



Effect of Capital Resources Utilization on Cassava Production in Abia State, Nigeria

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Abstract

The study assessed the effect of capital resources utilization on cassava production in Abia State, Nigeria. The specific objectives were to: ascertain the relationship between agricultural loans and cassava production and examine the relationship between agricultural grants and cassava production. Two null hypotheses were also formulated and tested at 5% level of significance. The study adopted a correlational research design. Multi-stage sampling procedure was employed to select 120 cassava farmers from two (2) agricultural zones for the study. Data were collected using structured questionnaire. Data were analyzed using Pearson Product Moment Correlation and simple linear regression for testing the hypotheses. The correlation results revealed that there was a very high (0.78) level of positive relationship between agricultural loans and cassava production. The correlation result also showed a very high (0.91) level of positive relationship between agricultural grants and cassava production. The regression results revealed a significant positive relationship between agricultural loans and cassava production at 1% level of significance. The regression results also revealed a significant positive relationship between agricultural grants and cassava production at 1% level of significance. Based on the findings of the study, it was concluded that capital resources utilization had positive effect on cassava production in Abia State, Nigeria. Hence, it was recommended that there is need for the Government at various levels, ministries of agriculture, non-governmental organizations and other stakeholders in the agricultural sector to improve cassava farmers' access to loans and grants for increased cassava production in the study area.

Keywords: Effect, Capital, Resource, Utilization, Cassava Production.

Introduction

Food self-sufficiency has continued to receive attention in roundtable discussions among developing nations amidst the ravaging food crisis and volatility in global food markets (Amusa and Esheya, 2022). Cassava is an important food crop that contributes positively to food security and poverty reduction in farm families (Babatunde, Yusuf, Omonona and Obi-Egbsdi, 2022). Cassava is the most widely cultivated crop in Southeast Nigeria, Abia State inclusive because it has the ability to grow in marginal lands where cereals and other crops do not grow well (Uduma and Nwaobiala, 2024). It tolerates drought and can grow in low nutrient soils (International Institute for Tropical Agriculture (IITA), 2020; Food and Agriculture Organization (FAO), 2021). The crop is also an important source of household income when compared to other root crops as it contributes positively to food security and poverty reduction among farm households

(Babatunde *et al.*, 2022). Cassava farmers' ability to achieve sustainable production levels depends to a large extent on their access to improved agricultural technologies and capital resources (Olanrewaju, 2025; Nwakpu, 2024). Capital is regarded as money used to start up a business enterprise. In the context of this study, capital source refers to the means by which smallholder cassava farmers' access agricultural fund for cassava production. This could range from financial contributions, friends and families, commercial bank loans and government grants to individual savings etc. Cassava farmers also form agricultural cooperative societies that enable them to efficiently mobilize and pool their resources together to invest in cassava production (Nwaobiala, Okoreafia and Unachukwu, 2024). Capital resources are one of the most influential determinants of the level of cassava production by smallholder farmers in Nigeria, Abia State inclusive as evidenced by various research findings (Ogunyinka and

Oguntuase, 2020; Morgan, Wasini and Larry, 2021; Okonkwo, Amaefula and Igwe, 2023). However, cassava production in Abia State has been on a slow pace with low cassava yields recorded, this may be attributed to several factors including lack of knowledge of improved farming techniques and poor access to productive resources such as land and capital that prevent smallholder cassava farmers from boosting their agricultural productivity (Okonkwo *et al.*, 2023; Ukonu, Egesi, Ekwé and Kalu, 2022). Nwaobiala, Igwe, Kalu and Akwada (2022), Adebayo and Weathy (2018) and Amin (2018) also attributed Nigeria's inability to meet the required supply capacity to the fact that cassava production in the country is dominated by smallholder farmers heavily characterized by low farm yields and low

HO₁: There is no significant relationship between agricultural loans and cassava production

HO₂: There is no significant relationship between agricultural grants and cassava production

Model specification

Pearson product moment correlation coefficient was used to ascertain the relationship between agricultural loans/grants and cassava production and is given as:

$$r = \frac{n\sum xy - (\sum x)(\sum y)}{\sqrt{[n\sum x^2 - (\sum x)^2][n\sum y^2 - (\sum y)^2]}} \dots\dots\dots(1)$$

Where,

r = correlation coefficient

Y = cassava production

X = agricultural loans/grants

n = sample size

The simple regression model was used to test for the effect of agricultural loans/grants on cassava production in the study area and is given as:

$$Y = f(X) \dots\dots\dots(2)$$

The model is expressed explicitly as;

$$Y = b_0 + b_1X_1 + e_i \dots\dots\dots(3)$$

Where,

Y = cassava production

X = agricultural loans/grants

b₀ = regression constant

b₁ = slope of the regression that the extent by which the dependent variable (Y) is predicted by the independent variable (X)

e_i = error term.

Methodology

The study was carried out in Abia State, Nigeria. The State lies between Longitudes 7°23' and 8°02' east of the Equator and Latitudes 4°47' and 6°12' North of the Greenwich Meridian. It occupies a land mass of 5,833.11km² (Abia State Planning Commission (ABSPC), 2018). The projected population growth of Abia State at 2.6% from 2006 population figure is 10,3157 persons (National Population Commission (NPC), 2020). The people of Abia State, especially the rural dwellers, engage mainly in farming. The major crops grown are yam, cassava, oil palm, cocoyam, rice, cocoa, maize, plantain, melon and okro. The study adopted a correlational research design.

productivity occasioned by myriads of inadequate capital resource use and allocation. Could the scale of cassava production in Abia State be partly accounted for by the utilization of capital resources by farmers is a question that has not yet been exhaustively answered thereby creating a research gap. Hence, the study was carried out to empirically investigate the extent to which capital resources utilization influence cassava production in Abia State. The specific objectives were to: ascertain the relationship between agricultural loans and cassava production and examine the relationship between agricultural grants and cassava production. The following null hypotheses were also tested for the study:

Multi-stage sampling procedure was employed to select 120 cassava farmers from two agricultural zones for the study. The first stage was the random selection of two (2) agricultural zones from the three (3) agricultural zones in the State namely Ohafia, Aba and Umuahia. The selected agricultural zones were Ohafia and Umuahia agricultural zones. At the second stage, four (4) local government areas were randomly selected from each agricultural zone for equal representation; this gave a total of eight (8) local government areas. The third stage of sampling was the random selection of three (3) communities from each of the eight (8) selected local government areas in the agricultural zones giving a total of twenty-four (24) communities. The final stage of sampling was the random selection of five (5) cassava farmers from the twenty-four (24) communities

giving a grand total of one hundred and twenty (120) cassava farmers. Data were collected using structured questionnaire and used for the data analysis. The data collected were analyzed using Pearson Product Moment Correlation and simple linear regression.

Results and Discussion

Objective 1: Ascertain the relationship between agricultural loans and cassava production

The result of the data presented in Table 1 showed that the correlation coefficient R is 0.78 which is within ± 0.70 - 0.99 (very high level). This means that there is very high level of positive relationship between agricultural loans and cassava production. The coefficient of determination (0.56) implies that 56% of the variance observed in smallholder farmers' level of cassava production was accounted for by access to loans. This finding further implies that agricultural grants are important capital resources that can influence cassava production in the study area. This finding agrees with Nwakpu (2024) who reported that capital resources had positive relationship with increased cassava production in Ebonyi State.

Objective 2: Examine the relationship between agricultural grants and cassava production

The result of the data presented in Table 2 showed that the correlation coefficient R is 0.91 which is within ± 0.70 - 0.99 (very high level). This means that there is very high level of positive relationship between agricultural grants and cassava production. The coefficient of determination (0.86) implies that 86% of the variance observed in smallholder farmers' level of cassava production was accounted for by access to grants. Farmers with greater access to grants would be able to invest more funds into cassava production in order to achieve higher productivity. This finding is in conformity with Olanrewaju (2025) who reported that capital resources utilization had positive relationship with cassava farming in Ogun State.

Hypothesis 1: There is no significant relationship between agricultural loans and cassava production

The result of the data presented in Table 3 shows that there was a significant relationship (469.734***) between agricultural loans and cassava production at 1% level of significance, the null hypothesis is therefore rejected. This means that there is a significant positive relationship between agricultural loans and cassava production. In other words, increase in access to capital through agricultural loans would increase the level of cassava production. This finding is in agreement with Ewubare and Ologhadien

(2019) who found that farm finance through loans exerts significant positive impact on cassava production.

Hypothesis 2: There is no significant relationship between agricultural grants and cassava production

The result of the data presented in Table 4 shows that there was a significant relationship (10553.358***) between agricultural grants and cassava production at 1% level of significance, the null hypothesis is therefore rejected. This means that there is a significant positive relationship between agricultural grants and cassava production. In other words, increase in access to capital through agricultural grants would significantly increase the level of cassava production.

Conclusion

Based on the findings of this study, the study concluded that agricultural loans had a very strong positive relationship with cassava production. Agricultural grants also had a very strong positive relationship with cassava production.

The study finally concluded that capital resources utilization had positive effect on cassava production in Abia State.

Recommendations

Based on the findings of this study, the following recommendations were made:

1. Ministry of agriculture and rural development should make proper arrangement for cassava farmers to source capital through agricultural loans since it was found that it had high level of positive relationship with cassava production in the study area.
2. Governments through collaboration with foreign donor agencies should provide grants for cassava farmers since it was established that it leads to increase in cassava production.

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Table 1: Pearson product moment correlation of the relationship between bank loans and cassava production

S/n	Item	$\bar{X}$	R	R ²	N	Relationship
	Agricultural loans	3.21				Very high
			.78	.54	120	Positive
	Cassava production	3.14				

$\bar{X}$ - Mean, R- correlation coefficient, R²- coefficient of determination

Table 2: Pearson Product Moment Correlation of the relationship between grants and cassava production

S/n	Item	$\bar{X}$	R	R ²	N	Relationship
	Grants	3.22				Very high and
			.91	.86	120	Positive
	Cassava production	3.19				

$\bar{X}$ - Mean, R- correlation coefficient, R²- coefficient of determination

Table 3: Simple linear regression analysis of the relationship between agricultural loans and cassava production

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	9565.848	1	9565.848	469.734	.000 ^b
Residual	7188.631	119	20.364		
Total	16754.479	120			

a. Dependent Variable: Cassava production

b. Predictors: (Constant), Loans

Table 4: Simple linear regression analysis of the relationship between agricultural grants and cassava production

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	16212.196	1	16212.196	10553.358	.000 ^b

Residual	542.283	119	1.536
Total	16754.479	120	

a. Dependent Variable: Cassava production

b. Predictors: (Constant), Grant