



## Economic Appraisal of Formal and Informal Credit Sources Usage In Livestock Financing Among Women In South-Western Nigeria

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### **Abstract**

*Livestock farming has remained of utmost importance not only as a means to meeting sustenance, protein and micronutrients requirement in food security but also as a source of livelihood of smallholder farmers most especially women in the rural Nigeria. To garner financial resources women livestock farmers have more often resolved to cooperative groups where they access microcredits while some have sought credit from more formal lending institutions. This study was therefore carried out, as a comparative study, to examine the acceptability and determinants of credit accessibility through the formal and informal finance sources in South-Western Nigeria. The survey instrument was a semi-structured questionnaire administered to 120 respondents randomly selected in a three-stage sampling procedure. Analytical tools employed in the study include descriptive statistics and binary logistic regression technique. The study revealed that 82.5% of the respondents currently access microcredits while 71.67% of the respondents will opt for formal institutions where available considering the longer repayment periods and moratorium. However, 92% still prefer cooperatives microcredit for the convenience, timeliness and ease of access. At 5% level, factors that significantly determine access to credit from formal banking institutions include livestock farm size, availability of guarantor, ownership of acceptable and perfected collateral, transaction volume in bank account and the duration for which banking relationship have existed while at 5% level, marital status, household size, stake amount in the cooperative pool account, and availability of guarantor determine access to informal funding source. This study recommends exploring microcredit funding option as they are more able to cater for the financial need of women farmers and hence down-tune the existing financial vulnerability.*

**Keywords:** *Binary Logistic regression, Livestock financing, Women farmers, Livestock production, Microcredit*

### **Introduction**

Livestock production constitutes an important component of the agricultural economy in developing countries and it is an instrument to socio-economic change, improved income and quality of rural life in Nigeria (Okumadewa, 1999), playing multiple roles in the livelihoods of people in developing communities, especially the poor. They provide food and nutrition, work, economic and social status, and ensure environmental sustainability (Moyo and Swanepoel, 2010). Reports of the World Bank (2008) and FAO (2009) indicated that majority of the world's estimated 1.3 billion poor people live in developing countries where they depend directly or indirectly on livestock for their livelihoods. From the global perspective, livestock contributes about 40 percent to the agricultural gross domestic product (GDP) and constitutes about 30 percent of the agricultural GDP in the developing world (World Bank, 2009).

Livestock products account for about 30 percent of human protein consumption (Steinfeld *et al.*, 2006). In reality, the minimum daily protein requirement of 65grammes is a prerequisite alongside the energy daily requirement per capita for an individual to be classified as being food secure. Livestock contribute enormous percentage to the animal-source protein available for human consumption. Waters-Bayer and Letty (2010) opined that beyond the important role that livestock play in the provision of food and nutrition in people's diets, they also have important social functions given that they raise the social status of owners and contribute to gender balance by affording women and children the opportunity to own livestock, especially small stock. In furtherance to this function, livestock serve as risk buffers in marginal areas with harsh environments, providing a means of risk diversification for resource poor small-scale farmers and their communities especially in the event of crop failure (Freeman *et al.*, 2007; Thornton *et al.*; 2007 and Vandamme *et al.*, 2010).

Lawanson (2010) reported that women constitute the major actors in all aspects of life while

Ogunlela and Mukhtar (2009) stated that the role women play and their position in meeting the challenges of agricultural production and development are quite dominant and prominent. Their relevance and significance, therefore, cannot be overemphasized (Nnadozie and Ibe, 1996; Rahman, 2008). Evidences exist, suggesting that women play important roles in livestock production especially in South western Nigeria where cultural practices have made women prominent drivers of the subsector.

Majority of the rural farmers and non-farmer producers are poor, marginalized, and credit starved. This is attributable to the fact that in most cases, they lack the much-needed collateral which is a prerequisite if they want to access loans from the competitive money market. According to Mohammed and Abdulquadri (2012), Women are more constrained than their male counterparts in terms of access to information technology, inputs, credit among others. Giving the challenge of financing, which is however not peculiar to livestock production, women have in a lot of cases been inhibited from transforming household livestock ventures to higher levels of production. Over the years, women have resorted to various approaches to funding their livestock farming activities given the potentials of their ventures in livelihood sustenance and contribution to household upkeep. Some of the funding avenues have been informal, in form of various microcredit financing schemes mostly from cooperatives, and formally through the commercial banks. This research was therefore designed as a comparative study of microcredit and formal banking institutions as means of livestock financing explored by women in rural economy. Specifically, the study assessed the acceptability and determinants of credit accessibility through the formal and informal finance sources.

### Materials and Methods

The study was carried out in South Western Nigeria which consists of Lagos, Ogun, Oyo, Osun, Ondo and Ekiti states. Figure 1 depicts the map of Nigeria showing the South-Western Region.

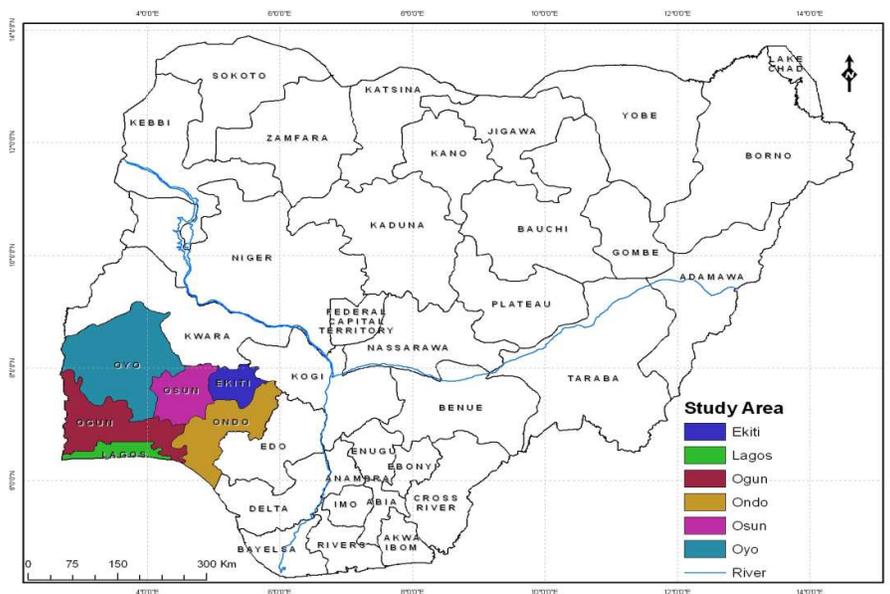


Figure 1: Map of Nigeria depicting South-Western Nigeria

The zone lies between longitude 2°31'1" and 6°00'1" East and Latitude 6°21'1" and 8° 37'1" N. South western Nigeria has a total land area of about 77,818 square kilometers and with an estimated population of about 32.5 million. The area is bounded in the East by Edo and Delta states, in the North by Kwara and Kogi states, in the West by the Republic of Benin and in the south by the Gulf of Guinea. The climate of southwestern Nigeria is tropical in nature and it is characterized by wet and dry seasons. The temperature ranged between 21 and 34°C while the

annual rainfall ranged between 150 and 3000 mm. The wet season is associated with the Southwest monsoon wind from the Atlantic Ocean while the dry season is associated with the northeast trade wind from the Sahara desert. The climate is well adapted to agricultural activities hence the high level of involvement in agriculture mostly by the rural population. There is a pronounced level of livestock production activities going on among the rural populace in the region most especially amongst the women and children. Rearing of livestock can be said to be synonymous to each household as this have been taken up as a means of livelihood by individuals within households. The activity is predominated by women and children and it is even commonplace for the groom's family to pay livestock as part of the dowry during marriage which makes it possible for each wife to own livestock upon getting married and over time the children gain access to such livestock especially those that pay keen interest in catering from such livestock animals. There is also the existence of sharing formulae which allows other individuals to tend livestock on another's behalf and then they share the offspring from such livestock animals.

Data used for the study were primarily sourced with the use of semi-structured questionnaire. The questionnaire was designed to elicit the determinants of formal and informal credit access by women livestock farmers in the study area. A three-stage sampling technique was used in the selection of the sample size for this study. The first stage involved the purposive selection of one local government area from each of the six States. The selected LGAs were Ikorodu (Lagos State), Irewole (Ogun State), Oriade (Osun state), Iseyin (Oyo State), Okeigbo (Ondo State), Gbonyin (Ekiti State). The selection criterion was that selected LGAs were located in rural areas of the States. The second stage involved the random selection of two villages from each local government area using the State Agricultural Development Project (ADP) Village listing. The randomly selected villages include Imagbon, Abule Igbira, Aba Lawani, Iwaraja, Fidiwo, Molarere, Aba Sule, Apenpe, Agunla, Lipepeye, Iro and Odilowo. The third stage involved the selection of five female livestock farmers who utilize microcredit and five female livestock farmers who utilize funding sourced from formal banking institutions in their livestock production activities at some point in time. This gave a total number of one hundred and twenty respondents who were interviewed during this study.

With the use of descriptive statistics and the binary logistic regression model, the study carried out a comparative analysis, assessing acceptability and determinants of formal or informal credit accessibility by women farmers in South Western Nigeria. The explicit function for Binary Logistic regression is expressed as:  $Y = \beta X_i + e$

The implicit function is stated thus:  $Y = \beta X_1 + \beta X_2 + \dots + \beta X_7 + e$

For women farmers that accessed formal credit sources, the variables modeled are as indicated:

**Where,** Y is a dichotomous response variable (1 for formal credit source and 0 otherwise),  $X_1$  = average monthly income,  $X_2$  = awareness of funding terms and conditions,  $X_3$  = livestock farmsize,  $X_4$  = availability of guarantor,  $X_5$  = ownership of acceptable and perfected collateral,  $X_6$  = transaction volume in bank account and  $X_7$  = duration of banking relationship,  $X_8$  = Marital Status,  $X_9$  = Household size.

For women farmers that accessed informal credit sources, the variables modeled are as indicated:

Y is a dichotomous response variable (1 for informal credit source and 0 otherwise),  $X_1$  = average monthly income,  $X_2$  = awareness of funding terms and conditions,  $X_3$  = livestock farmsize,  $X_4$  = availability of guarantor,  $X_5$  = ownership of acceptable and perfected collateral,  $X_7$  = duration of cooperative membership,  $X_8$  = Marital Status,  $X_9$  = Household size,  $X_{10}$  = stake amount in the cooperative pool account.

The analysis was carried out separately for the two categories of respondents in order to have a comparative of both categories and gain better insight into both funding structures.

**Results and Discussion**

Table 1 presents the distribution of the respondents based on their socioeconomic characteristics. Results from the table revealed that majority of the respondents were in their active age given that 80% were aged between 21 and 50 years. About 72.5% of the respondents were married which might be an indication that they had access to family labour to assist with tending the livestock. Up to 25% of the respondents had no form of formal education.

**Table 1: Socio-economic characteristics of sampled women livestock farmers**

Parameters	Category	Frequency	Percentages
Age (in years)	11-20	10	8.3
	21-30	33	27.5
	31-40	27	22.5
	41-50	36	30.0
	>50	14	11.7
	<b>Total</b>		<b>120</b>
Marital Status	Single	25	20.8
	Married	87	72.5
	Divorced	-	-
	Widow	8	6.7
	<b>Total</b>		<b>120</b>
Educ. Status	Primary education	49	40.8
	Secondary education	21	17.5
	Tertiary education	2	1.7
	Adult education	18	15.0
	Quaranic education	-	-
	No formal education	30	25.0
<b>Total</b>		<b>120</b>	<b>100</b>
Monthly Income	≤ ₦10,000	77	64.2
	₦ 10,001 - ₦20,000	23	19.2
	₦ 20,001 – ₦ 30,000	16	13.3
	₦ 30,001 – ₦ 40,000	3	2.5
	₦ 40,001 – ₦ 50,000	1	0.8
<b>Total</b>		<b>120</b>	<b>100</b>
Household Size	1-3	18	15
	4-6	70	58
	7-9	24	20
	10-12	8	7
	<b>Total</b>		<b>120</b>
Source of current financing	Cooperatives	99	82.5
	Commercial bank	21	17.5
Preference of funding alternative	Cooperatives	110	91.7
	Commercial bank	10	8.33

Source: Field survey, (2016)

This may be to an extent prevent them from being financially inclusive especially as related to formal banking. Evidently, majority of the women had incomes of less than N10,000.00 which is an indication that they were low income individuals. This is an indication the women were financially marginalized which may be a major constraint to expansion plans in their livestock farming. 73% of the respondents had a household size of 6 and below. This implies that the respondents had access to family labour which they may be engaging in livestock rearing.

82.5% affirmed that they access fund through the various cooperatives of which they were members. 91.7% of the respondents indicated preference for cooperatives as a means of financing their livestock production. This they attributed to the fact that accessing fund through their cooperatives societies were less challenging as opposed to formal banking institution where are unable to meet some conditions precedent to credit access. However, 71.7% of the respondents asserted that they would patronize formal financial institutions if the stringent rules are relaxed since they are sure they will have longer repayment period than what is obtainable in their cooperative societies.

To identify the determinants of formal credit access by women livestock farmers in the study area, the binary logistic regression model was used. Table 2 shows the result of the binary logistic regression analysis.

Table 2 reveals that the logistic model explains 72.1% of the factors determining access to formal credit source by the women livestock farmers in the study area. From the table, it can be seen that ownership of acceptable and perfected collateral was significant at 1 % while transaction volume with bank, duration of banking relationship, availability of guarantor and livestock farm size were significant at 5%. One question that may be interesting may be “what form of collateral would a commercial classify as acceptable?”

**Table 2. Parameter estimate for the Logistic Regression Model for Formal Finance Source**

**Variables in the Equation**

Step	Variable	B	S.E.	Wald	Sig.
<b>Step 1<sup>a</sup></b>	X <sub>1</sub> - Monthly Income	.002	.011	.016	.894
	X <sub>2</sub> - awareness of funding terms and conditions	3.671	1.026	10.788	.651
	X <sub>3</sub> - livestock farmsize	.015**	.121	.013	.046
	X <sub>4</sub> - availability of guarantor	0.49**	.261	.024	.036
	X <sub>5</sub> - ownership of acceptable and perfected collateral	2.14***	.819	.056	.007
	X <sub>6</sub> - transaction volume in bank account	2.64**	3.368	.641	.039
	X <sub>7</sub> - duration of banking relationship	5.06**	0.049	.037	.043
	X <sub>8</sub> - Marital Status	0.271	1.026	2.788	.071
	X <sub>9</sub> - Household size.	1.38	.261	.024	.036
	Constant	-.758	1.543	.028	.864

Variable(s) entered on step 1: X<sub>1</sub>, X<sub>2</sub>, X<sub>3</sub>, X<sub>4</sub>, X<sub>5</sub>, X<sub>6</sub>, X<sub>7</sub>, X<sub>8</sub>, X<sub>9</sub>

- a. Overall case correctly predicted 72.1%
- b. Model Chi-square 48.27

To a certain extent, this may be seen to be subjective as the security form will be determined by the bank hence what the respondents regard as being acceptable may be turned down as unacceptable by the bank. The number of years of banking with a commercial bank is as well positively significant. It therefore implies that new women livestock farmers approaching the bank will be required to wait for years before they can start enjoying funding benefit which is unlike the situation in cooperatives societies. Transaction volume with the bank being positively significant will perpetually pitch the low-income women livestock farmers at a disadvantage when it comes to being able to satisfy such loan conditions by the commercial

bank.

**Table 3: Parameter estimate for the Logistic Regression Model for Informal Finance Source**

<b>Variables in the Equation</b>					
Step	Variable	B	S.E.	Wald	Sig.
Step 1 <sup>a</sup>	X <sub>1</sub> - Monthly Income	.024	.014	.012	.606
	X <sub>2</sub> - awareness of funding terms and conditions	3.671	1.026	10.788	.651
	X <sub>3</sub> - livestock farmsize	.065	.119	2.15	.0698
	X <sub>4</sub> - availability of guarantor	0.49**	.261	.024	0.043
	X <sub>5</sub> - ownership of acceptable and perfected collateral	2.14	.819	.056	.007
	X <sub>8</sub> - Marital Status	2.64***	3.368	.641	.009
	X <sub>9</sub> - Household size.	5.06**	0.049	.037	.043
	X <sub>10</sub> = stake amount in the cooperative pool account	0.271**	1.026	2.788	.041
	X <sub>11</sub> - duration of cooperative membership	1.38	.261	.024	.036
	Constant	-25.36	3.6783	6.018	.434

Variable(s) entered on step 1: X<sub>1</sub>, X<sub>2</sub>, X<sub>3</sub>, X<sub>4</sub>, X<sub>5</sub>, X<sub>8</sub>, X<sub>9</sub>, X<sub>10</sub>, X<sub>11</sub>

- a. Overall case correctly predicted 80.05%
- b. Model Chi-square 51.98

Table 3 reveals that the logistic model explains 80.05% of the factors determining access to credit from cooperative societies among the female livestock farmers in South Western Nigeria. From the table, it can be seen that availability of guarantor, household size, stake amounts individual has in the cooperative society were all significant at 5% while the marital status was significant at 1%. One may deduce from this finding that accessing credit by small scale livestock women farmer was a lot easier through informal sources than through the commercial banks. The microfinance means of funding appeared to be more integrity-based than the commercial banks. In other words, the women farmers could more readily access financing from cooperatives based on their personal guarantee. This is a promising observation given that most individuals in rural areas are usually very protective of the family name which therefore causes there to be low default level among the rural women despite the fact that no tangible property had been pledged.

**Conclusion and Recommendation**

Having established the major roles that cooperatives play through the granting of micro credits in livestock financing in the South-Western Nigeria, the study therefore recommends further exploring microcredit funding option as they are more able to cater for the financial need of women farmers and hence down-tune the existing vulnerability among the group. There is the need to put better structure in place in terms of cooperatives management in order to be able to harness the numerous benefits of cooperatives. Long-standing Cooperatives should be assisted by government through the advancement of loans to the societies for onward lending to members as one may largely say that the chance of prompt repayment is very high. There is

the need to put in place periodic trainings of cooperative management staff such that their skills are sharpened for better management.

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