



## THE IMPACT OF CASSAVA PRODUCTION ON POVERTY REDUCTION IN NASARAWA STATE, NIGERIA

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**ABSTRACT:** *Since Nigeria is now the world poverty capital, poverty remains a life-threatening catastrophe that every level of governance in Nigeria has to fight with all available resources and strategy. Interestingly, over 70% of Nigeria's population and 80% of Nasarawa state's population are farmers. Therefore, agricultural sector, specifically Cassava production is identified in this study as a panacea for poverty reduction in Nasarawa state, Nigeria. The study made use of survey design; questionnaires as well as binary logit regression were used as instruments of data collection and analysis. Consequently, the study found that Cassava production has significant impact on poverty reduction in Nasarawa state and recommended amongst other that government should encourage cassava production in a more definitive manner by providing farmers with necessary support, assistance and facilities.*

**KEYWORDS:** Poverty, Cassava, Production, Farmers, Agriculture.



## INTRODUCTION

The root of most problems confronting the world today is the ever-increasing poverty. The poverty situation in developing countries has been worsening and producing devastating effects in all sphere of human endeavour. It is sad to note that Nigeria is now rated as the world poverty capital (Panchal, 2020). This assertion undoubtedly slipped Nigeria of its middle-income status with great consequences on domestic and international affairs.

In the 1960s and 1970s, Nigeria enjoyed a steady economic growth and relative stability. However, from the 1970s to early 1980s the economy experienced severe economic difficulties resulting from oil price shocks, world economic recession, deteriorating terms of trade, debt overhang and macro-economic imbalance (Abdullahi, Ari & Iliya, 2016). It should be noted that the prevalence of malnourished people, school dropouts, dilapidated health centres, the inadequate quantity and quality of food intake by the people amongst other are glaring realities of poverty in Nigeria.

Given the magnitude and spread of poverty in Nigeria (Nasarawa State inclusive), various past and present administrations have adopted various poverty reduction strategies such as Peoples Bank, Family Economic Advancement Programme (FEAP), River Basin Authorities, Operation Feed the Nation (OFN), Rural Banking, Universal Basic Education (UBE), Directorate of Food, Road and Rural Infrastructure (DFRRI) and other similar agencies (NEEDS, 2004). Regrettably most of these poverty alleviation programmes have not made the desired impact due to poorly designed policies, dwindling resources, lack of sustainability, corruption, leakages, ineffective targeting of the poor and vulnerable, ineffective coordination, collaboration, monitoring, implementation and assessment of policies.

Since Nigeria is predominantly agrarian, with over 70% of the Nigerian population involved in agriculture (NBS, 2004), One of the sectors expected to act as a catalyst towards the realization of the poverty reduction is agriculture and Cassava production as one of the agricultural activities stand to be the major area of interest. In analyzing the value chain of Cassava, Cotton, Maize, Rice, Soybeans and Sugarcane industries, it is observed that judging by the operating profit (gross margins), Cassava is placed third after rice and maize. In terms of yield, Cassava is far ahead of other crops (Olomola, 2007; Odebode, 1997).

Thus, Cassava is produced, processed, marketed and consumed in Nasarawa State, Nigeria. In spite of this, there is dearth of information about the extent of benefits associated with Cassava production in Nasarawa State. It is against this background that this research seeks to examine the impact of Cassava production on poverty reduction in Nasarawa state.

The hypothesis for this study is thus:

**H<sub>0</sub>:** Cassava production has no significant impact on poverty reduction in Nasarawa State.

This research work is limited to Cassava production and its relation to poverty reduction in Nasarawa State. Even though the research covered the whole of Nasarawa State, three Local Government Areas (LGAs) namely, Lafia, Nasarawa and Wamba Local Government Areas were selected to represent the three Senatorial Zones of the State, that is, south, west and north respectively. This is due to the prevalence of Cassava production in these local government areas than others.



Given the fact that over 70% of the Nigeria population are involved in agriculture (NBS, 2004) and over 80% of the citizens of Nasarawa state are farmers (NASEEDS, 2005) as well as value chain of Cassava among other produce (Olomola 2007), a study on Cassava production and its impact on poverty reduction is quite justified in Nasarawa State.

This study will therefore serve as a useful guide to public policy makers, academicians, individual farmers, firms and industries in their respective exploit.

## LITERATURE REVIEW

### Conceptual Framework

It is difficult to have a concise and acceptable definition of poverty due to the fact that poverty is multi-dimensional and its perception varies from society-to-society Abdullahi (2007). The United Nations Development Programme (UNDP, 2001), defines poverty as the denial of choices and opportunities most basic to human development in terms of living a; long, healthy, creative life and to enjoy a decent standard of living, freedom, dignity, self-esteem and the respect of others. Abimiku (2006) describe poverty as lack of basic requirements for a decent living. Abimiku (2006) further states that the incidence of poverty is highly concentrated among people with the following characteristics, poor material possession, low education, unemployment, low status job, low and unstable income, poor housing conditions, large families, absence of savings, constant struggle for survival and little or poor material possession which could snowball into social vices such as criminality, prostitution, gambling, alcoholism, vandalism and other anti-social activities, most of which bring about social tension and instability. In this study, poverty can be defined as the lack of ability to take adequate care of the basic needs that can sustain a minimum standard of living. Poverty has been classified by Ojinaka (2000) into two categories; absolute poverty and relative poverty and can be measured through; Headcount Ratio/Index, Poverty Gap, Physical Quality of Life Index (PQLI), Human Development Index (HDI).

The historical view on the causes of poverty especially during the early stages of industrial revolution in Europe was that poverty arouse out of the fickleness of character (Igbozor, 2006; Obiechina, 2007; Oluwafemi, 2002). In Nigeria, the causes of poverty are; inadequate economic growth, communal violence, widening income inequality, weak governance, unemployment, lack of skills, ethno-cultural factors, environmental issues, exponential population growth, corruption, debt overhang, inappropriate public policies and poor implementation (Abimiku, 2006; Dike, 1997).

The discussion on poverty might have been over flogged in Nigeria, yet the reality of poverty is very alarming as Nigeria is now rated as the world poverty capital (Panchal, 2020). According to the UNDP Millennium Human Development Report (2001), Nigerian economy has been suffering from severe and persistent retrogression since the mid-1980. Abimiku, (2006) stated that, poverty situation in Nigeria is made worse because of the absence of basic infrastructure of life. It is ironic that Nigeria is the sixth largest exporter of crude oil and at the same time the world poverty capital (Panchal, 2020). The country is rich in land, people, oil and natural resources, but the people could hardly eat, drink or cloth themselves not to talk of being largely unhealthy.



From independence to date Nigerian government has embarked on a series of Poverty eradication efforts such as; agriculture extension services (1960-1976), Operation Feed the Nation (OFN) by General Olusegun Obasanjo (1976-1979), Green Revolution by Shehu Shagari (1979-1983), War against Indiscipline by General Muhammadu Buhari (1983-1985), Peoples Bank, Community Banks, Directorate of Food, Roads and Rural Infrastructure (DFRRI), Nigerian Agricultural Land Development Authority (NALDA), National Directorate of Employment (NDE) and Better Life Programme under General Ibrahim Badamasi Babangida regime (1985-1993), Family Economic Advancement Programme (FEAP) and Family Support Programme (FSP) under General Sani Abacha (1993 – 1998) amongst other (NEEDS, 2004).

It should be noted that most of the policies were directed on agriculture and one crop that has a lot of potentials of alleviating poverty is Cassava. Osibo (2007) revealed that Cassava production has transformed from the traditional food crop to an industrial raw material complement. Oke, (2005) indicated that approximately 16 percent of Cassava root produced in Nigeria in 2001 was utilized as industrial raw materials. About 10 percent was used as chips in animal feed, 5 percent was processed into a syrup concentrate for soft drinks, and less than 1 percent was processed into high quality Cassava flour used in Biscuits and confectionery, dextrin pre-gelled starch for adhesives, starch and hydro-lysates for pharmaceuticals, and seasonings. According to FAO (1999), Cassava plays a significant role in the global food system. It contributes to the energy and nutrition requirements of more than two billion people in developing countries and will continue to do so over the next two decades. Abdullahi (2007) maintained that Cassava is an important source of dietary carbohydrates, which provides food for over 60 million people in Nigeria. This implies that Cassava production have a potential to create employment and income for the unemployed labour force. This will help to reduce poverty in the country. NEPAD (2007) observed that Cassava is a top fighter of poverty in Nigeria:

*Cassava is a powerful poverty fighter by driving down the price of food to millions of consumers. For example, in Nigeria, during the rapid diffusion of the IITA's high yielding TMS (Tropical Manioc Selection) Cassava varieties from 1984 to 1992, inflation adjusted cassava prices fell sharply by 40 percent from 1971 to 1983.*

This dramatic reduction in the real price of Cassava represents a significant increase in the incomes of the millions of the rural and urban households who consume cassava as their important staple food, hence poverty would be reduced.

### **Theoretical Framework**

In this study, two theories are adopted; the Vicious Circle of poverty theory, and the unbalanced growth theory. While vicious circle of poverty theory shows clearly how poverty is cyclical in Less Developed Countries (LDCs), the unbalanced growth theory provides an alternative way for poor nation to break out of the vicious circle of poverty through investment in strategic sector(s) that would have multiplier effect on the economy (Hirschman, 1958; Nurkse, 1953). The vicious circle of poverty presupposes that poverty is a serious human problem that is self-perpetuating and if something deliberate is not done can become inter-generational. For a state like Nasarawa with resource constraints whose 80% of population depend on agriculture (SEED, 2005), any result oriented poverty alleviation



programme ought to be agricultural based so that development will be communicated to the other sectors of the economy. This is therefore, the major crux of the study.

### **Empirical Evidence**

Fefa (2012), conducted a study on Processing and Marketing of Cassava and Poverty Reduction in Benue State, using multistage and purposive sampling techniques, questionnaire, oral inter-view, focused group discussion, descriptive statistical tools, Foster-Greer-Thorbecke poverty index, budgetary analysis and logic regression. It was revealed that processing and marketing of cassava in Benue State helped significantly in reducing the poverty status of the participants by 17% and 16% respectively for core poor and non-poor. The study also revealed that Cassava activities have consistently been providing employment for the people in the area overtime. Adeyemo, Oke and Akinola (2010), in a study on Economic Efficiency of Small Scale Farmers in Ogun State, Nigeria, adopted a random sample of 200 Cassava producers, which was subjected to budgetary and stochastic frontier analysis. The results showed that Cassava farming was profitable in the area. Tyokumba (2007) carried out a research on "Cassava Production and Poverty Reduction in Buruku Local Government Area (1990-2004), using a survey design technique, Focused Group Discussion (FGD), questionnaire, stratified sampling technique, simple percentages tables and chi-square test. Results showed that the majority of Benue people are abjectly poor and that a significant relationship exists between Cassava production and poverty reduction in Benue State.

## **METHODOLOGY OF THE STUDY**

### **The Study Area**

The area of study is Nasarawa state which was created on October 1, 1996 by General Sani Abacha. The State comprises thirteen (13) Local Government Areas (LGAs) namely: Akwanga, Awe, Doma, Karu, Keana, Keffi, Kokona, Lafia, Nasarawa, Nasarawa Eggon, Obi, Toto and Wamba with Lafia being the state capital. In addition, eighteen (18) Development Areas were created by the State Government. The State is located in the middle belt zone of the country and lies between latitudes 7<sup>0</sup> and 9<sup>0</sup> North and longitudes 7<sup>0</sup> and 10<sup>0</sup> East, and shares common boundaries with Benue State to the South, Kogi State to the West, the Federal Capital Territory (FCT), Abuja, to the North-West, Kaduna and Plateau States to the North-East and Taraba State to the South-East. The State is made up of over 30 ethnic groups each with its distinct cultural heritage. The 2006 census result put the population of the state at 1.8 million and over 80% of this population are subsistence farmers and live in the rural areas (NASEED, 2005).

### **Research Design**

This study chooses survey design and made use of Cross-Sectional design that involved field and sample surveys. The survey relied on information from the sampled respondents (Cassava farmers), in Nasarawa State. Purposive and Random sampling techniques were adopted. Data were collected on the respondents' socio-economic characteristics, Poverty Status, Cassava production impacts through; number of squire meal, house type, access to medical services, access to clothing and access to education.



## Kinds and Sources of Data

The kinds of data required for this study were basically primary data. These data were collected through an open-ended and structured questionnaire, oral interview, personal observations and Focused Group Discussions (FGDs).

## Population of the Study

This study covered only those participating in Cassava production in the study area. Note that, Cassava is produced in all the local government areas of Nasarawa State but the choice of Lafia, Nasarawa and Wamba Local Government Areas is due to the fact that Cassava production is found to be more produced in these local government areas which cut across the three senatorial zones comprising Nasarawa state. The population of participants in Cassava production in the case study showed a total of 1,205 people (NADP, 2014).

## Sampling Techniques

The study made use of purposive multi-stage and random sampling procedures. In the first stage, three local government areas: Lafia, Nasarawa and Wamba were purposively selected based on the prevalence of cassava production. In the second stage, eight communities constituting the headquarters of the main local government selected in stage one and the headquarters of development areas under them were also purposively selected as clusters for the study. The communities are Lafia, Shabu, Assakio, Nasarawa, Udege, Loko, Wamba and Kwara. Consequently, simple random sampling was used to select the respondents from each cluster because the population for the study (Cassava producer) was considered homogenous, irrespective of whether they produced the Cassava for Gari, Akpu and/or Chips.

## Sample Size

There are several methods for determining the sample size. However a total of 468 samples were drawn from the population of 1205 using Yamane (1967) formula for Calculating sample size. The formula is  $n = \frac{N}{1 + N(X^2)}$ . Where  $n$  is the sample size,  $N$  is the population size and  $X$  is the level of Precision. See table 3.0 below for details.

**Table 3.0: The Research sample by LGAs and Development Areas Headquarters**

S/N	Community	Population	Sample Size
1	Lafia	180	64
2	Shabu	250	71
3	Assakio	162	62
4	Nasarawa	110	52
5	Udege	168	63
6	Loko	105	51
7	Wamba	145	59
8	Kwarra	85	46
	<b>Total</b>	<b>1,205</b>	<b>468</b>

Source: NADP, Lafia



The table above is computed based on assumption of constant degree of variability that is  $P = 0.5$  or 50% for maximum variability and Precision level is  $\pm 10\%$ . For example, applying this formula to the population of 100 people at the precision level of 10%, the sample size is obtained as follows:

$$n = 100/1 + 100(0.1)^2 = 50 \dots \dots \dots (3.1)$$

### Model Specification and Variable Measurement

In line with the works of Fefa (2012), the empirical model for this study is specified as:

$$PS = f(x_1, x_2, x_3, x_4, x_5) \dots \dots \dots (3.2)$$

Thus, the model can be express in a parametric form as:

$$PS = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + U \dots \dots \dots (3.3)$$

$\beta_0$  = Intercept of the model

$\beta_1 - \beta_5$  = Parameters

$\mu_i$  = A random disturbance term.

### A Priori Expectation

The signs of  $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$  are expected to be negative. This indicates that the parameters have inverse relationship with PS. This is because Cassava production is capable of increasing access to food, good shelter, improved medical services, access to clothing and education which implies that absolute poverty of a respondent is reduced.

**Table 3.1: Variable Description and Measurement**

S/N	Variable Name	Variable Type	Categorization	Variable Definition
1.	PS	Binary	0,1	Poverty Status
2.	X <sub>1</sub>	Binary	0,1	Number of Square Meals Per Day
3.	X <sub>2</sub>	Binary	0,1	House Type
4.	X <sub>3</sub>	Binary	0,1	Access to Improved Medical Services
5.	X <sub>4</sub>	Binary	0,1	Access to Clothing
6.	X <sub>5</sub>	Binary	0,1	Access to Education

### Methods of Data Estimation and Analysis

The study made used binary logit regression for the estimation of the parameters of the model and the analysis of the impact of Cassava production on poverty reduction in Nasarawa State, Nigeria.



## PRESENTATION OF RESULT

### The Effect of Cassava production on Poverty Reduction

In determining the impact of cassava production on the poverty status of the Nasarawa state farmers, the binary logistic regression results are presented in Table 4.0 below:

**Table 4.0: Binary Logistic Regression Results**

Dependent Variable: PS

Method: ML - Binary Logit (Quadratic hill climbing)

Date: 05/10/2023 Time: 10:44

Sample: 468

Included observations: 468

Convergence achieved after 7 iterations

Covariance matrix computed using second derivatives

Variable	Coefficient	Std. Error	z-Statistic	Prob.
X1	-7.574405	1.712405	-4.421277	0.0001
X2	-0.689463	0.327017	-2.108338	0.0350
X3	-2.200176	0.079689	-2.511959	0.0120
X4	-0.999898	0.318578	-3.138633	0.0017
X5	-0.071540	0.021204	-3.373642	0.0013
$\beta_0$	-0.914463	1.240248	-0.737323	4.4609
McFadden squared	R-0.823128	Mean dependent var		0.665919
Prob(LR statistic)	0.000000			

Source: Stata Output, 2023

## DISCUSSION OF FINDINGS

The result from table 4.0 indicates that the coefficient of the number of square meals taken per day (X<sub>1</sub>) of the sampled respondent is negative (-7.574) which is correctly signed and statistically significant at 5% critical level. This implies that, the higher number of meals taking per day resulting from Cassava production, the lower the poverty status of the respondents.

The coefficient of house type (X<sub>2</sub>) is negative (-0.689) which is correctly signed and statistically significant at 5% level. This implies that the higher the ownership of improved house type, as a result of Cassava production, the lower the poverty level of the respondents.

The coefficient of access to improved medical services (X<sub>3</sub>) is negative (-0.2) which is correctly signed and statistically significant at 5% critical level. This implies that the higher the access to improved medical services resulting from Cassava production, the lower the poverty status of the respondents





The coefficient of the access to clothing ( $X_4$ ) is negative (-0.9999) which is correctly signed and statistically significant at 5% level. This indicates that, the higher the access to clothing because of the production of Cassava by the sampled respondents, the higher the chances of reducing the poverty level of the respondents.

The coefficient of the level of education ( $X_5$ ) of sampled respondents has a negative (-0.072) relationship with poverty, and is statistically significant at 5% level. This implies that the higher the children enrolment in school resulting from Cassava production, the lower the poverty level of the respondents.

The intercept ( $\beta_0$ ) has a negative sign (-0.914463) which indicates that, if all the regressors are fixed to zero, the dependent variable – poverty status of the respondents, would decrease by 0.914 in the study area.

All the standard errors of the individual variables are minimum thereby producing high Z–statistic and below 0.05 probability values which indicate that, all the variables are statistically significant at 5% level of alpha. The McFadden  $R^2$  of 0.823 implied that, all explanatory variables included in the model explained total variation in the dependent variable (poverty status) by 82.3% while 17.7% of the variation in poverty status is explained by the random disturbance term. The LR statistic of 240.4348 coupled with probability (LR Statistic) of 0.0000 indicated the reliability of the explanatory variables with regards to the dependent variable and the minimum value of the standard errors of regression proved the robustness of the model.

More so, from the result of Goodness of fit evaluation for binary specification using Andrews and Hosmer – Lemeshow tests in Appendix II indicate 383.9764 and 31.5342 for H – L statistic and Andrews statistic respectively. These have fully explained the goodness of fit for the logit or binary specification of the estimate model.

### **Test of hypothesis**

The null hypothesis of the study below was tested using the probability value procedure:

**H<sub>0</sub>:** Cassava production has no significant effect on poverty reduction in Nasarawa state.

**Decision:** Since the prob (LR statistic) 0.0000 is less than the 0.05 critical value; we reject the null hypothesis in favour of the alternative and conclude that; Cassava production has significant effect on poverty reduction in Nasarawa State.



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## **SUMMARY, CONCLUSION AND RECOMMENDATIONS**

### **Summary**

Nasarawa State, Nigeria has a lot of agricultural potentials and with the increasing level of poverty in Nasarawa state and Nigeria at large, there is the need to look at the nexus between agricultural productivity and poverty reduction. Since Cassava production is one of the promising agriculture ventures in Nasarawa state, the study is narrowed down to Cassava production and poverty reduction in Nasarawa State. The study made use of primary data generated through administration of questionnaires. The data were analyzed using binary logistic regression. The result showed that Cassava production has a significant effect on poverty reduction in Nasarawa state.

### **Conclusion**

This study therefore concludes that poverty reduction strategy based on agriculture which employs over 70% of the population of Nigerians and over 80% of the population of Nasarawa state, is a possible solution to the present economic doldrums in Nasarawa state and Nigeria at large.

### **Recommendations**

Based on the findings of this study, the following are recommended in order to improve the level of cassava production in Nasarawa state and Nigeria in general:

- i. Farmers should organize themselves into cooperative societies to seek assistance from the government and financial institution.
- ii. Government should support Cassava producers by giving them fertilizer, soft loans and other incentives.
- iii. Government should improve the market for Cassava product in order to make the venture very attractive.
- iv. Government should encourage Cassava producers toward improving productivity by providing necessary facilities such as access road, hospital, schools, equipment, new technology, herbicide, pesticide amongst other



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