

**MICROCREDIT AND FARMER PRODUCTIVITY IN OSUN STATE NIGERIA.****Abstract**

This research looked at micro-credit and farmers' productivity in Osun State; 140 respondents were interviewed using structured questionnaires. Micro-credit sources identified in the study area were money lenders, rotational savings associations, farmers in partnership business, banks, co-operatives, non-governmental organizations and Ministry of Agriculture. Data obtained was analyzed using descriptive and Tobit regression model. The Tobit regression model carried out showed that there was a highly significant relationship between age (0.989), household size (0.623 significant at 1%), farming experience (0.858 significant at 5%), loan conditions (1.29 significant at 10%), interest rate (0.387 significant at 1%) and loan duration (0.281 significant at 1%) on the acquisition of credit by the farmers in increasing their productivity (income). The mean amount of loan given by the credit providers per season is within the range of (₦20, 000 to ₦100, 000) and the loan duration is for a year. Income generated by the farmers was used as a measure of productivity and the minimum per season was ₦ 20,000. Interest rate which was expected to have a negative relationship with credit acquisition was however discovered to be positively correlated based on the Tobit regression results. It was deduced based on this study that majority of the farmers patronize informal sources of credit and to them the loaning conditions and durations given by these sources are highly favourable compared to the formal sources. However the amount of credit taken from these sources is smaller when compared to that from the formal credit providers.

**Key words:** Micro-credit, Productivity, Tobit Regression model, Osun State, Nigeria.

**Introduction:** Finance (used interchangeably with micro-credit) is very important in relation to production and productive processes; it can improve the welfare of business people directly or indirectly thus enhancing the productive capacity of individual firms/farms through investment either in human and/or physical capital (Ugochukwu, 2013). The availability of cash (finance) for productive ventures/investments alongside proper managerial skills enables those in business to overcome some long-term or short-term situations and conditions in form of limitations faced in businesses such as: inability to expand, liquidity constraints (inadequate liquid cash), incapacitations to undertake new investments, inability to boost production, inability to employ qualified staff to mention but a few. There is an assertion by Zeller *et al.* (2013) that adequate access to credit goes a long way in reducing the opportunity cost of capital. Adequate access to credit helps farming household boost their welfare conditions, reduce risk bearing and helps improve on risk coping strategies and a willingness to adopt new technologies which goes along-way in increasing production and productivity of farmers (Aliou *et al.*, 2000).

**Materials and Methods:** This area of study is Osun State of Nigeria, the state covers an area of approximately 8,882 square kilometers bounded in the North by Kwara state, the north-east by Kogi state, in the East by Ondo state, in the South by Ogun state and in the west by Oyo, Ondo and Ekiti states. All three agricultural development zones were covered in the survey. The first was the selection from the zones i.e. the three ADB zones of Iwo zone, Osogbo zone and Ilesa zone. Local governments areas were selected based on the above ADP zoning were into: Iwo zone: Ayedaade, Irewole and Isokan, Ife/Ilesa zone, Atakunmosa East and Oriade, Osogbo zone: Ede and Osogbo. From each local government, 20 farmers were selected at random from the list of farmers with the OSSADEP. This gave a total of 140 respondents from each of the 7 local government areas. The dependent variable of main interest is the amount of credit used in Naira, a Tobit model was used for the empirical analysis of farmers' productivity. The Tobit model has the advantage of yielding results that can be interpreted for information on the amount of credit use in addition to that of classification of farmers into how profitable the use of credit has on them. The Tobit model is known as the censored normal regression model (Tobin, 1958). Censoring occurs when there are underlying continuous variables, but some subjects of the range of values of the variables is coded to one number, thereby creating a mass point (Smith, 2006). The Tobit model used in this analysis is specified as:

$$IA = \max (IA^*, 0) \quad (1)$$

$IA^*$  are the latent variables generated by the regression model

$$\text{Hence: } IA^* = \beta A_0 + U_0 \quad (2)$$

$$IA = IA^* \text{ if } IA^* > I A_0 \quad (3)$$

$$IA = 0 \text{ if } IA^* < I A_0 \quad (4)$$

Where  $IA$  = amount of credit used in Naira, and

$IA^*$  = the solution to utility maximization of credit use to set of constraints per Farmer,

$IA_0$  = the minimum amount of credit used per farmer

Where  $X_s$  are the independent variables i.e.  $X_1$  = Gender,  $X_2$  = Age,  $X_3$  = Household size

$X_4$  = Educational level,  $X_5$  = Primary occupation,  $X_6$  = Farming Experience,  $X_7$  = Source of Loan,  $X_8$  = Loan Duration,  $X_9$  = Interest Rate,  $X_{10}$  = Income,  $X_{11}$  = Loan Condition

$U_0$  = the model error and is assumed to be independently distributed, i.e.  $N(0, \sigma^2)$ .

**Results and Discussion:** The male to female ratio is a thing of great importance in this study. It was discovered that gender has a significant effect on credit use and this can be easily depicted by the significance level at 10percent of this variable gotten from the Tobit model. This typifies the extent of male to female participation in farming activities that will warrant the use of credit. Gender in this wise does not mean that men in the study area are more involved in farming activities than the women; rather it shows that there were more male headed farming families. Gender has a coefficient of 1.233 showing a level of high significance to farming as well as to the application of credit. Age is a continuous variable and it has no significant effect on credit acquisition by the farmers, with a coefficient value of 0.989 which is not significant at any level showing to us that credit use is not limited to any age group among the respondents sampled. Acquisition of credit knows no barrier age wise in the families or households surveyed.

The primary occupation in the study area varied with the prevalent situation, the farmers specialized more in livestock production especially selling goats and rams which may be the

reason for the non significance of primary occupation as farming to loan acquisition having a coefficient value of 0.486. The result of the discriminant analysis (Table 1) showed that majority of the respondents were found to be involved in other activities apart from farming in consonance with the discovery of a research by Salmann (2012). However farming experience which is significant at 5percent and a coefficient of 0.858 is a high determining factor of loan acquisition, a farmer who has increased productivity as his main goal with limited cash resources will seek out all means of improving on himself, hence the reason why many farmers who had a good number of years in farming embraced credit as a means of alleviating some of their problems and bringing them closer to a point where they can be counted as better off. Sources of loan has no relative significance from the result of the Tobit regression carried out, however, it could be seen that majority of the credit users opted for informal sources of credit, to many of the farmers the loan conditions given by the formal sources is too stringent making a lot of them to opt for NGOs, money lenders, rotating savings associations as well as co-operatives, the coefficient 0.630 for loan sources is not significant at any level. The time duration before loans were paid back is another factor that is highly significant from the result of the Tobit analysis (Table 5), 0.281 significant at 1percent, the shortest time period of waiting is between 0 – 3 months depending on the source from which the loan was gotten. Loans that were collected from banks have minimum loan repayment duration of 6 months to a number of years. Banks prefer supporting larger enterprises with shorter loan repayment period. Interest rate on is highly significant and positive with a coefficient of 0.387 which is significant at 1percent. The positive nature of the interest rate coefficient could be as a result of the fact that many of the respondents deal with informal sources of credit who charge much lower interest rates with less stringent loan conditions, thus an increase in the interest rate by the informal sources is okay and not as high when compared to Banks and finance houses.

## Conclusions

This study shows that many farmers want to increase their productive capacities and income but are incapacitated by lack of funds caused by factors resulting from high interest rate which could be as high as 18 percent and above charged on loans given by the formal financial institutions, disbursement lag encountered before loans are given, loaning conditions, making farmers run away from these very stringent loan conditions, many of the farmers based on this survey desires credit from Banks, but high rate of interest demanded about 18 to 35 percent, stringent loaning conditions and the repayment mode used by these credit sources brings a lot of pressures on the rural populace thus leaving many of the farmers with the option of rotating savings associations, cooperative societies and money lenders. The capacity of loans farmers gets from these sources are small and less stressful compared to loans from Banks which can/could be larger in quantity but more demanding and stressful to obtain. This research discovered that the minimum amount of money that accrues to a particular farmer as income is between ₦10, 000 – ₦20, 000 (not monthly depending on the planting season the farmer is) which is very small and limiting for a farmer that wishes to increase production per annum.

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## APPENDIX

Source: Field Survey 2013/2014.

**Table 1: Primary occupation**

Primary occupation	Examples						Iwo	
	Frequency		Frequency		Frequency		Frequency	
Farming	33	53.2	12	70.6	16	51.6	5	35.7
	2	3.2			2	6.5		
Transporter								
Selling of farm input	20	32.3	1	5.9	11	35.5	8	57.1
Civil servant	6	9.7	4	23.5	1	3.2	1	7.1
Private practice	1	1.6			1	3.2		
	62	100.0	17	100.0	31	100.0	14	100.0

Source: Field Survey 2013/2014.

**Table 2: Enterprise for which loans were used.**

Enterprise	All Samples		Ilesa		Osogbo		Iwo	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Crops (Food & Cash)	16	25.8	7	41.2	7	22.6	2	14.3
Livestock Production	6	9.7	1	5.9	5	16.1		
Agricultural Processing	5	8.1	1	5.9	4	12.9		
Agricultural Marketing	10	16.1			5	16.1	5	35.7
Selling of Farm Inputs	3	4.8			1		3	21.4
a ,c, d	14	6.5	2	11.8	2	6.5		
No Response	18	29.0	6	35.3	8	25.8	4	28.6
Total	62	100	17	100	31	100	14	100

Source: Field Survey 2013 / 2014.

**Table 3: Benefit Derived from Credit Acquisition**

Benefits	All Samples		Ilesa		Osogbo		Iwo	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Improved output	41	66.1	11	64.7	23	74.2	7	50.0
Stay in business	2	3.2	1	5.9			2	14.3
More investment	4	6.5	12	70.6			3	21.4
No Response	15	24.2	5	29.4	8	25.8	2	14.3
<b>Total</b>	<b>62</b>	<b>100.0</b>	<b>17</b>	<b>100</b>	<b>31</b>	<b>100.0</b>	<b>14.0</b>	<b>100.0</b>

Source: Field Survey 2013/ 2014

**Table 4: Sources of Funds**

Sources	All Samples		Ilesa		Osogbo		Iwo	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Cooperative Banks	3.0	4.3	3.0	12.5	15.0	45.5		
Monthly Contributions, Profit & Ploughback	20.0	29.0	5.0	20.8			4.0	33.0
Personal Contribution	13.0	18.8	7.0	29.2	3.0	9.1	3.0	25.0
Profit	16.0	23.2	8.0	33.3	4.0	12.1		
Ministry	1.0	1.4			2.0	6.1		
Banks	2.0	10.1	1.0	4.2				
Grants	7.0	2.9			3.0	9.1	4.0	33
Bank deposits	6.0	8.7			5.0	15.2	1.0	8.3
Deposits, Grants, Savings	1.0	1.4			1.0	3.0		
<b>Total</b>	<b>69.0</b>	<b>100.0</b>	<b>24.0</b>	<b>100.0</b>	<b>33.0</b>	<b>100.0</b>	<b>12.0</b>	<b>100.0</b>

Source: Field Survey 2013/2014.

**Table 5: Parameter Estimates for Tobit Regression Model.**

Variable	Coefficients	t – value
Gender	- 1.233	- 1.910**
Age	- 0.989	- 0.249
Household size	- 0.623	- 2.740***
Educational level	0.639	0.898
Primary Occupation	0.486	0.650
Farming Experience	0.858	2.346**
Sources of loan	0.630	0.840
Loan Duration	0.281	6.442***
Interest rate	0.387	5.663***
Loan Income	0.761	1.490
Loan Condition	1.290*	1.686*

Source: Field Survey 2013/2014.

Note: \*\*\* = significant at 1percent; \*\* = significant at 5percent; \* = significant at 10percent.

The Tobit coefficients do not directly give the marginal effects of the associated independent variables on the dependent variables. But their signs show the direction of the change in the probability and the marginal amount of credit used as the respective explanatory variable changes (Nkonya et al, 2011).