

EFFECT OF CAPITAL RESOURCES UTILIZATION ON CASSAVA PRODUCTION IN SOUTH EAST NIGERIA

***IDIKE, G. O., OBI, C. I. & IBE, V. S. O.**

Department of Agricultural and Vocational Education
Michael Okpara University of Agriculture, Umudike, Abia State, Nigeria

*Corresponding author: E-mail: idikegospel@gmail.com.

Phone no: 08067071778

ABSTRACT

This study assessed the effect of capital resources utilization on cassava production in South-east 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. Proportionate sampling technique was used in the selection of a sample size of 375 cassava farmers for the study. Data were collected using structured questionnaire, out of the 375 copies distributed, 355 copies representing 94% were retrieved and used for the data analysis. Data were analyzed using Pearson Product Moment Correlation and simple linear regression for testing hypotheses. The correlation results revealed that there was a very high (0.75) level of positive relationship between agricultural loans and cassava production. The correlation result also showed a very high (0.98) 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 this study, it was concluded that capital resources utilization had positive effect on cassava production in South-east 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

Cassava (*Manihot esculenta*) production is vital to the economic growth of Nigeria as it is the world's largest producer of the commodity. Cassava is the most widely cultivated crop in the Southern and Eastern part of Nigeria 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, Yusuf, Omonona and Obi-Egbsdi, 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, South-east 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 South-east Nigeria 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, Ekwe and Kalu, 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 productivity occasioned by myriads of inadequate capital resource use and allocation. Could the scale of cassava production in South-east Nigeria 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 South-east 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. The following null hypotheses were also tested for the study:

- 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:

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

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

b_0 = regression constant

b_1 = 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 Southeast Nigeria. Southeast Nigeria is one of the six Geopolitical Zones in the Country. The zone is made up of five States; namely: Abia, Anambra, Ebonyi, Enugu and Imo. The Zone lies within the rain forest belt of Nigeria and experiences two main seasons yearly; the rainy season which starts from April and ends in November, and the dry season which starts from December and ends in March. The zone also lies between latitude 6^0 and 9^0 E, 4^0 and 7^0 N longitude and has a total land mass of 952,400 hectares (Onu, Ekwe and Nwachukwu, 2021). The people of South-East Nigeria, 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 average farm size is 1.01 ha per farm-family. Food production is undertaken in both homestead and upland farms (Oduehie, 2015).

The population of the study was 15,000 registered smallholder cassava farmers in the 5 States that make up South-east Nigeria. There are 5,029 registered smallholder cassava farmers in Ebonyi State, 2,508 in Abia State, 2,861 in Enugu State, 2,311 in Anambra and 2,291 in Imo State (ADP offices of Abia, Anambra, Ebonyi, Enugu and Imo States respectively, 2022). A total of 375 cassava farmers were sampled from the entire population using proportionate sampling technique with a sampling fraction of 0.025 (See Table 1). Data were collected using structured questionnaire, out of the 375 copies distributed, 355 copies representing 94% were retrieved and used for the data analysis. Data were analyzed using Pearson Product Moment Correlation and simple linear regression for testing hypotheses.

Table 1: Sample size distribution of cassava farmers in the study area

State	Population	Sample
Abia	2,508	63
Anambra	2,311	58
Ebonyi	5,029	126
Enugu	2,861	71
Imo	2,291	57
Total	15,000	375

Results and Discussion

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

Table 2: 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	3.36	.75	.56	355	Very high Positive
	Cassava production	3.35				

$\bar{X}$ - Mean, R - correlation coefficient, R^2 - coefficient of determination

The result of the data presented in Table 2 showed that the correlation coefficient R is 0.75 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

Table 3: Pearson Product Moment Correlation of the relationship between grants and cassava production

S/n	Item	$\bar{X}$	R	R^2	N	Relationship
	Grants	3.35				
			.98	.96	355	Very high and Positive
	Cassava production	3.35				

$\bar{X}$ - Mean, R - correlation coefficient, R^2 - coefficient of determination

The result of the data presented in Table 3 showed that the correlation coefficient R is 0.98 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 (0.96) implies that 96% 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

Table 4: 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	354	20.364		
Total	16754.479	355			

a. Dependent Variable: Cassava production

b. Predictors: (Constant), Loans

The result of the data presented in Table 4 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

Table 4.4: 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	354	1.536		
Total	16754.479	355			

a. Dependent Variable: Cassava production

b. Predictors: (Constant), Grant

The result of the data presented in Table 5 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 South-east Nigeria.

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.

REFERENCES

- Adebayo, K. and Weathy, A. (2018). Experiences from a Decade of the Cassava Adding Value for Africa (CAVA) Project. In: Haruna, U., Abdulhamid, H., Iliyasu, Y. and Abdurrahman, S. I. (eds). Revitalization of African Economy through Sustainable Agricultural Development. Proceedings of the 11 Biennial Congress of Africa Farm Management Association (AFMA), 4 – 9 November 2018 Nigeria. Pp. 21 – 36.
- Amin, J. (2018). Resource-Use Conflict and Sustainable Agricultural Development in Africa. In: Haruna, U., Abdulhamid, H., Iliyasu, Y. and Abdurrahman, S. I. (eds).

- Revitalization of African Economy through Sustainable Agricultural Development. Proceedings of the 11 Biennial Congress of Africa Farm Management Association (AFMA), 4 – 9 November 2018, Nigeria. Pp. 17-36.
- Babatunde, A. A., Yusuf, A. A., Omonona, B. T. and Obi-Egbsdi, O. (2022). Profitability analysis among actors of high quality cassava flour in Southwest Nigeria. *International Journal of Sustainable Agricultural Research*, 9(3):129-139.
- Food and Agriculture Organization (FAO) (2021). Cassava development in Nigeria. A country case study towards a global strategy for cassava development. Department of Agriculture Federal Ministry of Agriculture and Natural Resources Nigeria. www.fao.org. Accessed 21/06/25.
- International Institute for Tropical Agriculture (IITA) (2020). Annual report of IITA, Ibadan, Nigeria. Cassava the multipurpose crop.
- Morgan, N. C., Wasini, D. A. and Larry, I. E. (2021). Economic analysis of cassava production in Ogbia Local Government Area, Bayelsa State. *International Journal of Life Science Research Archive*, 1(2): 1–8.
- Nwakpu, C. C. (2024). Resource Productivity and Allocative Efficiency on Improved Cassava-Based Mixed Cropping System in Ebonyi State, Nigeria. *Nigerian Agricultural Journal*, 55(1): 334-340.
- Nwaobiala, C. U., Okoreafia O. and Unachukwu, N. A. (2024). Socioeconomic determinants of cassava cooperative farmers' engagement in climate change adaptation strategies in Imo State, Southeast Nigeria. *Journal of Agriculture, Environmental Resources and Management*, 6(3): 52-61.
- Oduehie, T. C. (2015). Impact of National Agricultural Extension and Research Liaison Services (NAERLS) Adopted Village Project on Smallholder Farmers' Livelihood in Abia and Oyo States, Nigeria. An Unpublished MSc. Thesis Submitted to the Department of Agricultural Extension and Rural Sociology, Ahmadu Bello University Zaria. Pp.15-28.
- Ogunyinka O. and Oguntuase A. (2020). Analysis of cassava production and processing by various groups in support of cassava value chain in the South west of Nigeria. *Journal of Food and Agricultural Sciences*, 9(1): 11-19.
- Okonkwo, G. U., Amaefula A. and Igwe C. (2023). Cost and return analyses of pro-vitamin A cassava production among smallholder farmers in Abia State. *Nigerian Agricultural Journal*, 54(2): 425-429.
- Olanrewaju, B. O. (2025). Optimizing resource utilization and productivity in cassava farming: A case study of Ogun State, Nigeria. *European Journal of Sustainable Development Research*, 9(3), 1-8.
- Onu, S. E., Ekwe, K. C. and Nwachukwu, I. M. (2021). Analysis of gender participation in rice production, processing and marketing in Southeast Nigeria. *Journal of Community and Communication Research*, 6(1): 76-84.
- Uduma, F. C. and Nwaobiala, C. U. (2024). Determinants of cassava farmers' knowledge and attitude towards climate smart agricultural practices in Imo State, Southeast Nigeria. *International Journal of Agriculture and Rural Development*, 27(1): 6900-6908.
- Ukonu, B. U., Egesi, Z. O., Ekwe, K. C. and Kalu U. (2022). Assessment of awareness and use of improved cassava technologies among Agricultural Field Staff in Umuahia Agricultural Zone, Abia State, Nigeria. *Nigerian Agricultural Journal*, 53(3): 66-72.