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The effectiveness of interest-free loans as startup capital: Empirical evidence from poultry farmers in Tubah Sub-Division, North West Region, Cameroon

Nyamka Milton Kibebsii*, Bime Mary Juliet Egwu, Anguh Ngenwie Sandrine, Tsi Evaristus Angwafo

Department of Agribusiness Technology, College of Technology, the University of Bamenda, Cameroon

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Kibebsii *et al.*

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Corresponding author:
Nyamka Milton Kibebsii
Email: nyamkahmilton@gmail.com

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ABSTRACT

Loans are an important financial service, especially when savings are challenging due to low income among farmers. Limited access to loans can hinder farmers from acquiring necessary tools and skills to boost production. This study examines the effectiveness of interest-free loans in generating startup capital for poultry farmers in Tubah Sub-division. This research used purposive sampling to select poultry farmers in Tubah Sub-division who had received interest-free loans to invest in poultry farming. With the help of quarter heads, 80 poultry farmers were identified, and a sample size of 52 was calculated using Fisher's formula. Multiple linear regressions (OLS technique) analyzed the relationship between interest-free loans and farmers' startup capital. Results reveal that interest-free loans significantly influence startup capital for poultry farmers in Tubah Sub-division, accounting for 89% of startup capital. The findings suggest interest-free loans are an efficient means of obtaining startup capital, highlighting the need for more financial institutions adopting interest-free policies. Results also reveals an adjusted R-Square of 0.5388, indicating 54% of startup capital changes were due to interest-free loans. The F-value (4.02) shows farmers' ability to obtain interest-free loans significantly influences socioeconomic factors. Government should establish more financial institutions adopting interest-free policies with lower indices than interest-based policies, and fix poultry item prices (like feed) to support farmers, as high feed costs drive up production costs.

Key words: Effectiveness, Interest, Loan, Startup capital, Poultry farming

INTRODUCTION

The poultry sector constitutes an important component of Cameroon's agricultural economy, contributing to food security, employment generation, and income diversification. It accounts for approximately 1% to 4% of the national Gross Domestic Product (GDP) and provides a substantial share of animal protein consumed by the population (Faye *et al.*, 2025). Over the decades, poultry production in Cameroon has experienced significant growth, increasing from 8,008 tons in 1970 to 83,510 tons in 2019, with an average annual growth rate of 5.68%. Poultry currently represents a dominant segment of the livestock sector, contributing about 34.38% to total meat production between 2011 and 2016 (Kouam *et al.*, 2018; MINEPIA, 2016). This expansion has largely been driven by government initiatives aimed at promoting livestock production, although external shocks such as the Boko Haram insurgency have intermittently constrained sectoral performance (Mbodiam, 2016).

Despite its economic importance, the poultry sector in Cameroon continues to face critical structural challenges, particularly in relation to access to finance. Limited access to credit remains a major constraint for smallholder farmers, who often lack the financial capacity to invest in essential inputs such as feed, infrastructure, and equipment. Cameroon's low performance in the "obtaining credit" indicator reflects weaknesses in credit reporting systems, inadequate implementation of collateral and bankruptcy laws, and persistent information asymmetry between lenders and borrowers. Improving transparency in financial information dissemination and strengthening accounting practices have been suggested as mechanisms to enhance credit accessibility (Gorman *et al.*, 2020).

Access to finance is especially crucial for small-scale farmers, whose productivity and livelihood improvements depend heavily on capital availability. Although the government has introduced several programs to facilitate agricultural financing, smallholder farmers still face significant barriers in accessing these funds (Paul *et al.*, 2021). Conventional loan systems are often characterized by stringent conditions, including collateral requirements, high interest rates, and complex administrative procedures, which disproportionately exclude farmers operating within the informal sector. As a result, many farmers resort to informal credit sources, often at higher costs, thereby limiting their capacity for sustainable investment and growth (McCarty, 2001).

In this context, interest-free loans emerge as a potentially viable alternative financing mechanism. Unlike conventional loans, interest-free credit reduces the financial burden on borrowers and may enhance their ability to invest in productive activities. However, access to such loans is still influenced by several factors, including income level, business experience, repayment history, and availability of collateral. These conditions vary across institutions and often create inconsistencies that further complicate credit acquisition (Ekane *et al.*, n.d.). The complexity of these requirements contributes to low investment rates and slow economic growth, particularly in rural economies aiming for long-term development targets such as Cameroon's Vision 2035.

Empirical evidence supports the importance of credit access in improving household welfare and agricultural productivity. For instance, Atamja and Yoo (2021) demonstrated that access to credit significantly enhances household welfare, while credit constraints negatively affect economic outcomes. Similarly, Clement (2022) highlighted the role of relational factors such as trust and pre-existing relationships in influencing lending conditions, suggesting that social capital plays a critical role in financial access. These findings collectively underscore the importance of developing alternative financing systems that are more inclusive and accessible to smallholder farmers.

From a theoretical and conceptual perspective, the relationship between interest-free loans and startup capital can be understood through a financing-production framework. As illustrated in Fig. 1, poultry

farmers require startup capital to initiate production activities, which can be sourced either from interest-free loans or interest-based loans. Interest-free loans, obtained from financial institutions, non-governmental organizations (NGOs), informal associations (such as Njangi), and social networks (family and friends), enable farmers to engage in poultry production without the burden of interest payments. This, in turn, enhances their operational effectiveness and capacity to achieve desired production outcomes. The framework therefore establishes a direct linkage between financing sources, startup capital formation, and production effectiveness.

However, despite growing recognition of the potential benefits of interest-free loans, there remains limited empirical evidence on their effectiveness as a source of startup capital in the context of poultry farming in Cameroon. Existing studies have primarily focused on general credit access and welfare outcomes, with insufficient attention to the specific role of interest-free financing mechanisms in supporting agricultural entrepreneurship at the local level.

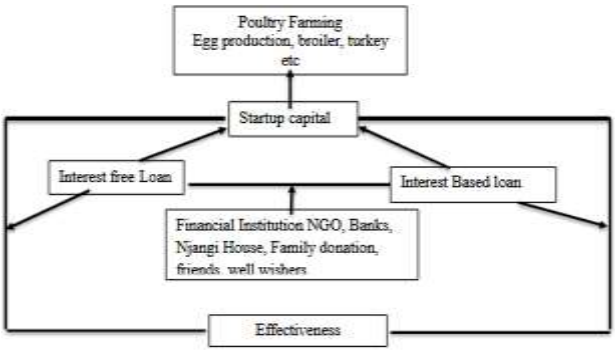

Fig. 1. Concept of interest free loans (Anguh, 2022)

The literature reveals a clear gap in understanding how interest-free loans specifically contribute to startup capital formation among poultry farmers, particularly in localized contexts such as Tubah Sub-division. Moreover, there is limited empirical analysis of the socioeconomic and financial determinants influencing farmers' ability to access such loans.

In response to this gap, the present study aims to:

1. Examine the determinants of poultry farmers' ability to obtain interest-free loans, focusing on socioeconomic characteristics and financial capacity.
2. Assess the effectiveness of interest-free loans as a source of startup capital for poultry farming in Tubah Sub-division.

MATERIALS AND METHODS

This research used purposive sampling to select poultry farmers in Tubah Sub-division who had received interest-free loans to invest in business. With the help of quarter heads, 80 poultry farmers were identified, and a sample size of 52 was calculated using Fisher's formula (95% confidence level, 8% confidence interval, 0.5 standard deviation). 52 questionnaires were distributed and collected for analysis. Data were analyzed using multiple linear regression (OLS technique) to examine the relationship between interest-free loans and farmers' startup capital.

Model of specification

This section specifies the models to be used in this research. Since the research deals in both quantitative and qualitative data, both continuous and categorical data. The Ordinary Least Square technique will be used in the analysis of these data obtained from the field since the data will have to analyzed quantitatively while other aspects analyzed qualitatively. For this research, two models will be specified:

Model 1: Determinants of farmers' ability to obtain interest free loans

In this model, we will be analyzing the factors that determine poultry farmers ability to obtain interest free loans. Two general sets of factors will be analyzed to determine if they impact farmers' ability to obtain interest free loans. These are;

i) Farmers' socioeconomic characteristics

Farmers' socioeconomic characteristics refer to that standing or class of a farmer. There are many aspects describing the socioeconomic characteristics of farmers, but the characteristics we will be interested in this research include; their age, gender, educational status.

ii)Farmers financial capacity

This refers to the financial ability of the farmer as a result of a number of factors such as the farmers' monthly income, experience in business, loan

repayment history, and off-farm income in this model, we will be analyzing how the farmers socioeconomic characteristics and financial capacity contribute to the amount of interest free loans they obtained. The amount of obtained interest free loan is the dependent variable and will be denoted as '∑'.

The relationship in this model will be written simply as;

$$\Sigma=\alpha+\beta_1X_1+ \beta_2X_2+ \beta_3X_3+ \beta_4X_4+ \beta_5X_5.....+ \beta_nX_n+ \theta$$

Where X_1-X_5 refers to the socioeconomic characteristics of farmers and X_6-X_n represents the finance ial capacity of poultry farmers and ∑ is the amount of interest free loan obtained by farmers. θ is the error term. α and β are parameters of the various socioeconomic characteristics as well as farmers' financial capacity.

The multiple linear regression model of the OLS technique is used to analyze this relationship

Model 2: Relationship between interest-free loans and startup capital

In this model, we will be deducing if the obtainment of interest-free loans is an effective way of generating startup capital for farmers. Here we will analyze the various means through which these farmers obtain these free loans and how much these loans contributed to the farmers' startup capital. The various means farmers use in obtaining these interest free loans (∑) maybe summarized as follows, with emphasis on accessibility, sustainability, and impact.

1. Loans from l institutions (banks or NGO) ($\sum_1$)
2. Loans from family/friends ($\sum_2$)
3. Loans from informal associations (Njangi etc.) ($\sum_3$)
4. Loans from well-wishers or sponsors ($\sum_4$)

These loans will be assessed to see if they contribute to the generation of the farmers' startup capital denoted (£). Therefore, this model will be given as

$$£=\alpha+\beta_1\Sigma_1+ \beta_2\Sigma_2+ \beta_3\Sigma_3+ \beta_4\Sigma_4+ \beta_5\Sigma_5.....+ \beta_n\Sigma_n+\mu$$

Where, Σ_1-Σ_n are the total amounts obtained in interest free loans from various sources while £ is the total amount of start-up capital used in the starting of the poultry business and μ is the error term. α and β are parameters of the various independent variables.

The multiple linear regression models will also be used to analyze this relationship.

Estimation technique and description of variables

Dependent variables

1. Interest free loan capital (∑): this will be measured in the amount of loans the poultry farmers received
2. Startup capital (£): this is the total amount of money the poultry farmers used to start up business, so this research examines how much of that money is accounted for by interest free loans. So this will be measured by the total amount of money (interest free loan plus farmers' additional money) the poultry farmers had for startup.

Independent variables

1. Farmers age
2. Farmers Educational Status
3. Farmers Gender: this is measured by male or female
4. Farmers Business Experience: it is measured in months
5. Farmers loan repayment history: it's measured by calculating the repayment rate
6. Farmers monthly income: measured in the amount of money the farmer saves monthly
7. Farmers off farm income: measured with other businesses the farmer operates on
8. Loans from financial institutions: measured in the amount of money received from financial institutions
9. Loans from family/friends: measured in the amount of money received from family and friends
10. Loans from informal associations (tontine house): amount of money received from njangi house

The table of measurability of variables and expected signs is shown in the Table 1.

Table 1. The table of measurability of variables and expected signs

Variable	Measurement	Expected signs
Interest free loan(dependent)	Amount of loans received by poultry farmers	Positive
Startup capital (dependent)	Amount of money used by the poultry farmer to start up business	Negative
Gender	Male=1 or female=2	Positive
Age	18-50 years and above	Positive
Educational level	No formal =1, Formal=2	Positive
Marital status	Married=1 or Single=2	Positive
Religion	Christian=1 or Muslim=2	Positive
Monthly income	20000-100000=1 and Above=2	Positive
Repayment history	Repayment rate	Positive
Collateral security	Assets	Positive
Business experience	Years	Positive
Off farm employment	Other businesses	Positive
Loans from financial institutions	Amount of money received from financial institutions	Positive
Loans from family members and friends	Amount of money received from family and friends	Positive
Loans from Njangi	Amount of money received from informal associations	Positive
Loans from NGO'S	Amount of money received from NGO'S	Positive

RESULTS AND DISCUSSION

An ANOVA regression was carried out to determine the influence of certain factors on the farmers' ability to obtain interest free loans. The dependent variable here was the amount of interest-free loan obtained from various sources while the independent variables were the socioeconomic characteristics and farmers' financial capacity. The results are represented on the Table 2 below.

Table 2. ANOVA regression model

Dependent variable (Interest free loans)	Coefficient (F-value)
Gender	16.1270072 (0.03)
Age	16.13146067** (4.63)
Educational Level	22.818761677 (1.60)
Marital Status	27.7198238* (6.98)
Religion (1 = Christian)	24.97740516 (0.62)
Monthly Income	19.0732970 (0.36)
Collateral security	20.355998 (1.85)
Business experience	16.8086406 (1.07)
Loan repayment history	16.7648203** (8.36)
Off farm employment	22.3491543 (0.05)
Residual	20.4345008

*** Significant at 1%; ** Significant at 5%; * Significant at 10%; No of obs = 51; Adj R-Squared = 0.5064; F-Value = 4.02**

The F- values in bracket is relevant in showing the significance of the mean difference, indicating whether the variance between the factors (independent variables) has an effect.

Gender and age all positively influenced the variation of the dependent variable. This indicates that the age of the farmer and their gender all influenced their ability to obtain interest free loans. The Age predictor was found significant at 5% significance level. Results indicated that age and gender both 16 times likely to positively influence the amount of interest free loan obtained by the farmer**.** Farmers' educational level, marital status and religious orientation also positively affected their ability to obtain interest free loans. The marital status predictor was found significant at 10% level of significance. Educational status, marital status and religious inclination of farmers were 22, 27 and 25 times very likely to positively influence the amount interest free loan obtained respectively.

Farmers' monthly income was also found to positively influence their ability to obtain interest free loans. This indicates that the more income the farmers possessed, the more likely they were to obtain interest free loans as farmers with a monthly income were 19 times more likely to obtain interest free loans than those farmers who didn't. Similarly, farmers' collateral security possessed also positively influenced their ability to obtain interest free loans. This indicates that the more collateral they possessed, the more likely they were to receive interest free loans from the various sources as farmers with collateral security were more than 20 times likely to obtain interest free loans than those farmers with no collaterals.

Also, farmers' business experience and loan repayment history also positively influenced their ability to obtain

interest free loans. The loan repayment history predictor was significant at 5% level of significance. Results indicated that farmers with business experience and with a good loan repayment history were both 16.8 very times likely to obtain interest free loans than farmers with no experience and with a poor repayment history. Lastly, farmers' ability to influence interest free loans was also positively influenced by their possession of an off farm job. So farmers with an off farm job were over 22.3 times more likely to receive interest free loans than those who didn't. The adjusted R-Square value of 0.5064 indicates that 50.64% of the variation in farmers' ability to obtain interest free loans was accounted for by the changes in the various independent variables. 49.46% of those changes was accounted for by other factors. The F-value of 4.02 indicates that the model was globally significant at 5% level of significance, and thus reliable.

Interest-free loans influence on startup capital

A linear regression model was employed to determine the influence of interest free loans as a means of obtaining startup capital for. The independent variable here was the total amount obtained as interest free loans from various sources (NGOs, Family, Friends, Microfinances, other sources) while the dependent variable was the start-up capital utilized for the business. The results are indicated on the Table 3 below.

Table 3. Influence of interest free loan in startup capital (Linear regression model)

Dependent variable (Startup capital)	Coef. (F-Value)
Interest-free loans	0.89*** (7.71)
Constant	481932.3** (2.69)

The linear regression result indicated that 0.89 or 90% of the startup capital of businesses were made up by the interest free loans they obtained from various sources, indicating that these interest free loans are efficient means of obtaining startup capital. This is supporting by Beck (2013) in her article which stated that an interest-free economic system has profound and positive impacts on investment spending, consumption spending and aggregate expenditures, all of which in turn increase output, employment and income. The constant value indicates that if interest free loans are ignored, farmers will still afford an average start-up capital of 481, 932 FRS. This result was significant at 5% level of significance. This F-value of 59.41 is significant at 1% significance level indicating the model fits. The adjusted R-Square value of 0.5388 indicates that 54% of the change in startup capital was caused by changes in the interest free loans. Changes in start-up capital may also be accounted for by other sources.

CONCLUSION

Earlier studies have proven that finance is essential in agriculture regardless of the scale. However, many agricultural farmers are limited by inadequate access to loan given that they lack loan facilities, limited knowledge about loan acquisition and maintenance, among others. Although microfinance made it possible for agricultural farmers to acquire loans, the loan usually has short terms and with interest rate. In such situation, it is unsuitable for agriculture since agriculture needs a long term loan for their investment to materialize. From the analysis it is seen that socioeconomic and financial capacity of poultry farmers in Tubah, had a positive influence in their ability to obtain interest free loans and 90% of the farmer's capital was made up of interest free loan obtained from financial institutions, NGO's, family and friends and some agricultural programs, and the adjusted R-square value of 0.5388 indicates that 54% of the change in startup capital was caused by a change in the interest free loan, showing that the interest free loan is effective in generating startup capital for poultry farmers in this area.

RECOMMENDATIONS

1. Poultry farmers should create cooperative among themselves where they can easily get long term interest free loan to startup their farms in a reasonable quantity, where they will not have to go through the condition of collateral to get the loan ,and this cooperative will also assist them in marketing of poultry products produced
2. Furthermore, there is a need for training/workshops, feedback/monitoring, networking and online repayment system to make interest free micro credit loans more successful.

3. Poultry farmers should be alert so as to be sensitized and educated on the various financial institutions or organization that give out interest free loan do as not to be left behind
4. Farmers should be tutored on the benefits of obtaining interest free loan to reduce their fair and tusk of failing in business and hence a burden to repay the loan

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