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Effects of Micro-Credit on Livestock Production among Smallholder Livestock Farmers in Yakurr LGA, Cross River State, Nigeria

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Abstract: ***The study analysed the effect of micro-credit on livestock production among smallholder livestock farmers in Yakurr Local Government Area of Cross River State in Nigeria. Data for the study were obtained using a 3-stage random sampling procedure and analysed with descriptive statistics and multiple regression. Results showed that 55.3% of the respondents were males; 48.7% were aged between 40-49 years; 52% were married; 46.6% had secondary education; 48.7% had farming experience of between 6-10 years; 74.7% had less than 1ha farm size; 64%, 25.3% and 10.7% reared poultry, goat and swine respectively. The results also showed that 78% obtained micro-credit from informal sources while 48% obtained between ₦61,000.00 and ₦80,000.00. The R^2 was 0.73 showing that 73% of the total variations in the dependent variable were explained by the independent variables in the regression model which is a good fit. This result indicated that micro-credit had significant effect on livestock production in the study area. Livestock farmers were constrained by high interest rate charged 33%, few number of financial institutions 23.3% and high cost of feed 20%. Formal financial institutions should extend their services to the area by opening more branches and government should help livestock farmers by subsidizing the cost price of feeds, medication and vaccine.***

Keywords: Effect, Micro-credit, Smallholder, Livestock, Production

1. Introduction

In Nigeria, agriculture is considered the main source of livelihood for majority of the citizenry as it provides between 75 -80 percent of the Gross Domestic Product (GDP) of the country (Delgado, 2009). The major livestock resources in Nigerian consist of 13,885,813 cattle; 34,453,724 goat; 22,092,602 sheep; 3,406,381 pigs and 104,247,960 poultry (RIM, 1992). The livestock sub-sector contributes about 15% to the nation's agricultural output (RIM, 1992). The sub-sector plays a major role in combating unemployment, both in the rural and urban areas where it contributes to the supplementation of farm income. More so, the organic manure from livestock is used to enrich the soil, thereby enhancing crop production and reducing farm expenses especially on fertilizer input.

Livestock and crop production have received tremendous attention in the recent past following the Green Revolution in the 1970s. This has resulted in sustainable production of sufficient grain to meet the global demand by human and livestock consumption and industrial utilization. The next food revolution according to Delgado (2009) will be a ''Livestock Revolution''. As the world's population is expected to grow to 7.5 billion people in 2020 with most of the growth occurring in developing countries (IFPRI, 2001), the demand for animal products is expected to increase abysmally. Livestock products such as milk, butter, cheese, egg and table meat mutton, beef and pork are rich sources of animal protein and essential vitamins needed for developmental growth of human body tissues.

Aside this vital role, livestock also play the role of improving the rural economy in the developing world. Income from livestock is the only ready source of cash to buy farm inputs for crop production at the shortest time in a mixed farm. Income from livestock production is not seasonal like income from crop production and can also be used to pay children school fees, medical care and tax among others things.

Poultry production according to Becker et al. (2003) is gaining popularity in the developing countries due to its role in bridging the protein malnutrition, economic empowerment of the resource poor segment of the society and also fits well in the farming systems commonly practiced.

The agricultural sector is dominated by smallholder farmers in Nigeria. They engage in subsistence agriculture and accounted for more than 90% of the nation's agricultural output. They cultivate less than 2ha of farm land (World Bank, 2008a in Kuye, 2015b).

For the livestock as a sub-sector of the agricultural sector to move to the next level, the methods of livestock production must change in order to allow for efficiency and improvement in productivity. The use of cheap and affordable agricultural credit is a sustainable means of improving agriculture including livestock production.

Agricultural credit influence animal medication and vaccination, nutrition, reproduction, housing, breeding and labour utilization. The importance of using agricultural credit, especially micro-credit, by smallholder farmers irrespective of their income status, is seen from the fact that their expenditure on inputs per hectare is significantly higher. Their higher expenditure on inputs is linked to their higher productivity (Damisa, Kehinde and Omokore, 2010 in Kuye, 2015a). This is the case with smallholder livestock farmers who used microcredit to improve their production levels, Livestock production is multifaceted economic

activity requiring that animals are well fed and bred in an economic and sustainable manner to enable consistency in their production for food and other by-products. There seemed to be dearth of knowledge on the effect of micro-credit on livestock production by smallholder farmers in the study area. The study seeks to fill the knowledge gap.

Objectives of the Study

The broad objective of this study was to analyse the effect of micro-credit on livestock production among smallholder livestock farmers in Yakurr Local Government Area of Cross River State in Nigeria.

The specific objectives were to:
(i) describe the socio-economic characteristics of smallholder livestock farmers in the study area;
(ii) highlight their sources of micro-credit and amount of micro-credit obtained;
(iii) determine the effect of micro-credit on some livestock production variables; and
(iv) analyze the constraints faced by livestock farmers in the study area.

Hypothesis:
The null hypothesis tested was:
HO_1: Micro-credit did not have significant effect on livestock production in the study area.
It can be mathematically expressed as:

HO_1: MCR=LiFe=FCW=MedVac=Lab=et -------- (i)

Where:
MCR = Micro-credit obtained (₦)
LiFe = Livestock Feed (kg)
FCW = Fresh Clean Water (lt)
MedVac = Medication and Vaccination (ml)
Lab = Labour used (manday)
Et = Stochastic error term

2. Methodology

This study was carried out in Yakurr Local Government Area of Cross River State in Nigeria. Yakurr Local Government Area lies between latitude 5^0 40^1 and 6^0 10^1 north of the equator and longitude 8^0 21^1 and 6^0 10^1 east of the Greenwich Meridian. It is about 120 km (75 miles) north west of Calabar, the capital of Cross River State, Nigeria. The area consists of tropical rainforest and a small stretch of derived savannah. Rainfall pattern in Yakurr LGA varies from 1,200 mm – 1,300 mm per year with an average temperature of between 27^0C -29^0C (CRSG Ministry of Local Government Affairs, 2006).

Primary data were obtained from 150 smallholder livestock farmers in the study area. A purposive, three stages random sampling techniques were used to select the respondents. Data were analyzed by using descriptive statistics such as frequency, percentages and mean. Multiple regression analysis was used to determine the effect of micro-credit on livestock production in the area.

The model is specified thus:

$$MCR = \beta o + \beta_1 LiFe + \beta_2 FCW + \beta_3 MedVac + \beta_4 Lab + et \quad \text{--- (i)}$$

Where;
MCR = Micro-credit (amount obtained by farmers ₦)
βo = Intercept
β1 – β4 = Regression coefficients
LiFe = Livestock feed (kg)
FCW = Fresh Clean Water (lt)
MedVac = Medication and Vaccination (ml)
Lab = Labour (man days)
e_t = Stochastic error term
The null hypothesis was tested by using the regression model stated above and F-test.

3. Results and Discussion

Table 1: Socio-economic characteristics of respondents in the study area

Socio-economic characteristics	Frequency	Percentage	Mean
Gender			
Male	83	55.3	
Female	67	44.7	
Age (Years)			
20 – 29	22	14.7	
30 – 29	42	28	
40 – 49	73	48.7	43.5
50 – 59	10	6.6	
60 – 69	3	2	
Marital status			
Single	58	38.7	
Married	78	52	
Divorced	14	9.3	
Household size			
1 – 5 persons	64	42.7	
6 – 10 persons	85	56.7	
11 – 15 persons	1	0.6	
Educational status			
No formal education	20	13.3	
Primary education (1 – 6 years)	37	24.7	
Secondary education (6 – 12 years)	70	46.7	9
Tertiary education (12 -16 years)	23	15.3	
Farm size (ha)			
0.5 – 1.0	112	74.7	
1.1 – 1.5	30	20	
1.6 – 2.0	8	5.3	
Types of livestock reared			
Goat	38	25.3	
Swine	16	10.7	
Poultry	96	64	
Farming experience (Years)			
1 – 5	38	25.3	
6 – 10	73	48.7	7.8
11 -15	30	20	
16 -20	9	6	
Annual income (₦)			
20,001 – 40,000	45	30	
40,001 – 60,000	50	33.3	
60,001 - 80,000	40	26.7	
80,001 – 100,000	15	10	

Source: Field Survey, 2015

The results on Table 1 show that more males 55.3% were involved in livestock production in the study area with majority of them between the ages of 30-49 years. The mean age of 43.5 corresponds with Oviasiogie and Alabi (2002) in Nmadu *et al.* (2012) who reported similar result in a study of poultry farmers in Minna. This result implies that a greater

proportion of the respondents are in their active years. Most 52% of the livestock farmers were married with majority 56.7% having a household of between 6 – 10 persons. This result conforms with the findings of Subba-Reddy *et al.* (2004), Obeta and Nwangbo (1999) in Awoke and Kuye (2015) who emphasized that the impact of household size on agricultural production depend on the magnitude or size, age structure and available farm labour among members of the farmer's household. They also noted that household sizes affect family labour available for work and other household activities.

Livestock farmers were well-educated with most of them 86.7% having attained at least primary education with majority 48.7% having more experience in livestock farming, 6 – 10 years. The result shows that livestock farmers in the area were literate and experienced. This is in agreement with Obasi (2005) who reported that educated farmers are more receptive to innovation adoption and Omonona *et al.*(2010) who opined that farmers level of experience in the production of a particular commodity is one of the determinants of their ability to maximize output using available inputs. Also, Simonyan *et al.* (2010) asserted that education would significantly enhance farmer's ability to make accurate and meaningful decisions.

Table 2: Sources of micro-credit, amount obtained and benefits of using micro-credit by respondents in the study area

Sources of micro-credit	*Frequency*	*Percentage*
Formal	33	22
Informal	117	78
Amount of micro-credit obtained (₦)		
21,000 – 40,000	22	14.6
41,000 – 60,000	46	30.7
61,000 – 80,000	72	48
81,000 – 100,000	10	6.7
Benefits of micro-credit used		
Improved saving in bank account	32	21.3
Paid children school fees	44	29.3
Able to purchase more inputs	22	14.7
Able to hire labour	15	10
Increased number of livestock reared	37	24.7

Source: Field survey, 2015

Results presented in Table 2 show that majority 78% of livestock farmers sourced their micro-credit from informal sources such as friends, money lenders, relatives, ''osusu'' group and age grade. This has gone a long way to limit the size of micro-credit they could access at a time. The disadvantages of informal source of micro-credit include cut-throat interest rate charges, inability to get the required amount at the time needed and very stiff and instant sanction if defaulted. This is in agreement with Oyedele and Akintola (2012) opinion that informal lenders have traditionally provided credit to the rural people but because of their excessive interest rates are considered inefficient for improving productivity and growth. The amount of micro-credit obtained by majority 48% of the respondents was between ₦61,000.00 and ₦80,000.00. Benefit accrued from using micro-credit to run their livestock business include payment of children school fees 29%, increased number of livestock 24.7% and improved saving for future investment 21.3%.

Table 3: Effects of micro-credit on livestock production variables in the study area

Variables	*Coefficients*	*Std error*	*t-values*
Constant	1.790	0.030	5.622
β_1LiFe	0.014	0.003	2.928**
β_2FCW	0.032	0.012	2.537*
β_3MedVac	0.023	0.005	1.418*
β_4Lab	0.042	0.018	3.256**
$R^2 = 0.732$			
Adjusted $R^2 = 0.714$			
F- cal = 52.53 F- tab = 1.58			
SEE = 1.331			
Durbin-Watson = 1.535			

** = Significant @ 5% and * = Significant @ 10%

Source: Field survey, 2015

Results shown in Table3 show that the explanatory variables were able to explain about 73% (R^2 = 0.73) of the effect micro-credit has on livestock production by smallholder farmers in the study area. Specifically, the coefficient of livestock feed (β_1LiFe) fed to animals and labour used (β_4Lab) were positive and statistically significant at 5%. Also, the coefficients of fresh water (β_2FCW) , medication and vaccination (β_3MedVac) were positive and significant but at 10%. The results imply that the amount of micro-credit obtained could lead to increase in the application of these variables in livestock production. Availability of credit to complement the farmers' equity would help them to expand their livestock businesses. Also, increasing the number of livestock would invariably result in increase in the amount of feed, fresh clean water and medication given to the animals. The results agreed with Nmadu *et al.*, (2012) findings that cost of medication tends to increase as population of birds increases. Farmers should be encouraged to use enhanced production system like semi-intensive system which tend to reduce labour input for cleaning their house. This is only possible if the farmers obtain credit to complement their equity in the livestock business. The null hypothesis tested was rejected and the alternative hypothesis accepted since the F-cal 52.53 was greater than the F-tab 1.58. Hence, it was concluded that microcredit significantly affected livestock production in the study area.

Table 4: Constraints facing smallholder livestock farmers in the study area

Sources of constraints	Frequency	Percentage
High cost of medication and vaccine	20	13.3
High interest rate charged	50	33.3
Inadequate number of formal financial institutions	19	12.7
High cost of livestock feed	25	16.7
High cost of both skilled and unskilled labour	15	10
Distance from home to bank	16	10.7
Theft	5	3.3

Source: Field survey, 2015

The results presented in Table 4 show that high interest rate charged 33.3% was the highest constraint facing livestock farmers in the study area while theft 3.3% was the least.

The interest rate 25% - 50% charged by informal sources of micro-credit as compared with the interest rate charged by formal sources 20 – 25% was too high. Majority 78% of the respondents patronized the informal sources in the area. This is due largely to the fact that there is only one bank (First Bank of Nigeria) granting credit facility to farmers in the area. It is located in Ugep, the Local Government Headquarter with a branch in a nearby town, Ekori. Its location is quite a distance (between 25 -45 km) to most of the farmers. This result is in agreement with the assertion made by Oyedele and Akintola (2012) that formal financial institutions by virtue of their location, design, procedure and preference do not favour illiterate, poor smallholder rural farmers.

4. Conclusion and Recommendation

Smallholder livestock production has been significantly influenced by micro-credit in the study area. Availability of micro-credit affected the quantity of feed, quantity of fresh clean water, medication and vaccination as well as labour used by livestock farmers in study area.

Based on the results, the following recommendations were made:

1) Banks should open new branches in the area in line with the Federal Government policy on Rural Banking Scheme.
2) Government should subsidize the prices of livestock feeds, medication and vaccination in the state so that inputs expenditure would be reduced.
3) Livestock farmers should patronize the only formal source of credit available to them presently in the study area in order to cut down the high cost of borrowing from the informal sources in the area.

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