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The Effects of Gender Differentials in Determining Access to Credit and Profitability among Dry Season Farmers in Ogun State, Nigeria

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ABSTRACT

The study investigated the gender dimensions of access to credit and profitability among dry season farmers in Ogun State, Nigeria. Lack of finance was identified as one of the major problems facing rural farming households in Nigeria. This impedes their productivity and negatively affects their overall standard of living. The study was conducted at Odogbolu Local Government, Ogun State, Nigeria. A multistage sampling technique was employed to select 200 respondents. The first stage was the purposive selection of a local government and the second was the random selection of two communities from the local government. The results from the study indicate that 54% of the farmers (of which 38% are male farmers) have access to credit, but only 14.81% obtained credit from formal sources. The results also showed that there is a disparity between the incomes earned by male and female farmers. While farm size was identified to have a significant effect on profitability for both male and female farmers, access to credit was not significant and could be as a result of misappropriation of funds, lack of technical expertise, market inefficiencies, as well as inconsistent government policies. This study, therefore, recommends that the interest rates given to farmers should be reduced so as to encourage investment, and that government efforts and schemes should consider the inclusion of women so that the gender gap in the productivity and income can be greatly reduced.

Keywords: Gender, credit, agriculture, profitability

1. INTRODUCTION

The Nigerian agricultural sector is an important contributor to the overall performance and productivity of the economy. Despite the importance of agriculture, its importance and

contribution to the overall economy has been on a steady decline and this was caused by the discovery of oil, leading to a neglect of the sector. Despite of the fact that two thirds of the population living in sub – Saharan Africa depend on agriculture or agriculture – related activities for their livelihoods, the region has the lowest agricultural productivity in the world and can be attributed to socioeconomic, policy, biophysical constraints, as well as low public investments (Ehui and Pender, 2005). According to Philip, Nkonya, Pender and Oni (2009), several constraints facing the agricultural productivity in Nigeria include poor agricultural pricing policies, low fertilizer use, poverty and women's limited access to inputs, low access to agricultural credit, low and unstable investment in agricultural research, poor funding and coordination of agricultural extension, land tenure system and land degradation, and poor market access and marketing efficiency.

In order for the productivity of the agricultural sector to be improved, there must be an increased access to credit to farmers. Hazarika and Alwang (2002) mentioned that rural finance may contribute by facilitating the purchase of costly inputs, the adoption of alternative crops and the delivery of technical expertise and thus improved access to rural finance is associated with increased productivity and decreased cost inefficiencies. Ekwere and Edem (2014) identified lack of capital as one of the major constraints facing small scale farmers in Nigeria. Credit in this study involves the allocation of funds to farmers. Farmers usually receive credit from formal financial institutions like commercial banks and microfinance banks and informal systems comprising traditional money lenders, cooperative societies, pawn brokers, friends and family. Some of the credit institutions in Nigeria are Commercial Banks, Nigerian Agricultural, Cooperative & Rural Development Banks (NACRDB), Microfinance Banks, and Cooperative Societies, etc.

Several efforts have been made by the Nigerian government to improve credit access to the agricultural sector. One of such efforts was the creation of the Bank of Agriculture (BOA). The Rural Banking Agricultural Credit Guarantee Scheme (ACGSF) was also created and was aimed at enhancing the availability of credit to rural populace especially farmers at affordable cost (Ibrahim and Aliero, 2012). Credit sources that are rigid in their laid-down application procedures in order to obtain credit are formal credit and include banks, microfinance institutions, financial NGOs, credit unions and formal sector employers that offer credit in the form of salary advances, while credits from any source that does not require any form of laid - down application procedures in order to access credit are informal credit and include friends, relatives, money lenders, as well as agricultural input and output dealers (Mamudu, 2016). Both, formal and informal sources of credit are very important in accessing finance.

Enete and Amusa (2010) identify women as key players in the business of agriculture in Nigeria, especially in the rural communities. The limited role of women has been identified to contribute to the low productivity of the agricultural sector. According to Doss (2018), the need for agricultural investments and efforts to target women stem from the arguments that women are heavily involved in the agricultural production in the developing world, especially in Africa and that women represent an important class of beneficiaries of agricultural development efforts and their needs have been neglected in such programs. Despite of the huge roles women play in agriculture and food security in many developing countries, they continue to have a poorer command over a range of productive resources including land which is very important for any agricultural practice (Ogato, Boon and Subramani, 2009).

The gender gap in the agricultural sector hinders women's productivity and reduces their contributions to the agricultural sector (Anaglo, Boateng and Boateng, 2014). Several reasons

may account for the difference in agricultural yields and productivity between men and women in Nigeria. Kilic, Winters and Carletto (2015) identify reasons such as the use of agricultural inputs, tenure security and improved investments in land and improved technologies, market and credit access, human and physical capital, as well as institutional and cultural constraints for the gender gap in agriculture. Differences in quality and quantity of inputs may also account for the gender gap in agricultural productivity as women may have lower initial endowments, bargaining power, technical knowledge, access to credit and inferior quality of land (Slavchevska, 2015). These problems are compounded with the poor backgrounds of many women. Therefore, many women may not even have the necessary collateral needed for them to obtain loans from financial institutions. Also, their lack of education may also make them lack the expertise to properly utilise production inputs. If more programmes and efforts are well directed to include women, they will also be able to benefit from government schemes. Also, women should have access to the same level of inputs as their male counterparts so that their level of productivity and profitability will increase.

Farming in Nigeria is mostly seasonal but there are farmers that are into production of crops all year round (that is dry season farmers or Fadama farmers). Fadama is used to describe alluvial deposits in the country's low lying plains (Odemero, 2014). Types of crops grown by Fadama farmers are vegetables classified into two groups based on the part of the plant consumed, which are leafy and fruity vegetables.

The main objective of this study is to examine the gender dimensions of access to credit and its effect on dry season farmers' profitability while also identifying the sources of credit available to dry season farmers by gender. There are a lot of studies on the effects of access to credit on farmer profitability however this study will go a bit further by considering gender differentials and the profitability of dry season farmers.

2. MATERIALS AND METHODS

2. 1. Study Area

The study was carried out at Odogbolu in Ogun state. The city is located in south-western Nigeria. It is located 110 km by road north-east of Lagos. It is within 100 km of the Atlantic Ocean in the eastern part of Ogun State and possesses a warm tropical climate. Odogbolu lies squarely within the tropical lowland Rain Forest region. Dry season farmers cultivate okra mainly. Other crops cultivated include cassava, oil palm and water yam in the urban and peri-urban area.

2. 2. Sources of Data

The primary data were used collected with the aid of well structured questionnaire. Information on the socio-economic characteristics of farmers of dry season (okra farmers) was requested for. These include their age, gender, marital status, farming experience and size of farm. Credit activities of the respondent, like membership in credit association, farmers' involvement in different sources of credit, credit access experience, availability of collateral, interest rate charged and sources of credit to each respondent was obtained. In addition, information on their farm characteristics, cost of production and revenue was obtained.

2. 3. Sampling Technique

The study employs multistage sampling technique. The first stage is Purposive selection of 5 communities in Odogbolu local government area in Ogun state. The choice is dictated by the fact that large number of dry season farmers operate in the area. The second stage involves random selection of two communities in the local government area. A total of one hundred (200) questionnaires was administered. Care was taken to ensure a representative sample of both, male and female farmers.

2. 4. Method of Data Analysis

The analytical tools that will be employed in the study include Simple Descriptive statistics, Budgetary analysis, and Regression analysis. The use of a multiple linear regression allows explicit control in many aspects that simultaneously affects the dependent variable.

The descriptive statistics refers to measures of central tendencies, i.e. mean, median, mode and frequency distribution and percentage. Budgetary analysis was also applied to derive the profitability of farmers. The mathematical notation for the analysis is presented below:

$$GM = \sum P_i Q_i - \sum r_i x_j$$

Where:
   GM = Gross margin of the farmers (naira)
   P_i = Price of okra crop in naira
   Qi = Total sales of okra in naira
   r_i = Unit cost of variable input j used in selling i^{th} crop in naira. The variable cost includes, working capital(₦) cost of seed, fertilizer, chemicals, water, transportation cost; labour in month per year; percentage family labour in total labour force among others
   X_j = Quantity of variable input j used in i^{th} selected size of crop.

The choice of Gross margin model to determine profit is as a result of negligible fixed cost associated with crop production in the study area.

Profit was obtained by deducting the cost of production from the total revenue. Profit is the difference between the total revenue and the total cost. Also the cost and years of purchase of fixed inputs will be obtained. These values will depreciate over their life span to get their annual worth. The test of means will be used to examine if their profit is the same. Regression analysis was also carried out to examine the relationship between or among variables (dependent and independent variables). A production function was specified in order to show the nature of the relationship existing between the dependent and independent variables as shown below:

$$Y_i = b_o + b_i X_i + \ell_i$$

Y_i = dependent variable (profit of male and female farmers)
X_i = independent variable (gender access to credit)
B_o = constant term
B_i = regression coefficient

The independent variables include Farm characteristics:

X_1 = Farm size in hectares
X_2 = Quantity of labour in man/days
X_3 = Quantity or cost of chemical.

Farmers' characteristics:

X_4 = Age of the farmer (year)
X_5 = Sex (male = 1, female = 0)
X_6 = Year of formal of farmer (years)
X_7 = Marital status of farmer (married = 1, otherwise = 0)
X_8 = Primary occupation of farmers (farming =1, otherwise = 0)
X_9 = Value of Asset
X_{10} = Farming experience (years)
X_{11} = Household size.

2. 5. Credit variables

X_{12} = Source of credit (formal = 1, otherwise = 0)
X_{13} = Membership in credit group (years)
X_{14} = interest on loan (%)
X_{15} = Availability of acceptable collateral (Yes = 1, No = 0)
X_{16} = Distance between dwelling place and source of credit (km)
X_{17} = Credit Accessibility (Yes = 1, No = 0).

3. DISCUSSIONS

Results of the study have been gathered and presented in consecutive Tables, starting from **Table 1** … up to **Table 19**.

3. 1. Socio-economic characteristics of respondents

Gender: Male farmers represented half of the respondents while the other half were female. This allows for an unbiased evaluation of the population.

Table 1. Distribution of respondent by gender

Gender	Frequency	Percentage
Female	100	50
Male	100	50
Total	200	100

Source; Field Survey, 2019

Age: The result shows that 68% of the female farmers fall between the age ranges of 40-49 years while 40% of the male farmers fall between same ranges. A large percentage, i.e. 54% of

all the farmers fall between the age ranges of 40-49 years which indicates that farmers within this age group are the most active working age in the study area. In all, it shows that farmers within ages 40-59 years represent 85% of the economically active farmers. This indicates that farming in this area is usually undertaken by the older population, as shown in the works of Ekwere and Edem (2014).

It also shows that more has to be done to encourage the younger population in this region to partake in agriculture.

Table 2. Distribution of respondents by Age

Age (years)	Female		Male		All	
	Frequency	%	Frequency	%	Frequency	%
30-39	8	8	12	12	20	10
40-49	68	68	40	40	108	54
50-59	22	22	40	40	62	31
60-69	2	2	8	8	10	5
Total	100	100	100	100	200	100

Source; Field Survey, 2019

Marital Status: 82% of the respondents are married, 15% are widowed, 2% are single while 1% are divorced. Almost an equal number of male and female are married and they represent the largest number of farmers. This high number of married farmers was corroborated in the work of Oyewo, Momoh and Adelalu (2018) and shows that agriculture in this region is usually a family affair.

Table 3. Distribution of marital status of respondents

Marital status	Female		Male		All	
	Frequency	%	Frequency	%	Frequency	%
Married	80	80	84	82	164	82
Single	0	0	4	4	4	2
Widowed	20	20	10	10	30	15
Divorced	0	0	2	2	2	1
Total	100	100	100	100	200	100

Source; Field Survey, 2019

Highest Educational: The result shows that 54% of the female farmers had primary education while 38% of the male farmers had secondary education. This shows that male farmers had access to higher educational level than female farmers in the study area and reveals the gender gap in education in this region and is corroborated in the works of Enete and Amusa (2010).

Table 4. Distribution of Respondents by highest educational qualification

Highest educational qualification	Female		Male		All	
	Frequency	%	Frequency	%	Frequency	%
No formal	16	16	16	16	32	16
Primary	54	54	38	38	92	46
Secondary	26	26	34	34	60	30
Tertiary	4	4	12	1	6	8
Total	100	100	100	100	200	100

Source; Field Survey, 2019

Primary Occupation: Of the aggregate, respondents with farming as their primary occupation have a large percentage of 60%. It also shows that a significant percentage of the respondents have to augment their income with farming with more of them being female.

Table 5. Distribution of respondent by primary occupation

Primary occupation	Female		Male		All	
	Frequency	%	Frequency	%	Frequency	%
Self employed	34	34	28	28	62	31
Farming	58	58	62	62	120	60
Employed by the government	4	4	8	8	12	6
Private salaried job	4	4	2	2	6	3
Total	100	100	100	100	200	100

Source; Field Survey, 2019

Household size: Among the pooled respondents, majority of the household have family sizes within the range of 6 - 9 people which is 67% followed by 16% of them having between 10-13 persons per household. This indicates that 83% of the respondents have between 6-13 persons per household which allows for the use of family labour among the respondents.

Table 6. Distribution of respondents by household size

Household size	Female		male		All	
	Frequency	%	Frequency	%	Frequency	%
< 5	0	0	10	10	10	5
6-9	70	70	64	64	134	67
10-13	14	14	18	18	32	16
>13	16	16	8	8	24	12
Total	100	100	100	100	200	100

Source; Field Survey, 2019

Farming Experience: A higher percentage (54%) of the female farmers has been involved in farming for between 8-12 years while 32% of male farmers have been involved for the same number of years. In all, 64% of them are well involved in agriculture for between 8-17 years.

Table 7. Distribution of respondent by farming experience

Farming experience	Female		Male		All	
	Frequency	%	Frequency	%	Frequency	%
<8	4	4	4	4	8	4
8-12	54	54	32	32	86	43
13-17	20	20	22	22	42	21
18-22	10	10	22	22	32	16
>22	12	12	20	20	32	16
Total	100	100	100	100	200	100

Source; Field Survey, 2019

3. 2. Farm characteristics

Farm size: 44% of the female farmers have a farm size of between 3-4 hectares while 58% of male have between the same farm size indicating that the males have access to larger land. Lower percentage of the farmers have more than 6 hectare meaning that farmers do not have much hectares of land in the area.

Table 8. Distribution of respondent by farm size

Farm size (hectare)	Female		Male		All	
	Frequency	%	Frequency	%	Frequency	%
1-2	28	28	22	22	60	30
3-4	44	44	58	58	102	51
5-6	18	18	18	18	36	18
>6	0	0	2	2	2	1
Total	100	100	50	100	200	100

Source; Field Survey, 2019

Method of Land Acquisition: The result shows that 46% of the female farmers acquired their land through inheritance as well as 58% of the male farmers. In aggregate, 52% of the farmers acquire land through inheritance followed 19% farmers that acquired their land through rental. The high number of farmers who obtained their farms through inheritance is confirmed in the works of Odemero (2014). This shows that female farmers may have to pay more in order to get land as fewer of them acquire land through inheritance increasing their cost and reducing their profitability. Ajala (2017) corroborates this that women have lesser access to land which in turn affects their overall productivity.

Table 9. Distribution of respondents by method of land acquisition

Method of land acquisition	Female		Male		All	
	Frequency	%	Frequency	%	Frequency	%
Leased	18	12	12	12	24	12
Rented	22	22	16	16	38	19
Purchased	20	20	14	14	34	17
Inherited	46	46	58	58	102	52
Total	100	100	100	100	200	100

Source; Field Survey, 2019

3. 3. Credit access and sources

Membership of credit group: 54% of the respondents do not belong to any credit group due to reasons including Lack of interest in credit groups, contentment in level of production,

enough funds for production etc. while the remaining 46% belong to a credit group. A higher percentage of the male farmers belong to some credit groups especially when compared with the female farmers providing them with better access to credit.

Table 10. Distribution of membership of credit group of respondents

Membership of credit group	Female		Male		All	
	Frequency	%	frequency	%	Frequency	%
No	68	68	40	40	108	54
Yes	32	32	60	60	92	46
Total	100	100	100	100	200	100

Source; Field Survey, 2019

Access to credit: The result shows that 54% of the farmers have access to credit while 46% do not have access to credit. Out of the 54% that have access to credit, 38% of male have access while 16% of female have access to credit. Female farmers' access to credit is lower relative to that of men. This is corroborated in the previous studies (Diagne and Zeller, 2001; Fletschner 2009) who have noted the unequal access to and distribution of credit among women and men. Several reasons have been adduced for this as men may try to limit the working capital available to them by restricting their access to family funds; by making it difficult for them to go to the financial institutions or participate in committee meetings; by not helping them pay membership shares; or by not granting them access to property that can be used as collateral (Fletschner 2009). They showed that the gender of the entrepreneur has a dominant and significant impact on access to credit, indicating gender discrimination in access to credit where male respondents were more favoured in accessing formal credit than females.

Table 11. Distribution of respondent by access to credit

Credit accessibility	Female		Male		All	
	Frequency	%	Frequency	%	Frequency	%
No	68	68	24	24	92	46
Yes	32	32	76	76	108	54
Total	100	100	100	100	200	100

Source; Field Survey, 2019

This study will focus on the identified 54% of the farmers who have access to credit in order to determine the effects of access to credit on profitability.

Sources of credit: The sources of credit available and patronized by farmers in the study area can be characterized into two broad groups: formal sources and informal sources of credit. Higher percentages of the farmers get their credit from Informal sources of credit (cooperative, contribution, money lenders, friends and family). This is in line with the Mamudu (2016) who mentioned that informal sources of credit are very important for rural farmers. For both male and female savings/ contribution and cooperative are their main sources of credit while it is mainly cooperative for female farmers.

Table 12. Distribution of respondents by credit sources

Credit access and sources	Female		Male		All	
	Frequency	%	Frequency	%	Frequency	%
Commercial bank	2	6.25	2	2.63	4	3.70
Microfinance bank	2	6.25	10	13.15	12	11.11
Cooperative bank	10	31.25	20	26.31	30	27.77
Contribution	6	18.75	20	26.31	26	24
Money lenders	8	25	10	13.15	18	16.67
Friends and Family	4	12.5	14	18.42	18	16.67
Total	32	100	76	100	108	100

Source; Field Survey, 2019

Credit Requested and Credit Obtained by Farmers: The result shows that out of 54% of farmers that requested for one amount or the other only 40 were able to get the exact amount they requested for. This result also shows that almost all the farmers were not able to get the exact amount they requested for.

Table 13. Distribution of respondent by credit requested and obtained

Credit Amount in Naira		Amount requested			Amount obtained		
	Female	Male	All	Female	Male	All	
10,000-30,000	8 (25)	16 (21)	24 (22.22)	8 (30.76)	16 (29.62)	24 (30)	
40,000-60,000	20 (62.5)	44 (57.89)	64 (59.25)	18(69.23)	32 (59.25)	50 (62.5)	
70,000-90,000	0 (0)	2 (2.6)	2 (1.85)	0 (0)	2 (3.7)	2 (2.5)	

100,000 and above	4 (12.5)	14 (18.42)	18 (16.65)	0 (0)	4 (7.4)	4 (5)
Total	32	76	108	26	54	80

Source; Field Survey, 2019

The minimum amount of credit requested by both male and female farmers is ₦10,000 while the maximum amount requested by female and male farmers is ₦100,000 and ₦150,000 respectively. This further shows that women do not have access to the same amount of credit as their male counterparts.

Range of Credit Accessible: 59.25% of the farmers have access to between ₦40,000-₦60,000 followed by 22.22% of the farmer having access to between ₦10,000-₦30,000. In all, 81.47% of the farmers have access to between ₦10,000-₦60,000, of which male farmers have more of the percentage. It may be that this difference in credit obtained is due to less access to credit information for women (Goetz and Gupta, 1996). However, other factors such as absence of collateral may also be a reason for this difference. The minimum credit accessed by both male and female farmers is ₦10,000 while the maximum amount accessed by them is ₦100,000.

Table 14. Distribution of respondents by range of credit accessed

Range of credit accessed in Naira	Female		Male		All	
	Frequency	%	Frequency	%	Frequency	%
10,000-30,000	8	25	16	22.22	24	22.22
40,000-60,000	20	62.5	44	61.11	64	59.25
70,000-100,000	4	12.5	16	22.22	20	18.51
above 100,000	0	0	0	0	0	0
Total	32	100	72	100	108	100

Source; Field Survey, 2019

Distance of respondent's residence to credit source: The result shows that 81.48% of the farmers with access to credit are living in between 1-3 km from location of credit source. Also 18.51% of the sampled respondents stay more than 3 km from credit source. In all greater percentage of both male and female farmers that have access to credit are staying in between 1-3 km from credit source. This implies that physical distance of farm households from formal lending institutions is one of the factors that influence access to formal credit. This is because both temporal and monetary costs of transaction, especially transportation cost, increase with lender-borrower distance which raises the effective cost of borrowing at otherwise relatively lower interest rate in the sector.

Table 15. Distribution of Respondent based on distance to credit source

Distance (km)	Female		Male		All	
	Frequency	%	Frequency	%	Frequency	%
1-3	28	87.5	60	78.94	88	81.48
>3	4	12.5	16	21.0	20	18.51
Total	32	100	76	100	108	100

Source; Field Survey, 2019

Profit of Female and Male Farmers: The total revenue of the male farmers exceeds that of the female farmers as well as the total variable cost and the total fixed cost. The result shows that female farmers made more profit than male farmers marginally. The mean profit of female farmers is ₦ 11,038.2 per hectare while that of male is ₦ 8,208.4 per hectare. The t-value is – 1.499 and there is no significant difference between the female and the male farmer profit. Many studies have attempted to assess whether female farmers are as productive as male farmer. Although women typically achieve lower yields than men do – but it does not explain why. The most thorough studies also attempt to assess whether these differences are caused by difference in input use, such as improved seeds, fertilizers and tools, or other factors such as access to extension services and education. The vast majority of this literature confirms that women are just as efficient as men and would achieve the same yields if they had equal access to productive resources and services.

Table 16. Profit Per Hectare of Male and Female Owned farms

	Total Revenue (₦)	Total Variable Cost (₦)	Gross Margin (₦)	Total Fixed Cost (₦)	Total Profit (₦)
Female	64,980	3,941.8	61,038.2	50,000	11,038.2
Male	80,040	21,831.6	58,208.4	50,000	8,208.4

Source; Field Survey, 2019

Gender differences in credit access and its effect on profitability The Regression analysis was employed as an analytical tool to access the effect of gender access to credit on profitability in the study area. The result of the analysis is presented in table below

Table 17. Multiple regression result on the effects of access to credit on farmers' profitability

Independent variable	Regression coefficient	Standard error	t- ratio
Farm size	0.8642***	0.1988	4.35
Man days of labour	0.2263	0.3235	0.70
Quantity of chemical	–0.0333**	0.01597	–2.08
Sex	0.2222	0.1565	1.42
Age	0.0687	0.1238	0.56
Number of years spent in school	–0.00983	0.0127	–0.78
Marital status	0.0671	0.1038	0.65
Primary occupation	0.0860	0.1073	0.80
Total input	–2.14	8.42	–2.86
Farming experience	0.02186*	0.0127	1.73
Household size	0.0027	0.0221	0.12
Source of credit	–0.0506	0.0571	–0.89
Membership of credit group	0.3347	0.5095	0.66
Interest rate	–0.0337	0.3987	–0.85
Collateral requirement	0.1079	0.2536	0.43
Distance to credit source	0.1121	0.0708	1.58
Accessibility to credit	–0.3939	0.4051	–0.97
constant	11.8904	0.5502	21.61

F-ratio = 0.0321, R-squared = 0.4809, Adjusted R-squared = 0.3720
Note: The signs (***), (**), (*) indicate the level of significance of the variables at 1%, 5%, and 10%, respectively.

The summary of the results obtained from the multiple regression analysis carried out is presented in the table above. The cobb-douglas (Double log) functional form was used in the regression analysis.

The coefficient of multiple determination (R^2) is 0.48 and it shows that 48% of the variation in the dependent variable is explained by the independent variables. Also, the F-ratio shows that the independent variables have a significant joint effect on the dependent variable at 1% level of significance. In all, the model represents a good fit of the data. The negative

coefficient implies an inverse relationship between the explanatory and the dependent variable while positive coefficients implies a direct relationship between the dependent and independent variables. It should be noted that not all the independent variables carried the expected signs. Three independent variables were found to be statistically significant at different levels and these variables include farming experience, farm size and quantity of chemical.

The farm size has a positive coefficient and is significant at 1%. This tells us that farm size is directly related to the profitability of the farmers in the study area. The quantity of chemical has a negative coefficient and is statistically significant at 1%. This implies that the lower the amount spent on chemical, the lesser the cost and hence with decrease in cost of production their will be increase in income thereby increasing profitability of farmers in the study area.

The coefficient of farming experience is positive and is statistically significant at 10% level. This means that there is a direct relationship between farming experience and the profitability of the farmers. Experienced farmers may be more knowledgeable in the production system and may therefore be better able to access and manage the risks involved in the system than inexperienced ones. This shows that an increase in the number of years they have been involved in dry season farming increase their production which invariably affects their profit positively.

Other independent variables in the model that are not statistically significant are man days of labour, sex, age, number of years spent in school, marital status, primary occupation, total input, household size, source of credit, membership of credit group, interest rate, collateral requirement, distance to credit source, accessibility to credit.

3. 4. The Effects of Female Dry Season Farmer's Access to Credit on Profitability

The regression analysis was employed below to access the effect of access to credit of female farmers on their profitability.

Table 18. Multiple regression result on the effects of access to credit of female farmers on profitability

Independent variable	Regression coefficient	Standard error	t- ratio
Farm size	0.9857 ***	0.2541	3.88
Man days of labour	1.3210***	0.3735	3.54
Quantity of chemical	–0.0027	0.0193	–0.14
Age	0.1735205	0.1405	1.23
Sex	1.1053	0.4680	2.36
Number of years spent in school	0.0121	0.0135	0.89
Marital status	0.02125	0.1206	0.18

Primary occupation	0.1228	0.1253	0.98
Total input	–3.69	0.000019	–0.19
Farming experience	0.0192	0.0175	1.10
Household size	0.0197	0.0207	0.95
Source of credit	–0.0362	0.0671	–0.54
Membership of credit group	1.1054**	0.4680	2.36
Interest rate	–0.1616***	0.0501	–3.22
Collateral requirement	0.0591	0.3076	0.19
Distance to credit source	0.1848**	0.0819	2.26
Accessibility to credit	–0.7205	–0.4399	1.64
Constant	10.6264	0.7872	13.50

F-ratio = 0.0253, R-squared = 0.7939, Adjusted, R-squared = 0.6939
Note: The signs (***), (**), (*) indicate the level of significance of the variables at 1%, 5%, and 10%, respectively.

The model has a goodness of fit as it explains about 79.39% variation in the dependent variable. The F-ratio also shows that the explanatory variable have a significant effect on the dependent variable at 1% level of significance.

The table also shows that five independent variables were found to be statistically significant at different levels and these variables are farm size, membership of credit group, interest rate, distance to credit source and man days of labor.

The coefficient of farm size of female farmers in the study is positive and is statistically significant at 1% level. This depicts that there exist a direct relationship between the dependent and independent variable meaning that as the female farmers increase their farm land area there is an increase in production and this affect the output positively and it leads to an increase in output and profit.

The coefficient of man days of labour is positive and has a confidence level of 99%. This depicts a direct relationship between man days of labour and profitability of the female farmers. Increase in man days of labour means an increase in farm labour which is in accordance with the expected outcome of previous studies by Diagne and Zeller (2001) that an increase in farm labour is directly proportional to an increase in farm income. Invariably this means that when there is an increase in total amount spent on farm labour, production will be improved and subsequently an increase in income and profit is imminent. Female farmers' membership in credit group in the study area is positive and is statistically significant at 5% level. This implies that as female farmers' membership in credit group increases, their ability to acquire funds that will suit their needs. The coefficient of interest rate is negative and is significant at 1% level. This can be explained as, when there is reduction in the interest rate charged by the credit

institution the higher the profit on female owned farms. The distance to credit source is positive and is statistically significant at 5% level. This implies that as they stay away from credit source, they were able to have access to higher amount of credit and thereby increase production, income and profit. This is so because formal financial institutions are more often than not located in the urban area than the peri- urban areas and loan farmers higher amount of credit.

3. 5. The Effect of Male Dry Season Farmer Access to Credit on Profitability

The regression analysis was employed below to access the effect of access to credit of male farmers on their profitability.

Table 19. Multiple regression result on the effects of access to credit of male farmers on profitability

Independent variable	Regression coefficient	Standard error	T ratio
Farm size	0.7419***	0.3719	1.99
Man days of labour	–0.0449	0.4967	–0.09
Quantity of chemical	–0.0559**	0.0237	2.36
Age	0.3942*	0.2111	1.87
Sex	1.5319	1.3982	1.10
Number of years spent in school	0.0043	0.0211	0.20
Marital status	–0.1762	0.1623	–1.09
Primary occupation	0.0572	0.1842	0.31
Total input	–1.12	1.28	–0.88
Farming experience	0.0681 ***	0.0221	3.08
Household size	0.0132	0.0455	-0.29
Source of credit	–0.0831	0.0968	0.86
Membership of credit group	1.5319	1.3982	1.10
Interest rate	0.04208	0.0584	0.72
Collateral requirement	0.0993	0.3667	0.27
Distance to credit source	–0.2086	0.1615	–1.29
Accessibility to credit	–0.7322	0.8551	–0.86
Constant	12.5185	0.8470	14.78

F-ratio = 0.0211, R-squared = 0.5366, Adjusted R-squared = 0.3049

Note: The signs (***), (**), (*) indicate the level of significance of the variables at 1%, 5%, and 10%, respectively.

The model also has a goodness of fit as it explained about 53.66% variation in the dependent variable. Four independent variables were found to be statistically significant at different levels and these variables include age, farming experience, farm size and quantity of chemical. The Farm size is statistically significant at 10% level with a positive size. This implies that the more the farm land cultvated, the more the output of the farm and hence the profit of the farmer. Quantity of chemical coefficient is negative and has confidence interval of 95%. This means that reduction in the quantity of chemical used will lead to lesser cost of chemical used. Hence reduction in the cost of input lead to greater output then profit.

The coefficient of the age of male farmers is positive and is significant at 10% level of significance. This depicts a direct relationship between their age and the profitability of the male farmers in the study area. This tells us that increase in the age of the male farmers leads to increase in their profit until it gets to certain age. From the result above their farming experience is positive and statistically significant at 1% level. This means that the more the farmer continue in farming, more knowledge is gained and therefore there is an improvement in farming activities which increases the output and profit.

In all, for both male and female farmers, farmsize is a significant variable that determines profit. In both cases, access to credit were not significant which may be due to misappropriation of fund also credit may have no effect on production, if it simply displaces another source of finance such as savings.It could even have a negative impact on profit if it is treated as a welfare program perhaps because default cost are percieved as minor (Binswanger and Deininger, 1997).

4. SUMMARY OF MAJOR FINDINGS

The study was carried out to assess the effect of access to credit on the farm profit of male and female dry season farmers in Odogbolu Local Government Area of Ogun state. In this study, 200 respondent were selected based on random selection. Care was taken to ensure equal number of both gender were included in the sample. The Descriptive statistics, budgetary analysis and the regression analysis were employed to analyze the data.

According to the study, both male and female farmers are well represented with a percentage of 50% each. The majority of the male and female farmers were in their active working age with 85% ranging from 40-59 years.The population of the male and female farmers is dominated by married people representing 82%. In contrast to rural farmers, about 84% of both gender had education. The mean household size for female farmers is 10 while for male farmers is 9. The mean farm size of the female farmers is 3 hectares while the mean farm size of male is 3.5 hectares. Farm land for male and female farmers follow the same trend with a percentage of 52% acquiring land through inheritance.

Majority of the farmers are full time farmers with about 60% of the total number of respondents. The mean farming experience for female farmers is 14 years while for male farmers is 16 years. The study further found out that 46% of the farmers belong to different credit groups of which male farmers are 30% and female farmers 16%. Also, 54% of the farmers have access to credit with male farmers having 38% and the female 16% which shows that male

farmers have more access to credit than female farmers. Similarly, 85% of both gender obtain their credit mainly from informal source while 14.81% obtain theirs from formal sources. The mean amount accessed by the female farmers is ₦16,500 and that of male farmers is ₦ 35,500 showing that there is a significant difference between the amount accessed by female and male farmers. The mean profit of female farmers is ₦ 11,038.2 per hectare while that of male is ₦ 8208.4 per hectare with this, there is no significant difference between the female and the male farmer profit.

Factors affecting the profitability of female owned farms are farm size, membership of credit group, interest rate, distance to credit, man days of labour. The significant factor affecting the profitability of male farmers are age, farming experience, farm size and quantity of chemical these variables explain about 53.66% of their profitability. Hence for all the farmers, farming experience, farm size and quantity of chemical were significant. In all, for both male and female farmers, farmsize is a significant variable that determines profit while in both cases access to credit were not significant. This is believed to be due to high interest rate paid on credit.

5. CONCLUSION

Credit has been identified to be important to the development of the agricultural sector in Nigeria. Therefore, the Nigerian government has to create more long lasting frameworks to improve access to credit in the agricultural sector and that it has the desired impact on farm productivity and profitability.

One of the sources of credit available to farmers includes informal sources and as such, government agencies should disburse credit to farmers through these sources so as to increase their profit. This could be achieved when government agencies register informal microfinance institutions that have trustworthy leaders. The government should also encourage financial institutions to increase their presence in rural areas so that farmers can have a wider range of options. Financial institutions should also reduce their interest rates and the stringent conditions needed to obtain loans and other forms of credit so as to increase the level of credit assessable to the farmers in the areas.

This study also showed that there is a clear disparity between the amount of productive inputs available to men and women. In order to reduce the gender differentials in access to credit as well as profitability, female farmers must have access to the same should also have access to the same amount of land to be used for farming as well as sources of credit. Also, government efforts and schemes aimed at improving the agricultural sector should have special consideration for women given that they do not have access to the same level of resources and educational training as men do. This will help to improve the standard of living and the income of female farmers which will not only improve the livelihoods of families but will ensure the development of the agricultural sector in Nigeria.

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