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ASSESSING CREDIT AVAILABILITY TO MAIZE FARMERS IN SHONGOM LOCAL GOVERNMENT AREA OF GOMBE STATE, NIGERIA

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Abstract:

This study assessed credit availability to maize farmers in Shongom Local Government Area of Gombe State, Nigeria. The study specifically assessed difference in credit received between male and female farmers in the study area and determined the socio-economic factors influencing credit availability to maize farmers. Data were collected through structured questionnaire and focus group discussion and analyzed using inferential statistics. The result of the two-sample t-test using groups revealed a P-value of 0.0314 which was significant at 5% (P<0.05). The binary logit regression output showed that sex (female), education, marital status (married) and household size were significant; both education and household size were significant at 5% (P≤0.05) while marital status and sex were each significant at 1% (P≤0.05). There was a significant difference between credit received by male and female farmers. It is recommended that more efforts should be made by government and NGOs through the introduction of policies and various programmes that will enable women have more access to credit; considering the vital role women play in agriculture, access to more credit would enable them increase their productive potentials.

Keywords — *Credit, Maize, Farmers, Socio-economic*

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I. INTRODUCTION

According to Anyanwu [1] the economic growth, stagnation or even decline in any economic system are largely determined by the availability of finance. The decline in agricultural production over the years has placed so much pressure on government, farmers, and other stakeholders to intensify their efforts on agricultural financing. Hence, the need for insuring an effective financing approach in agriculture and other sectors of the economy cannot be over-emphasized as this will foster increased productivity, growth as well as sustainability which can lead to positive effect on GDP growth which will transform the entire economy of the nation [2].

In agriculture, credit is a powerful development tool that enables farm households to invest and adopt improved farming methods and production technologies to enhance productivity [3]. Ogbuabor and Nwosu [4] acknowledge credit to increase farm output significantly. Credit is a critical component in agriculture that could tackle productivity problems, creates self-employment and reduce extreme poverty in the rural sector farming and non-farming activities. Therefore in agricultural investment, credit is a working capital, and one of the core strategies for alleviating poverty in most developing countries [5]

Formal, semi-formal and the non-formal credit institutions are the major sources of finance available to rural farmers in Nigeria. Formal credit institutions consist of the country's official and commercial banks, the state government-owned credit institutions and Micro Finance Institutions (MFIs). The semi-formal sources of credit comprise of the NGOs, Cooperative Societies and support groups, farmers' associations, among others and the non-formal credit institutions involve money lenders and saving societies like "Esusu"; "Ajo", friends, relatives, spouses and so on [6].

Various Nigerian Governments have in the past introduced several programmes aimed at helping farmers gain access to credit and other inputs for production. It's quite worrisome that despite all these efforts, farmers in Nigeria are still faced with the challenge of inadequate finance and this has affected their output with rural poverty still on the increase. Empirically, this study explores determinants of credit availability to farmers in order to provide policy makers and stakeholders with findings that can be used to take corrective measures in combating the challenges faced by Nigerian farmers in accessing credit for agricultural production.

The study therefore assessed credit availability to maize farmers in Shongom Local Government Area of Gombe State, Nigeria. The specific objectives were to: describe the socio-economic characteristics of maize farmers in Shongom LGA, assess difference in credit received between male and female farmers in the study area

and determine the socio-economic factors influencing credit availability to farmers.

II. METHODOLOGY

A. The Study Area

The study was conducted in Shongom LGA of Gombe State. Gombe State is located in the northeastern part of Nigeria. The state covers an area of 20,265 km² and from the 2006 census has a population of about 2,365,000 people [7]. At 3.2% growth rate, the year 2020 projected population of the state is 3,585,104. Shongom LGA has its headquarters in the town of Boh in the north of the Area. The town of Shongom lies between Latitude 9^{o} $40^{'}$ $25^{''}$N and Longitude 11^{o} $15^{'}$ $24^{''}$E. The LGA covers an area of 922 km² and has a population of 151,520 [7]. At 3.2% growth rate, the year 2020 projected population of the LGA is 229,689. Shongom has an annual rainfall of 560 - 740 mm (July - October) and lies 300 - 400m above sea level [8]. The area is bounded to the north by Akko LGA and to the west by Kaltungo LGA, the south is bound by Billiri LGA while, Karin-Lamido and Alkaleri LGA in both Taraba and Bauchi state forms the eastern boundaries of the local government area [9]. The area falls within the Sudan Guinea savannah, at the boundaries of the Sahel savannah belt; that separate the forest zone from the savannah areas. It has sparse vegetation and enjoys hot weather climate most part of the year [10]. The major spoken language is Tangale, other languages spoken are English and Hausa. Majority of the residents are mainly farmers, but during the dry season they involve in other activities as carpentry, welding, blacksmith etc. A total of seven villages in the LGA including Boh, Lapan, Lalaipido, Filiya, kulishen, Gwandom were selected for the purpose of this research.

B. Sample Size and Sampling Technique

Multi-stage sampling technique was employed in selecting the farmers for this study. In the first stage, out of all the Northeast States in Nigeria, Gombe was purposively selected because it was the first State in Northeast to witness the pilot trial of Agricultural Development Programmes (ADPs) in Nigeria. In the second stage, out of the 11 Local Government Areas(LGAs) in the State, Shongom LGA was purposively selected. The Local Government Area was selected because it has a high proportion of maize growers. In the third stage, a total of seven villages were purposively selected; these villages were selected based on the fact that high proportions of maize growers are found in them. In the fourth stage, simple random sampling technique was employed in selecting farmers from these villages to avoid being bias. Out of a sample frame of 2200 maize growers, 339 respondents were randomly selected as the sample size. See Table 1

Yamane (11) formula was used to calculate the sample size with 95% confidence level and 5% sampling error assumption.

$$n = \frac{N}{1 + N(e)^2}$$

Where,

n= Sample size (Total sample size)

N= Population size (Total sample frame)

e= Level of significance (set at 0.05 for this study)

To determine further the proportion of the respondents (sample size per village), Yamane [11] sampling method for determining of respondents was used, ie

Sample size of village =

S. frame of village x Total s. size of all villages

Total sample frame of all villages

TABLE 1: POPULATION AND SAMPLE SIZE OF MAIZE FARMERS

State	LGA's	Villages	**Sample frame	Sample size
Gombe	Shongom	Lapan	400	62
		Boh	400	62
		Lalaipido	350	54
		Filiya	300	46
		Kushi	200	31
		Kulishin	300	46
		Gwandum	250	38
Total		**7**	**2200**	**339**

****Source**: Gombe State Agricultural Development Programme

C. Data Type and Source

Primary data and secondary sources of information were used for this work. Primary data was achieved via structured questionnaires and focus group discussion while the internet, journals, textbooks, conference papers etc were used as secondary sources of information.

D. Tool of Analysis

In this study, inferential statistics was used to achieve the specific objectives. The two-sample t-test was used to test for difference in credit received between male and female farmers in the study area and the Binary Logit Regression Model was used to determine the socio-economic factors influencing credit availability to farmers.

The formula for the two-sample t-test is shown below:

$$t = \frac{\overline{x}_1 - \overline{x}_2}{\sqrt{(s^2(\frac{1}{n_1} + \frac{1}{n_2}))}}$$

Where:

t = t-value,

$\bar{x}_1$ and $\bar{x}_2$ = the means of the two groups being compared,

s_2 = the pooled standard error of the two groups

n_1 and n_2 = the number of observations in each of the groups.

A larger *t*-value shows that the difference between group means is greater than the pooled standard error, indicating a more significant difference between the groups.

The empirical model for the Logit Regression Model is specified as follows:

$$Y = \ln\left(\frac{p}{1-p}\right) = \beta_0 + \beta_1 X_1 i + \beta_2 X_2 i + \beta_3 X_3 i + \beta_4 X_4 i + \beta_5 X_5 i + \beta_6 X_6 i + \beta_7 X_7 i + \beta_8 X_8 i + e \quad \ldots\ldots(1)$$

Where;

In = natural logarithm

P= probability

Y = credit received ($Y_= 1$ when "yes", $Y_= 0$ when "no ")

β_0 = constant term

β_1- β_9 = regression coefficients

X_1 = sex

X_2 =age of farmer (years)

X_3 = educational status (years)

X_4 = marital status

X_5 = household size (number)

X_6 = farm size (hectares)

X_7 = years farming experience (years)

X_7 = numbers of extension contact (number of extension contact/period)

X_8= years of residence

III. RESULTS

E. Difference in Credit Received between Male and Female Farmers

Table 2 showed the output of the T-test which was done using the stata software package. The mean credit received by females was 16,870.97 while that received by males was 40,468.21. The difference between the mean credit of females and males cannot be said to be statistically significant until the T-value and its corresponding P-value were known. Table 2 further revealed the P-value to be 0.0314 which was significant at 5% ($P<0.05$). This implies that a significant difference existed between the mean credit received by female farmers when compared to their male counterparts. Beyond knowing that there was a significant difference between the mean credits, it is important to test for the magnitude of the effect between the two means. The effect size measure between the mean credits of males and females were further determined using the Cohen's d estimate benchmark (.2=small effect, .5=medium effect and .8=large effect) and point-biserial correlation coefficient estimate benchmark (.1=small effect, .3=medium effect and .5=large effect). Results from Table 3 showed Cohen's d estimate to be .4276179 and point-biserial correlation coefficient estimate to be .1595705; when compared to the benchmarks it is concluded that the magnitude of the effect

between the two mean groups was small. This finding is corroborated by the study of Awotide *et al*. [12] on Impact of Access to Credit on Agricultural Productivity which revealed that male-headed households obtained higher credit than the female counterparts. Also, the study of Jeiyol *et al.* [13] on Gender Analysis of Access to Credit by Rural Small Scale Farmers in Benue State Nigeria which showed that male farmers have more sources of credit supply than the female farmers supports the finding of this work.

F. Socio-economic Determinants of Credit Received

The results of the logit regression output can be interpreted using log odds or odds ratio. For this work, the interpretation was done using odds ratio. Table 4 shows that sex (female), education, marital status (married) and household size were significant. The Table further shows that sex was negative and significant at 1%, having an odds ratio of .0036721; this implies that a female farmer will less likely receive credit by 99.63% when compared with her male counterpart.

Education and household size were both positive and significant each at 5% with odds ratio of 1.629814 and 1.813497 respectively; this implies that every unit increase in a farmer's education and household size will make credit to be more likely received by 62.98% and 81.35% respectively. Marital status was also positive and significant at 1% with odds ratio of 8.975515; this implies that a married farmer will more likely receive credit by 797.55% when compared with his/her unmarried counterpart.

This result agrees with Ololade and Olagunju [14] whose work on Determinants of Access to Credit among Rural Farmers in Oyo State, Nigeria revealed marital status and sex to be significant factors influencing credit received by farmers. Also, the finding of the study was supported by Etonihu *et al*. [15] in which education was shown to be a significant factor influencing credit received by crop farmers in their study on determinants of access to agricultural credit among crop farmers in a farming community of Nasarawa State, Nigeria.

IV. CONCLUSION AND RECOMMENDATION

Credit received by female farmers was lower when compared to their male counterparts. Considering the contribution done by women farmers in agriculture, if their access to credit is not improved, there will be a drastic decline in food production over time. Marital status, education and household size had positive and significant relationships with credit received by farmers. This implies that more formal education and higher number in household size would increase the credit received by farmers.

It is recommended that more efforts should be made by government and NGOs through the introduction of policies and various programmes that will enable women have more access to credit; considering the vital role women play in agriculture, access to more credit would enable them increase their productive potentials. Also, education which plays a vital role in positively influencing credit received by farmers should be made easy for more farmers to access through the introduction of scholarships.

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TABLE 2: TWO-SAMPLE T TEST WITH EQUAL VARIANCES

Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
Male	151	40468.21	4914.843	60394.6	30756.95	50179.48
Female	31	16870.97	1038.756	5783.551	14749.54	18992.39
Combined	182	36448.9	4132.068	55744.64	28295.68	44602.12
Diff		23597.24	10881.07		2126.373	45068.12

diff = mean(male) - mean(female) t = 2.1687
Ho: diff = 0 degrees of freedom = 180

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0
Pr(T < t) = 0.9843 Pr(|T| > |t|) = 0.0314 Pr(T > t) = 0.0157

Source: Field Survey, 2020

TABLE 3: EFFECT SIZE BASED ON MEAN COMPARISON

Effect Size	Estimate	[95% Conf.	Interval]
Cohen's d	.4276179	.0380501	.8160132
Point-Biserial r	.1595705	.0143816	.2947533

Source: Field Survey, 2020

Logistic regression — Number of obs = 182
LR chi2(9) = 126.82
Prob > chi2 = 0.0000
Log likelihood = -50.500399 — Pseudo R2 = 0.5567

TABLE 4: SOCIO-ECONOMIC DETERMINANTS OF CREDIT RECEIVED

Credit Received	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf.	Interval]
sex						
female	.0036721	.0034844	-5.91	0.000***	.0005718	.0235833
age	.651787	.2169812	-1.29	0.199	.3394212	1.25162
education	1.629814	.334304	2.38	0.017**	1.090289	2.436322
marital						
Married	8.975515	4.853198	4.06	0.000***	3.110295	25.90103
residence	1.026987	.0256876	1.06	0.287	.9778547	1.078589
HHS	1.813497	.4610243	2.34	0.019**	1.101858	2.984749
sizecul	1.505835	.7148721	0.86	0.389	.5938579	3.81832
Farm.Exp	.6721588	.2282593	-1.17	0.242	.3454707	1.307773
extcontact	.7056071	.3715759	-0.66	0.508	.2513717	1.980658
_cons	.1069941	.1688484	-1.42	0.157	.0048537	2.358575

Source: Field Survey, 2020
**** p<0.01, ** p<0.05, * p<0.1*

