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CREDIT ACCESS AND PRODUCTIVITY GROWTH AMONG SUBSISTENCE FOOD CROP FARMERS IN IKOLE LOCAL GOVERNMENT AREA OF EKITI STATE, NIGERIA

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ABSTRACT

This study examined credit access and productivity growth among subsistence food crop farmers in Ikole Local Government Area of Ekiti State, Nigeria. It utilized data obtained through personal administration of pre-tested questionnaires to 78 respondents selected by purposive, multi-stage and random sampling methods. Non-inferential and inferential statistical tools were used to analyze the data. Majority (91%) of the respondents were literate youths aged 50 years and below, and who depended on personal savings to finance the production activities. Credit access was statistically and significantly determined by educational level, interest rate charged, farm size and net farm income, while marital status, farm size and cost of production significantly influenced net farm income. Credit access was most seriously constrained by high interest rate charged and cumbersome loan processing procedures. Improvement in farmers' access to loan for enhanced productivity and food security would be achieved through the introduction of concessionary interest rates and removal of cumbersome loan administrative procedures. Strengthening the extension services delivery system will ensure availability and affordability of inputs, and enhance productivity and sustainability of the enterprise.

Keywords: credit access, net farm income, determinants, quantitative analysis, Ekiti State Nigeria.

INTRODUCTION

Agricultural credit is the present and temporary transfer of purchasing power from a person who owns it to a person who wants it, allowing the later opportunity to command another person's capital for agricultural purposes, but with confidence in his willingness and ability to repay at a specified future date with or without interest (Nwaru, 2011). According to Williams *et al.* (2007), credit is defined 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. Credit could bring about higher productivity and profit in agricultural production (Ashaolu *et al.*, 2011). In Nigeria, agricultural credit is an effective instrument for improving agricultural productivity and encouraging non oil export and gross domestic product (G.D.P.) stabilization (Enoma, 2010). Credit in the farmer's hand will enable him to reap the economies of scale, thereby enhancing productivity growth, venturing into new fields, discovering new and cheaper products, creating demands where none exists and providing utilities to satisfy a wider market (Ijere, 1998).

Realizing the importance of credit availability for sustainable agricultural productivity growth, the Nigerian government introduced a number of policies and programmes aimed at utilizing government resources to drive agricultural growth and development. For instance, there was the establishment of the Nigerian Agricultural and Cooperative Bank (N.A.C.B.) in 1973; Rural Banking Programme, 1977; and more recently the Commercial and microfinance banks and Bank of Agriculture (Ugwumba et al., 2009). These formal financial institutions are encouraged by government to extend credit facilities for agricultural activities in order to improve agricultural productivity and ouput. Farmers' access to credit could be through formal and informal sources. Formal sources such agricultural, commercial, development and as microfinance banks, poverty eradication programmes, nongovernmental organizations, and United Nations Development Programme (U.N.D.P.) provide about 35% or 43% of the credit needs of farmers while the informal sources including friends, relations, local money lenders, traders and merchants, ISUSUs and other traditional lending groups, operating outside legal framework, provide 65% (Ugwumba et al., 2009) or 57% (Mesike and Okoh. 2008).

Farmers' need of credit in Nigeria is warranted by the numerous problems facing agriculture in the country such as inadequate funding, scarcity and high cost of inputs, underdeveloped marketing system and poor infrastructural facilities (Fakayode, 2008). Farmer's access to credit is pendent on: location of banks (Oji, 2005); farmers' attitude as regards loan default (Adejebi and Adobatele, 2008; Adegbite, 2009); high interest rate and short term nature of the loans (Philip et al., 2009); and the cost of the credit (interest rate charged, availability of collateral and dearth of information) (Okojie, 2010). Credit access could be influenced positively and significantly by farmers experience, educational level and amount spent on farm inputs (Mesike and Okoh, 2008), while net farm income is determined by age, educational level, cost of inputs and farm size (Ugwumba and Okwuanaso, 2012).

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In the study area, food crop production is a common enterprise, however, most of the farmers seemed to be operating at the subsistence level, characterized by the use of crude tools, traditional techniques and low capital investment, hence low productivity, output, soaring domestic food prices and rising food imports abound (Omojola, 2004). This development was probably due to limited credit access stemming from the constraints and determinants of credit access aforementioned. It is against this background that this study was designed to specifically: examine the socio-economic characteristics of the subsistence food crop farmers; establish the effects of respondents' socio economic factors on credit access and net farm income; and identify constraints to credit access.

METHODOLOGY

Ikole Local Government Area (LGA) is one of the sixteen L.G.A.s in Ekiti State, Nigeria. It has an area of 321km^2 and a population of 168, 436 people at the 2006 census (National Population Commission (N.P.C.), 2006). It lies on latitude 7⁰ 47' O" North and longitude 5⁰31' O" East. The climate is tropical with the vegetation typical of the rain forest zone of West Africa. The average relative humidity is 80%. The mean daily temperature is 25^oC, while the mean annual rainfall is 200cm. Farming of arable crops such as maize, cocoa yam, yam and vegetables are common.

The L.G.A. was purposively selected for the study because of the preponderance of subsistence arable crop farmers in the area. Multistage and random sampling methods were used to select six communities (Ikole, Ipao, Irele, Ijesha-Isu, Itapaji and Ayedun) out of the 12 constituent communities in the first stage. The second stage was the random selection of 13 subsistence arable crop farmers from each of the six selected villages to arrive at a sample size of 78. Data were collected by the administration of well structured questionnaires to the respondents by personal interview. Data were collected on respondents' socio-economic variables such as age, farm size, cost of production, farming experience, educational level, net farm income, interest rate, gender, and marital status.

Analytical framework

Descriptive statistical tool such as means, percentages, and frequency distributions were used to analyze data generated on socio-economic factors and constraints to credit access. The probit and ordinary least squares (OLS) regressions were used to establish determinants of credit access and net farm income respectively. The implicit and explicit forms of the empirical probit regression used to establish the influence of the farmers' socio-economic factors including gender represented by GEN, age (AGE,) educational level (EDU), farming experience (FAE), interest rate (INR), farm size (FAS), and net farm income (NFI) on credit access are respectively given as:

 $CRA = f(GEN, AGE, EDU, FAE, INR, FAS, NFI; e_i)$ and

 $CRA = \beta_0 + \beta_1 GEN + \beta_2 AGE + \beta_3 EDU, + \beta_4 FAC + \beta_5$ INR + \beta_6 FAS + \beta_7 NFI + \eta_i.

Where

CRA (Credit access) is a dichotomous dependent variable which is equal to 1 for the farmer who accessed credit and O otherwise. That is:

CRA	=	$1 (CRA>0) = \begin{cases} if 1 CRA>0 \\ O otherwise \end{cases}$
GEN	=	Gender (dummy: male = 1; female = 0)
AGE	=	Age of the farmer (years)
EDU	=	Educational level (years)
FAE	=	Farming experience (years)
INR	=	Interest rate (\mathbf{N})

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FAS	=	Farm size (ha)
NFI	=	Net farm income (N)
β_i	=	Parameters to be estimated
e;	=	Stochastic error term

It is hypothesized that the independent variables are significant factors in a farmer's decision to access farm credit. The estimated model was tested for significance using the chi-square distribution and the default value of the model. In addition, ordinary least squares (O.L.S.) regression was used to ascertain the effect of socioeconomic factors on net farm income as follows:

NFI =
$$\psi_0 + \psi_1 \text{GEN} + \psi_2 \text{AGE} + \psi_3 \text{MAS} + \psi_4$$

EDU + $\psi_5 \text{FAE} + \psi_6 \text{FAS} + \psi_7 \text{COP} + e_i$

Where

NFI	=	Net farm income (N)
GEN	=	Gender (dummy: male = 1; female = 0)
AGE	=	Age (years)
MAS	=	Marital status (dummy: married = 1;
single =	= 0)	
EDU	=	Educational level (years)
FAE	=	Farming experience (years)
FAS	=	Farm size (ha)
COP	=	Cost of production (N)
Ψ	=	Parameters to be estimated
e;	=	Random disturbance term

The data were fitted with four functional forms of the regression model, namely linear, exponential, semi-log and double-log. The functional form which produced the best output in terms of sizes, signs and number of significant parameter estimates, overall significance of the regression shown by F- statistics, percentage of variation in net farm income determined by the independent variables indicated by R^2 , and the existence or nonexistence of autocorrelation given by Durbin-Watson statistic was chosen as the lead equation. The functional forms are given as:



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Linear: NFI = $\psi_0 + \psi_1 GEN + \psi_2 AGE + \psi_3 MAS + \psi_4 EDU + \psi_5 FAE + \psi_6 FAS + \psi_7 COP + e_i$

Exponential: $\ln NFI = \psi_0 + \psi_1 GEN + \psi_2 AGE + \psi_3 MAS + \psi_4 EDU + \psi_5 FAE + \psi_6 FAS + \psi_7 COP + e_i$

Semi-log: NFI = $\psi_0 + \psi_1 \ln GEN + \psi_2 \ln AGE + \psi_3 \ln MAS + \psi_4 \ln EDU + \psi_5 \ln FAE + \psi_6 \ln FAS + \psi_7 \ln COP + e_i$

Double log: $\ln NFI = \psi_0 + \psi_1 \ln GEN + \psi_2 \ln AGE + \psi_3 \ln MAS + \psi_4 \ln EDU + \psi_5 \ln FAE + \psi_6 \ln FAS + \psi_7 \ln COP + e_i$

RESULTS AND DISCUSSIONS

Socio-economic statistics of the respondents

The respondents' socio-economic statistics such as gender, age, educational level, years of experience, credit access, farm size, marital status and cost of production are summarized in Table-1.

Variable	Percentage	Mean/mode
Gender	62	Male
Age (≤ 50 years)	91	47.6 years
Educational level	58	Secondary school level and above
Years of experience	70	1-10 years
Marital status	67	Married
Credit access	87	Did not access credit
Cost of production	68	N 10, 000- N 50, 000
Farm size	85	1-3 ha

Table-1. Socio economic statistics of the crop farmers.

Source: Computed from survey data, 2012.

It could be seen from the table that average age of the respondents was 47.5 years with a good majority (91%) aged 50 years and below. This implied that arable crop production in Ikole L.G.A. was dominated by youths endowed with adequate energy to tackle the challenges of crop production. This finding agrees with Akanni (2007) on the effect of microfinance on small scale poultry business in South-Western Nigeria, that younger farmers dominate the industry because they possess the energy required by such production ventures characterized by high risks.

Furthermore, most (67%) of the food crop producers in the study area were married and males (62%), thus corroborating Omojola (2004) which notes that male farmers are more suited to withstand the rigors associated with the complex processes of rice production. Most of the

farmers (58%) acquired either secondary school education or above. This meant that literate farmers in the area were more successful in food crop production than those who had no formal education, despite the number of years of experience acquired. This finding agrees with Chukwuji (2006) that education has positive effect on cassava production output in Delta State, Nigeria.

Further finding on socio-economic factors showed that majority (85%) of the farmers were small scale subsistence farmers because they were operating on 1-3 hectares of land. The reason could be that most of the farmers (87%) had no access to credit facilities; hence they were unable to fund large scale crop production ventures. This finding is in tandem with Kolawole and Ojo (2007) that Nigerian agriculture involves small scale farmers scattered over wide expense of land area, with small holdings ranging from 0.5-3.0 hectares, and characterized by rudimentary farming systems, low capitalization, and low yield per hectare.

Effect of socio-economic statistics of the respondents on credit access

The probit regression model was adopted to predict the collective and individual effects of socioeconomic factors (predictors) on credit access (predictand). The predictors were gender represented by GEN, age (AGE), educational level (EDU), farming experience (FAE), interest rate charged (INT), farm size (FAS) and Net farm income (NFI). The E-views 5.0 statistical package was deployed in running the analysis. The estimated result is presented in Table-2. The likelihood ratio test showed a significant value of 98.279 and chi-square value of 65. 353 implying that the estimated model is statistically significant. Hence, the model is considered to be a good fit and equally consistent with theory. Also the value of fit measure, McFadden R^2 (0.754) indicated a very satisfactory fit. Out of the seven predictors, four namely educational level, interest rate charged, farm size and net farm income were statistically significant at 1% probability level and positively signed except interest rate that was negatively signed. This implies that the probability to access or demand for credit is higher with educated farmer with large farm size, willing to spend higher amount of money on production inputs to earn higher income. This result is in consonance with those of Mesike and Okoh (2008), and Ugwumba and Owuanaso (2012), which reported that the probability of credit demand is more with experienced, educated farmers, who spend higher amount of money on farm inputs. The negatively signed and statistically significant interest rate coefficient conforms to a priori expectation of negative relationship between interest rate and credit access. That is, higher the interest rate charged, lower the expected amount of credit accessed.



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Parameter	Coefficient	Standard error	Z-statistic
GEN	0.412	0.537	0.433
AGE	0.328	0.778	0.648
EDU	2.521	0.173	3.394*
FAE	0.381	0.511	0.456
INR	-1.988	-0.094	-1.995*
FAS	4.115	0.137	6.214*
NFI	0.00042	0.00016	7.167*
Log likelihood	98.279		
Mc Fadden R ²	0.754		
Degree of freedom	7		
Chi-squared	65.353		

Table-2. Estimated determinants of access to loan of the subsistence crop farmers.

Source: Computed from survey data, 2012. Note: * = Significant at P ≤ 0.01 .

Determinants of net farm income

Finding as shown in Table-3 indicates that output of the double-log regression gave the best result in terms of number and sizes of significant parameter estimates and was chosen as the lead equation. Out of the seven regressors, three namely marital status, farm size and cost of production were statically significant, while the rest four (gender, age, educational level and farming experience) were not statistically significant at 5% level of probability. The coefficient of marital status and farm size were positively signed and statically significant at 5% level. This implied that the married farmers with large farm holdings realized higher net farm income. Cost of production had a coefficient that was statically significant, but negatively signed. This is in agreement with *a priori* expectation that cost of production should negatively influence output and net farm income. This corroborates Kalla *et al.* (2011) and Ike and Ugwumba (2011) which independently shows the negative influence of high cost of feed on net farm income realizable from poultry production.

Parameter	Linear	Exponential	Semi-log	Double-log
Constant	336.72	4.327	6.345	1.765
GEN	-4.789 (-0.673)	-0.002 (-0.371)	-0.32 (-0.562)	-0.094 (-1.453)
AGE	11.453 (1.349)	0.007 (1.378)	0.544 (0.867)	0.048 (1.073)
MAS	15.367 (2.156)**	0.001 (1.563)	2.562 (2.465)**	0.079 (2.786)**
EDU	8.986 (1.345)	0.002 (1.278)	1.875 (1.211)	0.084 (1.433)
FAE	3.674 (01.143)	0.003 (1.521)	1.673 (1.556)	0.039 (1.4340)
FAS	10.977 (1.899)**	0.004 (2.285)**	2.993 (3.876)**	0.022 (2.337)**
COP	-56.763 (5.445)**	-0.007 (3.017)**	-2.774 (-2.014)**	-0.012 (-3.452)**
R^2	75.655	65.354	72.345	78.876
R ² (adjusted)	73.453	64.453	69.345	75.345
F-statistic	57.345	7.587	12.366	14.976
D-W stat.	1.89	1.78	2.01	1.99

Table-3. Estimated	determinants	of net	farm i	income	of the	subsistence	crop farmers.

Source: Computed from survey data, 2012. Notes: ** = Significant at P ≤ 0.05 . D-W stat. = Durbin-Watson statistic. GEN, AGE, MAS, EDU, FAE, FAS, and COP are as earlier defined.

Constraints to credit access by respondents

The major constraints to credit access in the study area was high interest rate charged with a score of 84.62%, closely followed by cumbersome loan processing procedures (71.79%), delays in disbursement (64.10%), lack of collaterals (57.69%), lack of awareness of loan packages (48.72%), and unfriendly attitude of credit administrators (38.46%) (Table-4). Okojie *et al.* (2010) reported that lacks of bank account, collaterals and information regarding the procedure for accessing credit from banks limit rural women's access to credit from formal institutions. Also, Dayo *et al.* (2009) opined that

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large loan funds from banks could not be accessed by most rural small holders because of issues of lack of collaterals and high interest rates.

Constraint	Frequency	Percentage	
High interest rate	66	84.62	
Cumbersome processing procedures	56	71.79	
Delays in disbursement	50	64.10	
Lack of collaterals	45	57.69	
Lack of awareness of loan packages	38	48.72	
Government officials attitude	30	38.46	

 Table-4. Constraints to credit access.

Source: Computed from survey data, 2012. Note: Multiple responses noted.

CONCLUSIONS AND RECOMMENDATIONS

Most subsistence crop farmers in Ikole Local Government Area of Ekiti State, Nigeria were unable to access credit to improve their production, income and wellbeing. This was due to limitations posed by high interest rates charged by institutions, cumbersome loan processing procedures, lacks of collaterals and adequate information about loan-availability, hence the persistence of subsistence farming. Improvement in the farmers' access to loan for enhanced productivity and food security would be guaranteed through the formulation of policies that would ensure credit availability and accessibility. Such measures as: the introduction of concessionary interest rates; removal of cumbersome loan processing procedures; and the provision of well coordinated extension services delivery system.

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