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## Impact of Credit on Arable Crop Production in Esan West Local Government Area, Edo State

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**Abstract:** *The study examined the impact of credit on arable crop production in Esan West Local Government Area of Edo state .The specific objectives of the study were to examine the socio-economic characteristics of farmers in the study area, determine the volume of credit accessed by them and their default rate, as well as the problems they faced. Primary data were collected from 53 respondents in Esan West LGA using multistage sampling technique. Data were analyzed with descriptive and inferential statistics such as frequency, percentage, mean, budgeting techniques and regression model. Results showed that the respondents were at their energetic and productive age with a mean age of 50 years. The males dominated arable crop production and majority of them were married. They were literate with all the respondents having at least primary school certificate. They maintained small farm size (approximately 2 hectares). Many of the respondents (55.5%) had their credit from formal sources. Output of the farmers and their revenue were low. Respondents were faced with problems such as getting guarantors and collateral (79.6%), interest rate (75.9%), delay in granting loans (74.0%) and inadequate information on credit availability (74.0%). Results of the regression analysis indicated that output of farmers were influenced by the explanatory variables of sex (-1.481), age (-2.740), marital status (2.398), educational qualifications (2.276), farm size (2.353), farming experience (2.680) and credit (4.392). The coefficient of determination (0.503) indicated that 50.30% variation in output of the respondents could be jointly explained by the explanatory variables. It is therefore recommended that credit should be made available to the respondents so that they can increase their farm size, output and revenue.*

**Keywords:** Credit, Arable Crop Farmers, Farm Size.

### 1. INTRODUCTION

Arable crop producers in Edo State, a key food crop producing State in Nigeria, face a challenge of poor production [1]. Despite their desire to boost output, they have struggled



with insufficient funding [2]. [3] noted that low productivity results from the absence of any one of the three key elements that small scale firm production depends on: inputs, loans, and markets. According to [4], this situation is a result of socioeconomic problems that show up as illiteracy, poor health, inadequate nutrition, lack of optimism, and restricted access to property, production factors, and income. There have been only a few attempts [1] and [5] to comprehend the impact of several socio-economic factors on the quantity of loan sought after, secured, and repaid by smallholder farmers in Edo State. These observational results, however, are not well understood and lack a convincing understanding of the socioeconomic factors that influence the volumes and patterns of credit demands, approvals, and repayments in Edo State.

### **Related Work**

Credit availability has the potential to promote economic growth. This is why the majority of industrialized nations promote the use of strong financial instruments to provide inexpensive loans to the agriculture sector. The availability of affordable financing was anticipated to decrease the need for payday lenders [6]. According to the Food and Agricultural Organization, FAO [7], financing facilities are necessary for rural residents to expand their opportunities for building farm holding enterprises. This is because impoverished farmers and rural residents have suffered for many years as a result of a shortage of financing. In order to achieve this, the United Nations (UNRISD, 1975) encourages the distribution of credit facilities, particularly to the underprivileged rural residents. According to [8], the lack of a comprehensive national credit policy and the lack of financial institutions that should support farmers are the reasons why agriculture doesn't contribute completely to the economy. Therefore, it is crucial to protect farmers' economic freedom so they may produce food efficiently and independently. This can be accomplished by helping them, particularly with the purchase of farm inputs. Although numerous programs have been developed by succeeding governments to address the issue of the country's inability to meet its demand for agricultural products, credit institutions have historically refused on lending to small-scale farmers, citing issues like high default rates and the lack of guarantors [9]. Small-scale, impoverished farmers predominate in Nigeria's rural areas. In support of this, [10] noted that small-scale farmers in Nigeria with fractioned farm holdings, poor capital, and low yield per hectare occupy the majority of the agricultural production industry. Only a few experimental studies have been conducted in Nigeria to evaluate how credit affects agricultural production and output, and to provide a solid foundation for microcredit assistance as a tool for rural development [11, 12]. By investigating the impact of credit on the production of arable crops using Esan West Local Government Area, Edo State as a case study, this study seeks to close this critical knowledge gap.

Examining the effect of credit on the production of arable crops in the research region was the study's main goal. The precise goals were to look at the socioeconomic traits of farmers in the research region, ascertain their output, the amount of credit they accessed, their default rate, and the difficulties they had when applying for loan.

Because it is currently viewed as a pathway for agricultural growth and production efficiency, credit in agriculture is gaining relevance around the world [13]. When discussing the problem of the immobility of agricultural production in general and small holding farming in



particular, capital has been among the issues that are commonly noticed [14], According to [15], increasing capital for the agricultural sector would boost labor productivity since it would encourage the division of labor and, as a result, create more jobs. The primary sources of finance for agricultural investments are farmer personal savings and farm loans. A variety of inputs are required for agriculture to be productive, and credit is a crucial component of those inputs [14]. Because Nigerian farmers primarily practice subsistence agriculture (in which saving money is very difficult), they must rely heavily on credit in order to scale up their business. According to [ 12 ], whose work is acknowledged by [16], credit demand is often a derived demand, meaning that lenders would make credit demands based on their clients' needs and anticipated benefits. As a result, farmers will find it difficult to buy the inputs needed for production without access to credit, much alone maximize output with limited resources or reduce the resources needed to produce a given level of output [17].

## 2. RESEARCH METHODOLOGY

For the study, primary data were utilised. Through the use of a standardized questionnaire, data were gathered. The use of a multi-stage sampling approach was also made. To guarantee that each village had an equal and independent chance of being chosen, six communities were chosen at random from among the 30 that made up the Esan West Local Government Area. The communities that were chosen were Egoro, Ehuhi, Illeh, Ruekpen, Emaudo, and Uhiele. These areas are said to really represent the L.G.A. as a whole.

Farmers were chosen in the second step using purposive sampling from the six villages. A total of 54 respondents, chosen from nine respondents in each community, completed the questionnaire. Both descriptive and inferential statistics were used to analyze the data. The frequency table, means, standard deviation, and percentage are among the descriptive statistics. Regression analysis and the t-test are two examples of inferential statistics. Additionally, the investigation utilized the likert scale and the budgeting approach.

## 3. RESULTS AND DISCUSSION

### A. Socio-economic characteristics of Respondents

The socioeconomic features of the respondents in the research region, including their sex, age, marital status, level of education, religion, size, and experience with farms, are explored.

1. *Gender of Respondents*): The respondents in the study area were mostly males (70.4%) while 29.6% were females. This implies that there were more male arable farmers than females in the study area .The data in Table 1 showed this.

Table 1: Gender of Respondents

Gender	Frequency	Percentage
Male	38	70.4
Female	16	29.6



Total	54	100.0
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**Source: field survey, 2021**

**2. Age of Respondents (in years):** Most of the respondents were within the age range 30-50 years (79.2%). The result shows that respondents were in their active and energetic age range as shown in Table 2. Age is believed to determine how active and productive farmers would be.

**Table 2: Distribution of Respondents According to Age.**

Age (in years)	Frequency	Percentage
26-29	5	9.4
30-50	43	79.6
51-75	6	11.1
Total	54	100

**Source: field survey, 2021**

**3. Marital status of Respondents:** Many of the Respondents (68.5%) were married, 18.5% were single, 11.1% were widow / widower and 1.9% were separated as shown in Table 3. Married individuals are more encouraged to source credit for farming activities since they are considered more financially responsible.

**Table 3: Marital status of Respondents**

Marital status	Frequency	Percentage
Single	10	18.5
Married	37	68.5
Widow/widower	6	11.1
Separated	1	1.9
Total	54	100

**Source: field survey, 2021**



4. Educational qualifications of Respondents): All the respondents had basic educational qualification. This is shown in Table 4. Data in Table 4 showed that 42.6% of the respondents attended secondary school, 25.9% attended primary school, while 31.5% attended tertiary schools. The study revealed that most of the respondents were literate. This fact is in accordance with a similar study on credit scheme in Western Nigeria by Oke [19], in which he recorded that 81% of the respondents had formal education. The study attained that the high level of literacy would have been the reason why the respondent have better opportunities in accessing credit loan for their business.

Table 4: Highest Educational Qualifications of the Respondents

Educational qualification	Frequency	Percentage
Primary	14	25.9
Secondary	23	42.6
Tertiary	17	31.5
Total	54	100

Source: field survey, 2021

5. Religion of Respondents): Majority of the respondents were Christians (94.4%), 1.9% were Muslims while 3.7% were African traditional worshippers as shown in the table. This implies that there is no religious barrier to the business in the study area.

Table 5: Religion of Respondents

Religion	Frequency	Percentage
Christianity	51	94.4
Islam	1	1.9
African traditional religion		
	2	3.7
Total	54	100

Source: field survey, 2021

6. Farm size): The result showed that 37.0% of the respondents cultivated less than 1 hectare, 46.3% cultivated 1-3 hectares while 16.7% cultivated above 3 hectares. This result is in line with [20], who reported that close to 50% of Nigeria farmers cultivate between 1-2 hectares of farm land and that they are usually small holder farmers. The size of farm has direct impact on total farm output. Larger farms produce higher output than smaller farms. However, the size of the farm does not necessarily determine the productivity of the farmer.

Table 6: Farm Size

Farm size (Ha)	Frequency	Percentage
< 1 Hectare	20	37.0
1-3 Hectares	25	46.3



Above 3 Hectares	9	16.7
Total	54	100

Source: field survey, 2021

**7. Farming experience of Respondents):** Generally, the respondents are experienced in farming. This is shown in Table 7. From Table 7, 91% of the respondents have spent 3- 20 years in farming, 5.7% have spent < 3 years while 3.8% have spent 30-35 years in farming. The result shows that farmers in the study area have significant experience in farming. [16], noted that the number of years a farmer spends in the farming business may give an indication of the practical knowledge he had gained. That implies that the experience gained enables the farmers to manage credit resources wisely which will result in considerable increase in their production.

Table 7: Farming experience of respondents

Farming experience in years	Frequency	Percentage
<3 years	3	5.7
3-20 years	49	91.0
30-45 years	2	3.8
Total	54	100

Source: field survey, 2021

**8. Farming status of the Respondents):** The result shows that 57.4% of the respondents were involved in full time farming while 42.6% were involved in part time farming . This might be that the part time farmers were involved in some other economic ventures. Full time farmers are most likely to be more efficient in their operations than part time farmers. This will go a long way to determine how well credit is utilized for productive ventures.

Table 8: farming status.

Farming status	Frequency	Percentage
Full time	31	57.4
Part time	23	42.4



Total	54	100
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Source: field survey, 2021

**B. Volume of credit obtained by the farmers**

**1. Number of respondents that benefited from credit):** Majority of the respondents (75.9%) are beneficiaries of credit while 22.2% are non-beneficiaries of credit. This is certainly encouraging because the high percentage of beneficiaries is a suggestion that they were having benefits from the credit they obtained.

Table 9: credit beneficiaries

credit beneficiaries	Frequency	Percentage
Non-beneficiaries	12	22.2
Beneficiaries	42	77.8
Total	54	100

Source: field survey, 2021

**2. Value of credit (in naira) obtained by the respondents):** 22.2% of the respondents obtained <200,000, 5.7% obtained 200,000 - 350,000, 53.4% obtained 400,000- 2,000,000 while 18.7% obtained 2,500,000 - 5,000,000 as shown in Table 10. This means the value of the credit is too small and may not lead to any significant improvement in the farming enterprise. There is also the tendency to redirect credit obtained as it may be too small for major operations in the farm.

Table 10: Value of Credit (in Naira) Obtained by the Respondents

Value of credit (in Naira)	Frequency	Percentage
<200,000	12	22.2
200,000 - 350,000	3	5.7
400,000 - 2,000,000	29	53.4



2,500,000 - 5,000,000	10	18.7
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Source: field survey, 2021

**3. Sources of credit for farming):** 25.9% of the respondents obtained their credit from friends and relatives ,7.4% obtained from money lenders ,11.1% obtained from cooperatives ,29.6% obtained from Micro finance banks while 25.9% obtained from commercial banks as shown in Table 11. The result shows that high numbers of farmers (55.5%) obtained their credit from formal sources such as micro-finance banks and commercial banks which is associated with low interest rate compared to the informal sources of credit.

Table 11: Respondents sources of credit for farming

	Frequency	Percentage
Friends/relatives	14	25.9
Money lenders	4	7.4
Cooperative societies	6	11.1
Micro Finance Bank	16	29.7
Commercial Bank	14	25.9
Total	54	100

Source: field survey, 2021

### C. Output of credit respondents

1) Total estimated output in tons): The output of the farmers is low and therefore not encouraging. For example, over 70.5% of the farmers could produce between 10 - 49 tons while only 7.2% of them could have 50 tons and above as showed in Table 12. Similarly, 22.3% of them had 1-9 tons annually. This is certainly not good enough when one considers the population growth rate in the country. This kind of low output could lead to food shortages.

Table 12: Total Estimated Output in Tons

output in tons	Frequency	Percentage
1-9	12	22.3
10-49	38	70.5
50 and above	4	7.2
Total	54	100

Source: field survey, 2021

**2. Respondents annual revenue (in naira):** 23.5% of the respondents had a total annual farm Revenue of ₦350,000- ₦840,000, 33.4% had between ₦900,000 and ₦1,750,000, 26.1% had





between ₦1,800,000 and ₦3,150,000 while 17% of the respondents had between ₦3,240,000 and ₦10,000,000 of total revenue. Data in Table 13 suggest that the annual farm revenue of the respondents was not too bad. For example, 17% of them had between ₦3,240,000 and ₦10,000,000. This exceeds the minimum revenue to be considered poor. It suggests also that the respondents are living well.

Table 13: Respondents Annual Revenue (in Naira)

Annual Revenue (in Naira)	Frequency	Percentage
₦350,000 - ₦840,000	13	23.5
₦900,000 - ₦1,750,000	18	33.4
₦1,800,000 - ₦3,150,000	14	26.1
₦3,240,000 - ₦ 10,000,000	9	17.0
Total	54	100

Source: field survey, 2021

#### C. Constraints faced by responden in obtaining credit.

The respondents are faced with some constraints in carrying out their activities. From Table 14, problem of Guarantors and problem of collateral ( both 79.6% of respondents ), problem of interest rate ( 75.9% of respondents ), problem of delay in granting loans ( 74.0% of respondents ) and problem of inadequate information on credit availability (31.5% of respondents ) were the major problems faced by the respondents in obtaining credit. Problem of size of farm (51.9% of respondents) was also identified as a constraint in accessing credits. Financial institutions are usually unwilling in granting credit to farmers that have small farms because of fear of default. It is interesting to note that problem of inaccessibility of financial institution was not considered too serious. This is probably because most financial institutions are within reach of the farmers.

This result is in agreement with the assertion made by [21] that lack of collateral and information regarding the process for accessing credits from banks limit farmers capacity to access credit from formal institutions.

Table 14: Constraints Faced by Respondents in Obtaining Credit.

Constraints	Very serious	Percentage	Serious	Percentage	Not serious	Percentage
Problem of guarantors	43	79.6	7	13.0	4	7.4
Problem of collateral	43	79.6	7	13.0	4	7.4
Problem of interest rate	41	75.9	10	18.5	3	5.6
Problem of delay in granting loans	40	74.0	11	20.4	3	5.6
Problem of inadequate information on credit availability	17	31.5	7	13.0	30	55.6
Problem of inaccessibility of financial institution	15	27.8	9	16.7	30	55.6



Problem of size of farm	28	51.9	24	44.4	2	3.7
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Source: field survey, 2021

C. Determinants of farmers' output.

1. *Determinants of crop output*: Farmers' crop yield was influenced by a variety of variables. For instance, the age of respondents had a negative value of -2.740, which means that the production of farmers drops by one unit for every 2.74 years that they age. The material generated was not considerably influenced by the communities. Additionally, the respondents' gender did not matter (-1.481). This suggests that the sex of the respondents didn't decide if respondents had high production or not. The age of respondents (measured in years) was adversely significant (-2.740). This suggests that as responders get older, their production declines. How active and effective farmers would be depends on their age. The respondents' marital status was positively significant (2.398). This implies that the productivity is influenced by the marital status. Additionally, it suggests that married people are more encouraged to apply for financing for farming endeavors since their productivity may increase and they are viewed as more financially responsible. Highest level of education was important (2.276). This indicates that respondents were more likely to have greater access to loans for their agricultural business if they had a high level of literacy. The more educated the respondents are, the more likely they are to seek credit since they are knowledgeable about how to utilize it productively, which will lead to greater productivity and, as a result, better income for the respondents. Significant farm size was measured in hectares (2.353). This suggests that a respondent is more inclined to accept credit in order to boast about his production the larger the farm. Having farming experience was beneficial (2.680). This demonstrates that responders will seek to claim more credit for output the more experienced they are. However, the length of time a farmer worked in the industry may be a good indicator of the level of practical expertise he has attained. As a result of the knowledge they've received, the farmers are able to use credit resources responsibly, which has increased their output. Farming status was not significant (-0.208) as the farming status is not a requirement if the respondents will acquire credit or not. whether or not the respondents will be given credit. Beneficiaries of credit were many (4.392). This suggests that the respondents were reaping benefits from the credit they were granted based on the large percentage of recipients. The credit's Naira value was negligible (-0.019). This suggests that the credit's value is too small to have a substantial impact on output.

Model	Unstandardized coefficients		Standardized coefficients	t	Sig
	B	Std. Error	Beta		
(Constant)	56.574	52.978		1.068	0.292
Community	-4.941	3.621	-0.160	-1.364	0.180
Sex of respondents	-21.684	14.642	-0.187	-1.481	0.146
Age of respondents	-2.844	1.635	-0.532	-2.740	0.089



Marital status of respondents	30.414	12.682	0.349	2.398	0.021
Educational qualifications of respondents	11.224	8.795	0.160	2.276	0.209
Farm size in hectares	4.396	1.868	0.443	2.353	0.023
Farming experience in years	2.771	1.650	0.399	2.680	0.100
Farming status	-2.838	13.629	-0.027	-0.208	0.836
Beneficiary of credit	55.311	12.594	0.629	4.392	0.000
Value of credit in naira	-1.127E-007	0.000	-0.003	-0.019	0.985

Table 15: Determinants of Crop Output  
**R<sup>2</sup>=0.597**

Source: field survey, 2021

The R<sup>2</sup> (59.7%) shows that the explanatory variable and the variance in the farmers' production may be explained together (sex of respondents, age of respondents in years, marital status of respondents, highest educational qualifications of respondents, farm size in hectares, farming experience in years, farming status, beneficiary of credit, value of credit in Naira) It demonstrates that a 1% change in the explanatory factors will result in an increase of 59.7% in the farmers' production.

$$Y = F(S, A, MS, HEQ, \dots, X_n)$$

$$Y = b_0 + b_1S + b_2A + b_3HEQ + \dots U_i$$

S = sex of respondents

A = age of respondents in years

MS = Marital status of respondents

HEQ = Highest educational qualifications of respondents

FS = Farm Size in Hectares

FE = Farming Experience in years

FS = Farming Status

B = Beneficiary of credit

V = Value of Credit in Naira

Four functional forms (linear, exponential, semi-formal and double log) were tested. The linear function was chosen using some econometric criteria. It had the highest coefficient of determination (R<sup>2</sup>), lowest standard error of estimates and the highest number of significant variables. It had an R<sup>2</sup> of 0.597 indicating that 59.7% variation in output of the respondents could be jointly determined by changes in the explanatory variables (sex of respondents, age of respondents in years, marital status of respondents, highest educational qualifications of respondents, farm size in hectares, farming experience in years, farming status, beneficiary of credit, value of credit in Naira). The model equation is therefore specified explicitly as:

$$Y = b_0 + b_1S + b_2A + b_3MS + \dots U_i$$



$$Y = 56.574 - 0.187 (-1.364) - 0.532 (-2.740) + 0.349 (2.398) + 0.160 (2.276) + 0.443 (2.353) + 0.399 (2.680) - 0.027 (-0.208) + 0.629 (4.392) - 0.003 (-0.019) + \dots U_i$$

Table 16: Model Summary

Model	R	R Square	Adjusted square	RStd. Error of the Estimated
1	0.773 <sup>a</sup>	0.597	0.503	37.60552

Source: field survey, 2021

#### 4. CONCLUSION

According to the study, having access to financing might give farmers additional options for increased profit, farm holding growth, risk reduction, and enjoyment of economies of large-scale production, as well as the benefits of lower operating costs and greater returns. This suggests that the significant authorities should make careful proposals to free cultivable land from land brokers and make it available to the farmers who desire it. Farmers can be given credit so they can obtain land and other essential farm machinery. This can address the issues that farmers are now having with land shortages and insufficient agriculture inputs. Since credit has a major impact on output, it should also be made available to the responders so they may expand their farms. Government should thus establish a loan program to assist farmers in growing arable crops.

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