Determinants of poverty status among fluted pumpkin farmers in Onna Local Government Area, Akwa Ibom State, Nigeria

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Abstract

This study focused on the determinants of poverty status among fluted pumpkin farmers in Onna Local Government Area of Akwa Ibom State. It specifically sought to describe the socio-economic characteristics of farmers, estimate the poverty status and analyzed the determinants of poverty among fluted pumpkin farmers in the study area . The study used simple random sampling technique to select 68 farmers out of 136 registered fluted pumpkin farmers in the study area. Data were obtained from primary source through the use of a set of structured questionnaire and analyzed using descriptive statistical measures, Foster, Greer and Thorbecke class of weighted poverty measures and inferential statistics. The results showed that majority of the respondents were females (75%), with a mean age of 44 years. About 48.5% of the total respondents had secondary education. The findings revealed that 28% of the fluted pumpkin farmers in the study area were poor. Seven percent (7.2%) is the extent to which the poor falls below the poverty line (poverty gap), and 2.8% is the distance separating the poor from the poverty line and the inequality among the poor (poverty severity). Therefore the amount required to bring an average poor to the poverty line was ₦605.50, while the average monthly amount required to bring all the poor to the poverty line was ₦16,954. Variables such as household size (1%), education (5%) and non-farm income (5%) were factors influencing poverty. It was therefore recommended that farmers should be encouraged to acquire formal education.

Keywords: Poverty status, determinants and fluted pumpkin

Introduction

Fluted pumpkin (*Telfairia occidentalis*, Hook F.) is one of the most important vegetables in Nigeria. The leaf has high nutritional, medicinal and industrial values and serves as important sources of protein (29%) fat (18%) vitamins and minerals (20%) when consumed and provides an appreciable income to small scale farmers. The leaves are potentially useful as food supplements (Ndor, Dauda and Garba 2013; Obinaju and Asa 2015). It is one of the most popular vegetables grown in southern

Nigeria,(Okoro- Robinson,2012; Abugu, Chah, Nwobodo, Asadu and Igbokwe, 2013).

In Nigeria, more than 75% of the population living in absolute poverty is estimated to live in rural areas, and it is sad but interesting to state that there is no state in Nigeria without rural dwellers (Ike and Uzokwe, 2015). Poverty has been established by past studies (World Bank, 1997; Etim and Edet, 2007; Akereke and Adewusi, 2011; Oladeebo, 2012; Salami and Atiman2013; Adebo and Ajiboye, 2014) as being more prevalent in rural areas.

Omotola (2008) noted that Nigeria is richly endowed and the country's wealth potentials manifest in the form of natural geographical and socioeconomic factors. With this fact, Nigeria should be placed among the richest countries of the world that should have no business with extreme poverty. However, Okpe and Abu (2009) remarked that Nigeria has witnessed a monumental increase in the level of poverty, and that measure of poverty ranks Nigeria at the bottom list of nations.

Apart from the overwhelming evidence, which suggests that, the country belongs to the group of the lower-income countries, the incidence of poverty has continued to rise with each passing day. Therefore poverty incidence that was just 15 percent of the population in 1960 rose to 28.1% in 1980 and further to 43.6% in 1985. The incidence of poverty dropped marginally to 42% in 1992 only to rise to 67% in 1996, 74.2% in 2000 and 92.5% in 2010 (Okpe and Abu, 2009; NBS, 2010). More recently a new report by The World Poverty Clock (2018) shows an estimated 86.9 million Nigerians living in extreme poverty as 2018 winds down to close.

The Nigeria situation is not only that poverty is getting worse by the day, but that a greater percentage of Nigerians live in extreme poverty condition of less than ₦ 320 *per capita* per month. According to Mafimisebi (2002), this amount of money is not able to provide for a quarter of the nutritional requirements, for healthy living. The above revelations are shocking when one considers the quantum of natural and human resources that abound in the country. This is a self contradictory situation, which was tagged "poverty in the midst of plenty" as asserted by World Bank (1997a). Studies by Cleaver and Schreiber (1994), Canagarajah (1995), UNICEF (1996), World Bank (1997a), Etim and Edet, (2007) and Etim, Edet and Esu (2009) showed that poverty is more prevalent in rural areas. World Bank (1997b) has documented that urban poverty is also increasing as reflected in the worsening trend in urban welfare indicators.

Ike and Uzokwe, (2015) did a study on the "estimation of poverty among rural farming households in Delta State, Nigeria" The study determined the expenditure pattern of the people and subsequently estimated their poverty level. Using head count index, poverty gap index, percentages means and frequency distribution for the data analysis, the results revealed that 70% of the respondents were poor based on the poverty line drawn at two thirds mean monthly expenditure of ₦5010, while the remaining 30% were not poor. Their results revealed that, having low level of education, low income, small farm size and inadequate social infrastructure were the major factors aggravating poverty in the study area.

Akereke and Adewusi (2011) carried out "Analysis of poverty profile and socioeconomic determinants of welfare among urban households of Ekiti State, Nigeria". Using a multi stage sampling approach revealed that 38.30% of the household covered by the study were poor and would have mobilized financial resources up to 41.80% of One US Dollar (₦ 130) per day (for each household members) to be able to escape poverty. Female household in the study area appears to be more vulnerable to income poverty with poverty incidence, depth and severity values of 0.239, 0.402 and 0.191 respectively. Highest level of poverty was found among household with 7.9 dependent with value of 1.00, 0.715 and 0.511 for incidence, depth and severity, respectively.

Using the logistic regression model, Etuk, Nkang and Henshaw, (2015) analyzed the "determinants of poverty status among broiler farmers in Calabar metropolis, Cross River State, Nigeria". The result showed clearly that education, marital status and sex of broiler farmers were the major determinants of poverty. Edoumiekuno, Karimo and Tombofa, (2014) studied determinants of household's poverty in the south-south geopolitical zone of Nigeria. Using the FGT model and a logit regression model in their analysis. The results showed 0.4924, 0.203 and 0.113 poverty incidence, gap and severity respectively. The study showed that male contributed more (91.56%) to poverty than female (8.44%) in the zone.

Olubanyo, Akinleye and Soremekun, (2003) examined poverty determinants among farmers in Ogun State, Nigeria. The study employed the Foster-Greer-Thorbecke (FGT) model; regression analysis and frequency count in its analysis. The result showed that among poor farmers, the poverty incidence was more for older, and less for younger, farm operators. Further, the FGT measures indicated that poverty incidence, depth and severity are 25.3%, 23.3% and 21.5%, respectively. Their

study also found that, farmlands fragmentation and farming experience showed significant negative effect while age, level of education, level of capital borrowing, size of farmlands operated and house hold size indicated positive effect.

The objectives of this study were to describe the socio economic characteristics of fluted pumpkin farmers, assess the poverty status of fluted pumpkin farmers and analyze the determinants of poverty among fluted pumpkin farmers in the study area.

Materials and methods

Study area

This research work was carried out in Onna local Government Area of AkwaIbom State. Onna is derived from an acronym of three predominant clans; Oniong, Nnung Ndem and Awa. Though recently, Awa has been split into two clans; (i.e. Awa Iman and Awa Afaha). The people are Ibibio speaking stock and the population is 146,023 (National Population Census, NPC2006), the land mass is about 162 thousand km^2 and its geographical coordinates are $4^0.39'57.49"$N, $7^0.50'55.28"$E/4.61597^0N, 7.84869^0E. Onna is bounded in the North by Etinan, South by Ibeno, West by MkpatEnin and in the East by Eket Local Government Areas. The physical relief of Onna Local Government Area is basically flat, though with some marshy river-washed soils around the banks of Qua Iboe River. Onna falls within the tropical zone wherein its dominant vegetation is the green foliage of tree/shrubs and arable crops such as fluted pumpkin, waterleaf, yam, cassava, maize, palm tree, etc. the major livestock species reared in the area include goats, poultry, sheep, etc. and the people are also engaged in fish farming because of the proximity of the Atlantic ocean.

Sampling procedure

A list of 136 registered fluted pumpkin farmers in Onna Local Government Area was gotten from Cross River Basin Development Authority, Onna. This constituted the sample frame from which a sample size of 68 farmers (50%) was randomly selected.

Data collection

Data for the study were obtained from primary source through the use of structured questionnaire. The questionnaire was designed to elicit information on the socio economic characteristics, farming characteristics and household food expenditure, poverty status of fluted pumpkin farmers and its determinants.

Data analysis

Both descriptive and analytical techniques were used in the data analysis.

Objective 1: Descriptive statistics used included percentages, tables and means.

Objective 2: The Foster, Greer and Thorbecke (1984) class of weighted poverty measures were used to profile the poverty status of households.

*Objective 3:*Logistic regression analysis was used to analyze the determinants of poverty.

The FGT poverty measure

Foster Greer and Thorberke (1984) model include the head count ratio $P_{o,}$poverty gap ratio $P_{1,}$ and poverty severity P_2. The simplest and most common measure of poverty is the headcount ratio or the "incidence of poverty." The poverty headcount is the number of people in a population who are poor, while the poverty head count ratio (H) is the proportion or fraction who are poor. Nevertheless the headcount ratio is the most commonly used measures of poverty because of its simplicity and ease of calculation (Fields, 1997). The P_a index proposed by Foster *et al.,* (1984) incorporates some degree of concern about poverty through a poverty aversion parameterα.

$$p_{a=i/n}\sum_{i-i}^{q}\left(\frac{z-y}{z}\right)^{\alpha} \quad \text{.....(1)}$$

Where

$$\alpha = 0, P_0 = l/n\sum_{i-i}^{q}\left(\frac{z-y}{z}\right)^{0}$$

Poverty incidence or head count …… (2)

$$\alpha = 1, P_1 = l/n\sum_{i-i}^{q}\left(\frac{z-y}{z}\right)^{1}$$

Poverty gap or depth …… (3)

$$\alpha = 2, P_2 = l/n\sum_{i-i}^{q}\left(\frac{z-y}{z}\right)^{2}$$

Poverty severity…… … (4)

Where;

n = total number of the sample under consideration

y = Daily per capita expenditure of the household

i = Individual household

z = poverty line $2/3$ mean per capital expenditure of all household

α = Takes a value of 0, 1, 2, for headcount, poverty gap and poverty severity

q = The number of sample household population below the poverty line

z-y = The appropriate shortfall below the poverty line

Poverty line

This is the pre-determined and well defined standard of income or value of consumption in the study. The line was calculated based on the expenditure of the households. Two third ($2/3$) of the mean per capita expenditure was used as the poverty line. The mean per capita household expenditure (MPCHE) was obtained by dividing the total of all individual house hold per capita expenditure by the number of household surveyed.

Per capita expenditure (PCE) $= \frac{\textbf{Totalexpenditure}}{\textbf{Housesize}}$

Mean per capita household expenditure (MPHE) = $\frac{\textbf{TotalHousehold (PCE}}{\textbf{TotalnumberofHousehold}}$

The determinants of poverty was done using logistics regression model. The logic regression model, a dichotomous regression

model was based on cumulative logistic distribution function. The model is specified as follows:

$$p_i = \mathbf{E}\ (Y_i = \frac{1}{X_i}) = \frac{1}{1+e^{-(\propto + \beta X_i)}}$$

$$p_i = \frac{1}{1-e^{-z_i}}$$

Where $z_i = B_1X_1 + B_2X_1 \ldots\ldots\ldots B_nX_n$

Where;

p_i is the cumulative logistic distribution function in order to obtain the value of z_i the likelihood of obtaining/observing the sample need to be formed by introducing dichotomous response variables (Y_i) such that;

Y_i = 1 if household is poor and 0 if otherwise

X_i = independent variables; i = 1, 2……6; $\propto_i$

β_i is the constant term and logistic coefficient for independent variables.

The hypothesized independent variables used are as follows:

X_1 = sex (1 if male and 0 if otherwise)

X_2 = household size (number)

X_3 = education (years of formal education)

X_4 = non farm income (naira)

X_5 = membership to association (1 if yes, 0 if otherwise)

X_6 = farming experience (years)

Results and discussion

Socio-economic characteristics of the respondents

Majority of the respondents were females (75%) while 25% were males. From table one it can be seen that women are actively involved in fluted pumpkin production and are contributing to the welfare of their families.

The mean age was 44 years, implying that they are still within their active productive age group in which their farm productivity should be relatively high, ceteris paribus.

The mean household size of the respondents was 6 persons. Most of the respondents (76.5%) were members of one association or the other. Approximately, half of the respondents (48.5%) had their secondary education.The result shows that 72.1% of the respondents take farming as their primary occupation, 23.5% were civil servants, and 1.5% had private salary jobs while 2.9% were involved in other occupations.

The findings indicated that 76.5% of the total respondents had income ranging between1-100,000, with a mean income of ₦79,900. The result showed that the mean monthly farm income was high.

Farming characteristics of the respondents

Farming experience: One third (37% and 34%) of the respondents had their farming experience ranging between 1-5years and 6-10years respectively, with the mean of 8years. From table two, it can be observed that most of the respondent has stayed long in their farming business and had acquired a lot of experience

*Farm size (Ha):*Half of the respondents (44.1%) had farm size ranging between 0.6-1.0 hectares,with the mean farm size of 1.0. This indicates that farmers in the study area are not into large scale farming.

Household poverty status

The summary statistics of the household monthly expenditure on food and non-food items is as shown in table 3. From the table, about 63.8% of the total mean*per capita* expenditure was on food and 36.2% on non-food. The result therefore revealed that more expenditure was incurred in the procurement of food than non-food items. This is in line with Obisesan, (2012);Ike and Uzokwe, (2015) which opined that food is a basic necessity.

Table 4 shows the poverty status of households in Onna Local Government Area. The mean monthly per capita household expenditure was ₦12,615.50, and the two-third of the mean (poverty line) was ₦8,410.3, meaning that any household in the study area with *per capita* monthly expenditure greater than or equal to ₦8,410.3 was considered to be non-poor, while any household with *per capita* monthly expenditure below ₦8,410.3 was considered poor. The incidence of poverty as measured by the headcount index was 0.279. This implies that 27.9% of the sample population is living in poverty. The depth of poverty was 0.072. This implies that 7.2% is the extent to which the poor falls below the poverty line. The severity was 0.028. The result indicates that 2.8% is the distance separating the poor from the poverty line and the inequality among the poor. Therefore, 0.072 of ₦8,410.3 which is ₦605.5 is the amount required to bring an average poor to the poverty line. Since the total number of the poor household in the study area is 28%, the average monthly amount required to bring all the poor to the poverty line is 28 multiplied by ₦605.50 which is ₦16, 954.

Determinants of poverty

The result of Table 5 presents the determinants of poverty among fluted pumpkin farmers in the study area. The diagnostic statistics showed that the improvement of fit made by explanatory variables included in the logistic model (Table 5), as shown by the chi-square statistics of 33.52 which was significant at 1% level of probability implied that the

independent variables included in the model significantly predicted the dependent variable in the logistic regression. On the other hand, the strength of association between the dependent and the independent variables was captured by the Pseudo R-square of 0.4231. This value means that all the explanatory variables included in the model were able to explain about 42.3% of the determinants of poverty.

The parameter estimates in Table 5 indicated that three logit (effect) coefficients- Household size, educational status and non-farm income were significant in predicting whether a respondent in the study area was poor or non-poor. However, Sex, membership of association and farming experience were not significant determinants of poverty.

The result of Table 5 showed that the household size had a positive effect on poverty and 1% is significant level. The logit effect of .579594 indicated that as respondent's household size increased by a factor of .579594, the probability of being poor increased. The odds ratio of 1.785314 means that if a respondent household is increased by 1.785314, his likelihood of being poor will increase by .579594. This confirmed the fact that most dependents will likely contribute less to family income. This result is in line with Olubanyo *et al*; (2003).

Educational status had a negative effect on poverty and significant at 5% level. With a negative logit effect of -.281937 and an odd ratio of .7546557, it means that farmers with higher level of education will have a reductionin their probability of being poor. It also follows that the more educated the household head, the lesser the probability of the household being poor. This is in line with the assertion of Olubanyo *et al.*, (2013); Etuk *et al*.,(2015); Ike and Uzokwe, (2015) and Iheke and Arikaibe,(2015) who opined that increasing the educational level of the poor will also reduce their poverty level.

Non-farm income had a negative effect on poverty and significant at 5% level with a negative logit effect of -.0000391 and an odd ratio of .9999609. This result indicates that if a respondent had a secondary occupation in the non-farm sector, his/her likelihood of being poor will reduce. The odds ratio of .9999609 implies that as respondents non-farm income increases, the likelihood of them becoming poor reduces by -.0000391 percent. This result was in line with the findings of Apata *et al*. (2010) as they asserted that the effects of non-farm income could be an important source of poverty reduction since non-farm income

constitutes a significant share of the total income.

Conclusion

The study showed that about 27.9% of the sample populations are living in poverty and concludes that variables such as; household size, education and non-farm income were the major factors influencing poverty among fluted pumpkin farmers in the study area.

Recommendations

The study recommends that:

- Household heads should try and control their household's size. This could be through the use of modern family planning techniques. This however requires visiting the health centers around them for proper advice.
- Owing to the advantages of formal education, illiterate farmers should be encouraged by the government through adult literacy programmes to acquire formal education.
- Household heads should be encouraged to diversify their source of income in order to increase their income streams; this is because non-farm income is an important source of poverty reduction.

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Table1. Socio-economic characteristics of the respondents

Variables	Frequency	Percentage
Sex		
Female	51	75
Male	17	25
Total	**68**	**100**
Age (years)		
21-30	5	7.3
31-40	21	30.9
41-50	21	30.9
>50	21	30.9
Total	**68**	**100**
Mean	44.0	
Household size		
1-5	35	51.5
6-10	28	41.2
>10	5	7.3
Total	**68**	**100**
Mean	5.8	
Association		
Yes	52	76.5
No	16	23.5
Total	**68**	**100**
Education		
FSLC	13	19.1
SSCE	33	48.5
NCE/Nursing	19	28.0
HND/BSC	3	4.4
Total	**68**	**100**
Primary Occupation		
Farming	49	72.1
Trading	0	0
Civil servant	16	23.5
Private salary job	1	1.5
Catering	2	2.9
Total	**68**	**100**
Secondary Occupation		
Farming	19	34.0
Trading	22	39.3
Civil servant	1	1.8
Private salary job	5	8.9
Fishing	9	16.0
Total	**56**	**100**
Monthly farm income (thousand)		
1-100	52	76.5
101-200	12	17.6
<200	4	5.9
Total	**68**	**100**
Mean	79.9	
Monthly off-farm income (thousand)		
1-100	52	98.1
>100	1	1.9
Total	**53**	**100**
Mean	52.4	

Source: Field Survey, 2016

Table2. Farming characteristics of the respondents

Variables	Frequency	Percentage
Farming experience		
1-5	25	36.8
6-10	23	33.8
>10	20	29.4
Total	68	100
Mean	7.6	
Farm size (hectare)		
0.1-0.5	13	19.1
0.6-1.0	30	44.1
1.1-1.5	13	19.1
1.6-2.0	7	10.3
>2.0	5	7.4
Total	68	100
Mean	1.0	

Source: Field Survey, 2016