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Analysis of Poultry Farmers' Utilization of Agricultural Credit in Jos South Local Government Area of Plateau State, Nigeria

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***Abstract*—This study analyzed poultry farmers' utilization of agricultural credit in Jos South Local Government Area of Plateau State, Nigeria. The population for the study consists of all the registered poultry farmers in Jos South Local Government Area. Multistage sampling technique was used in selecting the respondents for the study. Primary data were collected through the use of questionnaires and interview schedule and were subjected to both descriptive and inferential statistics. Findings from the study showed that majority (86%) of the poultry farmers' were men, with a mean age of 42 years. Majorities (89%) were married and had five people on average per home. The study also showed that 51% of the farmers were educated beyond high school with a mean farming experience of 9 years and average stock size of 1658 birds. The responders received an average credit amount of ₦357224 while the average amount utilized for poultry business was ₦290164. About 75% of the farmers utilized the loan given to expand their existing farm business. Gender, household size, farming experience and flock size were the significant determinants of agricultural credit utilization by the poultry farmers. Inadequacy of the credit amount received (58.0) and competing family needs (32%) were the main obstacles to using agricultural credit among the poultry farmers. The study recommended more budgetary allocations and farmer's friendly policies by financial institutions to enable bigger volumes of disbursements to farmers.**

***Keywords*—Analysis, agricultural credit, poultry farmers, utilization**

I. INTRODUCTION

Agricultural credit plays a very important role in the development of the agricultural sector. It can meet a range of needs and can be critical to the success of agriculture. According to circumstantial evidence, institutional credit has increased more quickly where agriculture has expanded more quickly [1]. According to [2], agricultural credit is the sum of investment capital made available from sources beyond the farm sector for agricultural output. They are loans extended to farmers for production, storage, processing and marketing of farm products. Such credit can be short, medium or long term depending on its duration. It is among the fundamental ingredients of sustainable agricultural production, as such, its accessibility and demand is among the prerequisites for attaining the national goal of reducing poverty and ensuring self-food sufficiency goal in the country [3]. According to [4], the commitment made by individual farmers or farm operators to borrow money from middlemen for their business operations is known as agricultural credit. The need for credit can, therefore, not be overemphasized. Many people believe that giving farmers credit is an effective way to increase agricultural productivity [5]. Credit institutions span from established, sizable commercial banks to small, neighbourhood cooperatives. Additionally, it may be formal or informal. It has been argued that Nigeria's declining production and supply of chicken products might improve if adequate agricultural financing were made accessible [6].

The livestock industry in Nigeria is an active and viable component of the agricultural sector that continues to grow at an annual rate of 12.7 percent per annum [7]. The world's livestock sector is around the size of 30% of the unfrozen terrestrial surface of the planet, and 30.3 million hectares are used for pasture and other livestock needs [8; 9]. In financial terms, the sector has a large global asset that is estimated to be about $1.4 trillion while Nigeria's livestock sector is valued at $ 78 billion [7]. This sector is an important component of the entire country's agricultural sector, being a key contributor to economic growth and development with 2.29 percent to GDP in 2020 [7; 9]. Due to its performance and tremendous potential for meeting caloric needs, income generation and contribution to economic growth, poultry holds a key position among animal livestock enterprises [10]. The evolution of Nigeria's economy has been significantly influenced by the poultry business. The industry provides employment opportunities for both skilled and unskilled labour, thereby serving as a source of income to the people. It provides an excellent supply of animal protein in terms of meat [chicken] and eggs [2]. The most widely accepted meat in Nigeria is

chicken because of its high-quality protein. Unlike beef or pork, it does not have any religious or health taboo. Also, eggs are a very good source of vitamin A, iron and zinc, which are essential for health, growth and well-being; egg is a complete protein with excellent quality [11]. The poultry industry in Nigeria is one of the agribusiness subsectors that require supplementary funding in addition to the farmer's own investment budget due to its high capital requirements. According to the Food and Agricultural Organization of the United Nations [12] and [13], the poultry industry in the country has about 180 million birds, which is second only to South Africa in Africa. However, poultry production has been inundated with challenges that include availability and price of inputs, illegal importation of products and poor production techniques requiring capital for improvement [14]. According to [2], the majority of Nigeria's small-scale poultry farmers have low incomes and little savings ability. As a result, the majority of farmers struggle to adapt modern technology that would have led to increase in their farm incomes. Modern poultry production requires the application of modern technology in the management of the poultry businesses.

According to [15], agricultural financing is frequently cited as a connecting element between the adoption of agricultural technologies and increases in farm incomes among Nigeria's impoverished farmers. Because credit and loans offer financial reserves that may be used to reenergize the production process of their businesses, the majority of livestock producers use them to mitigate the effects of these production issues. The formal and informal organizations that provide agricultural credit or loans view lending money to farmers as a high-risk endeavor [16]. Most peasant poultry farmers regard their access to these financial services whether formal or informal as being quite limited [17]. The capacity to obtain financing from readily available sources will aid in removing obstacles in the way of their businesses' potential to generate high levels of production and income [18]. Beyond limited access, efficient finance utilization is rapidly emerging in Nigeria as a significant factor affecting farm output and revenue [19]. According to [5], the main problems working against the effectiveness of existing credit schemes have been low access to loans together with poor fund utilization and payback. [20] posited that, many farmers lack the requisite skills in managing agricultural credit very well while others indulge in the diversion of the credit facilities to non-farm production activities.

Numerous empirical literatures have reported that smallholder farmers divert a proportion of borrowed fund from financial institutions to non-farming activities. [15] in their study reported that about 83% of smallholder farmers in Abia State, Nigeria divert their borrowed fund to other activities rather than the purpose of which it was obtained. Similarly, [21] reported only 12.15% diversion of credit into non-farm activities by smallholder farmers in Abia State, Southern Nigeria. On the contrary, [22] investigating the effect of formal credit on the performance of poultry farmers in Ghana observed no diversion of credit to non-farming activities. The effect of credit on farm productivity is a function of its utilization. Farmers often misdirect agricultural credit and therefore do not realize its full impact on their productivity and for that matter their livelihood. [23] contended that smallholder farmers underutilize agricultural fund for investment purposes by diverting it to personal consumption. The tendency of farmers to divert agricultural credit from it intended purposes could be explained by socio-economics, farm specific and institutional factors. [20] in assessing agricultural credit allocation and constraint condition of maize farmers in Ghana employed Tobit model to identify the key determinants of credit allocation to farm business of selected maize farmers in Ghana. The results of the Tobit model indicated that, while age of farmer has significant negative influence on credit allocation to farm sector, bank visit to farmers and the amount of credit received have positive significant effect on the percentage of credit allocated to farm operations. [24] in their study on determinants of formal agricultural credit allocation to farm sector by arable crop farmers in Benue State, Nigeria employed multiple regression model in determining factors affecting the rate of credit allocation to the farm sector. The study revealed that age, education, farm size, loan delay, bank visit and household size were significant variables that affect the rate of credit allocation to the farm sector.

To increase agricultural productivity, it is crucial to create new means of extending formal credits to smallholders. However, the issue of credit utilization is worrisome. According to [25], the importance of credit in improving farm productivity levels does not only depends on availability and accessibility but how the credit is been utilized. Poor awareness and access to credit coupled with poor fund utilization and repayments have been posited as the major factors militating against the success of existing credit schemes [26; 27; 28]. In modern farming business in Nigeria, beyond poor access, efficient utilization of credit is fast becoming a major factor limiting farm productivity and income [19]. It is not known whether the farmers in the study area use the accessed credit for farming purposes or non-farm purposes like social functions. This development makes it imperative to understand the probable factors that affect farmers' utilization of critical aid to production like credit. The broad objective of this study is to analyze the utilization of agricultural credit among poultry farmers in Jos South Local Government Area, Plateau state. The specific objectives of the study are to:

i. describe the socio-economic characteristics of poultry farmers in Jos South Local Government Area of Plateau state;
ii. identify the sources of agricultural credit by poultry farmers' in the study area;
iii. examine the volume of credit received by poultry farmers in the study area;
iv. examine the volume of credit utilized by the farmers strictly for poultry business in the study area an;
v. determine the factors influencing the volume of credit utilized for poultry business by the farmers in the study area.

The null hypothesis was tested thus; H_{o1}: There is no significant relationship between socio-economic characteristics of the poultry farmers and credit utilization.

II. Materials And Methods

A. Study Area

The study was carried out in Jos South Local Government Area of Plateau State, Nigeria which is geographically located between latitude 90 300 to 100N and longitude 80 30'E of the Greenwhich meridian. It is situated at the north western part of the state with its headquarters at Bukuru, which is about 15 km from the state capital, Jos. The local government area has four districts: Du, Gyel, Kuru and Vwang districts. The Local government has a population of 650,835 [29] with an average land area of 1, 037km^2. It is bounded by Barkin –Ladi Local government to the South, Riyom Local government to the South West, Jos-East Local government to the East and Bassa Local government to the West. It is known for its cold and rocky nature because of its elevation of over 1450 meters above sea level. The coldest period is between November and February, with an average daily temperature of 180C while warmer periods occur between March and April. The rains fall between May and October, with a peak in August. The mean annual rainfall varies between 137.75cm and 146.0cm. The Local Government is a semi-urban location but served with vast agricultural land, with mining ponds readily supplying water for irrigation. The typical food crops grown include Rice, Maize, Irish potatoes, Yam, Acha, Sweet potatoes, Cocoyam, Tomatoes, Groundnut and assorted Vegetables. Cattle, sheep, goats, Pigs and poultry are reared by many households.

B. Sampling Technique

The population for this study consists of all the registered poultry farmers in all the four district of Jos South Local Government Area. They include: Gyel, Du, kuru, and Vwang districts. The official sample frame of poultry farmers in the study area was obtained from the Poultry Association of Nigeria (PAN) and the Plateau Agricultural Develpoment Programme (PADP). Consequently, poultry farmers' who benefitted from agricultural credit were purposively enumerated. Due to the limited number of credit beneficiaries, only a total of 136 beneficiaries was obtained and consequently used as the sample size for the study. Data were collected based on the objectives of the study. Primary data is the main source of information for this study. The data were collected through the administration of questionnaires and oral interview. The questionnaire was designed in line with the objectives of the study.

C. Data Analysis

Data for this study was subjected to both descriptive and inferential statistics. Descriptive statistics such as frequency, percentages and mean were used to describe the socio-economic characteristics of poultry farmers, identify the sources of agricultural credit by poultry farmers, ascertain the volume of agricultural credit received by the poultry farmers, ascertain the actual volume of credit utilized for the poultry business and identify the constraints to credit utilization by poultry farmers. Multiple regression [inferential statistics] was used to determine the factors influencing the volume of credit utilized by the farmers for poultry business.

D. Model Specification (Multiple Regression)

In order to determine the factors influencing agricultural loan utilization among the poultry farmers, the four functional forms of the OLS multiple regression models namely; linear, double logarithmic, exponential, and semi-logarithmic functions were used. Statistical and economic factors, such as the size of R2, the level of significance of the F-ratio, the quantity of significant variables, and the conformity of the variables to a priori expectations, were used to choose the lead equation. The four functional forms of OLS model are explicitly stated as:

Linear function:

$$Y = a + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + b_6x_6 + b_7x_7 + b_8x_8 + ei$$

Semi-log function:

$$Y = a + b_1\ln x_1 + b_2\ln x_2 + b_3\ln x_3 + b_4\ln x_4 + b_5\ln x_5 + b_6\ln x_6 + b_7\ln x_7 + b_81nx_8 + ei$$

Double-log function:

$$\ln Y = a + b_1\ln x_1 + b_2\ln x_2 + b_3\ln x_3 + b_4\ln x_4 + b_5\ln x_5 + b_6\ln x_6 + b_7\ln x_7 + b_81nx_8 + ei$$

Exponential function:

$$\ln Y = a + b_1x_1 + b_2x_2 + b_3\ln x_3 + b_4x_4 + b_5x_5 + b_6x_6 + b_7\ln x_7 + b_8x_8 + ei$$

Where

Where Y = Volume of credit utilized (Naira)
X1 = Age (years)
X2 = Sex (Dummy, 1 if male, 0 if female)
X3 = Marital status (I if married, 0 if otherwise)
X4 = Educational status (years of formal education)
X5 = Household size (Number of persons)
X6 = Farming experience (years)
X7 = Flock size (number of birds)
X8 = Membership of organized group (Dummy)
b1 – b8=Regression Coefficients
e = Error term

III. Results And Discussion

A. Socio-economic characteristics of Poultry Farmers'

The result in Table 1 reveals that 51.0% of the poultry farmers which constitutes the majority of the respondents were between the age ranges of 41-50 years, 28.8% were between 31-10 years, 13% were above 50 years while only 8% were between 21- 30 years. The average age of poultry farmers was 42 years old. This implies that most of the poultry farmers in the study area are matured to take credit decision that can sustain their poultry production. With this active and productive age, it is expected that they will be able to utilize the loans obtained effectively through the adoption of new and improved production technologies. This finding is closely related to that of [30] who reported a mean age of 47 years among loans beneficiaries in Ekiti State, Nigeria.

Results in Table 1 also shows that the majority (86%) of the poultry farmers in the study area were males while 14% were females. This finding may not be surprising because the rigour of poultry farming may make it too tasking for a lot of women. The predominance of male farmers might be explained by the fact that poultry enterprise is a highly risky venture, labour intensive and characterized by uncertainties which in most cases can only be handled by men. This finding concur with that of [30] who also reported in their study on influence of socio-economic attributes on loans utilization capacity of small holder

crop farmers in Ekiti State Nigeria that, majority (81.5%) of the loan beneficiaries were males.

The result also shows that 89% of the respondents were married while 11 % were single. This simply implies that most of these farmers were responsible and had a family to maintain. The high percentage of the married beneficiaries is expected to have a positive effect on the utilization of loans obtained due to the emotional, physical and mental stability that marriages are supposed to enhance.

Result in Table 1 revealed that 51% of the poultry farmers had tertiary education, 45% had secondary education while the remaining 4% had primary education. This result shows that there is high literacy level among poultry farmers in the study area. Farmers with formal education are privileged to have early contact with new innovations and improved technologies which are designed to improve output and productivity. Moreover, such farmers are early adopters because risk aversion tendency reduces with formal education. In poultry industry formal education affords farmers especially those that have training in agriculture the opportunity to understand proper management of resources in poultry production. Education is anticipated to positively influence the farmers' decision in adopting new and improved production practices thereby enhancing their ability to utilize their credits effectively [31].

The result further indicate that 65% of poultry farmers in the study area had a household size of 1-5 persons, 27% had 6-10 persons while 8% of the farmers had more than 10 persons. Five [5] persons made up the average household size of the respondents. The high literacy rate of the farmers and the current economic crunch in the country may be responsible for the modest family size. The modest household size could invariably be an advantage to credit utilization if the income is adequate because the received credit will not be diverted to maintaining the family. One can anticipate a direct correlation between household size and expenditure. With increasing household size, there is more likelihood that farmers will divert funds originally meant for farm production to cater for domestic household needs. This study is in consonant with [32] who reported 5 persons on average in families of the poultry farmers in Ibadan, Oyo state.

The distribution of the poultry farmers by years of farming experience shows that 47% of the farmers had between 6-10 years farming experience, 26% had between 11 – 15 years farming experience. Also, 21% had less than 5 years of poultry farming experience while 6% had more than 15 years of poultry farming experience. The poultry farmers had an average of 9 years of farming experience. This result implies that the farmers had reasonable years of poultry farming experience and are not novice in the act of poultry farming as they are well acquainted with the intricacies and the environments of poultry farming and have gained practical experience about some of the risks and uncertainties associated with poultry production. Having passed through more than nine production cycles, it is relatively long enough for them to have gained mastery of the enterprise [33]. Past experiences are so important in management decisions and business operations and it is expected that farmers with more years of experience in using credit will exhibit better management of the funds thus efficiently utilizing the loans obtained [34].

The result from Table 1 further showed that 29% of the farmers had stock size of 1501- 2000 birds, 26% had stock size of between 1001-1500 birds, 19% had stock size of between 500 -1000 birds, 12% had stock size of between 2001 – 2500 birds, 8% had stock size of between 2501 - 3000 birds while the remaining 6% had stock size above 3000 birds. The mean stock size of poultry farmers in the study area is 1658 birds which may be considered as small. This implies that most of the beneficiaries were operating on a small scale. It is expected that the bigger the size of the farm, the more obliged the farmer will be to utilize the loan obtained to boost his production level.

All (100%) of the respondents were members of Poultry Association of Nigeria and some other farmers' organizations. Membership of farmers' association may have a positive effect on credit access because these associations serve as veritable platforms and useful channels of informing and educating their members about government policies such as credit schemes for farmers. The importance of cooperatives in providing credit to farmers has been emphasized by [19].

Result from Table 1 also showed that majority (73%) of the farmers in the study area had no contact with extension agent since the last production year while only 27% had contact with extension agents. The expected effort of the extension agents in providing farmers with useful information relating to agricultural financing and fund management to facilitate commercial production appears to be poor in the study area. The major pre-occupation of the extension worker is the education of farmers about government policies and their effects on their farming business. That the farmers were not adequately covered by the extension agents may be partly due to high farmer extension worker ratio in the country. According to [35], access to extension services by farmers in Nigeria is poor.

TABLE 1. SOCIO-ECONOMIC CHARACTERISTICS OF THE RESPONDENTS [N=136]

Age	**Frequency**	**Percentage**	**Mean**
21-30	11	8.0	
31-40	38	28.0	
41-50	69	51.0	
>50	18	13.0	42
Sex			
Male	117	86.0	
Female	19	14.0	
Marital status			
Married	121	89.0	
Single	15	11.0	
Educational status			
Primary	6	4.0	
Secondary	61	45.0	
Tertiary	69	51.0	
Non formal	-	-	
Household size			
1-5	88	65.0	
6-10	37	27.0	
>10	11	8.0	5

Age	Frequency	Percentage	Mean
Farming experience			
< 5	28	21.0	
6-10	64	47.0	
11-15	36	26.0	
>15	8	6.0	9
Stock size [Birds]			
<500	-		
500- 1000	26	19.0	
1001-1500	35	26.0	
1501-2000	40	29.0	
2001-2500	16	12.0	
2501-3000	11	8.0	
>3000	8	6.0	1658
Membership			
Yes	136	100.0	
No	-	-	
Contact			
Yes	37	27.0	
No	99	73.0	

Source: Field survey, 2024

B. Mineral Contents

Result from Figure 1 reveals that majority (55%) of the respondents obtained their credit from cooperative savings /loan schemes. About 39% obtained their credit from microfinance banks while 6% obtained their credit from agricultural bank. This result indicates that informal or non-institutional credit sources such as cooperatives and money lending schemes are the major financial institutions serving the credit needs of the respondents. It is surprising that agricultural banks have a very limited role in providing credit to the small-scale farmers. This may be due to limited presence of agricultural banks in the study area coupled with delay in approval and disbursement of loan, insistence on collateral security, high interest rate and mode of repayment. The widespread use of local cooperatives could be possibly as a result of little or no demand for collateral security and low interest rate making it more attractive to the farmers. This finding agrees with that of [36] who reported in their study that informal sources of credit had high patronage due to cheaper interest rates and the absence of requirement for collateral security. Relatedly, [37] stated that only about 11 percent of rural farmers' source credit from these formal sources. In a similar situation, [33] reported in their study that credit acquired from microfinance was the highest (68.8%). [18] in the same vein reported in a separate study that about 46.7% of the farmers obtained agricultural loans from cooperative societies. The ease with which farmers borrow money from microfinance banks without collateral could be attributed to the high patronage [38]. The banks are reluctant to extend loans to farmers due to the inherent risk involved with the agriculture industry and the farmers' inability to furnish the requisite collateral. Farmers on their own are hesitant to obtain credit from banks due to the drawn-out and complicated loan application process, the high cost of bank loans, the banks' tardy loan distribution, and the farmers' distance from the source of the loans [39]. Due to this condition, most rural farmers are reluctant to use the legal credit system, which has led to an over reliance on the unofficial credit system [40].

Mineral nutrients are usually obtained from the soil through plant roots, but many factors can affect the efficiency of nutrient acquisition, such as the chemistry and composition of certain soils, which can make it harder for plants to absorb nutrients and the nutrients may not be available in certain soils or may be present in forms that the plants cannot use [31]. Therefore, differences in soil properties like water content, pH, and compaction may be the reason for variations in mineral content of the seeds collected from Shakawe and Kasane. The False Mopane seeds collected from Shakawe and Kasane have exhibited significant amounts of minerals that can make them valuable sources of minerals for human nutrition.

Minerals are elements in food that the human body needs to develop and function normally. The minerals analysed in the study (iron, zinc, calcium, potassium, magnesium, phosphorus and sodium) are essential for health. According to the Oria et al. [32], calcium is stored in bones and teeth to make and keep them strong. Iron is a part of hemoglobin protein that transports oxygen from the lungs to the tissues. Magnesium helps the body regulate muscles, nerves, blood sugar and blood pressure. Phosphorus helps keep bones healthy and blood vessels working. Potassium promotes proper functioning of the cells, nerves and muscles. Zinc helps the body fight off invading bacteria and viruses, and sodium also helps with the proper functioning of nerves, muscles and balances body fluids. Each mineral has a daily recommended intake value for individuals to achieve adequate mineral intake and avoid toxicity due to high doses of minerals.

The seeds of False Mopane could serve as good sources of magnesium, iron, zinc, calcium and potassium as their daily recommended intakes are 310, 8, 8, 1000 and 3400 mg/day, respectively [32]. This means that the False Mopane seeds can provide 174.65 mg/100 g Mg, 3.34 mg/100 g Fe, 2.96 mg/100 g Zn, 367.59 mg/100 g Ca and 468.69 mg/100 g K, which contribute 56% Mg, 41.75% Fe, 37.25% Zn, 36.76% Ca and 13.79% K of the daily recommended intake. However, the seeds of False Mopane cannot serve as good sources of sodium and phosphorus as they provide less than 1% of the 1,200 mg/day Na and 700 mg/day P of the daily recommended intakes of sodium and phosphorus.

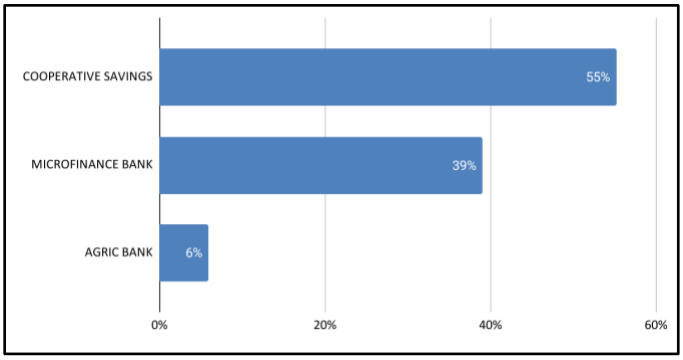

Fig. 1. Respondents Credit Sources. (Source: Field survey, 2024)

C. Volume of Agricultural Credit Received and Utilized

The result presented in Table 2 shows the volume of credit received and the volume utilized for poultry business by the respondents. The average amount of credit receive by the respondents was ₦357224 which was calculated from the

pooled sum of ₦48582464 received by all the farmers. The average amount of credit utilized only for poultry business was ₦290164 representing about 81% of the credit received while an average amount of ₦67059 which accounts for 19% of the received credit was diverted for other purposes. Even though 81% of the credit utilized for the farm sector is relatively higher, the value of 19% for the non-farm sector suggests a reasonable level of loan diversion. In agreement with this finding, [41] in their study on determinants of loan utilization among small farmers in Sudan also reported that only 18% out of those who obtained loans used their loans for non-agricultural activities.

TABLE II. DISTRIBUTION OF RESPONDENTS BASED ON VOLUME OF CREDIT RECEIVED AND VOLUME UTILIZED

Credit	Amount [₦]	Mean	Percentage
Volume of credit received	48582464	357,224	
Volume utilized for poultry	39462396	290,164	81.0
Volume not utilized for poultry	9120068	67059	19.0

Source: Field survey, 2024

D. Mode of Credit Utilization

Result in Figure 2 shows that 75% of the farmers utilized the loan received to expand their existing farm businesses. 19% utilized it to fund regular farm operations like labor and purchase of inputs while 6% utilized it to start new businesses. From the result, it could be seen that most of these farmers had already existing farms which they were operating mostly on small scale basis and only needed credit for expansion of their farms. Access and careful utilization of agricultural credit would enhance productivity in the poultry subsector.

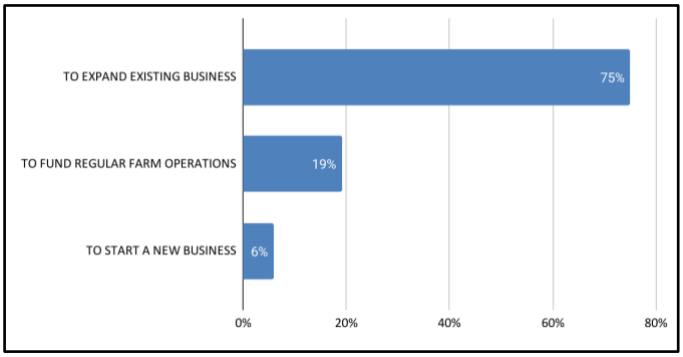

Fig. 2. Respondents Mode of Credit Ultilization. (Source: Field survey, 2024)

E. Determinants of Volume of Credit Utilized for Poultry Enterprise

The result of the multiple regression analysis is presented in Table 3. The linear function gave the best fit at 1% level of significance and hence, was selected as the lead equation. The coefficient of determination of 59.70 indicates that about 59.70% of the variation in credit utilization among poultry farmers in the study area has been explained by the model while 40.3% are exogenous to the system. The result shows that four of the eight explanatory variables used in the model significantly affected the utilization of agricultural credit by the poultry farmers. These variables are; gender, household size, farming experience and flock size.

Gender (X2): Gender of the respondents was found to be negative [-0.0643] and significant at 10% level. The implication of this finding is that the female beneficiaries were more prudent in their utilization of the credit obtained than their male counterparts. In other words, females tend to allocate greater proportion of credit received to their farm business than their male counterparts. This may be because of the common belief that women are better managers of money than men as can be seen in this study. Also, another justification for this result is that males generally are saddled with more responsibilities than their female counterparts, especially in Nigeria regardless of their marital status. They are obligated to their parents, siblings and other extended family members and as a result, they may be forced to divert the loans obtained to meet the needs of their dependents. This result agrees with the findings of [30] who also found a negative and significant relationship between gender and agricultural credit utilization in their study on the influence of socio-economic attributes on loans utilization capacity of small holder crop farmers in Ekiti State, Nigeria.

Household size (X5): The coefficient of household size was significant at 5% probability level with a negative coefficient [-0.0533]. This means that for every unit increase in household size of the poultry farmers, credit utilization will decrease by 5.3 percent. As expected, given the high financial requirement to cater for a large family coupled with low level of household's income, an increase in its members can expose the household to a certain degree of poverty. Consequently, poultry farmers with much family obligations to meet may resort to use of the accessed credit to solve family problems. In collaboration with this finding, [33] also reported a negative and significant relationship between household size and credit utilization in their study on analysis of credit utilization and farm income of arable crop farmers in Kwara State, Nigeria.

Farming experience (X6): Farming experience of respondents had a positive coefficient (0.1556) and was statistically significant at 1% level of probability. This means that the probability that the poultry farmers would apply agricultural credit for poultry enterprises will increases with increase in their level of farming experience. Collaborating this finding, [38] used the OLS regression technique in his study of small-scale farmers of Oyo State, Nigeria and found that borrower's farming experiences had positive influence on loan utilization and repayment.

Flock size (X7): The coefficient of flock size was found to be positive (0.02129) and significant at 5% level of probability. This implies that the number of birds in a poultry farm has a direct relationship with credit utilization. It is expected that the larger the flock size, the larger the amount of loan the farmer would be willing to spend on his farm. This implies that as farm size increases, the farmer becomes more inclined to use the loan obtained to adopt improved technology and production practices. Also, with increase in farm investment, the farmer might devote more of their time and resources to safeguard their assets. This is in agreement with the findings of [42] who found

farm size to positively influence repayment capacity through utilization of loans to adopt improved technologies.

TABLE III. DETERMINANTS OF VOLUME OF CREDIT UTILIZED FOR POULTRY ENTERPRISE

Variable	Coeff	Standard error	T-ratio	P-value
Constant	6.0310	0.0302	199.701	0.000***
Age (X_1)	0.0018	0.0101	0.178	0.856
Gender (X_2)	-0.0643	0.0357	1.801	0.075*
Marital status (X_3)	-0.0226	0.0313	0.722	0.472
Educational level (X_4)	0.00206	0.00835	0.246	0.806
Household size (X_5)	-0.0533	0.0182	2.928	0.004**
Farming experience (X_6)	0.1556	0.0363	4.286	0.000***
Flock size (X_7)	0.02129	0.00979	2.174	0.032**
Cooperative M/bership (X_8)	-0.0200	0.0178	1.123	0.264
Number of observations	136			
R-squared	59.70			
Adj R-squared	56.90			
Pob > F	0.0000			

*, ** and *** indicate significance at 10%, 5% and 1% probability levels.

Test of Hypothesis

Result of the linear regression in Table 3 reveals that three of the socio-economic variables; sex, household size and farming experience were found to have significant relationship with poultry farmers' utilization of agricultural credit. We therefore reject the null hypothesis and accept the alternative hypothesis, thereby concluding that, there is significant relationship between the farmers' socio-economic characteristics and utilization of agricultural credit.

F. Constraints to Agricultural Credit Utilization

The poultry farmers were asked to indicate their major impediments to credit utilization for poultry business. Responses in Figure 3 below indicates that inadequacy of the credit or loan ranked first with 58 % followed by competing family needs (32%), lack of monitoring by credit institution (24%) and risky nature of the business (20%). Credits that appear insufficient for substantial farm effort are often easily diverted towards non-farm activities. According to [43], small scale farmers who received low amounts of institutional credit meant for farm activities in Bauchi State in Northern Nigeria diverted the funds for non-farm activities. It was hypothesized that famers who receive large amount of credit are likely to allocate more of the credit to the farm sector than those who receive small amount of credit. Also, in a bid to satisfy the increasingly competing household needs, relatively larger amount of loans tends to be diverted to non-agricultural uses. It is hypothesized that farmers visited by credit officers providing the loans tended to allocate more funds to the farm sector and less to the nonfarm sector. Also, the risky nature of poultry farming business also contributes to the fear of allocating all the received credit into the business for fear of possible losses. Rather, some farmers would divert portions of the credit into nonfarm ventures as security measures in event of any failure in the poultry business.

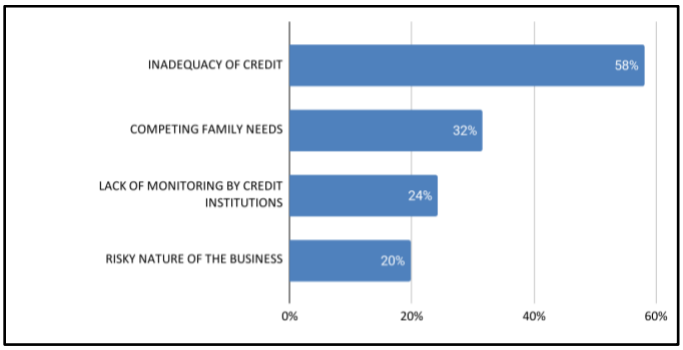

Fig. 3. Constraints to credit utilization among respondents. (Multiple responses)

IV. CONCLUSIONS AND RECOMMENDATIONS

Major findings revealed that majority of the farmers were young, married and had formal education with reasonable years of farming experience. Majority of the respondents obtained their credit from microfinance banks and the average amount of credit receive by the respondents was ₦357224 while the average amount utilized for poultry business was ₦290164. Majority of the farmers utilized credit to expand their existing farm business. Gender, household size, farming experience and flock size were significant determinants of agricultural credit utilization by the poultry farmers. Inadequacy of the credit, competing family needs, lack of monitoring by credit institution and risky nature of the business were the major constraints to agricultural credit utilization among the poultry farmers.

Based on the findings, the following recommendations were made:

i. More budgetary allocations and farmer's friendly policies be adopted by financial institutions to enable more disbursements to farmers.
ii. Credit agencies/institutions should supervise and monitor credit utilization among operators for small scale poultry businesses. Creditors should ensure that previous loans are well utilized before granting more credits to small scale poultry business operators.
iii. Extension agents and credit institutions should sensitize poultry famer borrowers on financial literacy and credit management to ensure that loans borrowed for the operations of poultry business will not be diverted to alternative uses.
iv. Government should develop insurance policies to safeguard investments in poultry subsector since poultry business is risk prone. This will boost the farmers' confidence in the business and reduce the fears of full allocation of resources in the business.

REFERENCES

[1] Hazell, P.B.R., 2010. Chapter 68: An assessment of the impact of agricultural research in south Asia since the green revolution. Handbook Agric. Econ., 4: 3469-3530

[2] Akintunde, O.K., Coster, A.S., Nwigwe, C.A. and Agboola, T.O. [2020]. An Analysis of Factors Influencing Access to Credit by Poultry Egg Farmers in Southwestern, Nigeria. Nigerian J. Anim. Sci. 2020 Vol 22 [2]:204-212 [ISSN:1119-4308] [https://www.ajol.info/index.php/tjas]

[3] Akudugu, M. A. [2012]. Estimation of the Determinants of Credit Demand by Farmers and Supply by Rural Banks in Ghana's Upper East Region. Asian Journal

[4] Odoh, N. E., Nwibo, S. U and Odom, C. N. [2009] Analysis Of Gender Accessibility Of Credit By Smallholder Cassava Farmers In Afikpo-North Local Government Area Of Ebonyi State. Nigeria Continental Journal of Agricultural Economics, 3: 61 – 66.

[5] Phillip, D., Nkonya, E., Pender, J., & Oni, O. A. [2009]. Constraints to Increasing Agricultural Productivity in Nigeria: A review. Nigeria Strategy Support Program [NSSP] Background Paper No.NSSP 006.

[6] Oludimu, O.L., Awojobi, A.A and Akani, K.A [2004]. Analysis of Poultry Insurance and Risk Management in Ogun State, Nigeria. Journal of Agricultural Management and Rural Development [JAMARD]. 1: 64-84.

[7] FAO [2020]. "Nigeria at a glance | FAO in Nigeria | Food and Agriculture Organization of the UnitednNations". www.fao.org. Retrieved 2020-11-24

[8] Thornton, P. K. [2010]. Livestock Production: Recent Trends, Future Prospects. Philos Trans R Soc Lond B Biol Sci., 365[1554]:2853-67. doi: 10.1098/rstb.2010.0134. PMID: 20713389; PMCID: PMC2935116.

[9] STATISTA [2020]. https://www.statista.com/statistics/823561/Global-livestock-monitoring-and management- market-value/ accessed 21/12/2020

[10] Herrero M., Grace, D., Njuki, J. Johnson, N., Enahoro, D., Silvestri S. and Ru□no M. C. [2012]. The Roles of Livestock in Developing Countries, Animal [2013], 7:s1, pp 3−18 & The Animal Consortium 2012

[11] Tijani, A.A., Alimi, T. and Adesiyan, A.A. [2006]. Profit Efficiency among Nigerian Poultry Egg Farmers. A Case Study of Aiyedoto Farm Settlement, Nigeria. Research journal of Agricultural Biological Sciences, 2[6]: 256-261.

[12] FAOSTAT [2020]. Food and Agricultural Organization of the United Nations. www.fao.org/faostat/en/#data/QA

[13] Aladejebi O. J., Fakayode S. B., Oronti O. O. and T. P. Sani [2019]. Post Economic Recession and Agricultural Production in Nigeria: A Case Study of Small Scale Poultry Egg Farming, 6th African Conference of Agricultural Economists, Invited paper presented at the 6th African Conference of Agricultural Economists, September 23-26, 2019, Abuja, Nigeria

[14] Kuye O. O., and Ogiri O. M. [2019] Analysis of Factors Influencing Access to Formal Loan among Small scale Swamp Rice Farmers in Obubra Local Government Area, Cross River State, Nigeria. International. Journal of Agricultural Economics. Vol. 4, No. 6, 2019, pp. 307-313. doi: 10.11648/j.ijae.20190406.19

[15] Anyiro, C.O. and Orriaku, B.N. [2011]. Access to and Investment of Formal micro Credit by Small-holder Farmers in Abia State, Nigeria. A case study of ABSU Micro Finance Bank, Uturu. The Journal of Agricultural Sciences, 6: 70-76.

[16] Adebayo O. O. and Adeola R. G. [2017]. Socio-Economics Factors Affecting Poultry Farmers in Ejigbo Local Government Area of Osun State, Journal of Human Ecology Volume 18, 2005 - Issue 1

[17] Kuye, O. O [2016]. Comparative Analyses of Beneficiaries and Non-beneficiaries of Bank Loan among Small-scale Cassava Farmers in South-South Nigeria [2009-2013]. Unpublished PhD Thesis submitted to the Department of Agricultural Economics, Management and Extension, Ebonyi State University, Abakaliki, Ebonyi State, Nigeria. pp 19-20.

[18] Otunaiya, A.O. [2007]. Access to Informal Credit and its Effects on Cassava Production in Yewa Division of Ogun state, Nigeria, Nig. J. Res. Prod., 11: 140-148.

[19] Ololade, R. A. and Olagunju, F. I. [2013]. Determinants of Access to Credit among Rural Farmers in Oyo State, Nigeria. Global Journal of Science Frontier Research Agricultural and Veterinary Sciences, 13[2]: 17-22.

[20] Kuwornu, J.K.M, Ohene-Ntow, I.D., Asuming-Brempong, S. [2012]. Agricultural Credit Allocation and Constraint Analyses of Selected Maize Farmers in Ghana. British Journal of Economics, Management and Trade, 2[4], 353-374.

[21] Henri-Ukoha, A., Orebiyi, J. S., Obasi, P.C., Oguoma, N. N., Ohajianya, D. O., Ibekwe, U. C., Ukoha, I. I. [2011]. Determinants of Loan Acquisition from the Financial Institutions by Small-scale Farmers in Ohafia Agricultural Zone of Abia State, South East Nigeria. Journal of Development and Agricultural Economics, 3[2], 69-74.

[22] Nimoh, F., Kwasi, A., Tham-Agyekum, E. K. [2011]. Effect of Formal Credit on the Performance of the Poultry Industry: The case of Urban and Peri-urban Kumasi in the Ashanti Region. Journal of Development and Agricultural Economics, 3[6], 236-240.

[23] Waheed, S. [2009]. Does Rural Micro-credit Improve Well-being of Borrowers in the Punjab [Pakistan]? Pakistan Economic and Social Review, 47[1], 31-47.

[24] Oboh VU, Ekpebu ID. Determinants of formal agricultural credit allocation to the farm sector by arable crop farmers in Benue State, Nigeria. African Journal of Agricultural Research. 2011;6:181-185.

[25] Danso-Abbeam, Gideon., Mensah Tawiah Cobbina and Randy Appiah Antwi [2016]. Agricultural Credit Utilization Among Farmers In Bole District of Northern Region, Ghana. Russian Journal of Agricultural and Socio-Economic Sciences · March 2016 RJOAS, 3[51], March 2016

[26] Binswager, H. P., Khandker, S. R., and Rosenzweig, M., [1993]. How Infrastructures and Financial Institutions affect agricultural Output and Investments in India. Journal of Development and Economics 4[3], 337-366.

[27] Agbor, R. A., [2004]. An Impact Assessment of Cameroon Gatsby Trust Micro-credit Scheme in the Mile Four District, Cameroon. Report of International Project Management for NGOs, Participants Learning, December, 2004, Sweden.

[28] Philip, D., Nkonya, E., Pender, J. and Oni, O.A., 2008. Constraints to Increasing Agriculture Productivity in Nigeria, Nigeria Strategy Support Program of International Food Policy Research Institute. Brief No.4, pp 1-4. Accessed July, 2014, available at www.ifpri.org,

[29] NPC, [2006]: National Population Commission, Federal Office Office of Statisitics. Census 2006.

[30] kolade, F. T., 1agbonlahor, M. U., Adeogun, S. O., Ashaolu, O. F.[2020]. Influence Of Socio-Economic Attributes On Loans Utilization Capacity Of Small Holder Crop Farmers In Ekiti State, Nigeria. Ife Journal Of Agriculture, 2020, Volume 32, Number 1

[31] Siyanbola, A.A. [2012]. Investigating the determinants of appropriate use of microcredit by poultry in Western Nigeria, British Journal of Poultry Sciences 1[1]: 01-04

[32] Otunaiya A. O., Adeyonu A. G., and O. M.,Bamiro [2015]. Technical Efficiency of Poultry Egg Production in Ibadan Metropolis, Oyo State, Nigeria, Economics. Vol. 4, No. 3, 2015, pp. 50-56. doi:10.11648/j.eco.20150403.1

[33] Isitor, S. U., Babalola, D. A. & Obaniyi, K. S[2014]. An Analysis of Credit Utilization and Farm Income of Arable Crop Farmers in Kwara State, Nigeria. Global Journal of Science Frontier Research: D Agriculture and Veterinary. Volume 14 Issue 10 Version 1.0 Year 2014 Type : Double Blind Peer Reviewed International Research Journal. Publisher: Global Journals Inc. [USA] Online ISSN: 2249-4626 & Print ISSN: 0975-5896

[34] Oladeebo, J. O. and Oladeebo O. E. [2008]. Determinants of Loan Repayment among Smallholder Farmers in Ogbomoso Agricultural Zone of Oyo State, Nigeria. Journal Social Science, 17[1]: 59-62.

[35] Muhammad, A., Cui, X., Jia, Li., Ghazanfar, Y., Mehmood, M., Nadeem, I., and Shah S. [2014]. Effectiveness comparison between the Farmers Field School and the Training & Visit Approaches of agricultural extension in two districts of Pakistan. American-Eurasian Journal of Agriculture and Environmental Science, 14: 33-39

[36] Ameh, M.; Iheanacho, A.C.; Ater, P.I. [2018] Effects of Loan Utilization on Rice Farmers Productivity in Benue State, Nigeria. J. Agric. Econ. Ext. Sci. 2018, 4, 45–54.

[37] Ammani, A. A., [2012]. An Investigation into the Relationship between Agricultural Production and Formal Credit Supply in Nigeria. International Journal of Agriculture and Forestry 2[1], 46-52

[38] Afolabi, J. A. [2010]. Analysis of loan repayment among small scale farmers in Oyo State, Nigeria. Journal Social Science, 17[1]: 83-88.

[39] John, C.I and Osondu, C.K [2015]. Agricultural Credit Sources and Determinants of Credit Acquisition by Farmers in Idemili Local Government Area of Anambra State. J. Agric. Sci. Technol. 5, 34–43.

[40] Adebayo, O. O., and Adeola. R. G. [2008]. Sources and Uses of Agricultural Credit by Small Scale Farmers in Surulere Local Government Area of Oyo State." Anthropologist 10 [4]: 313-4.

[41] Abdelateif, H. I. and Sayed, A. F. [2015]. Determinants of loan utilization and repayment behaviour among small farmers in North Kordofan of Sudan. Global Advanced Research Journal of Agricultural Science, 4[9]: 533-648. http://garj.org/garjas/home.

[42] Ojiako, I. A. and Ogbukwa, C. B. [2012]. Economic Analysis of Loan Repayment Capacity of Smallholder Farmers in Yewa North Local Government Area of Ogun State, Nigeria. African Journal of Agricultural Research, 7[13]: 2051- 2062.

[43] Rabo EK, Kushwaha S, Abubakar MM.[2001]. Procurement and Utilization of Institutional Credit by Small scale Farmers in Katagum LGA of Bauchi State Proceedings of the 34th Annual Conference of Agricultural Society of Nigeria, Bauchi October 15-19, 2001;75-80.