It is important to note that perception of safety and protection from harm is a key supporting pillar for well-being and communities with high crime rates do not enjoy the same quality of life as those in more safe communities (Gannon and Mihorean, 2004). Education facilities status ($\bar{X} = 2.51$) of farmers were good. This shows that the challenge of farmers with no formal education is gradually diminishing over the past years as access to education is improving significantly in remote areas. Education provides knowledge and opens door to new opportunities that can improve individual living standard. However, income status ($\bar{X} = 2.36$) and housing facilities ($\bar{X} = 2.16$) of farmers in the areas were poor. A safe comfortable place to live is fundamental to individual sense of well-being. These make farmers in dire need of credit to meet up with their well-being demands in order to improve their low standard of living. The health facilities status ($\bar{X} = 2.10$) was very poor as most farmers visit native doctor or distance maternity clinic in case of ill health. This indicates poor well-being because good health is a key aspect of overall well-being.

Table 4: Well-being Status of Crop Farmers in the Study Area.

WIVS	V.G	G	F	P	V.P	W.M
Housing facilities status	5	10	36	52	47	2.16
Education facilities status	38	55	22	15	20	3.51
Income status	5	8	48	64	25	2.36
Health Facilities status	10	16	23	31	70	2.10
Safety and Security status	78	50	12	6	4	4.28
Social Cohesion status	80	42	18	7	3	4.26

Source: Field Survey, 2018. WIVS- welfare indicator variable status, V.G- very good, G- good, F- fair, P-poor, V.P- very poor and W.M- weighted mean

4.5 Effect of Credit on Well-being of Farmers in the Study Area.

Effect of credit variables on well-being of farmers in the study area is presented in table 5. The amount of credit needed was found negative and significant ($p < 0.01$). This means that as the amount of credit needed by farmer increases, their well-being decreases. This might be due to high interest rate and other cost associated with credit application process in the study area. High demand for credit can be an indicator that a farmer lack self-financing and some necessary elements of well-being. The interest rate on credit obtained by farmers was found negative and significant ($p < 0.10$) indicating that as percentage of interest rate on credit increases, the lesser the well-being of farmer in the study area. This is because during repayment period, high interest rate consumes profit which would have been used by farmers to improve their standard of living.

However, the coefficient of credit purpose was positive and significant ($p < 0.01$) implying as farmers get credit for the purpose of increasing fixed investment, there is tendency that their well-being improve. This means that the farmers are doing well in business and will be better off in the long-run. Similarly, the coefficient of credit ration and disbursement lag were positive and significant ($p < 0.01$). This implies that as farmers who timely get amount of credit applied for are more likely to have and improved well-being. This is because the credit will be

enough to cater for their timely needs and help achieve desired result which is an improve standard of living. Other variables fitted into this model such as borrowing experience, value of collateral and repayment period were found negative but not significantly affect well-being of farmers in the study area.

Table 5: Effect of Credit on Well-being of Farmers in the Study Area.

Variable	Coeff.	Std. Error	t-ratio	p-value
Constant	0.8111	0.3468	2.3384	0.0194
Amount of credit needed	-0.0170	0.0067	-2.5352	0.0112***
Credit purpose	0.0914	0.0342	2.6721	0.0075***
Borrowing experience	-0.0418	0.0362	0.8058	0.4373
Credit ration	0.0470	0.0096	4.8899	0.0000***
Interest rate	-0.0147	0.0087	-1.6916	0.0907*
Collateral	-0.0042	0.0139	-0.29953	0.7645
Disbursement lag	-0.3791	0.1230	-3.0813	0.0021***
Repayment period	-0.0227	0.0314	-0.7219	0.4703

Source: Field Survey, 2018.

5.0 Conclusion and Recommendation

5.1 Conclusion

The findings of this study revealed that the crop farmers were in their active economic productive age with mean age 41 year, educated and cultivating 2 acres of land on average. Majority mostly depend on credit worth N201,000-N250,000 from Agricultural Credit Cooperative. The amount not sufficient to meet their farming needs and untimely in disbursement with high interest rate. Significant factors determining crop farmers' access to credit in the study area were age ($p < 0.10$), marital status ($p < 0.05$) and membership ($p < 0.01$) of farmers' association. However, amount of credit needed, borrowing experience, interest rate, collateral, disbursement lag and repayment period had negative effect on farmers' well-being while credit purpose and credit ration had positive effect on farmers' well-being.

5.2 Recommendation

In line with the findings of this study, the following recommendations are suggested to improve the impact of credit access on crop farmers' well-being:

- Farmers should form groups for credit accessibility with equal and fair distribution.
- Credit worth enough to meet credit purpose of these farmers should be given to them as this is the only way they can experience positive impact of credit on their production as well as improvement on their well-being.
- Government, agency or institution in charge of disbursing credit to farmers should make it more accessible and reduce interest charged.
- Finally, farmers should stop the habit of diverting credit meant for farming purpose to other purposes in order to achieve the aim of improving well-being.

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