

## ANALYSIS OF FACTORS INFLUENCING ACCESS TO FORMAL CREDIT AMONG POULTRY EGG FARMERS IN JALINGO LOCAL GOVERNMENT AREA, TARABA STATE, NIGERIA

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### ABSTRACT

This study analyzed factors influencing access to formal credit among poultry egg farmers in Jalingo Local Government Area, Taraba State, Nigeria specifically the objectives are to: analyze the factors influencing access to formal credit among poultry egg farmers and identify the constraints faced by poultry egg farmers in formal credit acquisition. Snowball sampling technique was used to administer 98 questionnaires. Descriptive statistics and probit model were used to analyzed the data. The probit model analysis result showed that age ( $P<0.01$ ), educational level ( $P<0.01$ ), membership of cooperative society ( $P<0.05$ ) and collateral security ( $P<0.10$ ) had significant influence on access to formal credit among poultry egg farmers. The major constraints faced by poultry egg farmers in acquisition of formal credit were lack of collateral security, high interest rates, complex banking procedures and lack of guarantor. Therefore, this paper concluded that accessibility to formal credit is very important to poultry egg farmers as it will enable them to scale up their production. The study recommend that financial institution should reduce the interest rate charged and conditions for obtaining credit.

**Keywords:** access, formal credit, layers, egg, farmers

### INTRODUCTION

Poultry production is the process of rearing birds domestically mainly for the supply of poultry meat and eggs for human consumption (Bukunmi and Yusuf, 2015). Poultry production in Nigeria has been one of the most popular enterprises adopted by small and medium scale farmers in both rural and urban centres. It is one of the major subsectors in Nigerian agricultural industry which supply protein, lipids and vitamins of high zoological value to man (Bamiro *et al.*, 2006) The poultry industry plays important roles in the development of Nigeria economy. The industry provides employment opportunities for both skilled and unskilled labour, thereby serving as a source of income to the people. It provides a good source of animal protein in terms of meat (chicken) and eggs (Akintunde *et al.*, 2020).

Poultry production is capital intensive and the capital includes: poultry pens, feeds, drugs, equipment, day old chicks among others (Adeyonu *et al.*, 2017). Likewise, in Nigeria,

poultry enterprise is among the agribusiness sub-sectors that require additional financing apart from the farmer's own investment fund because it is capital-intensive. Unfortunately, majority of small scale farmers including poultry, in Nigeria have low income and savings capacity (Audu *et al.*, 2007). As a result, most of them find it difficult to adopt modern technology that would have led to increase in their farm incomes (Agom and Idiong, 2002; Adeyonu *et al.*, 2017). Poultry production is regularly a resource-demanding industry with reserves in farmland, structures, technology, tools and breeding livestock dictating the investment portfolios of most kinds of farms (Hazell 2010; Anang and Kabore 2021). Yet, a significant number of these ventures have been recognized to rely upon the provision and access to appropriate financial services. For most developing economies, access to agricultural credit is necessary to sustain growth, which ensures food security and regular income (Akwaa-Sekyi, 2013)

Several interventions aimed at facilitating farmers' access to credit have failed to deliver. Among these are the special palliative schemes to resolve some of the credit related problems facing Nigerian farmers. These include Agricultural Credit Guarantee Scheme Fund (ACGSF); Agricultural Credit Support Scheme (ACSS); Commercial Agricultural Credit Scheme (CACS) and Fadama Development Project (Olagunju and Ajiboye, 2010; Ayegba and Ikani, 2013; Tanimonure *et al.*, 2020). Nwankwo (2013) defined credits as borrowed resources (mostly monies) with explicit terms for refund. Credits serves as a catalyst that activates other factors of production and makes under-used capacities functional for increased production (Amurtiya *et al.*, 2018). A household is said to have access if it is able to borrow from a credit source (formal or informal). Access to credit contributes to increased productivity by bringing input levels closer to the optimal levels, thereby increasing output and productivity (Amurtiya *et al.*, 2018). Poor credit supply is one of the factors responsible for the poor performance of the agricultural sector in Nigeria (Enyim *et al.* 2013; Nwankwo, 2013). Bottlenecks encounter during credit acquisition process further weaken farmers' credit interest (Ibrahim and Aliero, 2012; Ezeh and Anyiro, 2013). The general objective of this study is to examine the factors influencing access to formal credit among poultry egg farmers in Jalingo Local Government Area, Taraba State, Nigeria. The Specific objectives were to:

- i. analyze the factors influencing access to formal credit among poultry egg farmers; and
- ii. identify the constraints faced by poultry egg farmers in formal credit acquisition.

## METHODOLOGY

The study was conducted in Jalingo Local Government Area of Taraba State, Nigeria. The study area lies between 6°30' and 10° 36' N of the equator and longitudes 9°10' and 11° 50' E of the Greenwich meridian. It has a temperature variation between 14.8°C and 34.4° C while the mean annual rainfall is 800mm. The climate of the study area is marked by dry season between October-April and rainy season between April-October. It's bordered to the North by Lau and

Yorro Local Government Areas, and to the south by Ardo - Kola Local Government Area. The Local Government Area has 10 wards and estimated land area of 191km<sup>2</sup> with an estimated population of 187,500 based on 2006 census and the present projected population of 2021 is 291,418 at 3.2% growth rate (National Population Commission, 2006). Some of the crops produce in the study area are rice, maize, Cassava, sorghum, yam etc. Some of the economic activities in the study area are; trading poultry production, fishing, pottery, cloth weaving etc.

Snowball technique was used for this study. It was used to select poultry egg farmers from the study area and a total of 98 poultry egg farmers were sampled and was used for the study. The data for this study were obtained mainly from primary sources. This was obtained by the use of structured questionnaire which were administered to poultry egg farmers in the study area. Descriptive statistics such as means, percentages and frequency tables were employed to identify constraints faced by poultry egg farmers in formal credit acquisition while the probit model was used to determine the factors influencing access to formal credit among poultry egg farmers.

To determine the factors influencing access to formal credit among poultry egg farmers, the study adopted the probit model as used by Inoni *et al.*, 2016. The probit model of access to formal credit of poultry egg farmers is derived from an underlying latent variable model, which is expressed as:

$$Y_i^* = \beta_0 + \beta_{ij}X_{ij} + e_i \quad (1)$$

Where  $Y_i^*$  - an underlying index reflecting the difference between the utility of access to formal

credit and not access to formal credit of poultry egg farmers

$\beta_0$  - the intercept;

$\beta_{ij}$  - is a vector of parameters to be estimated;

$X_{ij}$  - are independent variables which explain access to formal credit of poultry egg farmers; the standard normally distributed error term

$e_i$  - that is independent of  $X_j$  and is symmetrically distributed about zero.

Given the assumptions from the latent variable model, the model for a farmer's access to formal credit of poultry egg farmers is derived as:

$$P(Y_i^* = 1|x) = F(\beta_0 + \beta_{ij}X_{ij}) \dots (2)$$

Where F - a cumulative distribution function, the function that ensures the likelihood of access to formal credit of poultry egg farmers, and it lies strictly between zero and one. Therefore, a farmer access to formal credit control if  $Y_i^* > 0$ , and otherwise, if  $Y_i^* \leq 0$ . Therefore, the model to estimate the probability of a poultry egg farmers access to formal credit can be explicitly stated as:

$$P(Y_i^* = 1|x) = F(\beta X) = \int_{-\infty}^{\beta X} \frac{1}{\sqrt{2\pi}} \exp(-Z^2/2) dz \quad (3)$$

Where P - the probability that the *i*th farmer access formal credit and 0 otherwise; the K by 1 vector of the independent

X - variables;

z - the standard normal variable, i.e.;

Z -  $N(0, \sigma^2)$ ; the K by 1 vector of the coefficients to be estimated;

$F(\beta X)$  - standard normal distribution which is the integral of the probability density function.

The probit model, parameter estimates cannot be interpreted as marginal effects. Therefore, the marginal effect of an independent variable is obtained by calculating the derivative of the outcome probability with respect to an independent variable (Inoni *et al.*, 2016). The marginal effect associated with a continuous explanatory variable  $X_k$  on the probability  $P(Y_i = 1|X)$ , holding the other variables constant, can be derived as follows:

$$\frac{\partial P_i}{\partial X_{ik}} = \phi(X_i \beta) \beta_k \quad (4)$$

where  $\phi$  - Cumulative distribution function for the standard normal random variable;

$\beta_k$  - Coefficient of *k*th explanatory variable.

$(X_i \beta)$  - product of the *k* by 1 vector of the coefficients to be estimated, and transpose of a row vector of values of *k* regressors for the *i*-th poultry egg farmers;

$\frac{\partial P_i}{\partial X_{ik}}$  - partial derivative of probability of access to formal credit with respect to specified explanatory variable.

Description of variable for the access to formal credit model.

$Y_i = 1$  if success i.e. poultry egg farmer had access to formal credit

$Y_i = 0$  if failure i.e. if poultry egg farmer did not have access to formal credit

$X_1$  = Gender (1 = Male, 0 otherwise)

$X_2$  = Age (years)

$X_3$  = Educational level (years of schooling)

$X_4$  = Membership of Cooperative Society (1 = yes, otherwise = 0)

$X_5$  = Annual income (naira)

$X_6$  = Collateral Security (1 = yes, otherwise = 0)

$X_7$  = Guarantor (1 = yes, otherwise = 0)

## RESULTS AND DISCUSSION

### **Probit Results of Factors Influencing Access to Formal Credit Among Poultry Egg Farmers**

The result of the estimated probit regression model on factors that influenced access to formal credit among the poultry egg farmers is presented in Table 1. The model had a good fit with LR  $\chi^2$  62.64 and was significant at 1% level and Pseudo  $R^2$  of 0.51. The log likelihood (-29.84) indicated the overall significance of the model. Coefficients of marginal effects in the probit regression showed that access to formal credit is influenced by age, education level, membership of cooperative society and collateral security.

Age was found to have a negative and significant effect on access to formal credit, this indicated that a 1% increase in age will cause a 3.47% decline in the probability of access to formal credit. This implies that as the age of poultry egg farmers increases, the more risk averse they become and less their productivity. This result is in agreement with the findings of Amurtiya *et al.*, (2018) who appraised the analysis of rural farm households' access to formal agricultural credit in Yola South Local Government Area, Adamawa State, Nigeria and found inverse relationship between access to credit and age.

Education level is another variable found to have a positive and significant effect on access to formal credit. The results revealed that a 1% additional year of education increases the likelihood of poultry egg farmers access to formal credit by 26.98 %. Similar result was obtained by Assogba *et al.* (2017) in their study on determinants of credit access by smallholder farmers in North-East Benin who identified education as a significant determinant of formal credit access.

Membership of cooperative society was found to positively correlated to poultry egg farmers access to formal credit and significant at 5% probability level. The value of the marginal effects indicates the probability of poultry egg farmers access to formal credit by 20.94% for 5% increase in membership of cooperative society.

This finding corroborates the results of Assogba *et al.* (2017) in North-East Benin and found positive relationship between access to formal credit and membership of cooperative society.

The probability of collateral security with respect to access to formal credit is that 10 % increase in collateral security will lead to 69.83 % increase in the likelihood that poultry egg farmers will have access to formal credit. This implies that as collateral security increases, poultry egg farmer decision to use formal credit will also increase. Similar result was obtained by Anang and Kabore (2021) in their study on factors influencing credit access among small-scale poultry farmers in the Sunyani West District of the Bono Region, Ghana who also found positive relationship between access to formal credit and collateral security.

**Table 1: Binary Probit Results on Factors Influencing Access to Formal Credit Among Poultry Egg Farmers (N = 98)**

| Variables                            | Coefficient | Std. Error | z     | p-value  | Marginal effects |
|--------------------------------------|-------------|------------|-------|----------|------------------|
| <b>Gender (X<sub>1</sub>)</b>        | -0.588886   | 0.5424198  | -1.09 | 0.278    | -0.1734046       |
| <b>Age (X<sub>2</sub>)</b>           | -0.1286044  | 0.0365255  | -3.52 | 0.000*** | -0.0346529       |
| <b>Education (X<sub>3</sub>)</b>     | 1.001436    | 0.1770303  | 5.66  | 0.000*** | 0.2698401        |
| <b>Membership (X<sub>4</sub>)</b>    | 1.096937    | 0.4794477  | 2.29  | 0.022**  | 0.2895321        |
| <b>Annual Income (X<sub>5</sub>)</b> | 1.42e-06    | 1.47e-06   | 0.96  | 0.336    | 3.82e-07         |
| <b>Collateral (X<sub>6</sub>)</b>    | 0.6982928   | 0.4163293  | 1.68  | 0.093*   | .2093997         |
| <b>Guarantor (X<sub>7</sub>)</b>     | 0.2836507   | 0.3850378  | 0.74  | 0.461    | 0.0783129        |
| <b>Constants</b>                     | -10.88864   | 2.315319   | -4.70 | 0.000    |                  |
| <b>LR chi2(7)</b>                    | 62.64***    |            |       |          |                  |
| <b>Pseudo R2</b>                     | 0.5121      |            |       |          |                  |
| <b>Log likelihood</b>                | -29.839797  |            |       |          |                  |

Source: Field Survey, 2021, \*\*\* Significant at 1% level, \*\* Significant at 5% level, and \* significant at 10% level

### **Constraints Faced by Poultry Egg Farmers in Formal Credit Acquisition**

The major constraints faced by poultry egg farmers in formal credit acquisition were lack of collateral security (90.82%), high interest rates (83.67%), complex banking procedures (64.29%) and lack of guarantor (58.16%). In addition, weak farmers group and lack of information were not

left out as challenges facing the poultry egg farmers in formal credit acquisition in the area as presented in Table 2. It indicates that most of the poultry egg farmers were faced with one problems or the other in acquisition of formal credit as it has been ranked in order of their severity.

**Table 2: Constraints Faced by Poultry Egg Farmers in Formal Credit Acquisition (N = 98)**

| Problem                     | Frequency | Percentage (%) |
|-----------------------------|-----------|----------------|
| Lack of collateral security | 89        | 90.82          |
| High interest rates         | 82        | 83.67          |
| Complex banking procedures  | 63        | 64.29          |
| Lack of guarantor           | 57        | 58.16          |
| Weak farmers group          | 42        | 42.86          |
| Lack of Information         | 24        | 24.49          |

Source: Field Survey, 2021, \*Multiple Response

## CONCLUSIONS

This study analyzed the factors influencing access to formal credit among poultry egg farmers in Jalingo Local Government Area, Taraba State, Nigeria. The study revealed that age, educational level, membership of cooperative society and collateral security had significant influence on access to formal credit among poultry egg farmers. The major constraints faced by poultry egg farmers in acquisition of formal credit were lack of collateral security, high interest rates, complex banking procedures and lack of guarantor. Therefore, this paper concluded that accessibility to formal credit is very important to poultry egg farmers as it will enable them to scale up their production.

## RECOMMENDATIONS

The following recommendation were made

- i. Financial institution should reduce the interest rate charged and conditions for obtaining credit to enable poultry egg farmers to access credit facilities from the institutions.
- ii. Poultry egg farmers are advised to form cooperative to enable them access credit facilities easily and frequent meeting can solve the problem of weak farms group.

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