EFFECT OF CREDIT UTILIZATION ON PROFITABILITY OF COMMERCIAL POULTRY PRODUCTION IN SOUTH-WESTERN, NIGERIA

BY

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Certification

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DEDICATION

I dedicate this thesis to God, the Almighty, the one that has been faithful and saw me through this programme I return all glory to him who is the same yesterday today and forever.

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ABSTRACT

Poultry enterprise is capital intensive; hence, most commercial poultry farmers rely on credit facilities to sustain their businesses. Previous studies established that access to credit enabled farmers' participation in commercial poultry production. However, information on how the use of credit affects profitability of commercial poultry production is scanty. Therefore, the effect of credit utilisation on the profitability of poultry production in Southwestern Nigeria was investigated.

A four-stage sampling procedure was used. Ogun, Oyo and Ondo states were randomly selected; and three Local Government Areas (LGAs) in each state based on prevalence of commercial poultry entrepreneurs. Cluster sampling technique was used to select two communities where poultry enterprises huddled in the selected LGAs. Ten percent of the entire poultry farmers were selected to give a total of 250 respondents. Data were collected using interview schedule on respondents' socio-economic and enterprise characteristics (age, education, occupation, type of enterprise and management practice), access to credit facilities, attitude towards use of credit and utilisation of credits, constraints to utilisation of credit and profitability of commercial poultry farming. The Benefit cost ratio was used to estimate profitability. Indices of credit accessibility (low: 0.00-4.37; high: 4.38-22.00), credit utilisation (low: 0.00-10.42; high: 10.43-19.00), attitude towards use of credit for poultry enterprise (unfavourable: 36.00-63.70; favourable: 63.80-84.00) and profitability (low; ₦3,818,278.29 - ₦12,550,288.00; high; ₦12,550,289.00-₦86,427,167.00) were generated. Data were analysed using descriptive statistics, Chi-square, Pearson product moment correlation and ANOVA at $\alpha_{0.05.}$

Most respondents were male (74.8%). Age and years of formal education were 42.56±9.84 and 17±9.26 years, respectively. More than half (52.8%) engaged in poultry production as their primary occupation, 54.4% combined egg and meat production and 63.6% used battery cage system. Credit was mostly accessed from cooperative societies ($\bar{x}$=1.19) and family/friends ($\bar{x}$=1.07). Sixty two percent of respondents had favourable attitude towards the use of credit in their enterprises while access to credit facilities (78.60%) and credit utilization (67.2%) were low among them. High interest rates and high risk associated with poultry enterprise ranked highest as constraints to use of credit in poultry enterprise. The net profit from poultry production was ₦1,766,230.95±809,396.46 and profitability was high among 67.8% of the respondents. Size of enterprise (r=0.15), years of farming experience (r=0.29), access to credit facilities (r=0.14), number of employees (r=0.31) and credit utilisation (r=0.085) correlated significantly to profitability of commercial poultry enterprise. Farmers differed significantly in their profitability depending on their level of credit utilisation, type of poultry enterprise and location. Profitability was significantly higher among high credit users (₦16,849,577.83±44,267,049.48) than low credit users (₦6,740,704.90±20,671,384.92). Combined Meat and egg producers had higher profitability (₦18,576,837.38±44,106,264.29) than meat only (₦15,639,874.67±47,308,877.27) and egg only producers (₦8,002,758.70±29,298,672.40). Profitability was higher in Ogun (₦18,792,463.78±23,062,122.53) than Oyo (₦15,564,957.58±46,957,103.9915) and Ondo (₦10,177,560.11±53,875,752.40) states.

Credit utilisation enhanced the profitability of commercial poultry enterprise in Southwestern Nigeria. Profitability was highest in Ogun state and among poultry farmers who combined egg and meat production in their enterprise.

Keywords: Poultry profitability, Egg and meat production, Commercial farming, Agricultural credit
Word count: 478

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CHAPTER ONE

INTRODUCTION

1.1 Background to the study

Agriculture continues to be the most important sector of the Nigerian economy in terms of providing employment. Although its contribution to the nation's foreign exchange earnings is relatively low compared with that of the oil and gas sector, it employs about 70% of the workforce and also, accounts for slightly more than 40% of Gross Domestic Product, (United State Agency for International Development - USAID, 2013). According to Adeyemo and Onikoyi (2012), livestock is an important aspect of agriculture that contributes between 10 and 38 % of non-oil foreign exchange earnings of the country. Poultry production is important in supplementing the income of households in most developing countries. Its production has assumed an important role as a commercial activity with enormous potential for rapid economic growth (Ekunwe *et al*., 2006). Furthermore, Assa (2012) indicated that poultry production is the fastest growing component of global meat production, even in developing countries like Nigeria.

Poultry is a category of domesticated birds kept by humans for the purposes of eggs, meat and/or feathers. According to Ohio department of health, (2015) and Eseigbe (2005), poultry birds include chickens, quails and turkeys, domestic ducks and domestic geese. Poultry also includes other birds which are killed for their meat, such as pigeons or doves or birds considered to be game, like pheasants (Miller, Richter, McNellis and Mhlanga 2010). Poultry farming is the practice of raising birds such as chickens, turkeys, ducks and geese for the purpose of producing meat or eggs for food (Olarinde and Kuponiyi, 2014). Chickens farmed for meat are called broilers, whilst those farmed for eggs are called layers. Poultry production is a very important source of livelihood for most rural communities. This is because it provides ready cash for emergency needs (Benabdejelie,

Arfaoui and Karari, 2005), supplies the fast-growing human population with high-quality protein, contributes significantly to food security, poverty alleviation and ecologically sound management of natural resources (Nmadu, Ogidan, and Omolehin, 2014). Effiong (2005) observed that consumer preferences are shifted for poultry meat (white meat) given the economic, social and health advantages it has over the other types of meat (red meat). These socioeconomic benefits have led to commercial production of poultry.

Commercial poultry production is the raising of birds mainly for sales and profit. It usually involves large-scale production and huge financial layout. Although poultry keeping in Nigeria started with the traditional free-range system with little financial commitments; birds were allowed to roam about freely. Nowadays, the financial commitment is huge because birds are raised intensively for commercial purposes. According to Carter (2005), the type of cost incurred in poultry production depends on factors such as; housing, breed/varieties, brooding, water and watering equipment, feeds and feeders, light, vaccine and management. This constitute major cost in commercial poultry production. This suggests a need for huge and reliable financial capital which frequently serves as constraints to commercial poultry enterprise. According to Adeyemo and Adeyemo (2009), the overall ranking of the problems militating against commercial egg production was finance. The availability of easy financial capital in form of agricultural credit is essential for the sustainability of commercial poultry enterprise.

Agricultural credit services are provided by both formal and informal institutions. Sani (2000) categorised credit sources into formal and informal. Informal credit sources include private money lenders and friends and relatives. These groups have played some important roles in providing financial capital for agricultural production, but have generally been known to operate against the interest of farmers through the imposition of stiff borrowing conditions. The formal sources include loans and grants from financial institutions like commercial banks, cooperative banks, community banks who are operating under the guideline of the Central Bank of Nigeria (Nwosu, Ekpebu and Udeh, 2007). According to Cole (2002), profit will be impossible without sufficient credit because agricultural profitability involves the adoption of better agricultural practices by farmers. In other

words, access and utilisation of credit enable farmers to make more profitable entrepreneurial choices (Pokrivcak, 2002).

Recognition of credit as a powerful instrument for the development of the agricultural sector has led to a multitude of programmes on agricultural financing in the past few decades (Afolami, Afolabi and Odutola, 2011). Nwosu *et al.,* (2007) posited that several policies were aimed at strengthening the agricultural and farming financial markets include the establishment of schemes, programmes and institutions to address and deliver governments intention in the sector. These schemes for financing agriculture had the first objective of encouraging banks to lend to the sector despite the relatively higher risk and uncertainty. This was done by providing banks with low-cost funds for lending (Afolabi, 2012). Some schemes and banks include Nigeria Agricultural Cooperation and Rural Development Bank (NACRDB), Agricultural Financial Capital Guarantee Scheme (ACGS), Bank of Agriculture (BoA), Agricultural Intervention Fund (AIF), People's Bank (PB) and Community Banks (CB). The main objective of these programmes was to solve the financial problems of farmers and enhance the profitability of agricultural enterprises. Credit supply to farmers is widely perceived as an effective strategy for enhancing the increase in agricultural productivity as well as profitability (Phillip *et al*., 2008).

1.2 Statement of problem

In Africa, agriculture and agro-industries account for more than 30% of national incomes on average, as well as for the bulk of export revenues and nearly three-quarters of her population depending on agriculture to secure their livelihoods (Oram 2012; Connolly 2014). This sector demands an extra source of finance for it to reach its potential. Agricultural credit is considered essential to the process of improving agriculture. According to Mahmood *et al*., (2009), easy and cheap credit is the quickest way to boost agricultural production especially the poultry enterprise. The agricultural sector depends more on credit than any other sector of the economy because of the seasonal variations in the farmers' returns and credit requirement in the transformation of subsistence to commercial farming. Unfortunately, in Nigeria, 70% of the total credits received by Nigerian farmers is non-institutional and takes an informal platform and it receives only one per cent of total commercial bank loans (Global Agricultural Information Network

[GAIN] 2011). This is significantly below the level of other developing countries, e.g. Kenya and Brazil which reportedly registers 6 and 18percent. This could be as a result of several reasons one of which is farmer's poor resource endowment. Most farmers are unable to meet the stipulated criteria for formal credit. As a result, poor farmers are left with no option other than to source credit from informal sources. In an attempt to address the credit need of the Nigerian farmers, the federal government of Nigeria enacted several lending policies and created specialised institutions to carter for credit needs in the agricultural sector. However, little attempt has been made to look into the effects of these facilities on the profitability of the beneficiaries

In term of credit, the poultry enterprise is one area that should be given consideration given the fact that it has a short gestation period of production, and funds accessed and efficiently utilised can be paid back at the appropriate period. Furthermore, the poultry industry in Nigeria has particular has been rapidly expanding in recent years and is, therefore, one of the most commercialized (capitalised) subsectors of Nigerian agriculture (USDA 2013; Adene and Oguntade 2006). However, like other agricultural enterprises, it shares the same investment handicap, which is the high-risk nature arising from ecological and biological factors (Mahboub *et al.,* 2004). According to Effiong (2005), undeveloped technologies for handling, storing, processing and marketing of produce make the poultry enterprise particularly sensitive. Most financial institutions now consider poultry enterprise a high-risk investment due to the high rate of mortality, low productivity and hence low levels of loan repayments (Akanni, 2007). This situation has led to scepticism on the part of financiers when considering financial requests for poultry production. At present, a large proportion of commercial poultry operators are small scale due to deplorable financial standing and high business risk which reduces the level of accruable profit (Oludimu, Awojobi and Akanni, 2004).

The profitability of the poultry enterprise is not only affected by the high cost but also the low-quality feeds, which has a negative impact on productivity; low level of egg production as well as birds' susceptibility to diseases (Oladeebo and Ambe-Lamidi, 2007). The poultry industry is also bedevilled with the risk of diseases; this risk is high in commercial poultry production (Olarinde and Kuponiyi, 2004). Incidences of diseases

have resulted in massive reduction in the sale of poultry products, particularly poultry meat. Consumers of poultry products either reduce their patronage or shifted to other animal products entirely. For instance, the outbreak of the deadly Avian Influenza negatively affected the poultry industry in Nigeria. It resulted in low sales to farmers and consequently drove a good number of them out of business, following the collapse of their poultry farms (Benabdejelie *et al.*, 2005).

A number of factors have been identified as militating against the profitability of the poultry enterprise and utilisation of credit these include, the untimely release of funds, unfavourable credit condition as well as none or partial utilisation of credits for poultry enterprise. According to Akinyele (2005), many banks prefer to pay penalty than risk lending their funds to farmers. Reasons adduced to this are natural disasters, poor farming management, low product prices, loan diversion, high cost of processing loans relative to the actual loans, and deliberate refusal to pay. In some cases where loans are approved, it arrives too late for it to fulfil the purpose for which it was intended or it is made available at an unreasonable interest rate. The government's attempt to institutionalize agricultural financial policies has not yielded the much-needed dividend at the grass root (Sani, 2000; Okwoche Asogwa and Obinne, 2012). Though there are plans to increase credit to the agriculture sector in order to make it profit-oriented and commercialise the sector, it is imperative to assess the effect of credit utilization on the profitability of commercial poultry before that is done. Previous studies on poultry and credit such as Olagunju and Babatunde (2012) focused on the impact of credit on poultry productivity in Southwestern, Nigeria, Odimegwe and Babatunde (2015) assessed the profitability of poultry egg farming in Ogun State, Nigeria, while Adeyemo and Onikoyi (2012) studied the prospects and challenges of large-scale commercial poultry production in Nigeria. However, there seems to be a dearth of literature on the effect of credit utilization on the profitability of commercial poultry production. It is against this backdrop that this study ascertains the effect of credit utilization on the profitability of commercial poultry production in Southwestern Nigeria by providing answers to the following research questions:

1. What are the socioeconomic characteristics of respondents in the study area?
2. What are the enterprise characteristics of respondents in the study area?

3. What is the level of access to credit sources (formal and informal) by respondents in the study area?
4. What is the attitude of respondents towards on credit services in the study area?
5. What are the constraints faced by respondents in the utilization of credit for poultry enterprise in the study area?
6. What is the level of credit utilization by respondents in the study area
7. How profitable is commercial poultry enterprise of respondents in the study area?

1.3 Objectives of the study

The general objective of this study is to ascertain the effect of credit utilization on the profitability of commercial poultry production in South-west, Nigeria. The specific objectives of this study are to:

1. describe the socioeconomic and enterprise characteristics of respondents.
2. ascertain the level of access to credit sources (formal and informal) by respondents
3. determine the attitude of respondents towards on credit services .
4. identify the constraints faced by respondents in the utilization of credit for poultry enterprise .
5. assess is the level of credit utilization by respondents and
6. evaluate the profitability of commercial poultry enterprise of respondents

1.4 Hypotheses of thee study

$H_0$1: Their is no significant relationship between socioeconomic characteristics of respondents and the profitability of commercial poultry enterprise

$H_0$2: There is no significant relationship between access to credit of respondents and the profitability of commercial poultry enterprise

$H_0$3: There is no significant relationship between the constraints to the utilization of credit and the profitability of commercial poultry enterprise

$H_0$4: There is no significant relationship between credit utilization and the profitability of commercial poultry enterprise

$H_0$5: There is no significant difference in the profitability of commercial poultry enterprise across the level of utilization of credit for commercial poultry enterprise

1.5 Justification of the study

Poultry production in Nigeria has remained the largest sub-sector of agriculture contributing about 60% to total livestock production and provides employment opportunities for people across educational, gender and income divide. Hence, support for this industry becomes pertinent to achieve food security, gainful employment, and poverty reduction. This study will reveal the level of profit existing among poultry farmers and how increased credit can boost the enterprise. This information is important in designing specific need-driven interventions by all stakeholders, especially because poultry production is considered a high-risk investment. In addition, access to credit most likely varies with certain socioeconomic characteristics of farmers; therefore, the study will give socio-economic directions to financial interventions, especially in increasing their financial options.

Given that poultry production is usually believed to be bedevilled with slow returns on investment, information on the profitability of poultry enterprise will be important to estimate the repayment capacity of the farmers, which is a veritable determinant in accessing finance from formal financial institutions. This study is set to reveal the constraints to the utilisation of credit for poultry enterprise, with the view of revealing how extension workers and government can enhance utilisation of credit for agricultural purposes. With information on the financial status of farmers' poultry enterprise; research, educational, and extension institutions can henceforth limit technology delivery to what farmers can economically afford. Similarly, the information will help financial institutions to design more feasible repayment pattern, especially after considering the peculiar sensitivity analysis of the enterprise to provide a win-win situation. Also, it can be used by the government and agricultural insurance scheme in designing cushioning strategies to avoid the collapse of some poultry enterprises.

1.6 The study Area

One of Nigeria's six geopolitical and agricultural zones, south-western Nigeria, is where the study was carried out. States in the zone include Oyo, Ogun, Ondo, Osun, Lagos, and

Ekiti. The location was chosen due to the high popularity of poultry farming among locals, the ready market for poultry goods, and the similarity of socioeconomic and political conditions. Latitudes 50 South and 90 North, as well as Longitudes 20 and 80 East, are all located in southwest Nigeria. The Republic of Benin, the Atlantic Ocean, the River Niger, and north-central Nigeria form its northern and western borders, respectively. The land area of southwestern Nigeria is 78,505.17 square kilometers, or about 8% of the total area of the nation.

CHAPTER TWO

LITERATURE REVIEW

2.1 Poultry production

Poultry farms can be classified into two main types: farms for egg production and farms for meat production.

2.1.1. Egg Production

In egg-producing farms, day-old chicks are purchased from specialized hatcheries that produce egg-producing pullets. These pullets are either raised by the egg producer or a pullet grower until they are ready to start laying eggs, which is usually at 19 weeks of age (Beutler, 2007). The egg production cycle lasts for about one year. The pullets and laying hens are raised mainly in environmentally controlled poultry houses in cage systems. To make the maintenance process easier, automated feeding, watering, and egg collection systems were developed. Feed and water are moved on rotating belts which pass by the cages. Another rotating belt collects the eggs and sends them to the sorting chamber to be tested for fertility, graded, and sorted according to size, making them ready for delivery to the market (Farran, 2009). Laying hens in egg producing

farms are usually of small body frame and body weight compared to broilers. They can be classified into two groups: dual purpose chickens or egg producing chickens. Egg producing chicken breeds have been bred and raised for maximum egg production (up to 300 eggs per year) rather than high meat yield (Beutler, 2007). Dual purpose chickens are smaller in size than commercial meat breeds. They are used for meat as well as egg production, and can produce around 200 to 250 eggs per year (Farran, 2009). There have been several developments to increase the marketing value of eggs. These developments include omega-3 eggs; folate and lutein enriched eggs, as well as free run and organic eggs. These specialty eggs increase the value of eggs, and have caused a noticeable change in the market (Farran, 2009).

2.1.2 Meat Production

In poultry farms focused on meat production, broiler breeders are raised mainly in environmentally controlled poultry houses. Fertile eggs are collected and transported to the hatchery, where they are placed in hatcheries for 18 days and then transferred to incubators in the last 3 days (Beutler, 2007). After hatching, broiler chicks are distributed to producers who grow out the birds, and send them for slaughtering and processing after 42 days. These broilers are chickens that are raised for the purpose of meat production and have a larger body frame and weight than layers (Beutler, 2007).

2.2 Facilities on a Poultry farm

Facilities on poultry farms are related to the purpose of the farm**.** In general, all poultry farms share common facilities and equipment such as feeders and drinkers. However, depending on the purpose of the farm, some facilities vary. For instance, some meat production farms include slaughter house facilities. The purpose of having these slaughtering facilities on a broiler farm is to minimise cost and increase profits through vertical integration. Egg production farms are equipped with nest boxes if the breeders are raised on the floor, or, if raised in cages, automated belt systems are installed for collection of eggs. Hatcheries are equipped with incubators that maintain the eggs for 18 days and hatchers that keep the eggs for 3 days, both maintained at the right temperature and humidity required for hatching (Wood *et al*., 1998).

2.3 Production cost of poultry enterprise

The cost of production can be seen from various angles. The inputs may be external (Non- Factor costs) or internal (Factor costs). Internal input is under the control of the farming households and includes land, labour, management and capital. The cash involved in production represents either Cash (Paid) Costs or Non-Cash (Calculated) Costs. Another way to categorize the costs is to distinguish Variable Costs from Fixed Costs. Variable costs rise and fall with the size of the output and the level of the operation. Variable costs (for items such as feed, vaccine and casual labour) can be controlled to some extent and are not incurred when there is no production. Fixed costs (for items such as taxes, insurance, interest, and depreciation on buildings and equipment), are incurred whether or not there is any output.

The Opportunity Cost principle is applied in farm cost accounting. Opportunity costs can be defined as the "income that would have been generated if the production resource/input/factor were put to the next best alternative use". Many farm enterprises/subsystems yield more than one product. Poultry produce eggs, meat and manure. When calculating the cost-price per unit of production, the cash value of the by-products (sold externally or used as a substitute in another enterprise/subsystem of the farm), must be subtracted from the Total Gross Costs. This will result in the Total Net Costs. For the cost-price per unit of production, the Total Net Costs must be divided by the total number of units of production.

The cost-price calculation model splits production costs into two categories: Paid Costs and Calculated Costs. Paid costs involve actual payment in cash or kind for inputs or services used. Calculated costs are determined using mathematical formulae, and include the following:

- Depreciation on the poultry house and equipment;
- Interest on cash in hand and personal capital used to construct the poultry house and purchase equipment, birds and feed;
- Maintenance of the poultry house and equipment; and
- Labour supplied by the farm family.

Calculated Costs include Opportunity Costs as related to the national economy: for example, unemployment (including hidden unemployment) and high rates of devaluation of the national currency. These form a part of the socio-economic reality for the smallholder, and influence the Opportunity Cost of labour (reduced by high unemployment) and of capital (which tends to move towards zero when the rate of currency devaluation is higher than the interest rate). By making use of locally available and renewable materials for poultry housing and equipment, family poultry producers minimize the introduction of external capital into their enterprise.

Large-scale poultry production cannot really be compared with smallholder family poultry, because smallholders often face such constraints as the absence of organised marketing systems and the lack of price rewards for produce quality and uniformity. Therefore, the cost-price calculation for large-scale poultry production (and also that for free-range commercial poultry production) may not be applicable to smallholder family poultry systems without modifications. Elson (1992) showed that for layers, production costs (per dozen eggs produced) increased with space allowance (stock density) per hen. The minimum stock density allowed in the EC (under EEC Council directive 1988/66) is 22 birds/m^2 (450 cm^2/bird). The production cost for birds housed in laying cages at this density is used as a baseline. The percent increases in cost over this baseline (each with their associated management system) are:

- 5 percent for aviaries;
- 7–12 percent for percheries (tiered wire floor aviaries) at 20 birds/m^2;
- 15 percent for cages at 20 birds/m^2 (750 cm^2/bird);
- 21 percent for deep litter systems at 7 birds/m^2;
- 30 percent for straw yards at 3 birds/m^2;
- 35 percent for semi-intensive systems at 0.1 birds/m^2 (1000 birds/ha);
- 50 percent for free-range systems at 0.04 birds/m^2 (400 birds/ha).

2.4 Access to credit and credit constraints

The concept of access to credit has been mentioned by some researchers. Zeller *et al*., (1996) stated that "access to credit is the ability of the household or its members to enter

into contractual arrangements for credit service." Another explanation of access to credit is that "A household has access to a particular source of credit if it is able to borrow from that source, although for various reasons it may choose not to borrow. The extent of access to credit is measured by the maximum amount a household can borrow. If this amount is positive, the household is said to have access (Diagne and Zeller 2001).

Access to credit is often confused with participation in credit programs. Indeed, the two concepts are often used interchangeably in many credit studies. The crucial difference between the two concepts lies in the fact that participation in a credit program is something that households choose to do, while access to a credit program is a limiting constraint put upon them (e.g. availability and eligibility criteria of credit programs) (Diagne *et al*., 2000). Participation is observed when a household applies for and successfully enters in to contractual arrangement for a loan. Thus, the participation is dependent on access to and on the demand for credit. In other words, participation is more of a demand-side issue related to the potential borrower's choice of the optimal loan size, while access is more of a supply-side issue related to the potential lender's choice of the credit limit (Diagne *et al*., 2000).

Access to credit is not only measured by the proportion of households having an outstanding debt, as some rural households apply for credit and are refused, whereas others are self- excluding themselves from the credit market because they fear being turned down, while their application for credit is not zero. Thus, demand for credit can be a latent demand (Duflo *et al*., 2008). In other words, access to credit does not imply that the demand for credit will be satisfied. Lenders determine how much credit is allocated based on the probability of loan default, often resulting in credit rationing. The probability of default may be influenced by a number of factors that include the expected returns of the project, the terms of the loan, market imperfections and the characteristics of the borrower. In practice, households apply for credit, but lenders determine how much credit is allocated to them, based on their perception of the household's creditworthiness. This often results in credit rationing that reflects the lender's perception of the household risk profile, understanding the factors that influence credit rationing highlights specific

interventions that may raise the creditworthiness of households and create advantages for both lenders and households. From the lender's perspective, the improved creditworthiness of borrowers will reduce the risk of default and improve profitability and financial sustainability. From the household side, increased creditworthiness means increased access to credit, which may provide a possible escape route from poverty (Diagne *et al*., 2000).

2.5 Findings from previous studies about access to credit

Most people are unaware that numerous scholars have undertaken investigations on credit restriction and entry to trustworthiness. In order to evaluate the factors that influence how people in community-based organizations and unauthorized lenders prioritize creditworthiness, Zeller (1994) used two-stage probit models in countryMadagascar. At the first stage, it aimed to identify factors that determined why the household or a member of it decides to apply for credit. At the second stage, it was a screening process to find if the lender decides to give the applicant the amount applied for in full, or to partially reduce the credit amount, or to fully reject his or her application. The results showed that formal groups and informal lenders obtained and used information on the creditworthiness of the credit applicant. Land considered as criteria for loan rationing did not play a role either for informal lenders or for members of the group. Informal lenders and group members could obtain information on the wealth, indebtedness and income potential of the credit applicant. Both lenders rationed loan demands in view of the household wealth and the ratio of outstanding debt over income (defined as the leverage ratio). Thus, the results confirmed the theoretical argument that community-based groups had an information advantage over distant formal bank agents. Like informal lenders, the group members had access to information that was only available to insiders of the borrower's community. The substitution of physical for social collateral through group liability could therefore contribute to increasing participation of the poor in credit markets. However, the results also showed that formal group members and informal lenders similarly considered the wealth and leverage ratio as criteria for rationing, it has been able to be determined that financing for the poor also faces its limitations due to the possibility that poorer home families have a tendency to have larger amounts of leverage.

Cuong (2007) empirically analysed the rural credit market in Vietnam in the period 1993–1998. The study distinguished between the formal and informal sectors of the credit market and their interaction with each other. It also highlighted the characteristics of borrowers and their impacts on credit participation and the amount of credit obtained. Heckman two-stage econometric models were used to identify the probability of participation in the credit market and amount of credit received as a joint determination of the function of the household's application for credit and the function of lender's decision on supply. The result of the study showed that the education level, condition of health, fixed assets held and distance from the household to a formal bank branch were the most important factors affecting the household's access to credit. The demand and supply in the formal credit market showed a low participation probability. The high demand for formal credit in 1993 turned out as high level of credit rationing due to limitation of formal credit access. The role of formal credit in supporting rural development may be limited.

The determinants influencing commercial banks to ration agricultural credit in Southwestern Nigeria was identified by Rahji and Adeoti (2010). Evidence, from the estimated logit model indicated that the farm size of the farm household, its previous year's income, enterprise type, and level of household agricultural commercialization were significant but negative factors influencing the bank's decision to ration credit. Higher values of these factors decreased the probability of being credit constrained. The number of dependents in the household had a positive significant impact on the probability of being credit constrained by the banks. Hence, higher values of this variable increased the likelihood of being credit rationed. The gender variable was positive, which showed that the possibility of being credit constrained was higher for a female than for a male. The policy of farm size expansion in terms of land redistribution to the farmers, who are small-scale producers, will improve their chances of obtaining credit. The farm income policy in terms of adequate remuneration for farmer price support and provision of storage facilities that will help them speculate on the market and not sell at low prices at harvest will improve their probability of not being credit constrained or rationed.

Access to credit is affected not only by household characteristics but also by social

capital and the social network. Social capital has been defined by some researchers. According to Putnam (1993) “social capital is as a set of horizontal associations between people. Social capital consists of social networks and associated norms that have an effect on the productivity of the commune.” Knoke (1999) also put greater emphasis on the formation of social capital, stating that “social capital is the process by which social actors create and mobilize their network connections within and between organisations to gain access to other social actors’ resources.” In general, social capital often concerns three elements: the social network, the relationships among actors in the social network and the benefit or, sometimes, loss created through relationship interaction in the social network. The role of social capital in access to credit has been investigated by numerous studies. Ajani and Tijiani (2009) used data from household surveys and the probit regression model to examine the role of social capital in accessing microcredit in Ekiti State, Nigeria. The results revealed that the aggregate social capital index positively affected the probability of members of networks obtaining microcredit. The marginal effect showed that increasing social capital by a unit will lead to 0.22% in probability of members of associations obtaining credit. Disaggregating the social capital index, memberships in associations, cash and labour contribution of members to various associations significantly influenced the probability of obtaining microcredit. It also found that the loans received by households from networks and associations were untimely and this may lead to diversion of loans for non-economic purposes, which will affect repayment schedules. Investments in social capital deserve to be part of poverty alleviation programs since the return on investments in the social capital was larger for the poor than for others.

Okten and Osili (2004) examine the connections among these interpersonal relationships and access to credit, looking at how community, family, and social networking impact a person's access to credit in Indonesia. The findings demonstrated the significance of social networks in the application procedure for creditworthiness. The number of economically engaged siblings and participation at neighborhood events both had a favorable and negative impact on the choice about these loansA person and family factors, of obviously, additionally impact the credit request choices. Age, family headship, union status, in addition to and academic achievement benefited the choice on

requesting for financing. A rise within a person's involved status raised their likelihood to request for loans by 8% the probability of applying for credit by 8%. Individual and household characteristics also influenced the credit application decision. In addition, age, household headship, marital status and educational attainment positively affected the decision on the application for credit. An improvement in an individual's participation status increased the probability of being granted credit by 6%. The study concluded that community participation and, to a lesser extent, family networks had an important impact on an individual's ability to access credit. Community networks appear particularly important in gaining awareness of new credit sources.

Also discussing the information dissemination role of social networks, Dufhues *et al*., (2002) studied the information dissemination networks. They concluded that since there are many actors in the networks, information did not reach its intended objectives in original forms and in a timely manner. This "fuzzy" information dissemination, caused both objectively and subjectively by actors in the networks, reduced the credit access capacity of poor households and the efficiency of microcredit programs. Recently, Anggraeni (2009) indicated that trust is an important factor in the relationships between social networks and credit access. In the research, the "vertical network" between Chinese coconut traders and local farmers created trust among themselves, which results in benefits to both sides. The farmers could get in-kind credit in the form of consumer goods from the traders during lean times. In return, the traders have a secure supply of copra (dried coconut) from the farmers.

In conclusion, many previous empirical studies indicated that rural households in developing countries are still confronted with credit access constraints or credit rationing by lenders. The human capital, social capital and the wealth of households commonly related to access to credit by rural household. Therefore, it can be expected that improvement of the rural credit market would make a better credit supply available to rural households.

2.6 Credit constraints and their impact on household production and welfare

Agricultural financing is an important factor in rural development in developing

countries. Credit has a crucial role in production investment, increasing productivity and improving technologies. Generally, credit accessibility is important for improvement of the quality and quantity of farm products, which commonly increase farmer income. Therefore, with limited access to credit, the budget balance becomes a constraint, where expenditures have to remain less or equal to the sum of receipts during the period, along with accumulated savings and credit availability. Hence, credit constraint limits the optimum production or consumption choices. The adverse outcome of credit constraint in developing countries has been amply documented in the empirical literature due to its impacts on agricultural productivity and the value of agricultural outputs (Feder *et al*., 1990; Freeman *et al*., 1998; Olagunju, 2007); production efficiency (Udayanganie *et al*., 2006; Ayaz *et al*., 2010; Islam *et al*., 2011); farm profits (Foltz, 2004) and farm investments (Petrick, 2004; Kohansal *et al*., 2008)

Feder *et al.,* (1990) used a household sample from rural China and developed switching regression models to identify the influence of credit constraint on production output. They hypothesized that the production function of constrained households should differ from that of unconstrained households. Since production and consumption decisions were inseparable for households that were constrained, they made the following assumptions: (i) all farm households were unconstrained in all markets, except the credit market; (ii) some households were also constrained in the credit market. For these households, production decisions were influenced by household characteristics; (iii) therefore, in estimating production functions; household characteristics should be included for constrained households and should be left out for unconstrained households. The first step in the switching regression model was to estimate a variable that determines whether or not a household was credit constrained. In the second step, the production equation included total liquidity, land, education and farming experience. The authors found that one additional unit of credit in credit constrained households can generate an additional output in the value of 0.235.

Similarly, Foltz (2004) conducted a study in Tunisia to investigate whether Tunisian farmers were rationed in credit markets and whether that rationing affected production and investment. The probit model was employed to estimate the profitability of

credit rationing. In addition, the author also used an exogenous switching model to test the relationship between credit access and farm profits. The study indicated that farmers who had more titled hectares of land, better credit backgrounds, larger farms, higher expenditure levels, less agricultural equipment, lower debt levels and lower overall profitability were not rationed in the credit market. Higher household income levels, as a proxy for expenditure, would seem to increase credit supply. In other words, a wealthier household would be more likely to receive credit. Farmers with more equipment were more likely to be credit rationed. It may be that more mechanized farmers have an ongoing need to purchase more equipment, leading to greater demand. As most agricultural equipment cannot be used as collateral, it did not increase credit supply. The value of agricultural equipment increased farm profits in both the rationed and non-rationed farmers. The number of family members had a negative impact on the profit of rationed and non- rationed farms. Household expenditure (as a proxy for overall household permanent income) and having title to land (as proxy for collateral) had a positive effect on profit. The liquidity effect of credit rationing on profits implies that better access to the credit market will improve the profitability of a higher number of farmers.

Regarding the relation between credit and livestock production, Freeman *et al.,* (1998) examined the impact of credit on the milk productivity of smallholder dairy farms using cross- sectional survey data from Ethiopia and Kenya. The study showed that the marginal contribution of credit to milk productivity was different among non-credit constrained and constrained farmers. Using investment in crossbred dairy cows (as a proxy for the use of credit to improve milk productivity) was relatively high on the liquidity of unconstrained farmers compared to the liquidity of constrained farmers. Much of the variation in milk productivity was explained by the number of crossbred milking cows in the dairy herd. Total expenditure on variable inputs did not influence milk production on both non-credit constrained and credit constrained farmers, probably because a relatively small amount of supplementary feed purchased was used on these farms. As credit is likely to facilitate investment in crossbred dairy cows, it will have substantial impacts on smallholder dairy farms.

Olagunju (2007) also explored the impact of credit on the resource productivity of sweet potato growers in Nigeria. The objectives related to socioeconomic differences and resource use efficiency between farmers with credit and farmers without credit. The marginal value product for credit users was approximately uniform, which suggested that their resources were optimally used. On the other hand, the marginal productivity also was positive but less than uniform for the fertiliser, planting materials, labour and capital for non-credit users. It indicated that the underutilisation of resources thereby resulted in lower output for non-credit users. It is therefore recommended that policies should be made to ensure the availability of credit for farmers.

The role of credit on production efficiency of the farming sector in Pakistan was investigated by (Ayaz *et al*., 2010). The study employed a two-stage estimation technique to examine the technical efficiency and its determinants of rural farmers in Faisalabad. The results showed a 0.78 average efficiency score with a minimum value of 0.42 for credit users and a minimum value of 0.23 for non-credit users. It also was found that farming experience, education, access to farming credit, herd size and number of cultivation practices had a positive and significant correlation with the farmer's efficiency. The coefficient value of the credit dummy indicated that a 1% increase in access to credit would increase by 0.039% the technical efficiency of farms. This confirmed the expectations that agricultural credit access increases farming efficiency, as it allows farmers timely use of farm inputs and application of new and modern technology. Similarly, Udayanganie *et al*., (2006) estimated the technical efficiency of paddy production in Sri Lanka, with special emphasis on the use of agrochemical inputs and determinants of technical efficiency. Average technical efficiency was estimated to be 0.37. Among the determinants of inefficiency, the importance of credit and extension services on improving farmer efficiency played a significant role in the technical efficiency of paddy production.

Loan and financial constraints have an effect on other areas of rural families, such as jobs, regional wages, eating habits, and kid education, in addition to crop yield,

technological effectiveness, or farm income for households. Binswanger and Khandker (1993) utilized information from 85 districts in India between the years of 1972 and 1981 to investigate the impacts of the replacement of the led agricultural financing program on crop production, non-farm expansion, job creation, and countryside incomes. They along with other analyses indicate that there hasn't been much of an influence on agricultural productivity, which means that the costs of the public credit system might outweigh the advantages of increased agricultural output. However, non-farm expansion, job creation, and rural incomes were significantly improved by rural finance.

Diagne *et al*., (1996) analysed the impact of access to credit on technology adoption, incomes, household food security and household nutritional status in Malawi. It was found that the extent of the household's access to credit had positive multiplier effects on both seasonal non- farm (1.50 kwacha in additional income per capita for each additional kwacha of credit) and annual total incomes (a marginal increase in income of 4 kwacha per capita). In terms of household food security, the authors found an increase of 0.8 kcal in per capita daily intake for each additional kwacha credit made available to the household. The results of the study also showed a negative relationship between chronic malnutrition and a lack of access to credit.

Pursuing the objective of poverty reduction, the Vietnam Bank for Social Policies has designed a credit program aimed at poor households. Cuong (2008) conducted a study to investigate how well the credit program was reaching the poor, and to what extent the program was impacting on household welfare and poverty reduction. The data on Vietnamese household living standard surveys, collected in 2002 and 2004, was used for data analysis. It showed that the program was not well targeted on the poor. Poor households received smaller amounts of credit than the non-poor. In addition, empirical results from an impact evaluation showed that the program had a positive impact on consumption expenditures per capita and income per capita of the participating households. Consequently, the program helped reduce the poverty rate of the participants.

In conclusion, the findings of many previous studies indicate that credit plays an essential role in increasing input expenditure for agricultural production, improving

productivity of crops and livestock husbandry and increasing agricultural profit or farm income. In addition, rural credit has a positive impact on the household expenditure for consumption as a welfare indicator. However, the effect of credit use is different among countries. Generally, the supply of credit makes an important contribution to rural development in developing countries.

2.7 Agricultural value chain financing

A shortage of food in 2008 brought spotlight on the requirement for more agriculture funding. Moreover, in 2009, the financial crisis lowered the availability of financing available to all sectors, due to the loss of financial assets of banks, an increase in required reserves and a reluctance to borrow or the requirement of additional collateral in order to qualify for credit. Hence, the use of value chain products and processes as collateral becomes more important than ever (Shwedel, 2010).

Availability to promptly and fairly priced finance resources is also crucial for encouraging small inclusion in competitive marketplaces. Meeting customer demands is challenging without these time resources. Due to the customary loans from microbanks' relatively high fees for transactions for the two parties, as well as the sectorariat's economic and climate risks, such loans tend to be undesirable to borrowers and unavailable to or unattractive to farmers. Similar to this, most financial loan products' characteristic immediate, high-cost lending is ideally suited. In both directions, the supply chain banking in agriculture provides some solutions to the aforementioned conundrum. Chain of custody finance in agriculture is a strategy to financing that, in the eyes of bankers and financiers, makes use of a comprehension of the output, value addition, and markets in order to best evaluate their economic requirements as well as how best to give funding to the individuals who are engaged.

By understanding the agricultural chain, the lender can make more informed decisions on how to structure financing to reduce the costs and the short- and longer-term risks so that financing becomes attractive. Funding may be done at many levels in the chain or could enter the chain at one point and then flow up and/or down through the chain to others. For smallholders, value chain financing offers two added options to conventional financing. They can often receive financing from other stakeholders in the

chain, such as from contract farming arrangements whereby the contracting buyer provides the funding in cash or kind. They can also use their relationships (formal contracts or established informal agreements) with strong partners in their chain or chains, in order to secure bank funding that may not otherwise have been available. Either way can increase their access to capital and thus to growth. In summary, the flows of funds and internal and external financial arrangements among the various links in the chain comprise what is known as value chain financing. Stated another way, it is any or all of the financial services, products and support services flowing to and/or through a value chain. This can be internal financing directly from one value chain participant to another or external from a financial institution or investor based upon the borrower's value chain relationship and activities (Miller and Jones, 2010).

The value chains approach is crucial for rural development and financing is an essential tool to achieve it. The business environment is changing considerably. This means that stakeholders must find new forms of organisation and those forms are the chains and the key within those chains is the concept of risk management. Finance models that strengthen the integrity of the chains by reducing risk and improving business activity, also encourage the financing of microenterprises. How do we make small farmers bankable? By incorporating them into a value chain, where they become creditworthy, bankable, a risk that is manageable, with marketing that is stable and, hopefully, a sector that is sustainable. The success of agribusiness lies in articulated and coordinated strategies, based on a perspective of chains. Therefore, the activities of banks must be geared to the chain. The banks are much more willing to get involved when an agent operates within a chain than when he operates as an individual (Shwedel, 2010). Value chain financing is not a theoretical concept, not an academic concept, but the reality of the structure and strategy of business. The context of agribusiness is changing. It is reflected in the actions of economic agents or actors to find new forms of organisation for structuring businesses and competing. Effective risk management requires a thorough knowledge of the chain. Finance business is the business of information and knowledge. Additionally, regarding the empirical experience Shwedel (2010) emphasizes that the concept of agricultural value finance is more relevant than ever in recent years. The concept of agricultural value chain finance is a model for business operations

and a tool for promoting rural development. Furthermore, agricultural value chain finance adopts a systemic approach, resulting from an overview of all the actors and activities involved. Above all, it is a concept of how we see the chain, or the set of activities associated with the chain, and implies looking for ways to structure the financing accordingly, in order to minimise costs, maximize efficiency and minimize or reduce risks, which is most important. In other words, it is a concept based on information and analysis of risks, costs and benefits.

Understanding the chain concept and structuring finance in a way that strengthens the chain and their stakeholders is crucial for risk management. It is a strategy for managing risk and costs. Finance directed at the chain is more developed at the level of agro-industry and of medium-sized businesses but can effectively reach small entrepreneurs as well as small-scale farmers.

2.8 Types of agricultural value chain financing

The funding model that utilizes the value chains of agriculture encourages greater cooperation and collaboration, exposes weak connections so that credit and non-credit options may be clearly communicated, and services required, serves to warn of market changes and helps to extend finance to the poor population. Practical experience in many countries shows that trade credit, contract farming, out-grower schemes and warehouse receipt financing are existing types of agricultural value chain financing.

2.8.1 Trade credit

Trade credit is very common in agriculture. Farmers receive credit from input suppliers, intermediary traders and shops, or agro-processors, pledging to repay from future harvest income. Typically, this does not directly involve a bank, and the agreement is usually informal and based on trust. Trade credit is often provided in-kind (seeds, fertilisers, consumer goods), and payment is made in kind as well (final produce). Such arrangements nearly always concern seasonal credit only. The cost of credit (interest) is embedded in the agreed prices for inputs and outputs, and may be quite high.

2.8.2 Contract farming

A trader, exporter or agro-processor establishes pre-harvest purchase contracts with selected farmers or their representatives (an association or cooperative). This involves forward contracting of the crop (the price or pricing formula is fixed). The main motivation is to secure a supply of produce of a certain quality and at a specified time. Technical support to ensure quality may be part of the contract. Product standards are agreed to beforehand. As part of the forward contract, farmers receive partial prepayment. A bank can also be involved through a triangular arrangement (the sales contract becomes the surety). This arrangement nearly always concerns seasonal credit only. A special case is pre-harvest credit provided to cooperatives, enabling them to buy goods from their members. Pre-finance usually has a maturity of only several weeks.

2.8.3 Out-grower schemes

Out-grower schemes are a specific type of contract farming, often long-term. An out-grower scheme is an elaborate contract-farming arrangement emanating from a nucleus, a lead farm or processor (also called a "technical operator"), which gives out-growers access to its marketing, operational and logistical capabilities. Technical support may be provided to the out-growers. Loans may include investment financing (e.g. in trees and equipment). Out-grower schemes are most common in high-value, specialty crops with niche markets (e.g. tobacco in Malawi, pineapples in Ghana). Out-grower schemes also exist in animal production (chicken breeding).

2.8.4 Warehouse receipt finance

Warehouse receipt finance has long existed in grain-producing countries in Northern America and the former Soviet Union. Warehouse receipt finance was rediscovered some 15 years ago in Eastern Europe (Kazakhstan, Poland, Russia, Ukraine), but is now being introduced in Africa as well. It is applicable to agricultural commodities that can be stored, such as grain, coffee, cotton, wool or potatoes. The farmer delivers the grain to the (certified and secured) elevator for storage. The farmer subsequently hands the warehouse receipt to the bank as collateral for credit, often 70%-80% of the value in storage.

2.9 Theoretical and Conceptual Frame Work

2.9.1 Theoretical framework

2.9.2 Theory of capital accumulation

In relation to the study, this theory postulates that the goal of every poultry farmer is to make profit. The reason for investment in poultry enterprise is for profit and to increase or accumulate more capital, this could be in form of a greater number of birds, increase sales, or increase egg production. It also implies that the poultry farmer will do all within his ability to increase and accumulate more profit and capital. The farmer will take credit, even with high interest rate, only if he is sure it will lead to increase profit.

2.9.3 Capital Structure theories

Capital Structure theories deals with the question whether change in capital structure influence the value of a firm. There are four approaches to this, viz. net income, net operating income, traditional and Modigliani and Miller approach. Capital structure is the proportion of all types of capital viz. equity, debt, preference etc. It is synonymously used as financial leverage or financing mix. Capital structure is also referred as the degree of debts in the financing or capital of a business firm. Financial leverage is the extent to which a business firm employs borrowed money or debts. The demand for financial capital would be fully determined by demand for investment (physical capital), reflecting the firm's ability of generating positive present values of investment

In relation to the study, the theory suggests that the extent to which a farmer employs financial leverage in form of credit (debts) is determined by the assurance that use of such credit will increase the value (profit) of his farmer. Also, the demand for credit will be affected by how much the farmer is willing to utilise in the poultry enterprise.

2.9.4 Sustainable livelihoods model

Sustainable livelihood model was developed by the Sustainable Rural Livelihoods Advisory Committee of the Department for International Development (DfID), building on earlier work by the Institute of Development Studies amongst others (DfID, 1999). The model is based on the premise that people are vulnerable and need positive external

influences to increase their capitals, in order for them to explore diverse livelihood options to achieve their aspirations.

Five types of capitals were highlighted, namely: physical, financial, social, natural, and human; among which financial capital is the most flexible. It is the easiest to be converted into other types of capital. For instance, if someone has secure access to land (natural capital) they may also be well-endowed with financial capital, as they are able to use the land not only for direct productive activities but as collateral for loans or put up for sale to raise cash. It can also be transformed into political influence and can make up for more active participation in organisations that formulate policy and legislation and govern access to resources.

In application to this study, it implies that for a sustainable poultry enterprise, all the assets are needed such as physical, financial, social, natural, and human. However, it highlights that financial capital is most important because it can be used to acquire other forms of assets need for poultry production.

2.9.5 Conceptual framework

The framework comprises the independent, intervening, and dependent variables. The conceptual framework for this study is based on the premise that profitability of commercial poultry farmers (dependent variable) is influenced by a set of independent variables such as socioeconomic characteristics, enterprise characteristics, access to credit, attitude towards utilisation of credit, constraints to credit utilisation, utilisation of credit and factors affecting profitability of poultry enterprise. The intervening variables are the economy, fiscal policy, demand for poultry products, and competition against the poultry industry. There is a lot of dynamics in the way the framework works.

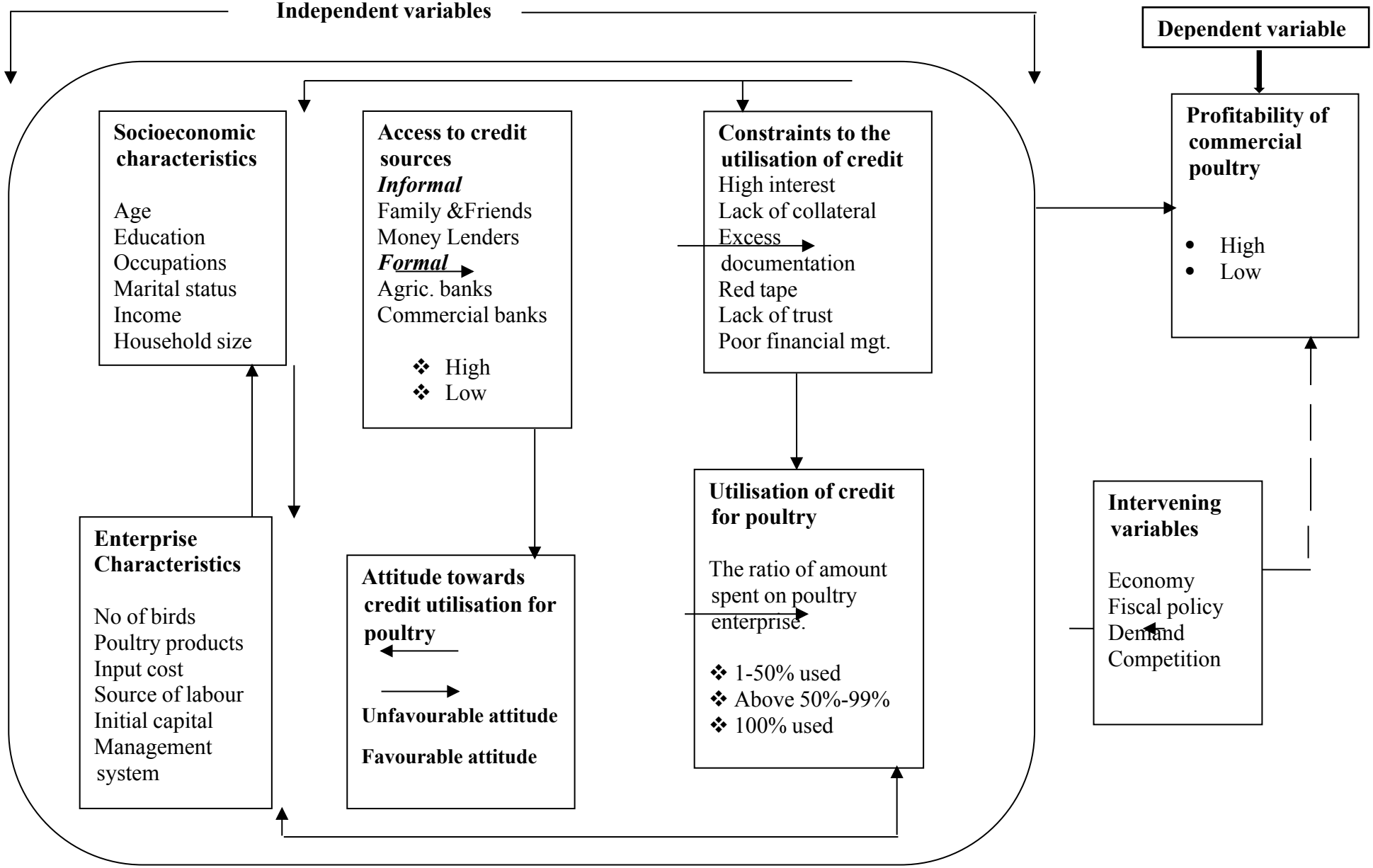
Socioeconomic characteristics affect the enterprise characteristics and access to credit. For instance, the income can determine the size of the enterprise. Persons with higher income are likely to have a larger number of birds and even employ more labours. The income and

membership in social groups can also affect his access to credit. Members of the cooperative society are likely to have access to credit than non-members.

The enterprise characteristics are likely to affect the socio-economic enterprise and attitude towards the use of credit. Respondents with large enterprise are likely to engage in poultry as primary occupation and are more likely to have a favourable attitude towards the use of credit for poultry enterprise. Access to credit will affect attitude towards the use of credit for poultry enterprise and the constraints to the utilisation of credit for poultry. If respondents have high access to credit they are likely to face lower constraints in the utilisation of credit for poultry.

All the independent variables (socioeconomic characteristics, enterprise characteristics, access to credit, attitude towards utilisation of credit, constraints to credit utilisation, utilisation of credit and factors affecting the profitability of poultry enterprise) have a direct influence on the profitability of the poultry enterprise.

The economy, fiscal policies, demands for poultry products, and competition against the poultry industry are intervening variables in this study. The economy and fiscal policy affect the responsiveness of credit for poultry enterprise. The demands for poultry products and competition affect the profitability of the poultry enterprise.


Independent variables
Dependent variable
Socioeconomic characteristics
Age
Education
Occupations
Marital status
Income
Household size
Access to credit sources
Informal
Family &Friends
Money Lenders
Formal
Agric. banks
Commercial banks
High
Low
Constraints to the utilisation of credit
High interest
Lack of collateral
Excess documentation
Red tape
Lack of trust
Poor financial mgt.
Profitability of commercial poultry
High
Low
Enterprise Characteristics
No of birds
Poultry products
Input cost
Source of labour
Initial capital
Management system
Attitude towards credit utilisation for poultry
Unfavourable attitude
Favourable attitude
Utilisation of credit for poultry
The ratio of amount spent on poultry enterprise.
1-50% used
Above 50%-99%
100% used
Intervening variables
Economy
Fiscal policy
Demand
Competition

CHAPTER THREE

METHODOLOGY

3.1 Study area

The study was conducted in South-western Nigeria which is one of the six geopolitical/ agricultural zones of the country. The zone consists of Oyo, Ogun, Ondo, Osun, Lagos and Ekiti States. The area was chosen because poultry business is very popular among residents; there is a ready market for poultry products and there are similarities in socioeconomic and political factors. Southwest Nigeria lies between Latitudes 50 South, 90 North and Longitudes 20 and 80 East. It is bounded on the South by the Atlantic Ocean, in the East by River Niger, in the West by the Republic of Benin and in the North by North-central Nigeria. Southwestern Nigeria occupies land area of 78,505.17 square kilometres, representing approximately 8% of the country's total land mass. The population of the zone is 27, 722, 432 people, representing approximately 20% of the country's total population according to the 2006 national census.

The socioeconomic and political atmosphere is stable and productive; likewise, the climatic factors are adequate for wide ranges of agricultural activities. The rainfall pattern of Southwestern Nigeria varies from that of the coastal forest belts of the south to that of derived savannah of the north spanning the months of April to October. The period between the months of November to March is characterized by dry season and Harmattan. Agriculture is the main source of livelihood of the inhabitants of Southwest Nigeria. Popular agricultural activities in Southwestern Nigeria are arable farming (cassava, maize and yam), vegetable farming (amaranth, pepper and tomato), tree farming (cocoa, kola and oil palm), fruit farming (orange, mango and banana) and livestock farming (poultry, small ruminants and cattle).

3.2 Study population

The population of this study comprised of all small-scale commercial poultry farmers in Southwestern region of Nigeria.

3.3 Sampling procedure and sample size

Multistage sampling procedure was used to select the respondents for the study. The first stage involved the random selection 50% of the states in Southwest which is three out of the six States in the Southwestern Nigeria. The States were Oyo, Ogun and Ondo States. The second stage involved purposive sampling of three Local Government Areas (LGAs) based on the prevalence of commercial poultry production in each State. Prevalence of commercial production in each state was determined by the number of Poultry farmers with stock capacity of above three thousand birds who are registered with the state chapter of the poultry Association of Nigeria. Thus the local government areas with the highest number of these farmers were 'purposively targeted for sampling. The Local Government Areas selected were Oyo east, Lagelu and Afijo in Oyo State; Odeda, Ado Odo/Otta and Ifo in Ogun State; and Ondo West, Owo and Akoko Northwest LGAs in Ondo State. Cluster sampling technique was then used to select two communities where poultry farming was prevalent in each of the selected Local Government Areas. This was also achieved following similar procedure used for sampling the aforementioned local Government areas. From the list of registered poultry farmers, 10% of the registered poultry farms were selected to make a total of 250 respondents.

Table 3.1: Sampling procedure and sample size

Southwestern states	50% of the state	Purposive selection of LGAs	Cluster sampling of communities	Number of poultry farmers in PAN	10% selection of poultry farmers
	Oyo	Oyo East	Apaara	156	16
			Oke-apo	213	21
		Afijo	Ilora	132	13
			Awe	112	11
		Lagelu	Lagun	104	10
			Lalupon 1	129	13
6	Ogun	Odeda	Itesi	115	12
			Obantoko	178	18
		Ado	Igbesa	210	21
		Odo/Ota	Otta	119	12
		Ifo	Agbado	155	16
			Ifo	215	22
	Ondo	Owo	Upenmen	110	11
			Uso	96	10
		Ondo west	Oboto	114	11
			Owena	132	13
		Akoko	Arigidi	107	11
		North-west	Okeagbe	92	9
Total	3	9	18	2489	250

3.4 Data sources

Data were collected from primary sources through the use of pre-tested interview schedule to elicit information from the poultry farmers during the survey. The interview schedule was used to obtain information based on the specific objectives of the study. Each of the objectives was measured under different sections of the interview schedule.

3.5 Validation of instrument

Content validity of the research instruments was achieved through interactions with the research supervisors, and professionals in Agricultural Extension, Agricultural Economics, Rural Sociology and Development Communication. The process resulted in the correction of defective items, removal of irrelevant ones, and the inclusion of relevant ones.

3.6 Reliability of instrument

The reliability test of the interview schedule was done with split-half method of analysis to determine the degree to which it consistently measured what it was designed to measure. The interview schedule was administered on a set of 20 small-scale commercial poultry farmers in Ekiti State. Correlation coefficients were obtained for each research objective. A correlation coefficient of 0.70 and above was accepted for each objective.

3.7 Measurement of variables

The variables investigated in the study were categorised into independent and dependent variables. Scores were assigned to variables measured at interval or ordinal level of measurement, while numeric labels were assigned to those measured at nominal level of measurement.

3.7.1 Independent variables

The independent variables of this study were measured as follows:

I. Socioeconomic characteristics

Age: Respondents were asked to state their actual ages in years

Sex: Respondents were asked to indicate whether they are male or female

Marital status: Respondents were asked to indicate their marital status, whether they are single, married, divorced, separated or widowed

Household size: Respondents were asked to state the number of individuals in their households

Educational attainment: Respondents were asked to state the number of years of formal education they had

Religion: Respondents were asked to indicate their religion from the options; Islam, Christianity or Traditional religion

II. **Primary occupation**: Respondents were asked to indicate their primary occupation from the options; civil service, trading/business, poultry farming, crop farming, artisan among others

Membership of social groups: Respondents were asked to state the social groups they belong to. They were also asked to indicate their status in each of the groups as ordinary member, committee member or executive member. Scores were assigned at the ordinal level so that ordinary member was given 1, committee 2 and executive member 3.

Income: Respondents were asked to state their income generating activities. They were also asked to indicate their income from each of them either on daily, weekly, monthly or annual basis

III. Enterprise characteristics

Age of poultry business: Respondents were asked to state the periods since they have been involved in poultry business in years

Ownership: Respondents were asked to indicate the type of ownership of poultry business from the following options; sole proprietor, partnership or group owned

Time input: Respondents were asked to indicate time devoted to the poultry business in terms of number of hours in a week

Land ownership: Respondents were asked to indicate the type of ownership of poultry land/facility from the following options; bought, rented, lease, family owned, communal/community owned

Source of start-up capital: Respondents were asked to state their source(s) of start-up capital from the following options**;** personal savings, loan from informal source(s) or formal source(s)

Poultry system: Respondents were asked to state their poultry system from the following options; deep litter or battery cage

Number of birds: Respondents were asked to state the exact number of birds they have on their poultry farms. This was later classified into small, medium and largescale poultry production. Less than or equal to 1000 birds is small-scale, medium scale between 1001 and 5000 birds, while large scale is above 5000 birds.

Number of employees: Respondents were asked to state the number of people that work on their poultry farms on a regular basis

Extension contacts: Respondents were asked to state the frequency of contacts they have with extension workers from the options; never, weekly, fortnightly, monthly and quarterly. Scores of were assigned to their responses in an ordinal format so that never was assigned 0, weekly 1, fortnightly 2, monthly 3 and quarterly 4

Value of produce: Respondents were asked to state the numbers of broilers, layers, spent layers and crates of eggs they usually had at the end of the production cycle. They were also required to state the unit values of the poultry products

Production cost: Respondents were asked to state the cost of the various elements in their production activities under fixed and variable costs per production cycle.

IV. Access to credit facilities

Respondents were asked to indicate how often they accessed credits from the list of both formal and informal financial institutions. This was measured on a three-point scale of Never, Occasionally and Always. The sources were family and friends, money lenders, Poultry Association of Nigeria, cooperative societies, investment clubs, microfinance banks, Nigerian Agricultural Cooperative Development Bank (NACRDB), Commercial banks, Ministry of Agriculture and Rural Development, Agricultural Development Project (ADPs) and National Fadama Development Programmes (NFDPs). Scores 0 was assigned to Never, 1 to Occasionally and 2 to Always. The maximum and minimum scores obtained were 0 and 22 respectively. Respondents' access to credit facilities was categorized using the mean (4.38±4.11) into high (4.38-22.00) and low (0.00-4.37).

V. Attitudes of respondents to use of credit for poultry enterprise

Attitudes of poultry farmers towards the use of credit for poultry enterprise was measured by presenting 18 attitudinal statements which consist both negatively and positively worded statements. This was measured on a 5-point Likert scale of Strongly Agree (SA), Agree (A), Undecided (U), Disagree (D), and Strongly Disagree (SD); with 1,2,3,4,5 assigned respectively to positively worded attitude statements, and the reverse for negatively worded statements. An index of attitude was calculated from the responses to the statement. The maximum score was 84, while the minimum was 36. Respondents' attitudes towards the use of credit for poultry enterprise was categorized using the mean (63.80±10.82) into favourable (63.80-84.00) and unfavourable (36.00-63.70).

VI. Constraints to the utilization of credit for poultry enterprise

The respondents were asked to state the constraints to the utilization of credit for poultry enterprise. They were required to respond to possible constraint items with the options of; not a constraint, mild constraint, severe constraint and very severe constraint. Included in the constraint items were; issues concerning high interest rate, collateral requirement, lack of guarantor, misleading information, untimely disbursement, loan diversion, short repayment period, time wastage and far distance of service providers. Scores of '0' were assigned to not a constraint, '1' to mild constraint, '2' to severe constraint and '3' to very severe constraint. The mean score of each item was used to rank the constraints. Also, the scores were summed up with maximum score been 22 and minimum score 0. The overall mean (14.27) was used as the index to categorise respondents into high and low constraint levels.

VI. Utilization of credit

Respondents were asked to state where they obtained the credit (loan) from, how much credit they collected, and how much they used for poultry enterprise. This information was collected for the last three credits obtained. The ratio of the amount collected to amount spent on poultry enterprise was found for each credit collected. The mean and standard deviation for credit utilisation for all respondents was obtained and these were used to categorise credit utilisation into high, medium and low.

3.7.2. Dependent variable

The dependent variable of this study was the profitability of commercial poultry farmers. This was measured as Net Farm Income (NFI) by subtracting the Total Cost (TC) from the total revenue (TR). The TC is the summation of Total Variable Cost (TVC) and Total Fixed Cost (TFC). Return on Investment (ROI) and Cost Benefit Ratio (CBR) were used for sensitive analysis

NFI= TR-TC

TC=TFC+TVC

NFI= Net Farm Income

TR=Total Revenue (income for sales of birds and egg)

TFC= Total Fixed Cost (Rent, depreciation on assets)

TVC=Total Variable Cost (cost of feed, drugs, labour, day old chicks.)

3.8 Profitability Ratios

These are financial indices which showed the performance of a business.

(i). Return on Investment (ROI) = $\frac{net\ income}{Total\ cost} * 100\%$

(ii) Cost-benefit ratio = $\frac{\text{Total revenue}}{Total\ cost}$

3.9 Method of data analysis

Descriptive statistics like frequency, percentages, means, standard deviations and charts were used to describe the objectives of the study. Inferential statistics, as noted in Table 4.2 was used to test the hypotheses.

3.10 Hypotheses testing

The hypotheses of the study were presented in their null form. Hypotheses one and two were tested using chi-square and Pearson Product Moment Correlation (PPMC), hypotheses three and four were tested using PPMC, while hypotheses five was tested using ANOVA. A simple linear regression model was used to determine profitability across the three types commercial poultry production as well as the three Southwestern States

CHAPTER FIVE

RESULTS AND DISCUSSION

This chapter presents the results and discussion of the analysed data in line with the specific objectives and hypotheses of the study.

4.1 Socioeconomic characteristics of respondents

4.1.1 Sex of respondents

The result on sex of respondents is presented in Table 5.1. It revealed that majority (74.8%) of the respondents were males, while 25.2% were females. This suggests that males were more engaged in poultry enterprise in the study area. This conforms to the findings of Babatunde *et al*., (2012) and Babalola (2014) who reported that the majority of poultry farmers in Nigeria were males. The dominance of male in poultry enterprise could be attributed to the fact that poultry enterprise is a highly risky venture and labour demanding which in most cases can be better handled by men (Ironkwe and Ajayi, 2007).

4.1.2 Marital status of respondents

The results on Table 5.1 showed that majority (88.8%) of the respondents were married. The result further showed that only 6.8% of the respondents were divorced/separated, while 2.4% were widowed. The result is in tandem with the findings of Onogwu *et al.,* (2017), who found that 88% of poultry farmers were married. The result is a reflection of the high value placed on marriage in the Nigeria society.

4.1.3 Religion of respondents

The result as presented in Table 5.1 revealed that (60.0%) of the respondents were Christian while, 36.8% and 3.2% were Muslims and traditional worshippers respectively. This suggests that Christianity and Islam are the two dominant religions in the study area. The involvement of people with diverse religious inclination in poultry enterprise could be

due to the fact that poultry products have little or no religious taboo (Adene and Oguntade, 2006).

4.1.4 Age of respondents

Age is an imperative variable that determines the scenery of economic activities that can be undertaken by an individual. Table 5.1 presents result in the age distribution of respondents. It reveals that the mean age of respondents was 42.56±9.84 years. A larger percentage (64%) was between 31and 50 years, 24.4 % were between 51 and 60 years and less than 5% were above 60 years. This implies that respondents were still in their middle and active age. This finding is supported by Oladunni and Fatuase (2014) who opined that poultry farming is dominated by young people. Aromolaran, *et al.,* (2013) also proposed that farmers in this age bracket are economically active and are made of the innovative, motivated and adaptable individuals.

4.1.5 Total years of formal education

The importance of education in sharpening the minds of people cannot be overemphasized, as it has been observed to aid access to diverse sources of information through which knowledge is acquired for improved productivity and increased profitability (Ajah *et al.*, 2014; Babatunde *et a.l*, 2012). The educational attainment of the respondents, as presented in Table 5.1 revealed that the respondents' mean years of formal education was 17.47±9.26. In addition, 42.4% of the respondents had tertiary education, while only 38.4% secondary education. This result implies a high level of literacy among the poultry farmers in the study area. The high level of educational attainment could be attributed to the importance attached to formal education in the study area.

Equipped with better knowledge through quality education, the respondents could acquire modern poultry production skills and techniques to improve their productivity and increase their profit margin. This is in consonance with (Ibekwe *et al.*, 2015) who stated that high educational attainment is very essential as poultry enterprise requires some level of literacy and technical knowledge. Aromolaran *et al.,* (2013) opined that the ability to handle the technicalities involved in poultry production could have been the reason poultry enterprise is more attracted to individuals with higher level of education.

4.1.6 Household size

Table 5.1 presented the average household size of 5.10±2.27 persons. Over half (58.8%) of the respondents had a household size of between 3 and 6 persons, while a quarter (25.2%) of the respondents had a household size of between 7 and 10 persons. The mean result showed that the respondents had a relatively large household size. The large household size could translate to cheap and reliable workforce. This is in line with Adesiyan (2014) who claimed that large household size among poultry farmers serve as a reliable workforce that supply the needed labour requirement for the enterprise.

4.1.7 Membership of social association

Social association serve as sources of information, and support (financially and morally) to members (Adeyonu *et al*., 2016; Umunna *et al*., 2012). Membership of respondents in social group as shown in Table 5.1 revealed that 68.8% of the respondents were members of a social association, while only 31.2% didn't belonged to any social association. As observed, 60.4% of the respondents that belong to social association were members of cooperative societies, while 20.3% and 18.0% were members of farmers association and religious organisation respectively.

These results suggest that respondents were interested and participated in social association. The result corroborates Bello *et al.,* (2015) who found that majority of poultry farmers in their study area were members of social association. Belonging to social associations enables members to maximize productivity by using the medium to garner information and advertise their products collectively. Membership of association according to Simonyan *et al.,* (2012), affords farmers the opportunity of information sharing on modern production techniques, bulk purchasing of agricultural inputs as well as exchange of labour.

4.1.8 Primary occupation of respondents

The result of primary occupation of respondents is presented in table 5.2. The result revealed that more than half (52.8%) of the respondents engaged in poultry production as their primary occupation, while 22.0% and 10.4% were primarily engaged in crop farming and civil service. A large number of respondents that engaged in poultry production as primary occupation could be an indication that poultry production is very lucrative. Poultry

products have been observed to be one of the major sources of animal protein and the demand for them is on the increase. The absent of white-collar jobs for the teeming youths and high demand for poultry products may have contributed to the high inflow of people to commercial poultry enterprise (FAO, 2011).

4.1.10 Monthly income

The result on the estimated monthly income of respondents as presented in Table 5.1 revealed the mean monthly income was ₦148, 181. Almost two-fifth (39.6%) of the respondents earned between ₦51,000 and ₦100,000 per month. The result also showed that 20.4% earned between ₦101,000 and ₦150,000 and 20.8% earned above ₦200,000 monthly. This implies that majority of the livelihood diversification to complement income from their primary occupation. Emaikwu *et al.,* (2011) observed that research that people engaged in poultry production to support their meagre incomes. Also, the frequency of other income generating portfolios like crop farming, trading artisan implied that respondents diversified to other income generating activities. This could be in a bit to boost income. Adesiyan, (2014) concurred that poultry farmers ventured into other enterprises in order to strengthen their household incomes. However, Oseni and Winters (2009) argued that farmers diversify their livelihoods to provide liquidity that can be used in agricultural production or capital investment for expansion.

4.1.10 Monthly income

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Table 4.1: Distribution of respondents by socio-economic characteristics

Variables	Categories	Freq.	%	Mean
Age (Years)	≤ 30	19	7.6	
	31-40	60	24.0	
	41-50	100	40.0	42.56±9.84
	51-60	60	24.0	
	> 60	11	4.4	
Sex	Male	187	74.8	
	Female	63	25.2	
Marital status	Single	5	2.0	
	Married	222	88.8	
	Separated	6	2.4	
	Divorced	11	4.4	
	Widowed	6	2.4	
Total years of formal education	No formal education	21	8.4	
	Primary education	27	10.8	
	Secondary education	96	38.4	
	Tertiary education	106	42.4	17.47±9.26
Religion of household head	Christianity	150	60.0	
	Islam	92	36.8	
	Traditionalist	8	3.2	
Household size	< 3	38	15.2	
	3-6	147	58.8	5.10±2.27
	7-10	63	25.2	
	>10	2	0.8	
Do you belong to social association	No	78	31.2	
	Yes	172	68.8	
Names of social associations	Farmers' association	35	20.3	
	Cooperative group	104	60.5	
	Religious organization	31	18.0	

	Community development association	2	1.2	
Primary occupation	Poultry production	132	52.8	
	Other livestock production	12	4.8	
	Crop farming	55	22.0	
	Civil service	25	10.0	
	Artisan	6	2.4	
	Trading	18	7.2	
	Student	1	0.4	
	Transporter	1	0.4	
Secondary occupation	Poultry production	107	42.8	
	Other livestock production	20	8.0	
	Crop farming	70	28.0	
	Civil service	7	2.8	
	Artisan	16	6.4	
	Trading	30	12.0	
Monthly income (₦)				
	≤ 50,000	41	16.4	
	51,000-100,000	99	39.6	
	101,000-150,000	51	20.4	148181.4±142438.3
	151,000-200,000	7	2.8	
	> 200,000	52	20.8	

Source: Field survey (2018)

4.2 Enterprise characteristics of respondents

4.2.1 Years of experience in poultry production

The years of experience in poultry production is a vital key to its profitability since it enhances knowledge of poultry management (Aromolaran, 2013). Table 5.2 revealed that the respondents' mean years of experience in poultry production was 10 years. A larger per cent (62.0%) had years between one and ten years of experience in poultry production, while only 4.8% had been involved in production for over 20 years.

The mean years of experience suggest that poultry production is a reliable means of livelihood. According to Oluwasogo *et al.,* (2016), poultry production had been a steady source of income. Also, the relatively high years of experience means that respondents have over time acquired adequate knowledge to manage risk in poultry production and enhance its profitability. Years of experience impacts poultry farmers' decision making with regards to the risks and uncertainties associated with the enterprise (Adeyonu *et al.,* 2016).

4.2.2 Size of enterprise

The result of the number of birds reared by the respondents is presented in Table 5.3. It showed that the mean number of birds reared by the respondents was 6800± 63869 birds. Using the classification of Ojo (2003) who classified the scale of poultry enterprise into small, medium and large; he opined that small scale poultry enterprise was having up to 1000 birds, medium scale between 1001-5000 birds, while large scale above 5000 birds. The result revealed that 60.0% of the respondents were small-scale poultry farmer, while 28.4% and 11.6% were medium scale and large-scale farmers respectively. The mean result implies that commercial poultry production in the study area was predominantly small-scale. This could be due to the technical and financial cost required in establishing and running large scale poultry enterprise. Giving credence to this proposition, Akintunde and Adeoti (2014) quoting Alabi *et al.,* (2000) noted that low capital base, credit accessibility, poor management practices and disease outbreak greatly influenced the size of poultry farm.

4.2.3 Target of poultry production enterprise

It was observed on Table 5.3 that more than half (54.4%) of the respondents combined both egg and meat production, a quarter (25.2%) engaged only in egg production, while 20.4% engaged only in meat production. Rearing of birds both for egg and meat production was mostly (54.4%) practised; this could be borne out of the desire to have income all year round. The poultry farmer would aim to get income from an array of poultry products such as the sales of broilers, cockerels, old layers and eggs. This corroborates FAO (2011) who asserted that poultry enterprise provides a portfolio of products that enable more constant inflows of cash.

4.2.4 Types of poultry management practice

Table 5.2 presented the result on the type of poultry management system practised among the respondents in the study area. It was observed that majority (63.6%) of the respondents practised battery cage system, while 36.4% practised deep litter system. The respondents' preference of battery cage system over deep litter system could be due to its ease of management and hygiene of both the products and the facility. Deep litter system requires constant changing of the litters (sawdust and/or wood shavings) which is labour intensive and could predispose the birds to diseases when not properly managed. Duncan (2001) and Amos (2006) confirmed that advantages of battery cage include increased hygiene and ease of management.

4.2.5 Ownership type

The result on ownership type was presented in Table 5.2. It revealed that majority (85.2%) of the respondents were sole proprietors, 11.2% partnered with others to own the business, while only 3.6% were group/cooperative farms. It could be deduced from the result that majority of poultry farms in the study area were self-owned by individuals who are full-time poultry farmers. Sole proprietors according to Foskey (2005), are visionaries imbued with autonomy and power to make decisions that will lead them to the realization of their visions. The sole ownership status is an indication that the poultry enterprise ownership is completely in the hands of the principal farm owners and its survival is dependent on their individual efforts (Arowolo, *et al.,* 2017).

4.2.6 Source of start-up capital for poultry enterprise

It was observed in Table 5.3 that almost half (48.8%) of the respondent sourced their start-up capital from personal savings, 34.8% sourced from cooperative, only 5.2% sourced from friends/relatives. It could be deduced from the result that personal savings and cooperative societies are the main sources of start-up capital for poultry enterprise in the study area. This suggests the reliability of personal savings and cooperative societies in terms of access to capital. The low use of loans from bank and other formal financial institutions to get start-up capital could be due to lack of collateral and other stringent conditions demanded from start-ups before they can access capital. This is supported by Akanni (2007) who posited that farmers often rely on personal savings for capital due to lack of collateral securities.

4.2.7 Source of land for poultry enterprise

In agriculture, land has been observed to be the important factor of production and on many occasions, there have been reported clashes between land users within and outside a community (Akujobi *et al.*, 2016; Zhong *et al.*, 2007). The result on Table 5.3 revealed that a good number (42.0%) of the respondents acquired land for poultry production through inheritance as compared with 26.0% and 18.4% of the respondents who acquired land by purchase and rent respectively. The result showed that most (68.0%) of the poultry farmers owned the land they use for poultry enterprise. The finding is in agreement with the work of Adesiyan (2014) who observed that 60% of poultry farmers in his study area owned their land. He further added that more profitability is expected since the money meant for land lease/rent would be ploughed into variable costs such as feed and labour costs. The value of land owned by farmers serves as an indicator of the overall financial health of the agricultural enterprise. Land could provide the motivation for commercialization since it serves as loan collateral for financial capital, additional land, machinery, or other equipment (Bridges, 2007).

4.2.8 Major source of labour

Labour is another factor of production in poultry production that greatly affects productivity. The result in Table 5.2 revealed 45.2% depend mainly on self-labour, while 29.6% and 25.2% relied majorly on hired and family labour respectively. This implies

different sources of labour were engaged by various respondents. This largely depends on the scale of the enterprise (number of birds). The relatively small number of birds account for the prominence self-labour among the respondents. Agarwal (1994) and Adesiyan (2014) asserted that self-labour is usually practiced in small-scale poultry enterprise, while large-scale poultry enterprise uses hired-labour.

4.2.9 Frequency of extension agent visit

Extension agents often disseminate innovations and new skills to their clienteles to improve the farmers' knowledge on how to increase productivity (Ajayi and Gunn, 2009). The frequency of visitation by extension agents to poultry farmers was presented in Table 5.2. It was observed that 43.2% of the respondents were visited fortnightly, 17.2% were visited monthly, while 18.4% were never visited. This implies that majority of the respondents had been visited by extension agents at least once in three months. This finding is in consonance with the works of Umunna *et al.,* (2012) and Adebola *et al.,* (2016) who observed that majority of the poultry farmers were visited by extension agents at different times.

Table 4.2: Distribution of respondents by enterprise characteristics

Variables	Categories	Frequency	%	Mean
Years of experience in poultry production	≤ 5	62	24.8	
	6-10	93	37.2	10.44±6.70
	11-15	53	21.2	
	16-20	30	12.0	
	21-25	7	2.8	
	> 25	5	2.0	
Scale of production	Small-scale	150	60.0	
	Medium scale	71	28.4	6,800±63869
	Large-scale	29	11.6	
Type of enterprise	Egg	65	26.0	
	Meat	38	15.2	
	Meat and egg	147	58.8	
Type of poultry management practice	Deep litter	91	36.4	
	Battery cage	159	63.6	
Ownership of enterprise	Sole proprietor	213	85.2	
	Partnership	28	11.2	
	Group/cooperative	9	3.6	
Source of start-up capital	Bank loan	28	11.2	
	Cooperative	87	34.8	
	Friends/relative	13	5.2	
	Personal savings	122	48.8	
Land acquisition for poultry production	Inherited	105	42.0	
	Rented	46	18.4	
	Purchased	65	26.0	
	Leased	25	10.0	
	Communal land	1	0.4	
	Government allocation	8	3.2	
Major source of labour	Self	113	45.2	
	Family	63	25.2	
	Hired	74	29.6	
Frequency of extension agents visit	Weekly	22	8.8	
	Fortnightly	108	43.2	
	Monthly	43	17.2	
	Quarterly	31	12.4	
	Never	46	18.4	

Source: Field survey (2018)

4.3 Access to credit facilities

Acquisition and utilization of credit for agricultural purposes promote productivity and consequently improve enterprise profitability. Access to credit would enable farmers venture into new areas as well as acquired improved skills and technology for enhanced performances (Alfred, 2005). The distribution of respondents by access to credit facilities was presented in Table 5.3. It reveals that credit was most access from cooperative societies ($\bar{x}$=1.19), family and friends ($\bar{x}$=1.07), and money lenders ($\bar{x}$=0.34). Other sources of credit were poultry association of Nigeria ($\bar{x}$=0.22), Ministry of Agriculture and Rural Development ($\bar{x}$=0.16) and Nigeria Agricultural Cooperative Development Bank (0.16).

Table 4.3 Distribution of respondents by access to credit facilities

	Always		Occasionally		Never			
Variables	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**	**Mean**	**Rank**
Cooperative societies	123	49.2	51	20.4	76	30.4	1.19	1st
Family and friends	83	33.2	102	40.8	65	26.0	1.07	2nd
Money Lenders	29	11.6	28	11.2	193	77.2	0.34	3rd
Microfinance banks	15	6.0	47	18.8	188	75.2	0.31	4th
Commercial banks	16	6.4	43	18.0	189	75.6	0.31	4th
Poultry Association of Nigeria	16	6.4	23	9.2	211	84.4	0.22	6th
Bank of Agriculture	14	5.6	28	11.2	208	83.2	0.22	6th
National Programme for Food Security	10	4.0	33	13.2	207	82.8	0.21	8th
Investment clubs	16	6.4	14	5.6	220	88.0	0.18	9th
Nigeria Agricultural Cooperative Development Bank (NACRDB)	9	3.6	21	8.4	220	88.0	0.16	10th
Ministry of Agriculture and Rural Development	15	6.0	10	4.0	225	90.0	0.16	10th

Source: Field survey (2018)

4.4 Categorisation of respondents by level of access to credit facilities

The level of access to credit facilities by respondents was presented on table 5.4. It revealed that 76.8% of respondents had a low level of access to credit facilities, while only 23.2% had high access to credit. The low level of accessibility could have influenced by high interest rate from financial institutions and bureaucratic bottleneck experienced by poultry farmers during credit sourcing. The claim was substantiated by Gideon (2013) who posited high interest rate and collateral as factors influencing credit accessibility.

Table 4.4: Categorisation of respondents by level of access to credit facilities

Variables	Frequency	Per cent	Mean	Standard deviation	Min.	Max.
Low (0.00-4.37)	192	76.8	4.38	4.11	0.00	22.00
High (4.38-22.00)	58	23.2				

Source: Field survey (2018)

4.5 Attitude of respondents towards the use of credit for poultry enterprise

Attitude is a relatively enduring organization of beliefs, feelings and behavioural tendencies toward socially significant objects, groups, events, issues or symbols (Hogg and Vaughan, 2010). Table 5.5 presents the result on respondents' attitude to utilisation of credit for poultry enterprise, Strong agree and agree were discussed as agree, while strongly disagree and disagree were discussed as disagree. Majority of respondents agreed that use of credit for poultry enterprise has increased their productivity (81.2%), the use of credit can grow poultry enterprise within the shortest possible time (79.2%), the use of credit makes for poultry enterprise makes it more profitable (78.4%), if given more credit they will invest it in poultry enterprise (76.8%) and it is easy to repay credit when used for poultry enterprise (76.0%). Furthermore, respondents disagreed that use of credit for poultry enterprise makes it difficult to break even (70%), they do not need credit to improve their poultry enterprise (72%), the use of credit is too expensive compared to the profit/benefit derived (66.8%), I dislike using credit for poultry business, it makes it riskier (68.4%) and those who do not use credit for poultry make more profit than those who do (63.3%).

The favourable dispositions of poultry farmers toward credit utilisation to grow poultry enterprise within the shortest possible time, and their desire to use the acquired credit for poultry enterprise suggest that the respondents could relate financial capital to the success of their enterprise. The positive perception of credit utilisation could motivate the farmers to seek and acquire loan to increase their productivity. Corroborating this finding, Fred *et al.,* (2013) posited that credit does not just serve as a valuable source of liquidity to farmers, but readily facilitate commercialization and adoption of new technology for greater productivity. The willingness of the respondents to encourage other poultry farmers to collect credit for poultry enterprise, utilize the credit accordingly and the belief of ease of credit repayment when used for the enterprise could qualify them to access more financial capital for their enterprise. Abula and Ediri (2013) confirmed that loan repayment capacity is a major factor considered by financial institutions before giving loans to farmers.

Table 4.5: Distribution of respondents by attitude to use of credit for poultry enterprise

	SA		A		U		D		SD	
Variables	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**
Use of credit can grow poultry enterprise within the shortest possible time	61	24.4	137	54.8	24	9.6	19	7.6	9	3.6
The least I want to do is to use credit for poultry enterprise	38	15.2	78	31.2	39	15.6	73	29.2	22	8.8
I will never encourage others to collect credit and invest in poultry business	7	2.8	43	17.2	20	8.0	94	37.6	86	34.4
Use of credit for poultry enterprise has increased my productivity	56	22.4	147	58.8	12	4.8	18	7.2	17	6.8
The use of credit makes for poultry enterprise more profitable	52	20.8	144	57.6	19	7.6	20	8.0	15	6.0
If I am given more credit I will invest it in poultry enterprise	40	16.0	152	60.8	29	11.6	20	8.0	9	3.6
It is easy to repay credit when used for poultry enterprise	46	18.4	144	57.6	20	8.0	144	57.6	46	18.4
Use of credit for poultry enterprise makes it difficult to break even	9	3.6	33	13.2	33	13.2	126	50.4	49	19.6
Credit enable me to use modern technologies for poultry enterprise	34	13.6	152	60.8	24	9.6	27	10.8	13	5.2
I do not need credit to improve my poultry enterprise	11	4.4	40	16.0	19	7.6	132	52.8	48	19.2
The use of credit is too	11	4.4	48	19.2	24	9.6	119	47.6	48	19.2

expensive compared to the profit/benefit derived										
I dislike using credit for poultry business, it makes it riskier	24	9.6	44	17.6	11	4.4	108	43.2	63	25.2
Those who do not use credit for poultry make more profit than those who do	18	7.2	42	16.8	32	12.8	128	51.2	30	12.0
People who do not use credit for their poultry enterprise are missing a lot	32	12.8	113	45.2	42	16.8	53	21.2	10	4.0
It is better you use what you have for poultry than to take credit	12	4.8	59	23.6	41	16.4	92	36.8	46	18.4
There are better businesses to use credit for other than poultry	16	6.4	72	28.8	46	18.4	73	29.2	43	17.2
The loss is inevitable when credit is used for poultry enterprise	22	8.8	58	23.2	38	15.2	108	43.2	24	9.6
If not for credit my poultry business would have a collapse	21	8.4	111	44.4	32	12.8	70	28.0	16	6.4

Source: Field survey (2018)

4.6 Categorisation of respondents by level of attitude towards use of credit for poultry enterprise

The result in Table 5.6 revealed that 62.0% of the respondents had favourable attitude towards credit utilisation for poultry enterprise, while 38.0% showed unfavourable attitude. The implication is that poultry farmers in the study area have favourable attitude towards the use of credit for poultry production in the study area. Factors such as years of experience, level of education, age and income were significant predictors of respondents' attitude towards effective and efficient credit utilization among poultry farmers (Sham and Fard 2017; Patel *et al.,* 2014). Further credence was added by Nnena and Adaeze (2006) who posited that education significantly influences farmers' attitudes.

Table 4.6: Categorisation of respondents by level of attitude to use of credit for poultry enterprise

Level of attitude	Frequency	Per cent	Mean	Standard deviation	Min.	Max.
Unfavourable (36.00-63.70)	95	38.0	63.80	10.82	36.00	84.00
Favourable (63.80-84.0)	155	62.0				

Source: Field survey (2018)

4.7 Constraints to the utilization of credit for poultry enterprise

Constraints to credit utilization for poultry enterprise were presented on Table 5.7. On the overall, poultry farmers were most constrained by the high interest rate of credit ($\bar{x}$=1.62). This was a severe and mild constraint to 68.0% and 25.6% respondents respectively. This was followed by the high risk associated with poultry enterprise ($\bar{x}$=1.58), which was a severe and mild constraint to 66.0% and 26.0% respondents, respectively. Cumbersome procedure ($\bar{x}$=1.53) was a severe and mild constraint to 59.6% and 33.6% respondents, while untimely disbursement of credit ($\bar{x}$=1.51) was severe and mild constraint to 60.0% and 31.2% respondents respectively.

The implication is that high interest rate of credit, high risk associated with poultry enterprise, cumbersome procedure and untimely disbursement of credit were the most severe constraints to credit acquisition and utilization for poultry enterprise in the study area. The high severity of high interest rates as a constraint could be due to the exorbitant rates charged by formal and informal institutions. Banks and money lenders sometimes charged interest rates that take the whole profit; this added to risks involved and the possibility of losing your collateral in case of defaulting makes credit seeking unattractive. A study by John and Charles (2015) had earlier reported that high interest rate, inherent risks associated with agriculture and delayed disbursement of credit were some of the factors militating against credit utilization among farmers. The effect of high interest rate on agricultural credit utilization was further confirmed by Otunaiya *et al.,* (2014) who opined that a unit increase in interest rate on credit would decrease the volume of credit acquired by farmers to boost productivity.

Table 4.7: Distribution of respondents by constraints faced in the utilization of credit for poultry enterprise

Constraint items	Severe constraint		Mild constraint		Not a constraint			
	F	%	F	%	F	%	Mean	Rank
High interest rate of credit	170	68.0	64	25.6	16	6.4	1.62	1st
High risk associated with poultry enterprise	165	66.0	65	26.0	20	8.0	1.58	2nd
Cumbersome procedure	149	59.6	84	33.6	17	6.8	1.53	3rd
Untimely disbursement of credits	150	60.0	78	31.2	22	8.8	1.51	4th
Short repayment period	119	47.6	102	44.0	29	10.8	1.36	5th
Lack of insurance	113	45.2	110	44.0	27	10.8	1.34	6th
Unattainable collateral	107	42.8	116	46.4	27	10.8	1.32	7th
Insufficient amount collected	108	43.2	106	42.4	36	14.4	1.29	8th
Lack of group cohesion on requirement for loan	72	28.8	113	45.2	65	26.0	1.03	9th
Size of the enterprise	36	14.4	141	56.4	73	29.2	0.85	10th
The tendency to divert loan to other enterprises	38	15.2	134	53.6	78	31.2	0.84	11th

Source: Field survey (2018)

4.8: Categorisation of respondents by level constraints to use of credit for poultry enterprise

Table 5.8 revealed the mean level of constraints was 14.27. An equal number of respondents (50.0% each) experienced high and low levels of constraints to the utilization of credit. This implied that the level of constraints was evenly distributed among the respondents.

Table 4.8: Distribution of respondents by level of constraints encountered

Level of constraints	Frequency	Per cent	Mean	Standard deviation	Min.	Max.
Low (0.00-14.26)	125	50.0	14.27	3.86	0.00	22.00
High (14.27-22.00)	125	50.0				

Source: Field survey (2018)

4.9 Respondents' credit profile

Report on credit profile is presented in Table 5.9, it revealed that on the average, respondents accessed the highest amount of credit from cooperative societies (₦32,310,000). It was followed by commercial banks (₦12,960,000), friends &family (₦4,347,500) and microfinance bank (₦3,483,333). This implied that respondents accessed the highest credit from cooperative societies and also suggest high patronage of cooperatives society. Cooperative societies remain the most dependable sources of credit to farmers, noting that cooperative societies also help members to market their produce as well as bulk-purchase of farm inputs (Adebayo and Adeola, 2008).

In terms of credit utilization for poultry enterprise, Table 5.9 also revealed that credit accessed from money lenders (₦620,000.00), National Programme for Food Security (₦200,000.00) and Poultry Association of Nigeria (₦50,000.00) were fully (100%) utilized for poultry production by the respondents. The credits accessed from the Bank of Agriculture (₦695,000.00), Microfinance Banks (₦3,483, 333.33) and Family and friends were 96.40%, 94.74% and 91.37% utilized respectively. However, credits accessed from cooperative societies (₦32,310,000.00) were 53.80% utilized, while credit-sourced from Bank of Industry was 43.33% utilized by respondents.

This implied that there was high utilization of credit for poultry enterprise among respondents that sourced credit from money lenders, NPFS and PAN, while there was a relatively low utilization of credit sourced from cooperative society and the bank of Industry. The level of utilization of credit access for poultry depends largely on the proper monitoring by the financial institutions and sincerity of the loanee. In corroboration, Ohen *et al.,* (2018) confirmed that cooperative societies were not effective and efficient in credit management due to to lack of qualified personnel, insincerity of members and inconsistencies in credit management. According to Abula and Ediri (2013), the ability of loanees to repay credit is a major factor considered by financial institutions in giving out credits. John and Charles (2015) found that more than half (55.89%) of the farmers channelled agriculture credit to meet household needs.

Table 4.9: Distribution of respondents by credit profile in the study area

Where did you obtain the credit/loan from	Amount accessed (₦)	Amount used for poultry (₦)	Proportion used for poultry	Rank
Cooperative societies	32,310,000.00	17,383,333.33	53.80	8th
Group	575,000	575.00	0.10	11th
Commercial Banks	12,960,000.00	10,410,000.00	80.32	7th
Bank of Industry	3,000,000.00	1,300,000.00	43.33	10th
Family and Friends	4,347,500.00	3,972,500.00	91.37	6th
Money lenders	620,000.00	620,000.00	100.00	1st
Microfinance Banks	3,483,333.33	3,300,000.00	94.74	5th
Bank of Agriculture	695,000.00	670,000.00	96.40	4th
NPFS	200,000.00	200,000.00	100.00	1st
Poultry Association of Nigeria	50,000.00	50,000.00	100.00	1st
Others	200,000.00	100,000.00	50.00	9th
Mean	**216,513±507,580.38**	**185,656.40±446,027.16**		

Source: Field survey (2018)

4.10 Categorisation of respondents by credit profile and credit utilization for poultry enterprise

The result of respondents' credit profile is presented on Table 5.10. It revealed the mean credit collected was ₦876,085; 22.2% collected less than ₦500,000, 43.4% collected between ₦500,000-₦999,999, 20.1% collected between ₦1,000,000-₦1499,999, while 14.3% collected ₦1,500,000 and above

The implication is that poultry farmers in the study area accessed a mean of ₦880,000 as credit for poultry production. Majority of the respondents accessed less than a million Naira for their poultry enterprise. This is evidence in the mean and the fact that about two-third of the respondents accessed less than a million Naira from the financial institutions; while less than a quarter of the respondents were able to access one million and above. Abula and Ediri (2013) observed in their study area that the mean credit accessed by farmers was ₦147,766. They then posited that the volume of credit a farmer is able to secure to a very large extent determines his/her ability to adopt new innovation that could increase productivity and profitability.

The result also showed that the mean credit utilized by respondents for poultry enterprise was ₦784,603.2 and more than two per cent of the respondents diverted the entire credit collected for poultry enterprise. It was further observed that 26.5% utilized less than ₦500,000 and about 42% utilized between ₦500,000 and ₦999,999 for poultry enterprise, and only a little above one-quarter utilized one million naira and above for poultry production. Similar observation was made by John and Charles (2015) who earlier reported in their work that a sizeable number (37.78%) of farmers misappropriate agricultural credit, citing reasons such as meeting household non-food needs and low yield/returns for credit misappropriation.

Categorization of respondents based on credit utilised for poultry enterprise revealed that 39.2% belong to the low credit utilisation category, 28.0% were in the medium category, while 32.8% were in the high credit utilisation category. This implied that a great number of the respondents (39.2%) did not maximise the credits obtained for poultry enterprise which could jeopardise the purpose for the credit's disbursement (Badiru, 2010).

Noteworthy is the fact that under-utilisation of available credit could stiffen the inherent profitability potential in commercial poultry enterprise which could cause a huge loss on investment (Gibson *et al.*, 2017).

The quartile categorisation of credit utilised for poultry enterprise was presented on Table 5.10, and the result revealed that 28.6% of the respondents were in the first quartile. The second quartile accounted for 23.8%, the third quartile accounted for 27%, while the fourth quartile accounted for approximately 20.6% credit utilisation. This is an indication of high level of credit diversion among respondents as more than half (52.4%) utilised fifty percent or less of the total credit acquired for their poultry business. The finding is consistent with the findings of Rabo, Kushwaha and Abubakar (2001) who reported the diversion of 36.7% small-scale farmers' institutional credit intended for farm activities in Bauchi State. Similarly, Oboh and Ekpebu (2011) also revealed that 43.9% of the loan received by arable crop farmers in Benue State, Nigeria meant for farm activities was diverted and spent on non-farm activities; and Awoke (2004) believed that poor financial management which is evident in credit diversion is a major factor responsible for systemic decline in profitability experienced by farmers.

Table 4.10: Distribution of respondents by credit profile categorisation in the study area

Variables	Categories (₦)	Freq	%	Mean (₦)
How much did you collect	< 500,000	42	22.2	
	500,000-999,999	82	43.4	**876084.6±597501.5**
	1000,000-1,499,999	38	20.1	
	≥ 1,500,000	27	14.3	
How much of it did you use for poultry enterprise	Nothing used for poultry	4	2.1	
	< 500,000	54	26.5	
	500,000-999,999	79	41.8	**784603.2±499548.2**
	1,000,000-1,499,999	36	19.0	
	≥ 1,500,000	20	10.6	
Level of credit utilisation	Low	74	39.2	
	Medium	53	28.0	
	High	62	32.8	
Quartile Categorisation of credit utilisation	Q1	54	28.6	
	Q2	45	23.8	
	Q3	51	27.0	
	Q4	39	20.6	

Source: Field survey (2018)

4.11 Estimated profitability of commercial poultry enterprise

Table 5.11 presented the estimated profitability of poultry enterprise. The total fixed cost incurred was ₦4,685,979 per annum, while the total recurrent expenditure was ₦6,356,447 per annum. total cost which is the summation of total fixed costs and the total recurrent costs stood at ₦11,042,426, while the total revenue was ₦16,341,119 per annum. Therefore, the net profit from poultry production in the study area was ₦5,298,693 per annum.

The implication is that, with the total cost of ₦11,042,426 and net profit return of ₦5,298,693, commercial poultry enterprise could be said to be very profitable in the study area. In addition, 48% rate of return on investment implied that for every ₦100 invested into the enterprise, ₦48 is realized as net gain; and benefit-cost ratio of 1.48 indicated that poultry farmers would gain ₦1.48 on every one naira invested in poultry enterprise. This suggests that commercial poultry enterprise is profitable in the study area and could be seen as a viable alternative business venture because of its high profitability (Zuberu *et al.,* 2018). The result further showed that a BCR of ≥1 is obtainable in poultry business and this is in tandem with the research of Odimegwe *et al.*, (2015) who obtained BCR of ₦1.43, and Oladunni and Fatuase (2014) who obtained cost benefit ratio of ₦1.06 in their study areas

Table 4.11: Estimated profitability of commercial poultry enterprise

Items	Total (Naira)
Total fixed cost per year	4, 685, 979
Total recurrent expenses	6, 356, 447
Total cost (TC)	11, 042, 426
Sales	
Total revenue	16, 341, 119
Net income (TR-TC)	5, 298, 693
The rate of return on investment	**48 %**
Benefit-Cost Ratio	**1.48**

Source: Field survey (2018)

4.12 Categorisation of respondents by profitability level of commercial poultry production

Table 5.12 revealed that 66.8% of respondents had low level of profit, while 33.2% had high level of profit. This implies that majority of the respondents made a relatively low profit from poultry enterprise. The decline in profitability could be as a result of very high cost of production (feed and drug) and high energy prices. According to Amos (2006), he identified the cost of feed as the main factor affecting broiler production in Ondo State in Nigeria. Other problems identified included high mortality rate, adulteration of fishmeal, low and fluctuating

Table 4.12: Distribution of respondents by the profitability of commercial poultry production

Level of profit	Frequency	Per cent	Mean	Min.	Max.
Low	167	66.8	12550289	-9043767	86427167
High	83	33.2			

Source: Field survey (2018)

4.13 Categorisation respondents' enterprise profitability by States

Table 5.13 present the result on level of enterprise profitability by State of respondents. The result showed that profitability was highest in Oyo State (51.2%) followed by Ogun State (40.4%), while Ondo had the least (2.8%). The findings revealed that commercial poultry enterprise is more profitable in Oyo State and least profitable in Ondo State. Lagos, Ogun and Oyo States remain the business hubs of the Southwest with very large population and the demand for animal protein by this teaming population could be the reason behind observed high level of profitability in the two State. The comparison of profit efficiencies of previous research works showed similar result were Oyo and Ogun States attained higher profit efficiencies than Ondo State (Akintunde *et al.*, 2015; Odimegwe *et al.*, 2015; Oladunni and Fatuase, 2014).

Table 4.13: Distribution of enterprise profitability by State of respondents

Profitability	Ondo Freq.	%	Ogun Freq.	%	Oyo Freq.	%	Total Freq.	%
Low	69	97.2	59	59.6	39	48.8	167	**66.8**
High	2	2.8	40	40.4	41	51.2	83	**33.2**
Total	71	100	99	100	80	100	250	**100**

4.14 Hypotheses testing

4.14.1 Chi-square and correlation analysis of selected socio-economic characteristic of commercial poultry enterprise

This hypothesis tested for significant relationship between selected socio-economic characteristics and profitability of commercial poultry enterprise. Results on Table 5.14 and 5.15 revealed that sex (χ^2 =15.96, p =0.000), marital status (χ^2=11.76, p=0.019) membership of social association (χ^2 =11.91, p =0.000) and monthly income (r=0.14, p=0.026) were significantly related to profitability of commercial poultry enterprise, while primary occupation (χ^2 =9.22, p=0.261), secondary occupation (χ^2 =6.45, p =0.679), age (r= -0.06, p= 0.370), years of formal education (r= 0.10, p= 0.118) and household size (r = -0.03, p= 0.625) had no significant relationship with the profitability of commercial poultry enterprise.

The implication of the finding is that primary occupation, secondary occupation, age, years of formal education and household size of respondents were not correlated to profitability of commercial poultry enterprise. The positive correlation of income to profitability is expected as increase in profit increases income. This corroborates Esiobu *et al.,* (2014) and Onuk *et al.,* (2017) who reported significant relationships between monthly income and profitability of commercial poultry enterprise. Also, the significant relationship of sex, marital status and membership of association of respondents implied that they were associated with the profitability of commercial poultry enterprise. The sex and marital status of respondents influence the level of production, thereby influence its profitability. The statistically significant relationship of membership of association indicated that profitability increased with membership of association. This could be due to the fact that the information that enhances profitability such as production and marketing are disseminated during the meetings. Moreover, farmers achieved economies of scale through collective action and develop a good social and economic network (Njuguna, Kabuage and Bet, 2017). The findings confirm those of Yang and Liu (2012) where group membership among farmers in China had a positive and significant effect on returns.

Table 4.14 Chi-square analysis of selected socio-economic characteristics and profitability of commercial poultry enterprise

Variable	x^2-value	Df	p-value	Decision
Sex	15.962	1	0.000	Significant
Marital status	11.763	4	0.019	Significant
Primary occupation	9.224	7	0.261	Not significant
Secondary occupation	6.453	6	0.679	Not significant
Membership of social association	14.428	1	0.000	Significant

***Significant at p≤0.05**

Table 4.15 Correlation analysis of selected socio-economic characteristics and profitability of commercial poultry enterprise

Variable	N	r-value	p-value	Decision
Age	250	0.06	0.370	Non-significant
Years of formal education	250	0.10	0.118	Not-significant
Household size	250	-0.03	0.625	Not-significant
Monthly income	250	0.14	0.026	Significant

***Significant at p≤0.05**

4.14.2 Correlation analysis of selected enterprise characteristics and profitability of commercial enterprise

These hypotheses tested for a significant relationship between selected enterprise characteristics and profitability of commercial poultry enterprise. Table 5.16 revealed that size of enterprise (r = 0.15, p= 0.021), years of farming experience (r= 0.29, p= 0.010), access to credit facilities (r= 0.14, p= 0.030), number of employees (r = 0.31, p= 0.000) and type of enterprise (r= 0.24, p= 0.000) had significant relationship with profitability of commercial poultry enterprise. The result indicated that the size of enterprise, type of enterprise, years of experience and access to credit facilities correlated to the profitability of commercial poultry enterprise. Hence with increase in number of birds reared, years of experience and access to credit facilities there is increase profitability.

The study corroborates Bukunmi and Yusuf (2015) who observed that years of experience, number of birds reared and access to credit significantly affect productivity and profitability. Yusuf *et al*., (2016) and Olasunkanmi (2008) also confirmed in their studies that flock size (size of enterprise) affects the profitability of commercial poultry farmers in their study areas. Apart from the revenue generated from the sale of broilers and eggs, old layer and poultry wastes also serve as sources income (Odimegwe, *et al.,* 2015). The above proposition could account for the significant correlation observed between type of enterprise and profitability of commercial poultry enterprise. The significant correlation of access to credit suggests that farmers who had access to credit were able to increase their scale of enterprise and purchase inputs in wholesale hence make higher profit. This result is consistent with those of Ayieko *et al*., (2014) which revealed that access to credit led to higher profits among the poultry farmers in Makueni County, Kenya.

Table 4.16 Correlation analysis of selected enterprise characteristics and profitability of commercial poultry enterprise

Variable	**N**	**r-value**	**p-value**	Decision
Years of experience	250	0.29	0.010	Significant
Size of enterprise	250	0.15	0.021	Significant
Number of employees	250	0.31	0.000	Significant
Access to credit facilities	250	0.14	0.030	Significant
Type of enterprise	250	0.24	0.000	Significant

4.14.3 Correlation analysis between constraints to the utilization of credit and profitability of commercial poultry enterprise

The correlation analysis on Table 5.17 showed there is no significant relationship between constraints to credit utilization (r= -0.099, p= 0.119) and profitability of commercial poultry enterprise. This implies that constraints to the utilization of credit did not significantly determine the profitability of poultry enterprise. However, the negative correlation observed in the result implied that the more severe the constraint to credit use, the lower the profitability of the poultry enterprise. Hence lower utilization of credit will reduce profitability. Generally, an increase in credit to agriculture will lead to increase food production and farmers' income, Nwaru and Onuoha (2010) observed that when agricultural credit is properly extended and utilized, it often increases resource productivity, agricultural production, value addition and net incomes of farmers.

Table 4.17: Correlation analysis between the constraints to the utilization of credit and the profitability of commercial poultry enterprise

Variable correlation	N	r-value	p-value	Decision
Constraints to the utilization of credit and profitability	250	-0.099	0.119	Not significant

Significant at p≤0.05

4.14.4 Correlation analysis between credit utilization and profitability of commercial poultry enterprise

The correlation analysis presented in Table 5.18 revealed there is a significant relationship between credit utilization (r= 0.085, p= 0.021) and profitability of commercial poultry enterprise. The implication is that efficient utilization of credit significantly influenced profitability of commercial poultry in the study area. This result aligned with that of Sanusi and Olagunju (2013) who reported a significantly higher technical efficiency for credit using poultry farmers, and Nimoh *et al.,* (2011) who posited that increased credit utilization by commercial poultry enterprise would result in better performance of the enterprise. Although profitability is a function of effective credit utilisation, Akintunde *et al*., 2015 and Olatunji *et al.*, 2011 posited that profitability could be enhanced by efficient management of other factors such as health, nutrition, personnel and sales in the enterprise. Giving credence to this, Heise *et al.*, (2015) posited that the profitability of any commercial poultry enterprise is a function of the technical and allocative efficiencies of the poultry farmer.

Table 4.18: Correlation analysis between credit utilization and the profitability of commercial poultry enterprise

Variable correlation	N	r-value	p-value	Decision
Utilization of credit and profitability	250	0.085	0.021	Significant

Significant at p≤0.05

4.14.5 Test profitability of commercial poultry enterprise across level of utilization of credit for commercial poultry enterprise

The result on Table 5.19 revealed there is significant difference in the profitability across the level of utilization of credit for poultry enterprise (F= 2.758, p= 0.047) which agreed with the a-priori expectation and the work of Nimoh *et al.,* (2011) who posited that increased credit utilization by commercial poultry enterprise would result in better performance of the enterprise. Further analysis using LSD Post Hoc test to compare each level of usage with profitability showed a significant difference exist between respondents with High credit utilisation and those with low credit usage (p= 0.022). The analysis further showed that poultry enterprise with high credit utilization were 0.194 times more profitable compared to enterprise with low credit utilisation. The reason for the observed difference could be as a result of efficient management of available resources committed to the enterprise by the set of respondents. Giving credence to this proposition, Sanusi and Olagunju (2013) posited that profitability is associated with significant higher technical efficiency in management areas such as disease control, nutrition, marketing and finance.

Table 4.19 Difference in profitability of commercial poultry enterprise across the levels of credit utilisation

Variables	Sum of squares	Df	Mean square	F-value	p-value	Decision
Between groups	1.309	2	0.654	2.758	0.047	**Significant**
Within groups	44.130	186	0.237			
Total	45.439	188				

Significant at $p \leq 0.05$

Table 4.20 Post hoc-multiple comparisons

Categories of credit utilization		**Mean diff**	**STD Error**	**p-value**	95% Confidence interval	
					Lower band	Upper band
Low	Medium	0.12264	0.08765	0.163	-0.0503	0.2956
	High	-0.19355	0.08386	0.022	0.0281	-0.3590
Medium	Low	-0.12264	0.08765	0.163	-0.2956	0.0503
	High	0.07091	0.09112	0.437	-0.1089	0.2507
High	Low	0.19355*	0.08912	0.022	0.3590	-0.0281
	Medium	-0.07091	0.09112	0.437	-0.2507	0.1089

Categories of credit utilization		**Mean diff**	**STD Error**	**p-value**	**95% Confidence interval**	
					Lower band	**Upper band**
Low	Medium	0.12264	0.08765	0.163	-0.0503	**0.2956**
	High	-0.19355	0.08386	0.022	0.0281	**-0.3590**
Medium	Low	-0.12264	0.08765	0.163	-0.2956	**0.0503**
	High	0.07091	0.09112	0.437	-0.1089	**0.2507**
High	Low	0.19355*	0.08912	0.022	0.3590	**-0.0281**
	Medium	-0.07091	0.09112	0.437	-0.2507	**0.1089**

4.14.6 Determination of profitability across the three types of commercial poultry enterprise

The result of a One-way ANOVA conducted to determine the profitability across the three types of commercial poultry enterprises was presented on Table 5.21. The result revealed there was a significant difference in profitability ($F=7.794$, $p= 0.001$) between the types of commercial poultry enterprise. To determine the most profitable enterprise in poultry business, a post hoc multiple comparison was carried out using LSD test. The analysis showed there was a significant difference in profitability between meat and egg enterprise and egg alone enterprise ($p= 0.000$). The meat and egg enterprise was seen to be 0.263 times more profitable than the egg alone enterprise. There was also a significant difference in profitability between the meat enterprise and the egg enterprise ($p= 0.007$), and the meat enterprise was observed to be 0.256 times more profitable than egg enterprise. The short production cycle of broiler makes multiple production per year possible and the sale of spent layers (old layers) to generate additional income could be the reason the combination of meat and egg as an enterprise was observed to be more profitable (Anang *et al.*, 2013; Odigwe *et al*., 2015). The findings however contradicted the work of Bamiro (2008) who posited that poultry egg enterprise had the highest gross margin while meat enterprise had the least.

Table 4.21: Difference in profitability among the types of commercial poultry enterprise

Variables	Sum of squares	Df	Mean square	F-value	p-value	Decision
Between groups	3.291	2	1.646	7.794	0.001	**Significant**
Within groups	52.153	247	0.211			
Total	55.444	249				

Significant at p≤ 0.05

Table 4.22 Post hoc-multiple comparisons

Type of poultry enterprise		**Mean diff**	**STD Error**	**p-value**	**95% Confidence interval**	
					Lower band	**Upper band**
Egg	Meat	-0.25628	0.09383	0.007	-0.4411	**-0.0715**
	Meat and Egg	-0.26290	0.06845	0.000	-0.3977	**-0.1281**
Meat	Egg	0.25628*	0.09383	0.007	0.0715	**0.4411**
	Meat and Egg	-0.00662	0.08362	0.937	-0.1713	**0.1581**
Meat and Egg	Egg	0.26290*	0.06845	000	0.1281	**0.3977**
	Meat	0.00662	0.08362	0.937	-0.1581	**.1713**

Significant at p≤ 0.05

4.14.7 Determination of profitability of commercial poultry enterprise across the three States

A One-way ANOVA conducted to test the difference in profitability of commercial poultry enterprise across the three States showed there was a significant difference in profitability of commercial poultry enterprise across the three States (F= 26.105, p= 0.000). Post hoc comparison using LSD test indicated a significant difference in profitability existed between Oyo State and Ondo State (p= 0.000). It was further revealed that poultry enterprise was 0.484 times more profitable in Oyo State than Ondo State. In addition, there was a significant difference in profitability between Ogun State and Ondo State (p= 0.000), and the post hoc comparison showed that commercial poultry enterprise was 0.376 times more profitable in Ogun State than Ondo State. The finding is in consonant with the work of Odimegwe *et al*., (2015) who reported a higher BCR of ₦1.43 in Ogun State against ₦1.06 reported by Oladunni and Fatuase, (2014) in Ondo State.

Table 4.23 One-way ANOVA test of difference in profitability of commercial poultry enterprise the three States

Variables	**Sum of squares**	**Df**	**Mean square**	**F-value**	**p-value**	**Decision**
Between groups	9.674	2	4.837	26.105	0.000	**Significant**
Within groups	45.770	247	0.185			
Total	55.444	249				

Significant at p≤ 0.05

Table 4.24 Post hoc-multiple comparisons

Type of poultry enterprise		Mean Diff	STD Error	p-value	95% Confidence interval	
					Lower band	**Upper band**
Ondo	Ogun	-0.37587*	0.06694	0.000	-0.5077	**-0.2440**
	Oyo	-0.48433*	0.07019	0.000	-0.6226	**-0.3461**
Ogun	Ondo	0.37587*	0.06694	0.000	0.2440	**0.5077**
	Oyo	-0.10846	0.06471	0.095	-0.2359	**0.0190**
Oyo	Ondo	0.48433*	0.07019	0.000	0.3461	**0.6226**
	Ogun	0.10846	0.06471	0.095	-0.0190	**0.2359**

Significant at p≤ 0.05

4.14.8 Determinant of profitability of commercial poultry enterprise in South-western Nigeria

Table 5.25 revealed the aggregated R^2 was 0.49. This indicated that the regression model explained 49% of the profitability of commercial poultry enterprise in the South-western Nigeria. The result further revealed that male gender (β= 0.13), total years of formal education (β= 0.13), belonging to social association (β= 0.16), years of experience in poultry enterprise (β= -0.17), source of startup capital (β= -0.19) and the value of credit used for poultry enterprise (β= 0.18) were significant determinants of profitability of commercial poultry enterprise in the Southwest of Nigeria. The implication of the result is that a unit increase in the number of male gender involved in commercial poultry enterprise in the Southwest, the more profitable the enterprise. This could be linked to the stress and physical exertion involved in poultry production that requires the male strength to accomplish. Also, a unit increase in the years of formal education would result to 0.13 increase in profitability of commercial poultry enterprise, belonging to an association would increase profitability by 0.16 increase in years of experience would result to 0.17 increase in profitability of commercial poultry enterprise and a unit increase in the value of credit used for poultry enterprise would lead to 0.18 rise in profitability. Education has been seen as a positive tool to productivity as it sharpens the minds and make additional knowledge acquisition for efficient and profitable possible; while association would enable the poultry farmers to achieve a better economy of scale through social and economic network (Njuguna, Kabuage and Bet, 2017; Kawsar *et al,*2013). However, sources of startup capital were observed to negatively determined profitability of poultry enterprise in the Southwest of Nigeria.

Table 4.25: Determinants of aggregated profitability of commercial poultry enterprise in Southwestern Nigeria

Model	Beta	t	p
Age	-0.07	-0.94	0.35
Sex (male)	0.13*	2.03	0.04
Marital status	0.01	0.21	0.83
Total years of formal education	0.13*	2.01	0.04
Belonging to social association	0.16*	2.71	0.01
Monthly income	0.02	0.40	0.69
Years of experience in poultry enterprise	0.17*	2.10	0.03
Size of enterprise	0.10	1.60	0.11
Target of poultry production	0.11	1.765	0.08
Source of startup capital	-0.19*	-3.12	0.00
Source of land for poultry enterprise	0.05	0.87	0.39
Access to credit facilities	-0.11	-0.18	0.07
Attitude to use of credits for poultry enterprise	0.12	1.81	0.07
Constraints to credit utilization for poultry enterprise	-0.01	-0.16	0.88
Value of credit used for poultry enterprise	0.18*	2.93	0.00
R^2		**0.49**	
R		**0.70**	

4.14.9 Disaggregated determinants of profitability of commercial poultry enterprise in Southwestern Nigeria

The disaggregated of the determinants as presented on Table 5.26 indicated that the R^2 for Ondo, Ogun and Oyo States were 0.72, 0.57 and 0.43 respectively; which revealed that 72% of the profitability in Ondo State was explained by this model, 57% of the profitability in Ogun was explained by the model and 43% of the profitability in Oyo State was explained by the model. The model further revealed that the size of the enterprise (β= 0.55) was the significant determinant of profitability of poultry enterprise in Ondo and Ogun States. The implication is that a unit increase in the size of poultry enterprise in Ondo and Ogun States would lead to 0.55 rise in profitability. The model further revealed that male gender (β= 0.31), source of land for poultry enterprise (β= 0.26) and access to credits (β= 0.33) were the significant determinants of commercial poultry profitability in Oyo State. The implication is that increase in male gender participation in commercial poultry enterprise and cheap source of land for poultry enterprise would positively increase profitability of commercial poultry. Also, a unit increase in access to credit facilities would result to 0.33 rise in profitability of commercial poultry in Oyo State. Timely access to sufficient fund is very vital in prompt procurement of necessary inputs such as drugs and feeds (Ayieko *et al*., 2014).

Table 4.26: Disaggregated determinants of profitability of commercial poultry enterprise in Southwestern Nigeria

	Ondo			**Ogun**			**Oyo**		
Model	Beta	T	p	Beta	t	p	Beta	t	**P**
Age	-0.07	-0.67	0.51	0.00	0.01	0.99	-0.24	-1.42	**0.16**
Sex (male)	-0.13	-1.69	0.09	0.07	0.81	0.42	0.31*	2.31	**0.02**
Marital status	-0.08	-0.91	0.37	0.01	0.08	0.94	0.11	0.78	**0.44**
Total years of formal education	0.02	0.19	0.85	-0.06	-0.64	0.53	0.11	0.73	**0.47**
Belonging to social association	0.01	0.07	0.94	0.07	0.78	0.44	-0.11	-0.88	**0.39**
Monthly income	-0.08	-1.01	0.32	-0.07	-0.90	0.37	0.24	1.90	**0.06**
Years of experience in poultry enterprise	-0.07	-0.79	0.43	-0.03	-0.27	0.79	0.06	0.27	**0.79**
Size of enterprise	0.55*	6.94	0.00	0.55*	4.34	0.00	-0.07	-0.47	**0.64**
Target of poultry production	-0;16	-1.96	0.06	0.14	1.57	0.12	-0.24	-1.69	**0.10**
Source of startup capital	-0.14	-1.69	0.09	-0.18	-1.88	0.06	0.14	1.04	**0.30**
Source of land for poultry enterprise	0.07	0.81	0.42	-0.10	-1.30	0.20	0.26*	2.09	**0.04**
Access to credit facilities	-0.15	-0.76	0.09	-0.01	-0.07	0.94	0.33*	2.12	**0.04**
Attitude to use of credits	0.06	0.79	0.44	0.02	0.18	0.86	0.04	0.23	**0.82**
Constraints to credit utilization	-0.02	-0.19	0.86	-0.04	-0.40	0.69	0.01	0.06	**0.95**
Value of credit used for poultry enterprise	0.52*	6.748	0.00	-0.16	-1.72	0.09	0.22	1.90	**0.06**
R^2	0.72			0.57			**0.43**		
R	0.85			0.75			**0.56**		

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

This chapter presents a summary of the study, with conclusions and recommendations made based on the findings of the study. It also highlights contributions to knowledge and areas for further studies.

5.1 Summary

Commercial poultry production requires huge and reliable financial capital, which frequently serves as constraints to commercial poultry enterprise. Hence, the availability of credit is essential to the profitability of commercial poultry enterprise. Although some financial institutions consider poultry enterprise a high-risk investment due to a number of factors that militate against the profitability of poultry enterprise. However, it is obvious that poultry production is very profitable when capital is available hence, the need to ascertain the effect of credit utilisation on the profitability of commercial poultry production. Given up-coming programmes on credit to the agriculture sector such as the CBN's Anchor borrower's scheme programme as well as the dearth of literature on the effect of credit on the profitability of commercial poultry enterprise, it is imperative to assess the effect of credit utilization on the profitability of commercial poultry.

The study was carried out among commercial poultry farmers in South-western Nigeria. Multistage sampling procedure was used to select the respondents for the study. Oyo, Ogun and Ondo state were randomly selected in Southwest Nigeria. Purposively, three LGAs with predominantly known for commercial poultry production were selected, Oyo east, Lagelu and Afijo in Oyo state; Odeda, Ado Odo/Otta and Ifo in Ogun state; and Ondo West, Owo and Akoko Northwest LGAs in Ondo state. Cluster sampling technique was to select 2 communities where poultry farming was prevalent in each of the selected Local Government Areas. From the list of registered poultry farmers, 10% of the registered

poultry farms were selected to make a total of 250 respondents. Quantitative data on socioeconomic characteristics; enterprise characteristics; access to credit sources; attitude of respondents towards on credit; constraints to utilization of credit for poultry enterprise; credit utilization and the profitability of commercial poultry enterprise were collected and analysed using percentages, frequency and mean, while hypotheses were tested using chi-square, PPMC and ANOVA.

The result revealed that majority (74.8%) were male and married 88.8%. The mean age and years of formal education were 43 and 17 respectively. A larger per cent (68.8%) of the respondents did not belong to any social association, 52.8% and 42.8% were involved in poultry production as their primary and secondary occupation respectively, with a mean monthly income of ₦148, 181. In terms of poultry enterprise, on the average, respondents had been involved in poultry production for 10 years, the number of birds reared was 6, 800. Majority (85.2%) of the respondents were sole proprietors, 54.4% combined both egg and meat production, while 63.6% used battery cage system. Almost half (48.8%) sourced their start-up capital from personal savings, 42.0%get land for poultry production by inheritance, 45.2% depend mainly on self-labour, while 43.2% had extension agents visited them fortnightly.

Also, the study revealed that credit was most accessed from cooperative societies ($\bar{x}$=1.19) and family and friends ($\bar{x}$=1.07). Access to credit facilities was low (76.8%), while 62.0% of the respondents had a favourable attitude towards the use of credit for poultry enterprise. The constraints to credit use for poultry enterprise were the high interest rate of credit ($\bar{x}$=1.62), high risk associated with poultry enterprise ($\bar{x}$=1.58) and cumbersome procedure ($\bar{x}$=1.53). Respondents accessed the highest amount of credit from cooperative societies (₦32,310,000) and commercial banks (₦12,960,000). All the credit access from money lenders (₦620,000.00), National Programme for Food Security (₦200,000.00) and Poultry Association of Nigeria (₦50,000.00) were fully (100%) utilized for poultry production. The net profit from poultry production was ₦5,298,693, while the rate of return on investment and benefit-cost ratio were 48% and ₦1.48 respectively.

Furthermore, this study found that sex (χ^2 =15.96, p = 0.000), marital status (χ^2 = 11.76, p = 0.019), membership of social association (χ^2 = 11.91, p = 0.000) and monthly income were

significantly related to profitability of commercial poultry enterprise. Also, size of enterprise (r = 0.15, p = 0.021), years of farming experience (r = 0.29, p = 0.010), access to credit facilities (r = 0.14, p = 0.030), number of employees (r = 0.31, p = 0.000), type of enterprise (r = 0.24, p = 0.000) and credit utilisation (r = 0.085, p = 0.021) correlated significantly to profitability of commercial poultry enterprise. There was significant difference in profitability of commercial poultry enterprise between the types of commercial poultry enterprise (F= 7794, p = 0.001), across the three States (F = 26.105, p = 0.000) and across the level of utilisation (F = 2.758, p = 0.047). The meat and egg poultry enterprise was seen to be 0.263 times more profitable than the egg alone enterprise, while the meat enterprise was observed to be 0.256 times more profitable than egg enterprise. In addition, commercial poultry enterprise was 0.484 times more profitable in Oyo State than Ondo State, and 0.376 times more profitable in Ogun State than Ondo State.

The determinants of profitability of commercial poultry enterprise in Southwestern Nigeria were male gender (β= 0.13), total years of formal education (β= 0.13), belonging to social association (β= 0.16), years of experience in poultry enterprise (β= -0.17), source of start-up capital (β= -0.19) and the value of credit used for poultry enterprise (β= 0.18). Size of enterprise (β= 0.55) was the main significant contributor to commercial poultry profitability in Ondo and Ogun States, while male gender (β= 0.31), source of land for commercial poultry enterprise (β= 0.26), and access to credits (β= 0.33) were the significant contributors to commercial poultry profitability in Oyo State.

5.2 Conclusion

In conclusion, the use of credit significantly increased the profitability of commercial poultry production in Southwest Nigeria. The profitability of commercial poultry enterprise increased across the level of utilization of credit. Meat and egg enterprise was more profitable than meat or egg alone enterprises and profitability was highest in Oyo State. Although access to credit was low, credits for poultry production was mostly accessed from cooperative societies. Poultry farmers had favourable attitude towards the use of credit for poultry enterprise. The high interest rate of credit and high risk associated with poultry enterprise constrained the use of credit for poultry enterprise.

The size of enterprise, years of farming experience, access to credit facilities, number of employees, type of enterprise and credit utilization determined the profitability of commercial poultry enterprise. Also, sex, marital status, membership of social association and monthly income were associated with profitability of commercial poultry enterprise. Commercial poultry farms were owned by sole proprietors, production of both egg and meat for sales and the use of battery cage system were the common practice. Sourcing of start-up capital form personal savings, high dependence on self-labour and irregular visit by extension agent was predominant.

Finally, male gender, total years of poultry enterprise experience and source of start-up capital were significant determinants of profitability of commercial poultry enterprise in the Southwest of Nigeria.

5.3 Recommendation

1. Based on the conclusion, the following recommendations are proffered for commercial poultry farmers in terms of credit utilisation and profitability.
2. Government and financial institutions should empower cooperative societies with adequate funds.
3. Poultry farmers should form cooperatives society to enable them access loans from the various financial institutions.
4. The high interest and procedures for securing loans should be reviewed in order to make it simple and attractive for the farmers
5. There is also the need to motivate and provide resources for agricultural extension agents, and extension services should be improved upon in terms of regular visitation to farmers and linking them to financial institutions and cooperative society.
6. Government and other stakeholders' efforts should be directed towards policies and programmes that will further enhance those factors that will increase farmers' decision to use agricultural credit.
7. In collaboration with the financial institution especially the Bank of Agriculture and commercial banks, awareness and education on credit sourcing and management should be incorporated into their package for outreach to the farming folks.

8. Financial institutions should make concerted effort through monitoring and evaluation to ensure that the loanee utilized credit for the exact purpose it was acquired for

5.4 Contribution to Knowledge

The following contributions were made to knowledge by the study:

1. Cooperative societies and family/friends were established as the most prominent sources of credit for poultry production in southwestern Nigeria.
2. Access to credit facilities and utilization of credits were established as low in the study area due to high interest rates and high risks associated with poultry production.
3. Farmers differed in their profitability depending on their level of credit utilization, type of poultry enterprise and location.
4. Profitability was confirned as highest in Ogun State and among poultry farmers who combined egg and meat production in their enterprise.
5. Use of credit facility was established to have positive effect on the profitability of commercial poultry enterprise in Southwestern Nigeria.

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APPENDIX

INTERVIEEW SCHEDULE
DEPT. OF AGRICULTURAL EXTENSION AND RURAL DEVELOPMENT, FACULTY OF AGRICULTURE AND FORESTRY UNIVERSITY OF IBADAN, IBADAN NIGERIA

Dear respondents,

I am one student of the above named universiity conducting a research on **"EFFECT OF CREDIT UTILIZATION ON PROFITABILITY OF COMMERCIAL POULTRY PRODUCTION IN SOUTH-WEST, NIGERIA".** All informations provide shall be treateed with utmost confidentialty and will be used whollly for the purpose of research. Your sincerely response in answering all the questions shall be of great importance to the success of this research.

Thank you for your anticipated cooperation.

Date: _____ State: _____

LGA_____ Community:

_____

Instructions: Plse complete by ticking any correct answers or fill up the gaps as appropriiate**.**

Socio-economical characteristics

1. Age of the respondent (years)_____
2. Sex of the household head: Male ( ) Female ( )
3. Marital status of the key respondent: Married ( ) Divorced ( ) Separated ( ) Widowed ( )
4. Total number of years of formal education _____
5. Religion of the household head: Christianity ( ) Islam ( ) Traditional ( ) Others ( )
6. Household size of the respondent:_____
7. Do you belong to any other social association? Yes ( ) No ( )
8. if yes, name any the social association (_____)
9. Primary occupation of the household head and Poultry production ( ) other livestock ( ) crop farming ( ) Civil Service ( ) Artisan ( ) Trading ( ) Others specify _____
10. Secondary occupation of the households head. Poultry production ( ) other livestock ( ) crop farming () Civil Service ( ) Artisan ( ) Trading ( ) Other specify _____

11. Estimated monthly incomes _____ (Naira)

Poultry enterprise characteristics of respondents

1. Years of experience in poultry enterprise:_____
2. **Number of birds: _____**
3. **Type of poultry product: Egg ( ), Meat ( )**
4. **Type of poultry management practice: Deep litter ( ) Battery cage ( )**
5. **Ownership:sole proprietor ( ), partnership ( ) Group/cooperative ( )**
6. Source of **start-up capital for enterprise**: Bank loan ( ) Cooperative ( ) Friends and relative ( ) Personal savings ( ) Others specify _____
7. Source of land: Inherited ( ) Rented ( ) Purchased ( ) Leased ( ) Communal land ( ) Others,
8. Source of farm labour used on the farm: Self ( ), Family labour ( ), Hired labour ( ) Others, specify _____
9. **Number of employees: _____**
10. If paid how much monthly_____
11. **How often do extension agents visit you: Never () Daily ( ) W**eekly ( ), **fortnightly ( ), Monthly ( ), Quarterly ( )**

Access to credit (formal and informal sources)

Please indicate how often you access credit from the following sources

S/no	Items	Never	Occasionally	Always
1.	Family and friends			
2.	Money lenders			
3.	Poultry Association of Nigeria			
4.	Cooperative societies			
5	Investment clubs			
6.	microfinance banks			
7.	Nigerian Agricultural Cooperative Development Bank (NACRDB)			
8.	Commercial banks			
9.	Bank of Agriculture (BoA)			
10.	Ministry of Agriculture and Rural Development			
11.	National Programme for Food Security (NPFS).			
12.	Others specify ( )			

Attitude of respondents towards use of credit for poultry enterprise

Please react to the following statements by indicating your agreement or disagreement with SA (strongly Agree), A (Agree), U (Undecided), D (Disagree), SD (Strongly Disagree).

No	ITEMS	SA	A	U	D	SD
1.	Use of credit for poultry enterprise has increase by productivity					
2.	The use of credit makes for poultry enterprise more profitability					
3.	I do not need credit to improve my poultry enterprise					
4.	There are better business to use credit for other than poultry					
5.	I dislike using credit for poultry business, it makes it more risky					
6.	If am given more credit I will invest it poultry enterprise					

7.	Credit enable me to use modern technologies for poultry enterprise					
8.	The use of credit is too expensive compared to the profit/benefit derived					
9.	I will never encourage others to collect credit and invest in poultry business					
10.	It is better you use what you have for poultry than to take credit					
11.	Use of credit for poultry enterprise makes it difficult to break even					
12.	It is easy to repay credit when used for poultry enterprise					
13.	The least I want to do is to use credit for poultry enterprise					
14.	Loss is inevitable when credit is used for poultry enterprise.					
15.	Those who do not use credit for poultry make more profit than those who do					
16.	If not for credit my poultry business would have collapsed					
17.	People who do not use credit for their poultry enterprise are missing a lot					
18.	Use of credit can grow poultry enterprise within the shortest possible time					

Constraints faced by respondents in utilization of credit for poultry enterprise

Please tick how much the following constraints affect utilization of credit for poultry enterprise

S/N	Items	Not a constraint	Mild constraint	Severe constraint
1.	High interest rate of credit			
2.	High risk associated with poultry enterprise			
3.	Untimely disbursement of credits			
4.	Short repayment period			
5.	Lack of insurance			
6.	Fear of loss in poultry enterprise			
7.	Insufficient amount collected			
8.	Emergency needs other than poultry enterprise			
9.				

Utilization of credit

First credit

Where did you obtain the credit (loan) from_____?

How much credit did you collect_____?

How much did you use for poultry_____?

Second credit

Where did you obtain the credit (loan) from_____?

How much credit did you collect_____?

How much did you use for poultry_____?

Third credit

Where did you obtain the credit (loan) from_____?

How much credit did you collect_____?

How much did you use for poultry_____?

Profitability of last production cycle poultry

Revenue: How much did you make from sale of: Egg: _____ poultry birds _____ others (manure, feathers etc)_____

Cost of production

Recurrent expenditure (A production cycle)

Interest paid monthly_____

Amount spent on day old birds_____

Total amount spent on labour per production cycle:

Amount spent on rent on land _____

Amount spent on feed for a production cycle: number of bags of feed starter ( ) Grower ( ) Finisher ( )

Cost of a bag of feed: starter ( ) Grower ( ) Finisher ( )

Amount spent on vaccine and drugs: _____

Amount spent on transportation for sales: _____

Amount spent on transportation for inputs (medication and day old chicks): _____

Amount spent on electricity/ power for production cycle: _____

Amount spent on water for production cycle: _____

Other operating expense for production cycle: _____

Capital expense

Cost of building: _____, how many years can it last: _____

Cost of feeders: _____, how many years can it last: _____

Cost of drinkers: _____ , how many years can it last: _____

Other capital cost _____

Factors affecting profitability of commercial poultry enterprise

Please tick how much the following factors affect profit ofcommercial poultry enterprise

	Items	Not a Factor	Minor factor	Major factor
	Demographic factors			
	Age			
	Sex			
	educational level			
	Other occupation			
	Enterprise factor			
	years of experience			
	Number of birds			
	source of land acquisition			
	Type of management system			
	Availability of markets/price			
	Credit related factors			
	Interest rate			
	Timeliness in release of funds			
	Source of credit			
	Amount of credit			
	Repayment condition of credit			
	Production factor			
	Disease outbreak			
	Marketing glut			
	High cost of inputs			
	Natural disaster			