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# Factors Associated with Poverty Status Among Women Cassava Processors In Ogbomoso Agricultural Zone of Oyo State, Nigeria

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**Key words:** Poverty, cassava processing, FGT, education, capita expenditure

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**Abstract:** This study analyzed the level of poverty among women cassava processors in Ogbomoso Agricultural Zone of Oyo State, Nigeria. A multi-stage sampling method was employed to select one hundred and eighty (180) women cassava processors. Primary data were collected through a well structured interview schedule and the data collected were subjected to descriptive, poverty, budgetary and ordinary least squares regression analyses. Findings revealed that the mean age of respondents was 43 years while 25.6% of them had no access at all to formal education. Majority (82.2%) of the processors were married with a mean household size of 8 members. Averagely, the per capita expenditure per month was N3, 503.22 for respondents. The moderate poverty line for processors was found to beN2, 335.48 while the core poverty line was N 778.49 per month. The poverty headcount, poverty gap index and severity index of the respondents were 35.6, 10.4 and 4.3%, respectively. Based on result of data analysis, 35.6% of the processors were categorized as poor while 64.4% were categorized as non-poor. Age, Level of education and Household size had significant effects on poverty level of respondents. The BCR of 1.54 revealed that cassava processing is a profitable enterprise in the study area. Processors are encouraged to form cooperative groups/trade union through which they could jointly invest in modern processing facilities and organize educational workshops/seminars for member's benefit.

## INTRODUCTION

In Nigeria, cassava is generally believed to be cultivated by small-scale farmers with low resources (Ezebuiro *et al*., 2008). It plays a major role in the efforts to alleviate the food crisis in Africa. Cassava as a source of income to rural farmers and a means of combating famine in Nigeria and particularly Oyo State cannot be over emphasized. It has a fair resistance against pests and diseases thus making it a food security crop. Its products like pupuru flour, garri, lafun, fufu/akpu, to mention a few are very easy to prepare and are totally viewed as food

which take longer time before one gets hungry again especially for those that undertake rigorous work in Nigeria. Nigeria is one of the countries of the world that has greater number of poor people. Poverty is especially severe in rural areas where up to 80% of the population lives below the poverty line and social services and infrastructure are limited. The country's poor rural women and men depend on agriculture for food and income.

The cassava crop (Manihot esculeta or Manihot utilissima) believed to have originated from Brazil and introduced into West Africa by the Portuguese is considered the most productive crop in the tropics. Cassava unlike other roots is a long duration crop that is particularly tolerant to drought conditions and can be stored in the ground for up to 36 months (Sanni, 2005). This is why cassava has been called the 'famine security crop'. These good qualities allow the cassava farmers some flexibilities in their work schedules, hence their relative ease of growing cassava with other crops (Alabi and Oviasogie, 2005). Cassava is a major cash crop for most of the farmers in Nigeria. Next to Zaire, Nigeria is the second largest producer of cassava in the world and it is one of the food crops on which several part of the world look up to Nigeria for leadership in research and production. It is a major crop of the humid tropics and production in Nigeria accounted for about 35% of the total output of Africa (FAOSTAT, 2005).

Processing of cassava into different products and its availability all year round makes it an important staple food crop for Nigerian households especially in rural sector. The processing of cassava into different products is a tedious activity which requires several stages of processing. Introducing modern equipments for processing is at a cost which the individual processor may not have the means to acquire. Any increase in the cost of processing will consequently affect the marketing of the processing goods. In the agricultural sector in Nigeria, cassava processing is a fairly large industry. This is because cassava from which these products are derived is commonly and widely cultivated throughout the country. Cassava products are categorized among the commonest and cheapest sources of dietary carbohydrate in Nigeria. They are steadily demanded and widely consumed both in the rural and urban areas across all income groups; low, medium and high. Garri, one of the most common cassava products, is produced following harvesting of cassava, peeling, grating, dewatering, fermentation (optional), sieving, frying and bagging.

Cassava processing provides job for a large number of people living in both the rural and urban areas. Cassava products have steady national demand pattern all-year-round in Nigeria. Seasonal variability in cassava product's prices is low and highly rational since they can be produced throughout the year. Over the years, cassava has undergone many modifications in terms of consumable products which have added variety to its food value. These include: garri, the traditional product, fufu/akpu which has assumed a national spread in consumption tapioca, a delicacy among the Urhobos, Itsekiris and Ijaws of the Niger Delta, cassava chips, (mbuba/bobozi) boiled cassava; very popular among the Ibos of the South East, cassava flour (lafun) a very popular food among the yorubas of the South West and starch (usi) highly cherished food among the people of Niger Delta.

Nigeria has experienced a high incidence of poverty in the last two decades and this is concentrated mostly in the rural communities. People living in the rural communities adopt peasant agriculture as common agricultural practice (Egeonu, 2005). Despite the huge natural resources, poverty is widespread in Nigeria. However, poverty can be reduced drastically if the prevailing social and political conditions are conducive for foreign investments. In flow of foreign investments cannot materialize in an environment of political and economic instability.

The overall objective of the national policy on Integrated Rural Development is drawn from the objectives of developing the rural people, alleviating rural poverty and using rural development to contribute to laying solid foundation for national development. These objectives are inadequate in terms of accessibility and availability and they have not been well circulated and goals are yet to be accomplished. Some of the objectives are to ensure significant reduction of poverty and ultimately its eradication in the shortest possible time and to develop the rural areas and raise the quality of life in rural communities through the provision of rural feeder roads, potable water, sanitation, regular power supply, good health facilities and other socio-economic facilities. The intent of the initiative was to use cassava as the engine of growth geared towards making it a major export crop in Nigeria (Obabire, 2008).

Although there is no universal definition of poverty, everyone seems to agree that it exists when one or more person (s) fail to attain a level of well-being deemed to constitute a reasonable minimum by the standards of that society. Poverty can be described as the level of deprivation that encompasses shortfalls or inadequacies in basic human needs which prevent people from achieving internationally acceptable levels of well-being. This situation which has been ascribed in some quarters to production failure owing to a suppression of markets and in some other quarters to distributional failure (Dasgupta, 1998) is characterized by disease, low life expectancy and physical and mental retardation. Consequently, absolute poverty reflects the condition of people who live below the poverty line or are too poor to obtain a

calorie-adequate diet and as such do not have enough energy to earn a living. Empirical evidences on the nature of poverty among farming households and the extent of influence of the source of income on agricultural poverty and income inequality are quite essential for sound policy choices, programme (and reform) management and welfare improvement in Nigeria. This of necessity entails the need to ascertain the incidence, depth and severity of poverty among farming households and the influence of economic, social and demographic variables on poverty.

In the light of this investigating, the poverty level of women cassava processors in Ogbomoso Agricultural Zone is of great interest, as they are part of farming households and cassava value chain actors.The main objective of the study is to categorize the processors according to their poverty status. The specific objectives are to examine the socio-economic characteristics of women cassava processors in the study area,compute poverty indices for women cassava processors, categorize the processors according to their poverty status, examine the profitability of cassava processing enterprise in the study area. The study tested a null hypothesis that there is no significant relationship between selected socio-economic characteristics of women cassava processors and their poverty index.

## MATERIALS AND METHODS

The study was carried out in Ogbomoso Agricultural Zone of Oyo State in Nigeria. Oyo State is located in the South-Western part of Nigeria. It comprises of 33 local government areas with an estimated population of 6,617,720. Ogbomoso Agricultural Zone is one of the four agricultural zones in Oyo state. The zone was purposively chosen because it contains many cassava processing units. The estimated population of Ogbomoso was 657,412. Ogbomoso lies on 80 10' North of the Equator and 40 10' East, of the Greenwich meridian. The town lies within the derived savannah region and has a fairly high uniform temperature, moderate to heavy seasonal rainfall and high humidity. The mean annual temperature is 26.2°C. The highest degree of temperature is experience in March with a mean of 28.7°C while the lowest degree of temperature is experienced in August with a mean of 24.3°C. The mean annual rainfall is 1,247 mm.

Population of the study comprisesall women cassava processors in Ogbomoso Agricultural zone of Oyo state, Nigeria. The zone consists of Ogbomoso North, Ogbomoso South, Ogo-Oluwa, Suurulere and Oriire Local Government Areas (LGAs). According to the Agricultural Development Project (ADP) categorization, each LGA represents a block and each block has (8) cells. Multi-stage sampling technique was employed to select the respondents. In the first stage, (3) blocks were randomly selected out of the (5) blocks in the study area. These include Ogbomoso North, Ogbomoso South and Ogo-oluwa. In the second stage (3) cells were chosen from each of the blocks. These include Aje-Ikose, Kinnira and Randa fromOgbomoso North, Kajola, Araada and Gaa-Lagbedu from Ogbomoso South, Ajaawa, Pontela-akinola and Ajelanwa from Ogo-Oluwa. In the third stage (9) cassava processing centers were proportionately selected. Three processing centers were sampled in each of the cells. Finally, a total number of 180 women cassava processors formed the sample of the study. Primary data were collected from the selected cassava processors through a well structured interview schedule. Data collected were subjected to descriptive analysissuch as frequency counts, tables, percentagesto analyze socio-economic characteristics of respondents, Foster Greer Thorbecke (FGT) analysis to investigate poverty level, budgetary analysis to examine profitability of cassava processing enterpriseand the ordinary least squares regression analysis to test the hypothesis of the study. The implicit Equation is as follows:

$$P = f\left(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8\right)$$

Where:

P = Per capita expenditure
$X_1$ = Age of household head (years)
$X_2$ = Education
$X_3$ = Marital status
$X_4$ = Household size
$X_5$ = Source of finance
$X_6$ = Years of experience
$X_7$ = Household access to electricity
$X_8$ = Household access to water

FGT Model was used to measure the poverty level. The Equation is as follows:

$$P_\alpha = \frac{1}{N}\sum_{i=1}^{N}\left[\frac{Z\text{-}Yi}{Z}\right]\alpha$$

Where:

Z = The poverty line
q = The number of individuals below poverty line
N = The total number of individuals in the reference population
Yi = The expenditure/income of the household in which individual lives
α = Forster-Greer-Thorbecke (FGT) index and takes on the values of 0, 1 and 2
α = 0 gives the poverty incidence
α = 1 the depth of poverty
α = 2 the severity of poverty

Budgetary Analysis was used to investigate profitability of cassava processing enterprise:

- Total Revenue (TR) = Price x Quantity of the product
- Total Cost (TR) = Total variable cost (TVC)+ Depreciated fixed cost (DFC)
- Gross Margin (GM) = TR-TVC
- Profit (Net return) = Gross Margin-Depreciated Fixed Cost

The profitability ratios estimated include:

- Benefit Cost Ratio (BCR) =∑TR÷∑TC
- If BCR>1, then the business is profitable; BCR<1, then the individual has incurred a loss
- Rateof Return Ratio (RRR)= Net Return ÷Total Cost
- The higher the rate of return ratio, the more is the financial empowerment for further business venture and vice versa. It represents the return of cash to the business
- Expenses Structure Ratio (ESR) = Fixed Cost ÷Total Cost
- LowESR is an indicator of a healthy business venture. High ESR heightens the variable cost and hence dampens the business expansive effort
- Gross Margin Ratio (GMR) = Total Revenue÷Net Revenue
- If the GMR>1, the business is profitable; GMR<1, the business is unprofitable
- GRR = Total Cost÷Total Revenue
- If the GRR>1, the business is unprofitable, otherwise the business is profitable

## RESULTS AND DISCUSSION

**Socio-economic characteristics of respondents:** Table 1 showed that 41.1% of the processors were aged between 41-50 years, 2.2% were over 60 years with mean age of 43 years. The categories of families having household members between 6 and 10 members constituted about 46.7% of all the respondents and 26.4% had greater than 10 members in the household. The mean household size for the processors was 8 members. Result of analysis revealed that 82.2% of the processors were married while 1.1% was divorced. More than half (57.8%) of the processors had primary school education while 3.3% had tertiary education. The mean years of processing experience was 10 years. Result showedthat 67% of cassava processors earned below N40, 000 per month and 30.6% of the cassava processors earned above N 40,000 per month. The average income of the women cassava processors was N 30,817 per month.

**Poverty indices of women cassava processors:** Result of analysis revealed that the total monthly expenditure for the respondents was N2, 590,225. The respective mean per capita expenditure (MPAEHE) per month was N3, 503.22 while the moderate poverty line was N2, 335.48 for respondents. Any adult processor spending less than N2, 335.48 per month on consumption is described as poor relative to other processors. The core poverty line (1/3) was N778.49 per month for the respondents. The incidence of poverty (or poverty head-count) was 0.356 while the poverty gap or depth (P1) was 0.104. The poverty severity index was 0.043 for the respondents.

Table 1: Socio-economic characteristics distribution of respondents, n = 180

| Variables | Frequency | Percentage |
|---|---|---|
| **Age** | | |
| 20-30 | 12 | 6.6 |
| 31-40 | 62 | 34.5 |
| 41-50 | 74 | 41.1 |
| 51-60 | 28 | 15.4 |
| >60 | 4 | 2.2 |
| **Household size** | | |
| 1-5 | 48 | 26.6 |
| 6-10 | 84 | 46.7 |
| >10 | 48 | 26.6 |
| **Marital status** | | |
| Single | 0 | 0.0 |
| Married | 158 | 82.2 |
| Widowed | 8 | 4.4 |
| Divorced | 2 | 1.1 |
| Separated | 22 | 12.2 |
| **Educational status** | | |
| No formal schooling | 46 | 25.6 |
| Primary school | 104 | 57.8 |
| Secondary school | 24 | 13.3 |
| Tertiary school | 6 | 3.3 |
| **Years of experience** | | |
| <10 | 122 | 67.8 |
| 11-20 | 50 | 27.8 |
| 21-30 | 6 | 3.3 |
| >30 | 2 | 1.1 |
| **Income/month** | | |
| 1000-20000 | 58 | 32.2 |
| 20001-40000 | 66 | 36.7 |
| 40001-60000 | 42 | 23.3 |
| 60001-80000 | 126.6 | |
| 80001-100000 | 2 | 1.1 |

Table 2: Poverty status distribution of processors

| Poverty category | Frequency | Percentage |
|---|---|---|
| Poor | 64 | 35.6 |
| Non-poor | 116 | 64.4 |
| Total | 180 | 100.0 |

Field survey (2014)

**Poverty status of women cassava processors:** Table 2 categorized the processors according to their poverty status. This analysis revealed that 35.6% of the processors were poor while 64.4% of the processors were non-poor. This implies that majority of the processors are not poor.

**The cost and returns associated with cassava processing enterprise per month:** Table 3 showed that on the average, women cassava processors in the study area incurred a fixed cost of N288.89 per month and a

Table 3: Summary of budgetary analysis of respondents

| Variables | Mean value (N) |
|---|---|
| **Variable cost components** | |
| Raw cassava | 11,2842.22 |
| Peeling | 5,206.67 |
| Grating | 8,456.00 |
| Frying | 4,288.89 |
| Transportation of raw cassava | 2,196.78 |
| Transportation of cassava product | 511.11 |
| Firewood | 4,982.22 |
| Communication | 1,090.67 |
| Shop rent | 45.37 |
| Borrowing of frying pan | 640.00 |
| Total variable cost | 140,260.93 |
| Depreciated fixed cost (frying pans/fryer, pressing machine) | 288.89 |
| Total cost | 140,549.82 |
| TR | 217,125.80 |
| TC | 140,549.87 |
| GM | 76,864.87 |
| NR | 76,575.99 |
| BCR | 1.545 |
| RRR | 0.545 |
| ESR | 0.002 |
| GMR | 2.835 |
| GRR | 0.647 |

Computed from Field Data (2014)

Table 4: Relationship between poverty index and socio-economic characteristics of respondents

| Variables | Coefficients | t-ratio |
|---|---|---|
| Constant | -1.140 | -0.666 |
| Age | 0.112 | 1.756* |
| Educational status | -0.001 | -1.853* |
| Marital status | 0.338 | 1.515 |
| Household size | -0.046 | -3.931*** |
| Source of finance | 0.026 | 1.195 |
| Years of experience | 0.013 | 1.005 |
| Access to electricity | 0.184 | 1.021 |
| Access to water | 0.122 | 0.663 |

Adjusted $R^2$ = 0.730; f value = 39.40***; ***1% significant level, *10% significant level; Field survey (2014)

variable cost of N140, 260.93 but have total revenue of N217, 125.80 per month. This indicates that a processor earned N76, 864.87 as gross margin and a profit of N76, 575.98 per month. Moreover, the BCR for processor was 1.545. This showed that they made profit in their business. Also the RRR was 0.545. This means that they have financial empowerment for further business venture. The ESR was 0.002. This is an indicator of a healthy business venture. The GMR was 2.835. This showed that the business is profitable. Finally, the GRR was 0.647 which revealed that the business is financially healthy in the study area.

**Result of regression analysis:** Table 4 revealed that age, level of education and Household size of respondents were significant variables affecting poverty status among cassava processors in the study area. The adjusted $R^2$ for the relationship was 0.730 meaning that the explanatory variables had 73.0% decisive influence on the poverty status of respondents. The f value was 39.40 and significant at 1%, indicating the goodness of fit of the model. Age is significant at 10% and has a positive relationship with poverty level of respondents which indicates that as respondents grow older, the tendency to be poor gets higher. Educational status is also significant at 10% but has a negative relationship with poverty level of respondents. This is an indicator that respondents with more formal education are less likely to be poor. Household size of respondent is significant at 1% and has a negative relationship with poverty level. This is an indicator that respondents with larger household size are less likely to be poor. This may have to do with the probability of more members working and bringing income into the household. The household members are also a source of free family labour in cassava processing activities.

## CONCLUSION

This study concluded that many of the women cassava processors in the study area belong to the non-poor category. Age, Level of education and Household size had significant effects on poverty level of respondents. Cassava processing is a profitable enterprise in the study area. The study recommends that cassava processors should form trade union/cooperative groups through which they could work together with agricultural extension agents to organize educational workshops and seminars with the aim of improving the educational status of members. The union/group should also invest in modern cassava processing facilities in order to improve profitability and lift more of the processors above poverty line.

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