

## POVERTY AMONG CASSAVA FARMERS IN OYO STATE, NIGERIA – CHARACTERISTICS AND DRIVERS

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**Abstract.** The significance of rural poverty is underscored by the fact that a high percentage of the national population resides in the rural areas, is poor, and dependent on agriculture. The aim of this study is therefore to analyse the determinants of poverty status among cassava growing households in Oyo State, Nigeria. The specific objectives were to describe the socio-economic characteristics of the respondents, analyse the determinants of poverty status among the respondents, and examine the poverty profile of the respondents based on their income class. Descriptive statistics, Probit Regression analysis and Foster-Greer-Thorbecke (FGT) poverty measures were used to analyse the objectives, respectively. The result shows that number of years spent in school, household size and household assets were found to be the significant determinants of the poverty status of the respondents. Household size had a negative effect on the household's poverty status, while household assets and years of schooling had positive effects on status. The results of the FGT measures show that poverty incidence, depth and severity are higher in the low-income class than in the high-income class. In conclusion, farmers who are members of larger households, those with little or no formal education and those with minimal assets were poorer than others. It is therefore recommended that a family-planning campaign and farmers' educational programs should be intensified in the study area.

**Key words:** per capita income, dependency ratio, household assets, life expectancy

### INTRODUCTION

Poverty can be described as the level of deprivation which includes inadequacies in basic human needs, therefore preventing people from achieving internationally acceptable levels of well-being (Sengul and Tuncer, 2005). This situation has been ascribed in some quarters to production failure owing to suppression of markets and in some other quarters to institutional and distributional failure (Olubanjo et al., 2007; Swastika et al., 2007). Poverty is characterized by disease, low life expectancy, physical and mental retardation. Globally, about 1.2 billion people are in extreme poverty, not living up to a Dollar in a day (IFAD, 2001). Most people that are being deprived are in developing countries with, 44% in South Asia, 24% each in sub-Saharan Africa and East Asia and 6.5% in Latin America and the Caribbean (IFAD, 2001; Babatunde et al., 2008). However, around these areas, poverty incidence are majorly recorded in rural regions, as an average of 67% of the people living on less than one dollar a day (Owuor et al., 2007). In comparison, poverty generally tends to be less severe in the urban area to rural areas (Bird et al., 2002; Owuor et al., 2007).

In Nigeria rural poverty levels are relatively high. For instance, a national poverty survey conducted in 2003 and 2004 indicates that the urban areas have poverty levels estimated at 43.2% while the rural areas have poverty levels that are as high as 63.8% (Federal Republic of Nigeria, 2005; NBS, 2006). The national

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poverty incidence stands at an average figure of 54.7% (NBS, 2006). In recent years, reducing poverty has been of a great concern to many developing countries for the past few decades because of its large prevalence in the region (Babatunde et al., 2008).

Series of studies have shown that agriculture has a great potential of alleviating poverty. Some subsectors of agriculture, particularly the crop subsector, have been found to be very essential in poverty alleviation. Crops like: cocoa, oil palm, cassava, cashew etc. have been termed cash crops from the farmers and the economy as a whole could earn income.

Nigeria is in fact, the largest producer of cassava in the world with an annual output of over 34 million tonnes of tuberous roots (FAOSTAT, 2005). Studies have revealed that cassava has a whole lot of potentials embedded in its production and processing all of which can be enjoyed by cassava farmers, as well as, the nation as a whole. However, despite the increasing rate of cassava production in Nigeria, rural farming households including the cassava growers, are still poor.

According to Babatunde et al. (2008), the prevalence of poverty is higher among aged, small-scale farmers with large household size and households headed by uneducated female (i.e. negative relationship leading to increase in poverty). Other significant factors include age of the house head, access to micro-credit, education, participation in agricultural seminars and livestock assets. Also, female gender, group membership and distance to the market increase the probability of being in abject poverty (Owuor et al., 2007). These variables had the expected signs and were significantly associated with farmers' poverty status. Studies conducted in Nigeria showed different poverty trends in some variables selected based on a prior expectation. For instance, the work conducted by Nzenwa and Oboh (2005), Olubanjo et al. (2007) and Babatunde et al. (2008).

Nzenwa and Oboh (2005) conducted a study on households' endowments on poverty among farmers in Benue State, Nigeria. The results showed that six of the variables were significant in the logit model. These are age and household size which was positively related while education level, house ownership, farm income and off farm income, were negatively related to poverty status in Benue. The result of a research conducted by Olubanjo et al. (2007) shows that farm fragmentation and farming experience showed significant but negative effect with farmers' poverty level while age, level of

education, level of capital borrowing, size of farm lands operated and household size indicated positive effect.

Several studies have been conducted on rural poverty, as well as cassava. However, to the best of our knowledge, there has not been one that specifically considered the determinants of poverty status among cassava-growing household especially in Oyo state, Nigeria. This is the knowledge gap that this study hopes to fill. This study is therefore highly significant. The study has three specific objectives which include: describing the socio-economic characteristics of cassava-growing households in Oyo state; analysing the determinants of poverty status among the respondents and conducting poverty profiling of the respondents based on their income class.

## METHODOLOGY

### The study area

The study was conducted in four local government areas in Oyo state namely Egbeda, Lagelu, Iddo and Oluyole. These areas were purposively selected because they are predominantly rural and agrarian communities where cassava growers and non-cassava growers abound. The state is bounded in the west by Benin republic in the south by Ogun State, in the East by Osun State and in the North by Kwara State. It has a population of about 5.6 million people by the provisional population figure of National Population Commission (2006). Similarly, just as other states in the South western region of Nigeria, Oyo State also experiences two seasons, the dry harmattan and the wet rainy seasons. The weather conditions in the state favour the growth of a variety of food and cash crops. Examples of food crops cultivated in the state include cassava, yam, maize, sorghum, cowpea, soybean, okra, pepper, groundnut, guinea corn, melon and rice while cash crops include cocoa and oil palm.

### Sampling technique

Two-staged sampling technique was used for the study. First stage involved the random selection of four rural communities in each of the selected local government areas. Second stage involved the random selection of 45 households in each rural community of each selected local government area. A total of 180 households were sampled for the purpose of this study. However, out of 180 households that were sampled, 138 questionnaires filled by 74 cassava farmers and 64 non-cassava farmers were found useful for the analysis of the study due to

incomplete and inadequate information in the remaining 42 questionnaires.

### Method of data collection

The data used for this study were primary data, this data were obtained using well-structured questionnaires in conjunction with interview schedule because most of the farmers do not have many years of formal education.

### Analytical techniques

**Descriptive statistics:** descriptive statistics such as mean, frequency, percentage etc. was used to describe the socio-economic characteristics of the respondents.

**Probit regression model:** this was used to analyse the determinants of poverty status of the cassava-growers in Oyo state, Nigeria

$$P_i = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, X_9, ei)$$

where:

- $P_i$  = Poverty status (Poor = 0/Non-poor = 1)
- $X_1$  = Gender of household head
- $X_2$  = Age of household head (years)
- $X_3$  = Years of schooling
- $X_4$  = Farming experience
- $X_5$  = Household size (adult equivalent)
- $X_6$  = Farm size (ha)
- $X_7$  = Access to credit (yes = 1/no = 0)
- $X_8$  = Household assets (₦)
- $X_9$  = Participation in cassava farming (yes = 1/no = 0)
- $ei$  = Error term

Foster, greer and thorbecke (FGT) poverty measures: The FGT poverty measures were used to examine the poverty profile of cassava growers based on their income class. The Foster, Greer and Thorbecke (FGT) poverty decomposition model was used to estimate the poverty head count (Incidence), poverty depth and poverty severity i.e.  $P_0$ ,  $P_1$  and  $P_2$  respectively. The three measures are based on a single formula but each index puts a different weight on the degree to which a household or individuals fall below the poverty line.

The FGT poverty index is given by:

$$P_\alpha(y, z) = \frac{1}{2} \sum_{i=1}^q \left( \frac{z - y_i}{z} \right) \quad (1)$$

where:

- $n$  = total number of households in population
- $q$  = the number of poor households

$z$  = poverty line for the household

$y_i$  = household income

$\alpha$  = poverty aversion parameter and takes on value 0, 1, 2

$\frac{z - y_i}{z}$  = proportion shortfall in income below the poverty line

$$P_1 = \frac{1}{2} \sum_{i=1}^q \left( \frac{z - y_i}{z} \right) \quad (3)$$

This is called Poverty depth or Poverty gap index, which measures the extent to which individuals fall below the poverty line as a proportion of the poverty line.

$$P_2 = \frac{1}{n} \sum_{i=1}^q \left( \frac{z - y_i}{z} \right)^2 \quad (4)$$

This is called Poverty severity index which measures the squares of the poverty gaps relative to the Poverty line.

**Construction of Poverty Line:** This was done to categorize the respondents into poor and non-poor groups using the two-third mean per-capita income as the benchmark, which was adopted from the studies carried out by households whose mean per-capita income falls below the poverty line, and are regarded as being poor while those with their per-capita income above the benchmark are non-poor.

## RESULTS AND DISCUSSION

### Socio-economic characteristics of the respondents

The results in Table 1 show that the mean age of the respondents was 54. This implies that youth are not much engaged in agricultural practices in the study area. This is quite similar to the results of Oni and Olaniran (2010) in rural Oyo State and Fakoya et al. (2010) in Ondo State, where the average age of the respondents (farmers) was about 49.67% of the respondents are male; this implies that males are engaged in farming more than their female counterparts. The average number of years spent in schooling by the farmers is about 9. The average farm size of the respondents is 2.13 ha. The average farming experience of the respondents is 31 years. The mean household size is 5. The average monthly per capita income of the cassava growers' household is ₦ 8,629 while, the average monthly per capita income of the Non-cassava growers' household is ₦ 5,684. This implies that

**Table 1.** Summary statistics of the socioeconomic characteristics of respondents

**Tabela 1.** Podsumowanie statystyczne społeczno-ekonomicznych cech respondentów

Factor Czynnik	Cassava farmers – Mean Rolnicy uprawiający maniok – średnia (N = 74)	Non-cassava farmers – Mean Rolnicy nieuprawiający manioku – średnia (N = 64)	Pooled Łącznie (N = 138)
Age (years) Wiek (lata)	56.14 (11.39)	51.36 (10.36)	53.92 (11.24)
Gender Płeć	0.70 (0.46)	0.63 (0.49)	0.67 (0.47)
Educational level of household head Poziom wykształcenia głowy rodziny	9.34 (3.16)	9.14 (3.22)	9.25 (3.18)
Farm size (ha) Wielkość gospodarstwa (ha)	2.26 (1.69)	1.98 (1.12)	2.13 (1.46)
Farming experience (years) Doświadczenie w gospodarstwie (lata)	33.15 (13.88)	28.59 (9.39)	31.06 (12.19)
Dependency ratio Stosunek zależności	1.15 (0.82)	0.94 (0.47)	1.05 (0.69)
Household size Wielkość gospodarstwa domowego	4.87 (1.45)	5.14 (1.35)	4.99 (1.40)
Per capita income (#'000) Przychód na osobę (#'000)	8.629 (6.797)	5.684 (2.447)	7.263 (5.435)
Per capita expenditure (#'000) Wydatki na osobę (#'000)	8.182 (3.695)	7.279 (2.626)	7.477 (3.363)

Figures in parenthesis represents the standard deviation.

Source: survey data analysis, 2014.

Liczby w nawiasach oznaczają odchylenie standardowe.

Źródło: analiza danych ankietowych, 2014.

the cassava growing households generate more income than their non-cassava growing counterparts.

### Determinants of poverty status of cassava growers in Oyo state

The results of the Probit regression model showed that three explanatory variables were significant, while the other six were insignificant. The years of schooling of household head, household size and household assets were found to significantly affect the poverty status of the respondents in the study area. Household size and household assets were significant at 1% level respectively while education of the household head's was significant at 5% level. The household size has negative effect on the poverty status of the household i.e. the larger the household the greater the probability of being poor.

However, as educational level of household head's increases, the probability of being poor is reduced. Thus, the poverty level of the household is reduced as the household acquires more education. Similarly, the larger the farm size, the lower the probability of being poor. Also, it shows that the more assets the household has, the lesser the probability of being poor in the study area.

The study also revealed that increase in household size increased the probability of being poor. This implies that a large household may not be able to sufficiently meet its need as there are more members of the household to be cared for. Moreover, gender, age, farming experience, access to credit and participation in cassava farming respectively were not significant factors in the determination of poverty status among the respondents in the study area.

**Table 2.** Probit regression results on factors affecting poverty status

**Tabela 2.** Probitowe wyniki regresji czynników wpływających na stan ubóstwa

Factor Czynnik	Coefficient Współczynnik	t-value Wartość t
Gender Płeć	0.369	1.14
Age Wiek	0.042	1.57
Years of schooling Lata nauki	0.120**	2.28
Farming experience Doświadczenie w gospodarstwie	-0.032	-1.34
Household size Wielkość gospodarstwa domowego	-0.532***	-4.55
Farm size Wielkość gospodarstwa	0.166	1.32
Access to credit Dostęp do kredytu	0.299	-0.93
Household assets Zasoby gospodarstwa domowego	1.48e-06***	2.79
Cassava farming (tes = 1) Uprawa manioku (tak = 1)	0.150	0.51
Constant Stała	-0.499	-0.40

\* Significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%.  
Source: survey data analysis, 2014.

\* Poziom istotności 10%, \*\* poziom istotności 5%, \*\*\* poziom istotności 1%.

Źródło: analiza danych ankietowych, 2014.

### Poverty profile decomposition of respondents

From Table 3 it can be deduced that poverty incidence ( $P_0$ ), depth ( $P_1$ ) and severity ( $P_2$ ) among the low income class (< ₦ 10,000) is higher than that of the middle income class (₦ 10,000–20,000) and the high income class (> ₦ 20,000) for both cassava and non-cassava growers. The result of poverty decomposition shows that poverty incidence is generally higher among non-growers of cassava than the growers of cassava. This implies that growing cassava helps reduce poverty incidence among farming households. 67%, 68% and 50% of the low, middle and high income class of the cassava

**Table 3.** Poverty profile decomposition of respondents based on their income class

**Tabela 3.** Rozkład profili ubóstwa respondentów na podstawie klasy ich dochodów

Income class Klasa dochodów	Cassava-growers Rolnicy uprawiający maniok			Non cassava growers Rolnicy nieuprawiający manioku		
	$P_0$	$P_1$	$P_2$	$P_0$	$P_1$	$P_2$
< ₦ 10,000	0.67	0.68	0.66	0.81	0.53	0.40
₦ 10,000–20,000	0.68	0.56	0.49	0.67	0.34	0.18
> ₦ 20,000	0.50	0.20	0.11	0.54	0.20	0.09

Source: field survey, 2014.

Źródło: badania ankietowe, 2014.

growing households were poor. 81%, 67% and 54% of the low, middle and high income class of the non-cassava growing households were poor.

### CONCLUSION

The drivers of poverty in the study area are: household size, number of years spent at school and access to assets. Farmers that are members of larger households, those that had little or no formal education, as well as those with minimal assets, were found to be poorer than their counterparts.

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## UBÓSTWO ROLNIKÓW UPRAWIAJĄCYCH MANIOK W OYO STATE, NIGERIA – CHARAKTERYSTYKA I PRZYCZYNY

**Streszczenie.** Występowanie ubóstwa na obszarach wiejskich ma tym większe znaczenie, że zamieszkuje je duży procent populacji, panuje tam bieda i powszechna zależność od rolnictwa. Celem artykułu było wskazanie czynników ubóstwa rolników uprawiających maniok w stanie Oyo, w Nigerii. Do celów szczegółowych zaliczono: socjoekonomiczną charakterystykę respondentów, analizę czynników ubóstwa oraz określenie profilu ich ubóstwa na podstawie poziomu dochodów. W celu przeprowadzenia odpowiedniej analizy zastosowano statystyki opisowe, analizę regresji logistycznej oraz miarę FGT (Foster-Greer-Thorbecke). Jak wskazują wyniki, liczba lat nauki, wielkość gospodarstwa domowego oraz jego zasoby to kluczowe czynniki wpływające na status ubóstwa respondentów. Wielkość gospodarstwa domowego ma negatywny wpływ na sytuację ekonomiczną, podczas gdy posiadane zasoby i lata nauki oddziałują pozytywnie. Miary FGT pokazują, że występowanie ubóstwa, jego stopień i wielkość zależą wprost od poziomu dochodów. Podsumowując, rolnicy prowadzący większe gospodarstwa domowe, słabo wykształceni (lub bez wykształcenia) oraz ci, którzy dysponują najmniejszymi zasobami, są biedniejsi niż pozostali. Zaleca się zatem zintensyfikowanie na badanym obszarze kampanii dotyczących planowania rodziny oraz programów edukacyjnych dla rolników.

**Słowa kluczowe:** przychód na osobę, współczynnik obciążenia, zasoby gospodarstwa domowego, długość życia

Accepted for print – Zaakceptowano do druku: 06.05.2016