

# Profitability of Garri Processing in Owerri North Local Government Area of Imo State

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## ABSTRACT

This study was on profitability of garri processing in Owerri North Local Government Area of Imo State. It specifically examined the socio-economic characteristics, cost and returns and the influence of determinants on profit levels of garri processing. Multistage random and purposive sampling techniques were used to select 60 garri processors. Descriptive statistics, budgetary and profit function techniques were employed to analyze the data collected. The study revealed a mean age of 41years, an average household size of 6, mean level of education of 9years and mean experience of 12years. It also showed that the venture is dominated by females (73.33%) with 80% being males. A net return of N354,283 and gross margin of N385,888 were estimated. Age, education, marital status and experience were significant at 1% level of significance while gender was insignificant at 1% level of significance and  $R^2$  was 0.884%. The PI ratio was 0.42; IRR was 73% while the OR was 0.54. This study concludes that garri processing was profitable and so adult education should be encouraged and supported to improve on profit in the study area.

**Keywords:** *Gross margin, Profit function, Garri processing*

## 1. INTRODUCTION

Agriculture is a major contributor to Nigeria's Gross Domestic Product, with cassava playing a leading role. Cassava is one of the most affordable staples and is predominantly the key income generating arable crop. In addition to providing food for consumption, employment to rural youths, cassava products can be exported to generate more foreign earnings. It's relative ease of production, high resistant ability, moderate ability to withstand drought in the face of any prevailing climate variability, give cassava an advantage over other crops as regards hunger and poverty reduction (1, 2). According to Yakassai (3) cassava constitute 15% peels and 85% fresh tuber flesh, with the flesh made up of 30% starch, 63% water content, 2% protein, 1 – 2% fiber, with trace vitamins and minerals. Nigeria is the highest cassava producer in the world (4). Yakasi (3) reports that between 1993 and 1995, Nigeria produced about 31 million metric tons out of 85 million metric tons estimated worldwide. In a bid to improve on this trend and to increase the foreign earnings, the federal government in 2003 launched an initiative for increased cassava production and this they try to achieve by adopting a demand driven approach in promoting, developing and diversifying its cassava-based industries (5). In 2004, an estimated 55.69 million metric tons was recorded (6) and in 2005, Nigeria produced about 38million metric tons (5). Despite past laudable efforts of the government, Nigeria has not actively participated in cassava trading in the international market. Nevertheless, available data show that she has the capacity of increasing its foreign earning by improving on her techniques. This can be achieved by using labour-saving production, harvesting and processing technologies which are cost effective and have the

capability of enhancing farmers' output and profit (1). Freshly harvested cassava has a very short storage life; the tubers cannot be stored longer after harvest before decaying but when processed into any of the two principal products flour or garri, its shelf life increases. Processing procedures are aimed at reducing cyanide, improving storability, providing convenience and palatability (2). Garri processors are constantly faced with problems of seasonal variations in product prices partly as a result of high cost fuel needed for frying into garri, yet there lies within them the potentials of feeding the present and future generation (7). The specific objectives were to determine the Socio-economic characteristics of the respondents, the profitability of the garri processors and to examine the influence of some determinants on the profitability of garri processing in the study area.

## 2. SAMPLING AND DATA COLLECTION TECHNIQUES

Multistage and purposive random sampling techniques were used to select garri processors in the study area. The study was conducted in Owerri North Local Government Area of Imo State. Data for the analysis were collected from both primary and secondary sources. A well structured questionnaire was used to get information from the respondents. Secondary sources include state ministries of Agriculture, Commerce and Industry, journals and other periodicals. Three communities (Obibiezena, Agbala and Ulakwo) were purposively selected from the local government area because of the prevalence of garri processors in these areas. A list of 30 processors was compiled from each selected community, out of which 20 processors were

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randomly selected, giving a sample frame of sixty (60) respondents. The data collected were basically on socio-economic characteristics, total revenue, cost of labour, cost of tubers etc. In this study, fixed costs were assumed to be negligible. The data collected were analyzed using descriptive and inferential statistic, budgetary technique as well as ordinary least square multiple regression technique.

The Gross Margin technique is expressed as

$$GM = GR - TVC \dots\dots\dots (1)$$

Where GM = Gross Margin in naira per kg  
GR = Gross Revenue in naira  
TVC = Total Variable Cost in naira

The results of the budgetary analysis were used to obtain the following ratios.

$$PI = \text{Profitability Index} = NI/TR \dots\dots\dots (2)$$

$$RRI = \text{Rate of Return on Investment} = \frac{NI \times 100}{TC} \dots\dots\dots (3)$$

$$OR = \text{operating expense ratio} = \frac{TVC}{TR} \dots\dots\dots (4)$$

$$RRVC = \text{Rate of Return on Variable Cost} = \frac{TR - TFC}{TVC} \times 100 \dots\dots\dots (5)$$

Where NI = Net Income  
TR = Total Revenue  
TC = Total Cost  
TFC = Total Fixed Cost  
TVC = Total Variable Cost

The profit function was fitted into the data and estimated using Ordinary Least Square method. The various forms of regression model were tried and the best fitted equation was used to analyze the influence of socio-economic characteristic on profit level. The lead equation was chosen based on statistical and econometric criteria and a prior expectation of the variables.

The model is implicitly expressed:-

$$Y = F(x_1, x_2, x_3, x_4, x_5, x_6, e) \dots\dots\dots (6)$$

Where

Y = Profit (naira)  
X<sub>1</sub> = Age (year)  
X<sub>2</sub> = Marital status (dummy, m=1; 0 = single)  
X<sub>3</sub> = Gender (dummy, m=1; 0=f)  
X<sub>4</sub> = Level of education (years)  
X<sub>5</sub> = Household size (number)

X<sub>6</sub> = Experience (years)  
e = Error term

### 3. RESULTS AND DISCUSSION

The socio-economic characteristics influencing profit levels are shown in table 1. 151 – 250

**Table 1:** The socio-economic characteristics of the respondents.

Characteristics	Frequency	Percentages
<b>Age (years)</b>		
21 – 30	9	15.00
31 – 40	22	36.67
41 – 50	19	31.66
51 – 60	7	11.67
61 – 70	3	5.00
<b>Gender</b>		
Male	16	26.67
Female	44	73.33
<b>Marital Status</b>		
Married	48	80.00
Single	12	20.00
<b>Level of Education</b>		
1- 5	13	21.70
6 – 10	27	45.00
11-15	16	26.70
16 and above	4	6.70
<b>Farming experience</b>		
1 – 10	36	60.00
11 – 20	12	20.00
21 – 30	8	13.33
31 – 40	4	6.67
<b>Household size</b>		
1 – 4	15	25.00
5 – 8	35	58.33
9 – 12	10	16.67
<b>Total</b>	<b>60</b>	<b>100</b>

Mean age of farmers = 41 years  
Mean years of farming experience = 12 years  
Mean level of education = 9 years  
Mean household size = 6 persons  
**Source:** survey data 2009.

The age ranges from 20 to 70, with 41 years as the mean age. This is the young, energetic group and this is an indication that they are still vibrant and full of vigor to carry out the processing business. 80% of the sampled processors are married while the remaining 20% are singled. This is an indication that married people are more interested in garri processing and has implication for greater accessibility to land input, since men have

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more right to own parcels of land and so they assess more parcels for the family. This greater percentage of married processors also showed that their major source of labour was family labour. 26.67% of the respondents were males while 73.33% were females. This is attributed to the fact more women are involved in processing than men whose inclination are more to production than women do. This may also be due to the small amount of money needed to start the business. The findings of Afolabi (8) showed similar result. The table further shows that the highest percentage (45%) spent between 6 and 10 years in school and the mean level of education is 9 years. With these levels of education, adoption of new technology becomes easy and is capable of enhancing productivity in garri processing. The result is supported by Berry (9). The highest percentage (60%) has below 10 years of farming experience while about 6.7% have between 31 and 40 years. The mean farming experience was 12 years. This could be attributed to the fact that as the number of years advance, processors tend to leave the business to less stressful ones. The distribution of household size indicates an average household size of 6. This has implication for more economic viability in garri processing, as this number also add to the family labour. This is supported by Chikezie et al (10)

#### 4. COST AND RETURN ESTIMATES

The cost incurred in the study includes tuber cost, labour cost, transport cost, depreciation on machine and other cost. The total estimated cost was N485,185. Labour cost accounted for 21% of the total cost while the cost of tubers accounted 44% of the total production cost and 48% of the variable cost. The study shows an estimated Gross revenue of N839,468 and annual gross margin of N385,888. The average net return was N354,283. The ratios indicate that Profitable Index was 0.42, suggesting that 42% of the total revenue generated constituted the net income. This shows an appreciable level of profit. Afolabi (8) observed PI of 0.35 and Mohammed et al (4) estimated PI of 0.37. In the study, Rate on Return on Investment (IRR) of 73% was estimated showing that each processor earn 73% profit on every naira spent. This likewise shows that garri processing in the study area was profitable. The Operating expense Ratio (OR) of 0.54 shows that the variable cost consumed 54% of sales. Also the Rate of Return on Variable cost (RRVC) was 1.78 indicating that for every naira incurred as variable cost N178 was generated. Emekaro et al (11) findings show RRI of 0.86. Based on the findings as shown in table 2 below, it can be concluded that garri processes is a profitable venture.

**Table 2:** Average returns per ton of cassava processed into garri

Items	Value (N)
<b>Variable Cost</b>	
Labour cost	103,173
Transportation cost	94,436
Cost of tubers	217,529
Other cost	38,442
<b>Total variable cost</b>	453,442
<b>Gross Margin</b>	385888
<b>Fixed Cost</b>	
Depreciation on machine	31,605
Total fixed cost	31,605
<b>Total cost</b>	485,185
<b>Total revenue</b>	839,468
Net Return	354,283
PI	0.42
RRI	73%
RRIC	1.78
OR	0.64

Source: survey data, 2009.

#### 5. PROFIT FUNCTION ANALYSIS ESTIMATES

The results in table (3) show the regression analysis estimates.

**Table 3:** The regression result of the determinants of profit.

Explanatory Variable	Coefficient	Tratio	Standard error
Age	-0.0893	-4.1343*	0.0216
Marital Status	0.885	3.7029*	0.0239
Gender	-0.0671	-1.3447	0.0499
Education	0.0693	3.2383*	0.0214
Household size	-0.0719	-3.5246*	0.0204
Experience	0.0883	3.3071*	0.0267

$$R^2 = 0.884$$

$$F - \text{Statistic} = 70.13$$

$$\text{Constant} = 100.44$$

\* = Variable significant at 1%

Source: Survey data 2009.

The four functional forms were estimated and based on some economic, statistical, econometric criteria, the double log was chosen as the best fit equation. Education level was significant at 1% and positively correlated to profit. The positive sign is in consonance with a priori expectation. Educated persons by implication have greater ability to understand and adopt new technologies and this helps them to enhance their proficiency in business. Giro and Adebayo (12) had similar findings. The household size had a negative correlation but it is significant at 1%. The inverse

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relationship may be due to the fact that the excess proceeds are consumed by the members of the family, thereby adding little to the total profit. This result agrees with the findings of Chukwudi (13). Age was negatively correlated with profit and is significant at 1% level. This may be attributed to the fact as one gets older; strength and vigor tend to decrease, thereby affecting the outcome of any endeavour as well as its gain. This conforms to the study of James et al (14) and Iheanacho (15). Years of experience were positively correlated and significant at 1% level. This is consistent with a priori expectation, as a person stays longer in a business, the more experienced and efficient he becomes in handling the operations, (10). Marital status was significant at 1% level but has a negative correlation. Gender on the other hand was not significant and is negatively correlated to profit level. The coefficient of determination ( $R^2$ ) was 0.884 indicating that 88.4% of the variations in profit level were explained by the explanatory variable while 11.6% was determined by other factors not captured in the study.

## 6. CONCLUSION AND RECOMMENDATIONS

Based on the profit indicators from the study, it can be concluded that garri processing is a profitable business. It is capable of ensuring steady income and employment generation. Adult education should be encouraged and supported by the government to improve on the profit made in the study area since education was significant. Adequate programmes such as seminars and workshop should be organized for garri processor in order to fill the gap created by inadequate extension services.

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