



# Socio-Economic Determinants of Commercialization Index of Garri Producers in Ughelli North Local Government Area of Delta State

Henry .C. Unaeze<sup>1</sup>; Okwa, Efe Quincy<sup>1</sup>; Umeh, Onyebuchi Jonathan<sup>2</sup>

<sup>1</sup>Department of Agricultural Economics and Extension, Faculty of Agriculture, University of Port Harcourt, Rivers State, Nigeria.

<sup>2</sup>Faculty of Agriculture, Nnamdi Azikiwe University, Awka Anambra State, Nigeria.

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## ABSTRACT

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**\*Corresponding Author**

Henry .C. Unaeze

**E-mail:** henry.unaeze@

uniport.edu.ng

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This study examined the socio-economic determinants of Commercialization index of garri producers in Ughelli North Local Government Area of Delta State. Data were collected from structured questionnaire administered to randomly select 70 respondents. Descriptive statistics and multiple regression analysis were employed in the assessment. The result divulged that a greater percentage of garri producers were females with an average age of 47years and married with a household size of 6-10 persons and acquired formal education. The, double log multiple regression results revealed that farming experience and Age were found to be statistically significant but negative in influencing the level of commercialization index of garri producers, while household size, income, marital status, years spent in formal schooling and female gender were found to be statistically significant but positive in increasing the level of commercialization index of the respondents in the study area. Also majority of the respondents (78.8%) employed traditional method of processing which results to excessive smoke inhalation causing ill health as their major constraints. It is therefore recommended that good road network and adoption of modern processing method through extension services should be encouraged by government.

## INTRODUCTION

Cassava is the chief source of dietary food energy for the growing population in Nigeria, it is a staple crop with fibrous root and it is scientifically refers to as *Manihot esculentus*. Nigeria is the largest producer of cassava in the world with about 45million metric tons according to Food and Agricultural Organization (FAO)/International fund for agricultural development (IFAD) (2011). The tuber is the major part that is consumed; mass production of cassava is possible because it can tolerate a wide range of soil and climatic condition. A large population of Nigerians depends on it as their main dish of various forms of processing into tapioca, garri (fried after fermentation), fufu (sun dried cassava mixed with water and pounded), cassava bread, cassava chips, flour, and abacha etc.

Despite its importance, cassava is mostly grown by small farmers on small plots of land. Commercial production of cassava can alleviate poverty problem in Nigeria because it serves as a source of raw materials for agro-allied industries in Nigeria with huge potential for the export market (Egesi, Okogbeni & Mbanaso, 2007). In Delta state, garri production is one of the major occupations engaged by rural women. (Egesi et al, 2007).

Garri, which is a dry granule made from cassava tubers through a series of actions is a cheap alternative to many other energy giving food in Nigeria. Processing garri, starch and tapioca (popularly known as kpokpogari) from cassava is one of the major economic activities of the women of Delta State in Nigeria (Okpeke & Onyeagocha, 2015). Garri is produced mainly as staple food and it is consumed daily in one form or the other by almost everyone in Nigeria; and hence there is need for massive production, processing, utilization, storage and marketing. Okpeke & Onyeagocha (2015), Agricultural commercialization refers to the process of increasing the proportion of agricultural production that is sold by farmers (Pradhan, Dewina & Minsten, 2010). According to Oteh & Nwachukwu (2014), commercialization is the outcome of a simultaneous decision-making behaviour of farm households in production and marketing (von Braun, Bouish & Kennedy, 1994). It is recognized that agricultural commercialization and investment are the key strategies for promoting accelerated modernization, sustainable growth and development hence, poverty reduction in the sector (Agwu, Anyanwu & Mendie, 2012).

However, to attract investment into agriculture, it is imperative that those constraints inhibiting the performance of the sector are first identified with a view to unlocking them and creating a conducive investment climate in the sector and this will result to making agriculture one of the most important growth points in the economy (Agwu et al, 2012).

In measuring household-specific level of commercialization, Govereh, Jayne & Nyoro (1999) and Strasberg, Jayne, Yamano, Nyoro, Karanja & Strauss

(1999) used a household commercialization index (HCI), which is a ratio of the gross value of all crop sales per household per year to the gross value of all crop production. In other words, Agricultural commercialization can be determined using;

$$\text{Commercialization Index (CI)} = \frac{\text{Quantity of garri sold}}{\text{Quantity of Garri produced}} \times \frac{100}{1}$$

If the value obtained is zero it implies that garri is produced for subsistence purpose, the closer its value to 100 implies high degree of commercialization (Dube & Guveya, 2016).

However due to high demand of garri by consumers the producers no longer see the need to rightly produce high quality garri; the processing is being rushed with their eyes fixed on the profit from sales. Often times after processing, garri is brought out to consumers without proper packaging. This act has resulted to many health problems such as respiratory diseases due to dust contamination from passing vehicles, industrials effluents and contamination from flies. Also garri that is not well processed as often is the case, contain high cyanide contents. This can be detrimental to health causing goiter and other related health hazards. When not properly stored rodent finds their location and this has resulted to the outbreak of Lassa fever few years back and death to the consumers.

Since majority of the farmers from developing countries produce for own consumption and marginal surplus for the markets, they do not derive full benefits of the market economy. Despite all these hurdles, these farmers have managed to participate in the markets by delivering food crops, fruits, vegetables and livestock products (Rahut, Castellanos & Sahoo, 2010). This represents a degree of commercialization. At this point it becomes important to ask the following questions: what are the socio-economic characteristics of the respondent in the study area, what are the different methods of processing garri in the study area, what are the effects of garri producer's socio-economic characteristics on their commercialization index in the study area and what are the constraints encountered by garri producers in the study area. This study will address all these questions asked.

## MATERIALS AND METHODS:

The study area is Ughelli North Local Government Area of Delta State, Nigeria, West Africa, Africa which covers an area of 1,440 square kilometers and density of 460.06 square kilometers. At the 2006 census it has a population of 320,687 and 2011 projection has a population of 376,330 according to National Population Commission of Nigeria. Ughelli North has a latitude of 5°30'40.4" (5.5112°) north and longitude 6°2'53.6" (6.0482°) east; its elevation is 13 meters (43 feet). Most of the people there are Urhobo with a dialect known as

centre Agbarho. Ughelli North has the following 7 district clans each of them has their own communities namely; Agbarha, Agbarho, Ewreni, Ogor, Orogun, Owheru, Ughelli. Each of the clan is headed by a traditional ruler. Ughelli North is the seat of the Ovie of Ughelli. Their primary occupation is farming. Purposive sampling technique was adopted in this study. Two communities were selected purposively from the 7 (seven) clans in the study area. This was to get the farmers that are involved in garri production in the study area and the researcher's convenience. In total, 14 communities were selected and 5 garri producer's (farmers) were selected

at random from each community giving a total of 70 respondents for the study.

## METHOD AND TECHNIQUES FOR DATA ANALYSIS

Research question one to four, were analyzed using descriptive statistical tools such as mean, median, mode, frequency distribution and percentages, while determining the effects of garri producer's socio-economic characteristics on their commercialization index were analyzed using multiple regression model expressed as:

$$Y = f(x_1, x_2, x_3, x_4, x_5, x_6, x_7, x_8, x_9 + e)$$

Where Y = commercialization index CI

$x_1$  = Household size in numbers

$x_2$  = Income status of the farmer (On farm +Off farm income) in naira.

$x_3$  = Marital status will be in dummy (Married = 1, single = 0, Divorced=2).

$x_4$  = Farming experience in years.

$x_5$  = Number of years spent in formal schooling in years.

$x_6$  = Gender will be I dummy (male=1, female=0)

$x_7$  = Age of the respondent in years

$x_8$  = Numbers of garri bags sold annually in numbers

$x_9$  = Market levies in dummy (market levy=1, no market levy=0)

e = Error term

$$\text{Commercialization Index (CI)} = \frac{\text{Quantity of garri sold (QS)}}{\text{Quantity of Garri produce (QP)}} \times \frac{100}{1}$$

Where:

QP was in kg

Qs Was in Naira (₦)

Commercialization index is ascertained using regression model from the above factors, three functional forms of the model; linear, semi-log and double-log will be used.

### 1. Linear Function

$$Y = b_0 + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + b_6x_6 + b_7x_7 + b_8x_8 + b_9x_9 + e$$

### 2. Double Log Function

$$\text{Log}Y = b_0 + b_1\log x_1 + b_2\log x_2 + b_3\log x_3 + b_4\log x_4 + b_5\log x_5 + b_6\log x_6 + b_7\log x_7 + b_8\log x_8 + b_9\log x_9 + e$$

### 3. Semi Log Function

$$Y = b_0 + b_1\log x_1 + b_2\log x_2 + b_3\log x_3 + b_4\log x_4 + b_5\log x_5 + b_6\log x_6 + b_7\log x_7 + b_8\log x_8 + b_9\log x_9 + e$$

## RESULTS AND DISCUSSIONS

## Socio-economic characteristics of Respondents

Table 1: Distribution of respondents according to their socio-economic characteristics

Household size	Frequency	Percentage	Mean
1-5	19	27.1	
6-10	31	44.3	
11-15	18	25.7	8 years
15-20	2	2.9	
<b>Total</b>	<b>70</b>	<b>100</b>	
Income Status			
500-20,000	4	5.7	
20,500-40,000	10	14.3	
40,500-60,000	11	15.7	
60,500-80,000	8	11.4	
80,500-100,000	10	14.3	
100,500-200,000	14	20.0	
200,500-400,000	7	10.0	
400,500-1,000,000	4	5.7	
1,000,500-2,000,000	2	2.9	
<b>Total</b>	<b>70</b>	<b>100</b>	
Marital Status			
Divorce	2	2.9	
Married	64	91.4	
Single	4	5.7	
<b>Total</b>	<b>70</b>	<b>100</b>	
Farming Experience			
1-10	11	15.7	21 years
11-20	29	41.4	
21-30	17	24.3	
31-40	8	11.4	
41-50	4	5.7	
51-60	1	1.4	
<b>Total</b>	<b>70</b>	<b>100</b>	
Year spent in Schooling			
0	5	7.1	
6	45	64.3	
12	17	24.3	
16	3	4.3	
<b>Total</b>	<b>70</b>	<b>100</b>	
Sex			
Male	18	25.7	
Female	52	74.3	
<b>Total</b>	<b>70</b>	<b>100</b>	
Age			
30-34	4	5.7	47 years
35-39	9	12.9	
40-44	10	14.3	
45-49	24	34.3	
50-54	11	15.7	
55-59	4	5.7	
60-64	8	11.4	
<b>Total</b>	<b>70</b>	<b>100</b>	

Source: Field Survey 2019

The table 1 above reveals that only 44.3% of the respondents have 6-10 persons as their household size. This implies that garri producers in the area of study have a fairly large house hold size which is very vital in determining the availability of family labour therefore farm labour will be cheap because of the availability of family labour. This supports the findings of Ibekwe, Chikezie, Obasi & Henri-ukoha (2012) that large family has implication for more economic viability in garri processing because it adds to family labour.

Also 20% of the respondent earn within ₦100, 500 - ₦200, 000 annually. This finding assert that majority of the respondents sampled produced at subsistence level. This is in consonance with the findings of Olayide (1992) that Nigerian farmers are small scale farmers that cultivates on small areas of land. This level of income could be as a result of relatively small farm size, respondents cultivates, which inevitably lead to subsistence farming and decrease level of adoption of technology that increases their income status. This result is also in accordance to Agwu & Ibeabuchi (2011) who opined that high income increases the volume and quantity traded and thus expansion of the enterprise.

Majority of the respondent (91.4%) were married. This support the findings of Adenegan, Adams & Nwauwa (2013) that being married determine the capacity of farm household to efficiently allocate their farm resources. Therefore, married respondent may have the necessary family labour which is also cheap to engage in practices like garri marketing.

The table shows that only 41.4% of the respondents have farming experience of 11-20 years. It was only 1, 4% that fell within the range of 51-60 years. Also the average farming experience is 21 years which indicates that respondents are not new in the production and marketing of garri produce and have the ability of developing innovative ideas in their business. The number of years an individual had spent in the business gives an indication of the practical knowledge acquired over the years and which makes it possible to observe an improvement in the participant's performance based upon his experience (Effiong, Aligbe, Albert & Ohazuruike 2014).

Education is the key that unlocks the inherent entrepreneurial skills of rural famers. From the table, above it can be seen that 64.3% of respondent had primary education, 24.3% had secondary education, and 7.1% had no formal education while only 4.3% had

tertiary education. On the average one can conclude that majority of the respondent had spent a reasonable number of years in formal education. Respondent educational level could expose them in adopting new marketing stratgies that will increase their commercialization. This result is in consonance with Adenegan, Adams & Nwauwa (2013) who said that education has a great effect on the level of diversification of farmers to minimize risk, generate more income and increase their production volume to favour agricultural commercialization.

The table depicts that majority of the respondent are females with 74.3% while only 25.7% were males. This result is in accordance with Unaeze & Ayieloja (2013) that processing and marketing of cassava products in Africa are dominated by females.

Age has been found to be a major determinant of how innovative and productive farmers will be. The ability of farmers to adopt new technology increases with their age. Agwu et al (2008) shows that a positive relationship exists between age and adoption of improved technology. The table shows the age distribution of respondent in the study area with their average age of 47years which imply that the average respondent is in Middle age suggesting increase in production and innovativeness.

## 2 METHODS OF GARRI PROCESSING

Table 2, below depicts that majority (78.8%) of respondent employ traditional method of processing which is slow, tedious and rigorous and limits the quantity of garri produced. The traditional method which may have accomplished important economic and social functions in the past has now become inadequate in meeting the challenges of a modern economy where the demand for garri is constantly raising. There is need for government to encourage processors to take advantage of the current high market demand of garri by shifting to processing with modern method which can reduce processing costs, process higher quantities of garri with greater efficiency and thereby increasing its commercialization. This method appears to be the only feasible and available method of processing garri at the moment in the study area and these findings are in consonance with the finding of Effiong et al (2014).

**Table 2 Distribution of respondents according to their method of processing.**

Processing Technique	Frequency	Percentage
Traditional	63	78.8
Modern	17	21.2
	70	100

Source: Field Survey 2019

### 3. EFFECTS OF GARRI PRODUCER'S SOCIO-ECONOMIC CHARACTERISTICS ON THEIR COMMERCIALIZATION INDEX

Double log multiple regression was selected as the lead equation owing to the number of significant variables and the coefficient of determination ( $R^2$ ) to estimate the effects of socio-economic determinants of garri producers on their commercialization index in the study area. The result gave an  $R^2$  of 0.53 this implies that all the explanatory variables employed, jointly account for 53% of variations in the dependent variables. The F-statistics of 7.552 at a significant level of 0.000 shows suitability of the Model as this significant level is lower than 0.01(1%).

The standard error estimate of 792.88154 show high variation between employed variables which can be justified based on heterogeneous expectations of the subject matter.

Summary of coefficient; Farming experience, Age and Market levies were found to be statistically significant but negative on the commercialization index of the respondents in the study area. This suggests that an increase in these variables will lead to a decrease in the productive capacity of the producers thereby affecting its commercialization negatively in the area of study. This finding is counter intuitiveness as farming experience was supposed to increase the productivity capacity or commercialization index of the producers. However, the negative relationship could be attributed to the facts that most of the producers are not the primary producers that require expertise to produce more of the produce. Majority of the sellers buys from the primary producers and sells to final consumers. One could also

accept the fact that the negative relationships could be lack of innovativeness on the part of producers. This result is line with Muhammad-Lawal, Amolegbe, Oloyede & Lawal, (2014), who deduced that lack of innovation adoption affects farmers negatively. Age was found to be negative because the higher the age the less innovativeness and less risks farmers are willing to take, also garri production involves, strength and vigour. Market levies has a negative sign as majority averts payment of market levies. Household, Income, Marital status, Education, Gender are statistically significant and positive. By implication, increasing these explanatory variables lead to an increase in the commercialization index of the farmers. It is useful to note that household's income, both farm and off-farm income has the potentials of increasing commercialization index of producers. Furthermore, Agwu & Ibeabuchi (2011) opined that income leads to increase in volume or quantity traded and thus expansion of enterprise.

Gender was positive because processing and marketing of cassava products in Africa are dominated by female gender; this result is in line with the finding of Unaeze & Ayieloja (2013) and also in concordance with Mgbakor & Nwamba (2013) that, the role of women in cassava production was enormous. Marital status was positive being married determines the capacity of farm household to efficiently allocate their farm resources because family labour was available and cheap in the practice of garri sales. This finding support Adenegan, Adams & Nwauwa (2013) that being married determined the capability of the farm households to efficiently allocate their farm resources.

**Table 3. Double- logged Regression Results of the effects of respondent's socio-economic characteristics on their commercialization index**

Variables	Linear	Semi-log	Double-log
Constant	2.610 (1.829)	5505.649 (1.741)	-22269.411*** (-7.156)
Household size	-0.115 (-0.547)	659.283 (1.414)	21.258 (0.760)
Income	-0.256 (-1.458)	-465.045 (-1.194)	26883.160*** (6.371)
Marital status	1.232 (1.176)	-464.970 (-0.200)	119.767 (0.329)
Farming experience	-0.049 (-0.274)	194.460 (0.486)	-63.277 (-0.461)
Years spent in schooling	-0.262 (-1.407)	-690.149 (-1.672)	7.991 (0.232)
Gender	1.346 (0.176)	-191.268 (-0.231)	506.742** (1.984)
Age	0.140 (0.150)	-2435.212 (-1.176)	-11385.739*** (-5.002)
Garri bags sold	0.677 (5.566)	1007.888 (3.743)	1.439 (1.319)
Market levies	1.147 (0.268)	296.458 (1.294)	-84.469 (-0.414)
F	7.384***	3.754***	7.552***
R <sup>2</sup>	0.455	0.298	0.531
Adjusted R <sup>2</sup>	0.393	0.218	0.461

**Source: Field Survey 2019**

Figures in parenthesis are T-ratios

\*\*\*: Significant at 1%

\*\*: Significant at 5%

#### 4. CONSTRAINTS ENCOUNTERED BY GARRI PRODUCERS

Commercialization and garri production comes with some difficulties, challenges and setbacks.

From the table 4 below, it can be seen that major constraint faced by garri producers in the study area was

lack of processing modern machines with 24.7%, health challenges as a result of method of processing with 23.4% and drudgery nature of garri marketing and cost of labourers with 11.7%. These constraints identified are in consonance with the findings of Okpeke & Onyeagocha, (2015).

**Table 4. Distribution of respondents according to constraints encountered in the study area.**

Constraints	Frequency	Percentage
Drudgery nature of garri marketing and cost of labourers	18	11.7
Lack of processing modern machines	38	24.7
Price fluctuation due to seasonal variation	13	8.4
Lack of planting materials	10	6.5
Health challenges as a result of method of processing	36	23.4
Lack of good road network to the market	14	9.1
Disease infestations to the cassava stem	8	5.2
Lack of storage facilities	12	7.8
Problems of market agents	5	3.3
Multiple responses recorded	154	100

**Source: Field Survey 2019.**

## RECOMMENDATION

Generally, garri is a major staple for the increasing population growth rate in the country; therefore its commercialization should be boosted in order to diversify the economy and creates employment for the teeming Nigeria youths. Therefore efforts should be made by the government to allocate more resources giving credits to garri producers.

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