



## Determinant of Cassava Derivatives Utilization among Farmers in Ibarapa Communities of Oyo State, Nigeria

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### Abstract

*Subsistence farming contribute majorly to GDP of most agricultural commodity in developing country like Nigeria; with focus on consumption and surplus for commercial sales. The study investigates household utilization of cassava derivatives in contrast to commercial sales among cassava farmers in Ibarapa Communities of Oyo State, Nigeria. The study specifically examined the socio-economic characteristics of cassava farmers; analysed utilization of cassava derivatives among cassava farmers in the study area and identify factors responsible for farmer's cassava derivatives utilization in contrast to commercial sale of cassava tuber in the study area. The study employed systematic sampling technique in selecting 120 cassava farmers from Four (4) communities in Ibarapa area of Oyo State based on characteristics of interest, nearness and other related features. Analytically; descriptive statistics and multiple regression analysis were used to determine factor that determine commercial sale of cassava tubers and its derivatives in leu of household utilization among cassava farmers in the study area. The results showed that the mean age of the cassava farmers was estimated to be 40 years with a mean farming experience of 14 years. Respondents are mostly married with average of 5 persons per households. In respect to determining factors that influence farmers cassava derivatives utilization in leu of commercial sale; value/price of output, farm size, sex, nearness to market, membership of cooperative and farming experience was significant at varying degree. The study recommends, support policies that sustain and improve the productivity among farmers especially land tenure policy, incentives policies for farmers; linkages between farmer and the markets; increase access and exchange of information on markets of cassava derivatives and tuber.*

**Key words:** Cassava Derivatives, Household Utilization and Commercial Sales.

### Introduction

Cassava (*Manihot esculenta*) is an important staple food and cash crop in most developing world, providing basic diet to more than half billion people (Food and Agriculture Organization, 2011). A large population of Nigerians depended on daily basis of it as their main dish. Therefore, its comparative production advantage over other staple serves to encourage its cultivation even, by the resource poor farmers who constitute over 80% of all farm holdings in Nigeria (FAO, 2000). Increasing demand, usage and economic value of cassava has nearly doubled the worldwide production of cassava for the last 30 years, reaching 213 million tonnes in 2005 (International Institute of Tropical Agriculture, 2009).

Commercialization of household agriculture in Nigeria is a smooth conduit to increasing the productive capacity of smallholder farmers to

reduce poverty; economic recovery, growth and development.

The definition of commercialization adopted in this work is based on market participation and orientation. In the view, a farm household is assumed to be commercialized if it is producing a significant amount of cash commodities, allocating a proportion of its marketable commodities, or selling a considerable proportion of its agricultural outputs. In this context, cassava commercialization is seen as the aggregate of household surplus presented by smallholder farmers in the market for acquisition and income. Increasing per capita food production and raising rural incomes are arguably the greatest challenges facing Sub-Saharan Africa and the developing world more generally. It is a general understanding that food security is constrained by gap in food supply and food demand. Many researchers have highlighted the challenges of agricultural and cassava



productivity. Cassava is generally believed to be cultivated by small scale farmers with low resources, these smallholders, and mostly subsistence producers' account for 80% of all farm holding in Nigeria. This limits their ability to compete favourably with the remaining 20% medium and large-scale commercial farmers in Nigeria and other countries that have attained the desired allocative/economic and technical efficiency in cassava production. Today, agriculture has metamorphosed into a competitive business and it is difficult to imagine that Nigeria can achieve its food security policy and other economic objectives (Commercialization) while enhancing the productivity capacity of household farmers who constitute a large chunk of the market participants to improve cassava production and marketing, or checking out the effect that will be the result of enhancement on utility and factors of production in their farm. This has made the consideration of this study necessary, because most of these small-scale cassava farmers sell bulk of their produces directly or indirectly to cassava industries.

Cassava products are increasingly becoming popular in Nigerian food and agricultural markets due to value-chain activities through industrial innovations. Thus, it provides a strong incentive for more economic agents to be involved in the cassava market. Howeler, (2012), quoted that close to 84% of domestic cassava production is available for consumption while the remaining 16% is available for industrial use in Nigeria with a caveat that more proportion could go into the industrial sector in future. However, the literature seems scarce on the trend of cassava production in Nigeria with clear calibration for the trends in cassava commercialization effect on the local or household utility, and on the production facilities, as well as the income of small-scale products.

Therefore, this study questions what will the effect of cassava commercialization on the local utilization and its product, considering the fact that most cassava producers are smallholders who cannot afford intensive production sets snags on the path of cassava revolution in Nigeria. To put it more pithily, expanding cultivation area to increase cassava output may not be sustainable in the long run because as industry grows, there will be higher demand for labour and land by the

industrial sector expected to come from those working in agricultural sector and agricultural land respectively. In view of the above stated problem, the following research question were raised:

- i. What are the socio-economic characteristics of cassava farming households in Ibarapa Communities of Oyo State?
- ii. What is/are the cassava derivatives among farmers in the study area?
- iii. What are the factors responsible for cassava derivatives utilization at household level and commercial sales in the study area?

### Objectives of the Study

The broad aim of the study was to ascertain the factors responsible for cassava derivatives utilization at household level in contrast to commercial sale in Ibarapa Communities of Oyo State.

While the specific objectives are to;

- i. Identify demographic characteristics of cassava farming households in Ibarapa Communities of Oyo State.
- ii. Determine household utilization and quantity of the identify cassava derivatives.
- iii. Identify the factors responsible for cassava derivatives utilization at household level in contrast to commercial sales in the study area.

### Methodology Study Area.

The study was carried out in Ibarapa communities of Oyo State, Nigeria. The area is made up of Ibarapa East, Ibarapa Central and Ibarapa North Local Government Areas (LGAs) in the south western part of Oyo State. The study area comprises seven major towns. The vegetation of the area is largely savannah, thus allowing the cultivation of wide array of arable particularly cassava production. The rainfall patterns in the study area follows a tropical pattern with an annual rainfall ranging from 1000m-143mm and fairly high temperature. The occupation of the people is largely farming (predominantly subsistent farming) with some pocket of commercial farming.

### Population of Study

The population of the study comprised of cassava farmers in Ibarapa Communities of Oyo State, the study area.



### Sampling Frame

The sampling frame for the study comprised of cassava farmers within the ambient of the target population randomly selected within the study area.

### Method of Data Collection

Data for the study was obtained mainly from primary sources using a set of well-structured questionnaires assisted with interview schedule to take care of the illiterate respondents.

### Sampling Procedure and Sample

A multistage sampling technique was used.

1st stage: Purposive sampling techniques was used at the first stage of the sampling procedure to sample three (3) block making the seven (7) communities in the study area namely; Ibarapa East, Ibarapa Central and Ibarapa North. The communities are Lanlate, Eruwa, Igboora, Idere, Tapa, Aiyete and Igangan. Within each of the block is located a branch of Nigeria Cassava Grower Association.

2nd stage: At the second stage of the sampling procedure 50% of block were selected randomly. The block selected were Ibarapa Central and Ibarapa North.

3rd stage: At the third stage, list of cassava farmer under the umbrella of Nigeria Cassava Grower Association (NCGA) in the selected block was harvested from the appropriate quarter. The following numbers of NCGA members were obtained. The number of active cassava farmers from the blocks register were 1,520 and 890 farmers respectively.

Five percent (5%) of the cassava farmers was systematically selected to have 76 cassava farmers from Igboora block and 44 cassava farmers from Ibarapa North block, making a total sample size of one hundred and twenty respondents.

### Results and Discursion

#### Socio Economics Characteristics of the Respondents.

Result on table 1; revealed 67.7% of the respondents were male while, 30.3% of the respondents were female. The results show that male respondents are more responsive and active to their responsibility among farming household in the study area.

Furthermore, the mean age of the household heads in the study area was analysed to be 51 years with minimum and maximum of 20 years and 80 years respectively. This implies that most of the respondents are of age, active and have strength for farming activities. Likewise, the result from the marital status showed that 3.3% of the respondents are single, 85% of them are married, while 10% of the respondents are divorced.

More so, the results on educational status shows that 46% of the respondents had primary education, 6.7% of the respondents had secondary education while 54.6% of the respondents had no formal education. Literacy from the study area is matter of concern; as it can be inferred that the highest level of education had by average (54.6%) of the respondents sampled is secondary education, though, enlightened them to read and write but not to satisfactory level of modern innovation of the 21st century on best international practices in agriculture.

In terms of household number as shown on Table 1; 26.1% of the respondents have household size between 1-5 person, 68% of the respondents have household size of 6-10 while, 5.8% of the respondents have household size of 11-13 members. From the result it can be inferred that most (68%) of the farm family in the study area are of large size signifying the positive effect of the larger number of family size on labour force in farm activities.

The average farm size of cassava cultivation was revealed to be 5 hectares per household with minimum of 3 hectares and maximum production/cultivation of 11 hectares. From the study it can be deduced that the level of cassava production is on increased and possible on subsistence production and cater for surplus for commercial sales.

From the study it was revealed that the average yield per hectare is estimated to be 25 tonnes. With minimum yield of 10 tonnes and maximum yield of 40 tonnes based on factors such as land fatality and management practices.

All of the respondents (100%) produces at the subsistence level of production, meeting firstly the need of consumption while, majority 81.6% also target surplus for commercial sales.



**Table 1: Socio-economic Characteristic of Cassava Farming Household (n = 120)**

| CHARACTERISTICS                          | FREQUENCY/PERCENTAGE | MEAN       |
|------------------------------------------|----------------------|------------|
| <b>GENDER OF THE HOUSEHOLD HEAD</b>      |                      |            |
| Male                                     | 83(67.7)             |            |
| Female                                   | 36(30.3)             |            |
| <b>AGE OF THE RESPONDENTS IN YEARS</b>   |                      |            |
| 20-40                                    | 17(14.9)             |            |
| 41-80                                    | 20(16.6)             | 51years    |
| <b>MARITAL STATUS OF THE RESPONDENTS</b> |                      |            |
| Single                                   | 4(3.3)               |            |
| Married                                  | 102(85.0)            |            |
| Divorced                                 | 12(16.6)             |            |
| <b>EDUCATIONAL LEVEL</b>                 |                      |            |
| Primary education                        | 46(38.7)             |            |
| SSCE                                     | 6(5.0)               |            |
| ND/NCE                                   | 2(1.7)               |            |
| HND/B.SC                                 | 1(0.8)               |            |
| No formal education                      | 64(53.8)             |            |
| <b>HOUSEHOLD SIZE</b>                    |                      |            |
| 1-5                                      | 31(25.8)             |            |
| 6 above                                  | 89(74.2)             | 7 persons  |
| <b>CASSAVA FARM SIZE/HA</b>              |                      |            |
| 1-3                                      | 52(43.3)             |            |
| 4 - 11                                   | 19(15.8)             | 5 Hectares |
| <b>CASSAVA YEILD IN TONNE/ HA</b>        |                      |            |
| 10 - 20                                  | 43(35.8)             |            |
| 21 - 40                                  | 77(64.2)             | 25 Tonnes  |
| <b>CASSAVA UTILIZATION*</b>              |                      |            |
| Local Utilization/Consumption            | 120 (100)            |            |
| Commercial sales Preference              | 98 (81.6)            |            |

**Field Survey, 2023, \*Multiple Response**

**Cassava Derivatives Utilization:**

The result shown on Table 2 described the derivatives usability of cassava and quantity at both at household and commercial sales respectively. From the Table, 88.2% of the respondents utilize cassava in form of Elubo (cassava flour) with average monthly consumption of 35.5kg while, the same produce is commercially sold on the average of 287.5 kg per month by the farmers. Also, Garri has one of the popular derivative from cassava among the respondents in the study area had 49.1% of the household to

consumed 50kg on the average per month with commercial sales of about 89.5 kg per month.

Furthermore, processed cassava tuber into utility form called 'Fufu' had 65kg monthly consumption on the average by 9.1% of the household. While, Tapioca had the least popularity among the respondents with average monthly consumption of 55.5kg. Cassava tuber sales, annually estimated to be sold on average of 25.5 tonnes per year by respective farm family or household.

**Table 2: Household to Commercial Utilization of Cassava Produce Per Month**

| Produce       | Utilization           |                  | Quantity                                                                                                  |                                                                                                        |
|---------------|-----------------------|------------------|-----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
|               | Household consumption | Commercial Sales | Household Consumption Per Month                                                                           | Commercial Sales per Month                                                                             |
| <b>ELUBO*</b> | 105(88.2%)            | 46(38.7%)        | Min: 11 – 33kg (18.3%)<br>Max: 67 – 89kg (1.6%)<br><br><b>Mean Household Consumption = 50kg per month</b> | Min: 23 – 53kg (7.5%)<br>Max: 84 – 156kg (8.3%)<br><br><b>Mean Commercial sales = 89.5kg per month</b> |
| <b>GARRI*</b> | 59(49.1%)             | 39(32.5%)        | Min: 43 – 64kg (5.8%)<br>Max: 65- 87kg (3.3%)<br><br><b>Mean Household Consumption = 65kg per month</b>   | Min: 140 – 300kg (3.35)<br>Max: 467-563kg (1.6%)<br><br><b>Mean Commercial sales = 281.5kg per</b>     |



|                        |          |            |                                                      |                                                                                                   |
|------------------------|----------|------------|------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| <b>FUFU*</b>           | 11(9.1%) | 11(9.1%)   | Min: 35 – 55kg (5%)<br>Max:56 – 76kg (1.6%)          | <b>month</b><br>Min & Max :12-200kg<br>(1.6%)                                                     |
|                        |          |            | <b>Mean Household Consumption = 55.5kg per month</b> | <b>Mean Commercial sales = 100kg per month</b>                                                    |
| <b>TAPIOCA*</b>        | 8 (6.6%) | 2(1.6%)    | Min: 35 – 55kg (5%)<br>Max:56 – 76kg (1.6%)          | Min & Max :12-200kg<br>(1.6%)                                                                     |
|                        |          |            | <b>Mean Household Consumption = 55.5kg per month</b> | <b>Mean Commercial sales = 100kg per month</b>                                                    |
| <b>Cassava Tuber *</b> | -        | 98 (81.6%) | -                                                    | Min: 10 – 15 tonnes<br>Max: 40 – 41 tonnes<br><b>Mean Commercial sales = 25.5 tonnes per year</b> |

### Field Survey, 2023. \* Multiple Responses

#### Factor that Determine Cassava Derivatives Utilization in Contrast to Commercial Sales among the Farmers

Household member decide to actively participate in production activities of most farming activities with effect of various demographic, socio-economic and institutional factors. Numerous literatures indicate lot of explanatory variables, which have significant influence on the factors that determine utility of cassava derivatives by farmers. In view of this, effort was made to include variables fund relevant to the model in order to exploit the responses of the farmers in the study area. In this section, selected explanatory variables were used to estimate the binary logit regression model to analyzed the determinant of cassava produces utilization. The variables were selected on the basis of theoretical

explanations and personal observation. The 10 potential explanatory variables were entered into Logit analysis to determine the best subset of the explanatory variables that a good predictor of the dependent variable. Estimate of the parameters of the variables were considered and displayed on Table 3.

The Maximum likelihood estimate of the logit regression model are significant at less than 1% level of participation. From the study, gender of the respondent, age of the household head, Marital status of respondents, returns/yield from cassava production, cassava utilization, group membership and nearness to market determine the derivatives utilization at household level in contrast to commercial sales.

**Table 3: Logit Regression of Determinate Variable of Cassava Derivatives Utilization at Household Level in Contract to Commercial Sales.**

| Explanatory Variable                 | B          | Wald   | Sig.     | EXP (B)   |
|--------------------------------------|------------|--------|----------|-----------|
| Gender of the Sampled Household Head | - 2.167    | 4.19   | 0.061**  | 0.115     |
| Age of the Sample Household Head     | - 3.16     | 16.11  | 0.000*** | 0.729     |
| Marita Status                        | 3.376      | 2.987  | 0.084**  | 32.33     |
| Education Level                      | 0.111      | 0.208  | 0.648    | 1.117     |
| Household Size                       | - 0.26     | 0.014  | 0.906    | 0.974     |
| Cassava Farm Size                    | - 0.075    | 31.404 | 0.236    | 0.928     |
| Cassava Yield                        | 4.77       | 8.323  | 0.004*** | 118       |
| Cassava Utilization                  | - 8.15     | 6.789  | 0.0999*  | 0.0001    |
| Nearness to Market                   | - 2.26     | 2.61   | 0.106    | 0.00      |
| Group membership                     | - 0.359    | 2.722  | 0.099*   | 0.698     |
| Constant                             | 545.352    | 2.934  | 0.087*   | 6.973E236 |
| X2 Chi-Square                        | 187.354*** |        |          |           |
| 2 Log Likelihood                     | 26.025***  |        |          |           |

\*\*\*, \*\* and \* significant at 1, 5, and 10% probability level, respectively



### Conclusions and Recommendation

In conclusion, the result of the study showed that, factors such as gender, age, marital status, cassava yield, cassava derivatives utilization at household level, nearness to market significantly influenced household utilization of cassava produces in contract to commercial sales among the respondents. The result of economic logit model showed that the demographic explanatory variable age has negative significance effect on the respondents in the study area. The possible reason for this could be young farmers might have more awareness on market value for commercial sales and they may have more opportunity to get current information as compared to older farmers becoming more reluctant to modernization.

The study recommends, support policies that sustain and improve the productivity among farming household especially land tenure policy issues, greater incentives policies for farmers in the rural areas; linkages between farm households and the markets; increase access and exchange of information on markets.

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