

Groundnut Production and Poverty Reduction in Buruku Local Government Area of Benue State

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Abstract

This paper examined groundnut production and poverty reduction in Buruku Local Government Area Benue state. Various literatures were reviewed on the effect of groundnut production on poverty reduction. Vicious cycle of poverty and unbalanced growth theory were reviewed in the study. A survey design was used to obtain cross-sectional data through questionnaires, focused group discussions (FGDs) and oral interviews. The research adopted the multistage random and purposive sampling techniques and obtained a sample size of 340. The study used descriptive statistical tools, Foster-Greer-Thorbecke (FGT) Index and logistic regression to analyze the data for this research. The study revealed that, the annual income and consumption expenditure of the respondents improved drastically during groundnut production and marketing. The logistic regression revealed that, groundnut production has significant effect on poverty reduction in Buruku Local Government Area of Benue state. The study also revealed the factors militating against groundnut production as lack of capital and extension services, poor roads, inadequate technical knowledge, Low seasonal prices and high price fluctuations, Low returns from small-scale production of groundnut among others. The study recommended that, Government and Institutions should strengthen extension services to deliver improved technologies to the farmers and farmers should source for loans through cooperatives, banks and other available sources at low charges so as to improve their capital base and a policy strategy should be adopted that eschews the long run neglect of rural infrastructural development in Benue state and Nigeria at large.

KEYWORDS: Poverty, poverty reduction, Marketing, Groundnut Production, Logistic Regression

1.1 Introduction

It is a regrettable fact that over one billion people in the world are living in extreme poverty today that depend on less than \$1 per day to survive on. This is a chronic and pathetic problem facing mankind ever since humanity (Etim and Edet, 2009). It is estimated that out of the world's over 6 billion people, about 2.8 billion live on less than US \$2 per day and 1.2 billion can spend less than US \$1 per day. Poverty in its extreme sense is highly prevalent among the developing countries of Africa, Asia and Latin America and manifests itself in various dimensions (World Bank, 2006).

Nigeria is one of the most resource-endowed nations in the world. But unfortunately socio-economically, Nigerians are also among the poorest in the world (Etim and Edet, 2009). According to UNDP (2010; 2014) Nigeria is one of the poorest among the poor countries of the world. Nigeria's HDI value for 2012 is 0.47- in the low human development category- positioning the country at 153th out of 187 countries and territories. Between 2005 and 2012, Nigeria's HDI value increased from 0.434 to 0.471, an increase of 9 percent or average annual increase of about 1.2 percent (National Bureau Statistics, 2014).

The National Bureau of Statistics (NBS, 2008; 2014) report show that the national poverty rate in Nigeria increased from 28.1% in 1980 to 64.2% in 2013. As in many developing countries, poverty in Nigeria is mostly a rural phenomenon, as over 68% of the impoverished people live in the rural areas, where they derive their livelihood from farming. Poverty in Benue State presents a paradox, considering the vast human and physical resources that the state is endowed with; it is even more disturbing given the huge human and material resources that have

been devote to poverty reduction by successive governments, apparently with limited success. Poverty reduction has continued to occupy a centre stage in the development agenda of various nations all over the world. The strategies for poverty reduction have however been greatly dependent upon the perceived extent and level of poverty, the vision for its reduction, and the available human and material resources at the disposal of each country.

There is however, a wide consent that agriculture plays a major role in economic development and poverty reduction. Agriculture can contribute to economic growth through different channels such as provision of food and employment (Ranis et al; 1990). Agriculture has the highest contribution to the Nigerian gross earnings which has been rising from 30% in 2009 and 37.9% in 2013, respectively (NBS, 2014). A larger population of Nigeria depends on agriculture for subsistence farming, through the production of crops such as cereals, Vegetable and fruits. According to Ekpebu (2002), about 80 percent of the population is directly involved in agriculture, producing varieties of food and cash crops like yam, cassava, rice, groundnut, beniseed, soybeans, citrus among others. Groundnut is produced, consumed and marketed in Benue state and the neighboring states.

Groundnut (*Arachis Hypogaea*) is one of the dominant crops in Nigeria that enable most small-farm holders to earn both food and income. It is one of the biggest sources of fats, protein, carbohydrates and vitamins for human consumption and also as animal's feeds. Its nutritional values help in developing one's health, which is one of the major determinants of economic growth of a nation (Akobunde, 1998) as cited in Etim and Edet (2009). Groundnut is thus, considered beneficial to Nigeria because of its potential to providing employment, food for consumption and to a larger extent serving as a remedy for poverty reduction in the study area.

There is no doubt that groundnut is produced in Buruku L.G.A of Benue state. But there is dearth of information about the extent of opportunities for enhanced income generation and employment creation that groundnut production provides.

It is against this background that, the paper seeks to investigate the effects of groundnut production on poverty reduction in Buruku local government of Benue state. The paper seeks specifically to:

- i.** investigate whether groundnut production contribute to income generation in Buruku local government area of Benue state
- ii.** examine the extent to which groundnut production has reduced poverty in Buruku local government area of Benue state
- iii.** identify the constraints on groundnut production in Buruku local government area of Benue state

1.2 Research Hypothesis

Ho: Groundnut production has no significant effect on poverty reduction in Buruku local government of Benue state.

2.0 Conceptual Framework

2.1 Poverty and Poverty Reduction

In the words of Aboyade (1995) as cited in Fefa (2012), “Poverty is like an elephant, it is more easily recognized than defined”. But as Anyanwu (1997) point out that any study of poverty must begin with a definition of poverty in order to provide a focus by which one can determine the limits of understanding. The World Bank (2000) defined poverty as a condition

of life degraded by diseases, deprivation and squalor. On the other hand, the essence of poverty, in relative terms, is "inequality". Rocha (1998) however notes that the persistence of chronic deprivation of basic needs nowadays makes absolute poverty the obvious priority in terms of definition, measurement, and political action from the international point of view. According to Chamber (1997) as cited in Abaluk (2012), poverty embraces physical weakness, material poverty, vulnerability, powerlessness, spiritual poverty and isolation. By physical weakness is meant lack of strength, poor health, inadequate nutrition and too many dependents.

The concept of poverty reduction, poverty eradication and poverty alleviation are most times used interchangeably to mean the same. Poverty reduction according to Vanderschueren (1996), refers to as a situation where specific manifestation of poverty are systematically reduce resulting in a short and long term condition. According to Evbuomwan (2006) the overriding objectives of government poverty reduction policy is to broaden the opportunities available to the poor and ensure that every citizen has access to basic needs of life; food, services, and nutrition, basic education and communication’

2.2 Groundnut Production

Groundnut (*Arachis hypogaea L.*) is an important annual legume in the world; it is mainly grown for oilseed, food, and animal feed. It is the chief crop rotation component in many Sub Saharan countries (Pande *et al.*, 2003).

According to Taru *et al.* (2008) groundnut requires 500 mm to 1 600 mm of rainfall, which may last for 70 to 200 days of a single rainy season. Groundnut also requires well-drained

light coloured loosed friable sandy loam soil, with optimum moisture in pod-zone and mean daily temperature of about 30°. Rainfall should be well distributed during pre-sowing operations, that is, 100 mm to 150 mm for sowing, and for flowering and pod-development the required rainfall is about 400 mm –500 mm. Groundnut cannot withstand frost longer, as it can do for severe drought or water stagnation. However, the crop does best in sandy-loam and loamy soils, and in black soils with good drainage. Heavy and sticky clays are not suitable for groundnut cultivation because the pod development is hampered in these soils.

Groundnut is one of the most popular and universal crops cultivated in more than 100 countries in six continents. It is grown in 25.2 million hectares of land with a total production of 35.9 million metric tons. It is the 13th most important crop and the 4th most important oilseed crop of the world.

2.3 Theoretical Framework

2.3.1 The Vicious Circle of Poverty

The vicious circle of poverty was propounded by Ragnar Nurkse (1953). The theory emphasized the link between lack of capital and underdevelopment. The basis of vicious circle stem from the fact that total productivity is low due to deficiency of capital, market imperfections, economic backwardness and underdevelopment. This study emphasized that Buruku poverty is linked to a circular constellation of forces that emanate from both the demand side and the supply side. On the demand side, it is obvious that people are poor with low level of income. The low level of real income leads to a low level of demand by the people. This in turn leads to a low rate of investment and hence back to deficiency of capital, low productivity

and low income, low productivity is thus reflected in low real income. On the supply side the low level of real income makes the people saving to be low. The low level of savings leads to a low investment by people and to deficiency of capital, in turn, contains the capability of the people to produce high, leading to a low level of productivity and back to low income. In this way, the people remain stagnated and are occasioned by the vicious bond of poverty to act poor, remain poor, think poor and so the vicious circle of poverty continues.

The vicious circle of poverty presupposes that poverty is a serious human problem. It is a curse as it is self-perpetuating and if not checked can spread fast and wide to assume an inter-generational dimension. It must therefore be tackled. Human survival is precipitated on some basic needs such as food, shelter, clothing, water, air and health. These needs constantly beg for attention in the face of poverty. To this end many Nigerians have taken their destinies into their hands to go out, work hard and earn a living for themselves in order to meet their basic needs and those of their relations. Armed with this knowledge, either consciously or unconsciously, many people in Buruku Local Government Area are engaged in groundnut production and marketing. They work hard to meet their needs and those of their relations and possibly break out of the vicious circle of poverty.

2.3.2 The Unbalanced Growth Theory

The concept of 'unbalanced growth' theory was popularized by Hirschman. The tenet of the theory upholds that there should be a deliberate unbalancing of the economy, according to a pre-designed strategy, which is the best to way achieve economic growth in an underdeveloped country. According to Hirschman (1953), investments in strategically selected industries or

sectors of the economy will lead to new investment opportunities and so pave the way for further economic development. He maintains that development has of course proceeded in this way, with growth being communicated from the leading sectors of the economy to the followers, from one industry to another, from one firm to another” He regards development as a “chain of disequilibria” that must keep alive rather than eliminate the disequilibria, of which profits and losses are symptoms in a competitive economy. If the economy is to be kept moving ahead, the task of development policy is to maintain tensions, disproportions and disequilibria.

Hirschman (1953) sums up his “Strategy of Economic Development” in these words, “Economic development typically follows a path of uneven growth; that balance is restored as a result of pressure, incentives, and compulsions; that the efficient path towards economic development is apt to be somewhat disorderly and that it will be strewn with bottlenecks and shortages of skills, facilities, services, and products; that industrial development will proceed largely through backward linkage, that is, will work its way from the ‘last touches’ to intermediate and basic industry”. Groundnut production and marketing are agro-allied activities with significant backward and forward linkages to enhance income generation and employment creation capable of breaking the vicious circle of poverty in the study area.

2.3.3 The Basic Development Needs Theory

The rich people are not sick because they can afford good houses, clean water, food and health care necessary to avoid disease. But living in poverty, how can we afford to avoid disease?(Statement of a poor farmer from Sudan, cited in Sheikh, 2000:766).

Under the *International classification of disease* “absolute poverty is categorized as a disease.”(WHO, 1992). The poor lack the basic needs to lead the quality of life that is devoid of disease. In addition to ill health among the poor, there exists a persistent combination of unemployment and underdevelopment, economic poverty, a low level of education, poor housing

, malnutrition, gender sensitivity, social apathy and a lack of the will and initiatives to make changes for the better.

The basic needs theory aims at collectively addressing all determinants of health through integrated socioeconomic development of both men and women. See Figure 1.



Figure 1: Components of Basic Development Needs and their Synergistic effects on quality of life. **Source:** Adapted from Sheik, 2000.

The basic needs theory stipulates that for the quality of life to improve, there must be implementation of strategies that facilitate the access of local communities to social services, appropriate technologies, information and financial credit with the explicit aim of promoting fair distribution of resources to achieve equity at the grassroots level.

Groundnut production is a rural farm activity that is aimed at accessing income with the possibility of translating it into a basis for improving the quality of life through further access to food, water, education, security, communication, health and shelter among others as specified

Figure 1. Once achieved, the quality of life is improved and the vicious circle of poverty could be broken.

2.4 Assessment of Poverty Reduction Strategies in Nigeria

Efforts at improving the rural areas of Nigeria predated the independence of the country in 1960. The major efforts made in pre-independence and the early days of independent Nigeria according to Omale and Molem (2003) were in the area of farm settlement schemes. The aim of these farm settlements was to bring scattered small communities together so that they could take advantage of economies of scale in farm inputs, agro services, marketing, etc. These schemes recorded little or no achievement because the target beneficiaries were not involved at the planning stages. Since then, a number of government programmes have been put in place to improve basic services, infrastructure and housing facilities for the rural population, extending access to credit and farm inputs, and creating employment.

Ilori (1999) categorized rural poverty-related programmes into three: development programmes, palliative measures popularly known as the Social Dimension of Adjustment (SDA), and the sector-specific poverty related programmes. Examples of development programmes are: rural electrification schemes; rural banking scheme; and Operation Feed the Nation (OFN), later re-named Green Revolution. Palliative measures include programmes such as the Directorate of Food, Roads and Rural Infrastructure (DFRRI), the National Directorate of Employment (NDE), Family Support Programme (FSP) the National Agricultural Land Development Programme (NALDA), NEEDS, SURE-P, as well as micro credit schemes such as Peoples Bank, and Community Bank

among others. All the programmes put together were meant to provide a catalytic impetus for the take-off and subsequent advancement of the rural areas towards:

- a) Linking them to the national and international economic systems;
- b) Increasing rural household income;
- c) Providing basic socio-economic and physical infrastructure;
- d) Efficient resource allocation to shift attention and interest of the private sector towards investment in rural areas to enhance rural development; and,
- e) Enhancing rural welfare.

2.5 Empirical Literature

Taphee and Jongur (2014) carried out a study on the Productivity and Efficiency of Groundnut Farming in Northern Taraba State. The objectives of the study were to determine the technical efficiency of groundnut farmers, analyse the influence of some socio-economic characteristics of farmers on technical efficiency. Data were collected with the aid of structured questionnaire administered to 150 randomly selected farmers in the study area. Data generated from the questionnaire were analysed using Stochastic Frontier Production Function. The study revealed that the variance of parameters gamma (γ) and sigma-squared (δ^2) of the frontier production function were statistically significant at 1 percent level of significance. The coefficients of seed and fertilizer were positive and significant at 10 percent level of significance, while farm size and family labour were statistically significant at 1 percent respectively. Mean technical efficiency index was 0.97, while minimum and maximum technical efficiency were 0.63 and 0.99 respectively.

Katundu, Mhina, Mbayererwa and Kumburu (2014) carried out a research in Tabora region on the limitation to the production of groundnut in the area. Their major objective to the study was to identify the key factors that are naturally agronomic, and are potentially contributed to limited agriculture expansion of the crop amongst smallholder producers in the area. A multivariable regression analysis was adopted so as to both identify and quality such potential caused factors; whereas, the chi-square test was used to compare levels of smallholder income received from government production over the previously past three years harvest seasons. The sample size for the study comprised about 400 farmers for both groundnut producers and non-producers. A semi-structured questionnaire for the focus group discussion (FGD) was used to solicit data on qualitative aspects of the study, and a statistical package for social science (SPSS) was used for estimation of the data. The study results suggest that lack of markets, capital, low price, inadequate extension services including lack of credit facilities were major constraints, additionally, the cultivated land size, was identified as another important factor in determining groundnut production. Very few respondents reported pest and diseases as major constraints in groundnut farming. Basically, the overall contribution of groundnut production on household's income was significant.

Baba, Dabai, Senchiand and Umar (2013) examined Groundnut production and its capability to provide employment and increase the income level of farmers in Nigeria. The study evaluated cost and returns of groundnut production in Zuru Local Government Area of Kebbi State, Nigeria. Specifically, it estimated the profitability and constraints involved in Groundnut production. Simple random sampling technique was used to select 100 Groundnut producers between April and July 2013. A well-structured questionnaire was used to obtain information on input-output data and other relevant variables. Descriptive statistics was used to analyse data on socio-economic characteristics of respondents and constraints involved in groundnut production, while farm budgeting technique was employed in order to determine the profitability of groundnut production in the study area. The result revealed that variable cost constituted 49.84%

of the total cost of groundnut production in the study area, while the fixed cost constituted 50.16%. However, the average total cost of production was ₦121, 471.30, the average total revenue was ₦267, 095.60, gross margin was ₦206, 555.60 and the net income was ₦145, 624.30 indicating that groundnut production was profitable. The problems encountered include transportation problem, price fluctuation, poor storage facilities, lack of organised market and lack of capital among others. The study therefore recommended that, farmers should be encouraged to form cooperatives so as to access credit easily and avoid unnecessary exploitation of middlemen in the study area.

3.0 Methodology

3.1 Study Area

The research covered Buruku Local government area of Benue State. The local government was created in 1991 out of Gboko local government area which once existed in 1982 as Ambighir local government area but was phased out among numerous other local governments created by the 2nd republic. The local government was named in honour of late Pa Buruku Akeji, who established a market in his home. It was created and named the local government headquarter. The local government area is bounded by Logo local government area by the East, Gboko local government area by the West, Ushongo local government area by the south, Guma local government area by the North respectively. Administratively, the local government is divided into two (2) major constituencies with Thirteen (13) council wards which include; Binev, Mbaikyongo, Mbaatirkyaa, Mbaapen, Mbaya, Mbaikyaan, Mbayaka, Ishorov, Mbaade, Mbaazagee, Mbaakula, Mbatyough and Etulo. It has the projected population of 203,721 and population density of about 285 per square mile. Buruku local government lies in the open grass land Savannah vegetation of Northern Nigeria. The local government is purely

agrarian with no single industry. The soil produces conducive atmosphere for the growth of economic trees and other food crops such as; oranges, mangoes, cashew, yam, groundnut, maize, etc. It also provides in large commercial quantities cereals crops such as rice, guinea corn and soya beans.

3.2 Study Design

The study adopted a survey design (quasi-experimental design) technique via a cross-sectional approach that involves field and sample surveys. The study adopted purposive and random sampling techniques in order to select households that produces groundnut in the study area. The study covered only those participating in groundnut production in the study area. A pre-survey of the area shows that, groundnut producers are the same as marketers, therefore, out of the total population of about 203,721 (2006 census figure) only 340 persons were sampled.

Data were collected through an open-ended and structured questionnaire, personal observations and Focused group discussion (FGDs), because the study was aimed at eliciting both qualitative and quantitative information pertaining the effect of groundnut production in the study area.

3.3 Method of Data Analysis

Data was analysed using descriptive statistics and logit regression analysis. Descriptive statistics including, tables, percentages, Foster-Greer-Thorbecke (FGT) Index and means were used to analyse the socio-economic characteristics of the respondents. The study also made use of multivariate logit regression model to test hypothesis using maximum likelihood estimation procedure, while the Hosmer-Lemeshow test was used in testing for goodness of fit of the model

3.4 Model Specification

A Multivariate logit regression is used when the dependent variable in question is nominal, in logit model, the dependent variable is a dummy, or a nominal variable, with (1) representing household as poor and (0) if the household is not poor (Imran et al 2006).

The parameters are estimated by maximum likelihood, with the likelihood function formed by assuming independence over the observations, thus, the model for this study is structurally stated as:

$$P(y) = \frac{e^y}{1+e^y} \dots\dots\dots 1$$

If y measure poverty status, y might be poor (1) or non-poor (0), by taking natural logs and simplifying equation (1), the log likelihood transforms the structural equation to:

$$\ln Y_i \log = \frac{p_i}{1-p_i} = B_0 + \sum_{j=1} B_K X_{ki} + u_i \dots\dots\dots 2$$

Where

$\ln Y_i$ = natural log of Y (Poverty status)

X_{ki} = A set of house hood socio- economic characteristics

B_k = Parameters

U_i = Random disturbance

From the specified model (2), the model is stated implicitly as

$$PTY = f(QTYG, FMLS, ACMT, LEED, FMEX, HSTA, TECH, NMH, PRST, LNDF, INCOME) \dots 3$$

Where

PTY = dependent variable (poverty status)

Calculate as

$$Pty = \frac{\text{Average annual income of household from groundnut production}}{\text{Total number of days in a year (356)}}$$

Total number of days in a year (356)

If the poverty status was less than 1^{1/2} USA dollar, it means, the household is poor in which case, (1) will be assigned, and if it is 1^{1/2} USA dollar or above, it therefore means, the household is non-poor, in which case (0) will be assigned

QTYG = Quantity of groundnut produced in bags (50kg)

FMLS = Family size

- ACMT = Accessibility to the market, (1) will be assigned if the respondent has every access and (0) if other wise
- LEED = Level of education of respondent (1) if respondent attains secondary school and above, (0) if otherwise
- FMEX = Farming experience (1) if the respondent has farming experience of about 3 years and above, and (0) if otherwise
- HSTA = Health status of the respondent, (1) if healthy and (0) if otherwise
- TECH = Technology (1) if used mechanized or modern system and (0) if otherwise
- NMHC = Number of hectares cultivated per annum
- PRST = Price stability of the product (1) if stable in the marketed area, and (0) if otherwise
- LNDF = Land fertility (1) if fertile land is used and (0) if otherwise.

Thus, the specific form of the model become

INCOME = Income of the Household from Marketing of groundnut Products

B_1 - B_{11} = Parameters

Stochastically as:

$$PTY = B_0 + B_1 QTYG + B_2 FMLS + B_3 ACMT + B_4 LEED + B_5 FMEX + B_6 HSTA + B_7 TECH + B_8 NMHC + B_9 PRST + B_{10} LNDF + B_{11} INCOME + U_i \dots (4)$$

Where

B_0 = Intercept of the model

U_i = a random disturbance

In this study, B_1 , B_3 - B_{11} are expected to be negatively signed, implying that, these parameters will reduce the probability of households studied being a absolute poverty. This indicates that, the parameters have inverse relationship with PTY and this is because, groundnut production is capable of increasing the income, education, health, fertility of land, markets, technology which implies that absolute poverty of a respondent will reduce while B_2 is expected to be positively signed.

3.5 Decision Rule

The likelihood ratio (LR) statistic will be used to test the null hypothesis to ascertain if all the slope coefficients are simultaneously equal to zero (ie $B_1=B_2=B_3=B_4=B_5=B_6=B_7=B_8=B_9=B_{10}=B_{11}=0$). Therefore, if the likelihood ratio statistic value is greater than its p value, the null hypothesis will be rejected and the alternative accepted, that not all B's are equal to zero. Also, any McFadden R-squared (Pseudo-R-Squared Adjusted or Proxy R-Squared) level greater than 0.50 (50%) will suggest a strong relationship between the dependent variable (P) and the predictor variables (the X's). Any probability value of the coefficient greater than or equal to $\alpha = 0.05$ will also imply that the variable is statistically

4.0 Data Presentation and Analysis

4.1 The Impact of Groundnut Production on Income Generation

Below is the examination of the effect of groundnut production on income generation among sampled farmers in the study area. Taking income as a continuous variable, the class boundaries were set as shown in Table 1.

Table 1: Distribution of the respondents by annual Income before and during groundnut production

Amount (N)	Before Groundnut production		During Groundnut production	
	Frequency	Percentage	Frequency	Percentage
≤ 100,000	194	57	24	7
100,000 - 200,000	69	20.3	55	16.2
200,000- 300,000	56	16.5	86	25.3
300,000 and above	21	6.2	175	51.5
Total	340	100	340	100

Source: Field Survey, 2014.

Table 1 showed the annual income of the sampled respondents before and during groundnut production. It is evident from the table that majority (57%) of the respondents have

annual income of less than or equal to N100 000 before they started producing groundnut; 20.3% of the respondents have annual income of between N100 000 and N200 000; 16.5% of the respondents have annual income of between N200 000 and N300 000 while the remaining 6.2% of the respondents have annual income of above N300 000 before groundnut production. During groundnut production however, the annual income of the sampled respondents showed significant improvement. This indicates that 51.5% of the sampled respondents have annual income of above N300 000 as compared to the 6.2% when the respondents had not started producing groundnut. The percentage of those who have annual income of between N200 000 and N300 000 rose from 16.5% to 25.3% while the percentage of those with annual income of below N200,000 has reduced during groundnut production which indicate an increase in the annual income of the respondents after engaging in the farming/production of groundnut.

4.2 The Impact of Groundnut Production on Annual Consumption Expenditure

Data on the impact of groundnut production on the annual consumption expenditure were collected and are presented in Table 2.

Table 2: Distribution of the sampled respondents by the annual consumption expenditure before and during Groundnut Production

Amount (N)	Before Groundnut Production		During Groundnut Production	
	Frequency	Percentage	Frequency	Percentage
≤ 50,000	188	55.3	11	3.2
50,000 - 100,000	84	24.7	49	14.4
100,000- 150,000	64	18.8	86	25.3
150,000 and above	4	1.2	194	57.1

Total	340	100	340	100
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Source: Field Survey, 2014.

Table 2 revealed that 55.3% of the sampled respondents were spending less than or equal to N50, 000 on consumption annually before groundnut production. 24.7% of the respondents were also spending between N50 000 – N100 000 on consumption expenditure. More so, 18.8% of the respondents were also spending between N100 000 – N150 000 on consumption expenditure while the remaining 1.2% spent above N150 000 on consumption expenditure before groundnut production. However, during groundnut production, consumption expenditure significantly improved. Only 3.2% as against the 55.3% spends below N50 000 on consumption expenditure. 14.4% of the respondents spend between N50 000 -100,000 on consumption expenditure as against 24.7% when they had not started groundnut production. 25.3% and 57.1% of the respondents spend between N100 000-150 000 and N150 000 and above on annual consumption expenditure respectively. The drastic improvement in the amount spent on consumption expenditure is as a result of the proceeds from groundnut production. This implies that households that are involved in this enterprise fare better in terms of accessing basic needs.

4.3 Determination of Poverty Status of the Sampled Respondents

In determining the poverty status of the sampled respondents, the poverty line of US\$1.5 per day was used to estimate the respondents' status before and when involved in groundnut production. The estimates were further used to classify the respondents into poor or non-poor category. Two major ways were used in arriving at these categorizations:

- (a) A moderate poverty line equivalent of $\frac{2}{3}$ of the mean income per year.

(b) A core poverty line equivalent of $\frac{1}{3}$ of the mean income per year.

Three mutually exclusive groups emerged, separated by the lines as core poor, moderate poor or non-poor (Fefa, 2012; Akighir, 2011; Yusuf, et al. 2008). Using this criterion and the Foster-Greer-Thorbecke (FGT) index, the different dimensions and incidence of poverty, P_0, P_1, P_2 were calculated and the results presented in the Table 3.

Table 3: Distribution of sampled respondents by their poverty indices before and during Groundnut Production

Index	Before Groundnut Production	During Groundnut Production
(i) Total Average Annual Income	₦19,800,000	₦67,654,000
Mean Average Annual Income	₦159064.44	₦45154.65
$\frac{2}{3}$ Mean Income	₦12224.32	₦43122.36
$\frac{1}{3}$ Mean Income	₦54764.34	₦164765.43
(ii) Headcount Index (P_0)		
Core Poor	0.52 (52%)	0.22 (22%)
Moderate Poor	0.31 (31%)	0.34 (34%)
Non-Poor	0.17 (17%)	0.44 (44%)
(iii) Poverty Gap Index (P_1)		
Core Poor	0.53	0.21
Moderate Poor	0.34	0.13
(iv) Severity of Poverty (P_2)	0.48	0.18
(v) Gini Coefficient	0.41	0.07

Source: Authors' Computation

Table 3 showed poverty lines of the respondents before and after during groundnut production. The table showed respondents estimates on total average annual income, mean average income ($\frac{2}{3}$ and $\frac{1}{3}$ mean income), headcount index (P_0), poverty gap index (P_1) and the severity of poverty (P_2) and the Gini coefficient for both periods. An upper poverty line of ₦12224.32 implied that, a respondent with an average annual income greater or equal to ₦12224.32 before groundnut production was considered to be non-poor or rich and any

respondent with an average annual income below the amount but greater or equal to ₦54764.34 was considered moderately poor. While a respondent with an annual income of below ₦54764.34 was considered extremely or core poor. Therefore, the total percentage of poor respondents before groundnut production is 83% in the ratio of 52:31 percent for core poor and moderate poor respectively while 24% of the respondents were non poor even before groundnut production. Similarly, during groundnut production, an upper poverty line of ₦43122.36 separated poor respondents from the non-poor respondents while the minimum poverty line of the respondents during groundnut production shifted to ₦164765.43 implying that, any respondent whose annual income fell below the amount was considered core poor hence, the percentage of poor respondents during groundnut production dropped to 56% in the ratio of 11:17 percent for core poor and moderate poor respectively. This analysis points to the fact that, groundnut production has reduced the poverty level of the sampled respondents in the study area.

Therefore, groundnut production has the potentials of not only reducing the incidence of poverty but also reducing the intensity of the poverty in the study area.

The severity of poverty (P_2) index which in addition to the distance of the poverty line measures the variation in the distribution of welfare among the poor for the both periods thus severity index for the period before groundnut production was more severe (0.48) than one for the groundnut production era (0.18). This implied that the respondents are better-off after during groundnut production than not.

The degree of the inequality of income among the respondents for both periods is further validated by the Gini coefficient which showed that before the respondents started producing groundnut, there was a high level of income inequality (0.41) but again, the magnitude of the

inequality was reduced to 0.07 during groundnut production. This suggests that the income of the respondents during groundnut production do not significantly diverge from one another. This is in line with the findings of Ali and Thorbecke (2000), which revealed that reducing inequality has a larger positive impact on poverty than it does to growth.

4.4 The impact of Groundnut Production and Marketing on Poverty Reduction

To effectively capture the extent of the response of the dependent variable (Poverty status) to the activities of groundnut producers, the study estimated the logistic regression result is presented below;

Table 4: Logistic Regression Results of the Model

Dependent Variable: PTY				
Variable	Coefficient	Std. Error	z-Statistic	Prob.
QTYG	-1.101706	0.462106	-2.384098	0.0245
FMLS	2.230310	0.442869	5.036035	0.0011
ACMT	-1.298064	0.322928	-4.019670	0.0047
LEED	-0.102921	0.024505	-4.192097	0.0045
FMEX	-0.917580	0.371644	-2.468967	0.0219
HSTA	-0.134131	0.026699	-5.023933	0.0016
TECH	-0.875022	0.282854	3.093546	0.2000
NMHC	-0.096627	0.040418	-2.390692	0.0259
PRST	-0.704502	0.221906	-3.174776	0.0073
LNDF	-0.417350	0.131960	-3.162685	0.0073
INCOME	-0.750622	0.235854	3.182571	0.0200
C	1.993774	0.507138	3.931423	0.0079
McFadden R² = 0.93 LR stat. = 397.922 Prob(LR stat. = 0.0007)				

S.E of regression = 0.34

Source: Eview7 output.

The logit regression in Table 4 above indicated that, all the explanatory variables were correctly signed and statistically significant at 5% alpha level. A change in quantity of groundnut produced (X1), accessibility to the market (X3), Level of education (X4), Farming experience (X5), Health status (X6), technology used (X7), number of hectares cultivated (X8), price stability of the product (X9), land fertility (X10) and income (X11) of the respondents have negative impact on the respondent's poverty status. That is, a unit change in each of these variables would partially reduce poverty by 1.102, 1.298, 0.103, 0.875, 0.918, 0.134, 0.097, 0.705, 0.417 and 0.7506 units respectively. On the other hand, the logit result showed that, family size (X2) exerted positive impact on the poverty status of the respondents by 2.23.

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 0.93 implied that, all explanatory variables included in the model explained total variations in the dependent variable (Poverty status) by 93%. The LR stat. of 397.922 coupled with prob(stat.) of 0.0007 indicated the reliability of the explanatory variables with regards to the dependent variable and the minimum value of the standard error of regression proved the robustness of the model.

The Hosmer-Lemeshow Test is used extensively to assess the fit of the logistic regression model. The Hosmer-Lemeshow tests the fact that there is a linear relationship between the predictor variables and log odds of the criterion variable. Cases are arranged in order by their predicted probability on the criterion variable. These ordered cases are then divided into ten groups. Each of these groups is then divided into two groups on the basis of actual score on the criterion variable. Expected frequencies are computed based on the assumptions that there is a

linear relationship between the weighted combination of the predictor variables and the log odds of the criterion variable. The goodness of fit evaluation for binary specification using Andrews and Hosmer-Lemeshow tests shows 0.1737 and 155.2068 respectively.

Decision: Since the prob(LR statistic) 0.0002 is less than the 0.05 critical value, we reject the null hypothesis in favour of the alternative and conclude that; groundnut production has significant effect on poverty reduction in Buruku Local Government Area of Benue State.

4.5: The Constraints on Groundnut Production and Marketing among operators in Buruku local government area

Data on the constraints on Groundnut Production and Marketing among operators in Buruku local government area were collected and are presented in Table .

Table 5: Constraints on Groundnut Production and marketing in the Study Area

Constraints on Groundnut Production and marketing	Percentage(No of Respondents)
1. Lack of capital and extension services	98.2% (334)
2. Poor access roads in transporting groundnut products to market centres.	89.1% (303)
3. Inadequate technical knowledge in the use of improved production technologies.	79.4% (270)
4. Low seasonal prices and high price fluctuations of the groundnut products.	90.3% (307)
5. Low returns from small-scale production of groundnut.	67.1% (228)

Source: Authors' Computation

Table 5 shows five constraints on agricultural production in Buruku L.G.A. The last column shows the proportion of the respondents who have mentioned the constraints. The most frequently cited challenges are lack of capital and extension services (98.2%) and low seasonal prices and high price fluctuations of the groundnut products (90.3%).

5.0 Conclusion and Recommendations

By rejecting the null hypothesis in favour of the alternative hypothesis, the study concluded that; groundnut production and marketing has reduced poverty in Buruku Local Government Area of Benue State and it has the potentials for income generation for poverty to be further reduced among operators by continuous participation in the enterprise. Therefore, we can conclude that groundnut production and marketing in the study area could be seen as poverty alleviating farm activity in Buruku local government area of Benue State, Nigeria. Based on the findings, the study made the following recommendations

1. Government and institutions should strengthen extension services to deliver improved technologies to the farmers.
2. Farmers should source for loans through cooperatives, banks and other available sources at low charges so as to improve their capital base in the production of groundnut.
3. Subsidies should be paid for groundnut products to producers and price floors should be set for the products to make the prices very attractive. This would tend to make the activity itself quite attractive and more profitable and will generate more income for producers and create more employment opportunities.
4. Lack of rural roads impedes marketing of agricultural commodities generally, and groundnut products in particular, and this prevents producers from selling their products at reasonable prices, due to high cost of transportation. Limited accessibility cuts small-scale producers off from sources of equipment and new technology and this keeps production low. A policy strategy should be adopted that eschews the long term neglect of rural infrastructural development in Nigeria, and Benue State in particular, so that easy accessibility of producers to markets would tend not only to increase profitability, but also, attract others to join the enterprise and rural poverty would be reduced.

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