Economic Analysis of Traditional Cassava Processing and Market Performance in Udi Local Government Area of Enugu State, Southeast Nigeria

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Direct Research Journal of Biology and Biotechnology

Direct RESEARCH JOURNALS

Vol. 12(1), Pp. 40-44, April 2026,

https://journals.directresearchpublisher.org/index.php/drjbb; https://www.ajol.info/index.php/djbb

Research Article
ISSN: 2734-2158

Received 9 March 2026, Accepted 22 March 2026, Published 14 April 2026

ABSTRACT

This study conducted economic analysis of traditional cassava processing and market performance in Udi local government area of Enugu State, Southeast Nigeria. The study used multi-Stage sampling technique to select 60 cassava processors. Primary data were collected using self-administered structured questionnaires and analyzed using descriptive statistics, marketing efficiency and multiple regression analysis. The results showed that the average years of cassava processing experience was 16.67 years in the study area. Also, years of processing experience was positive and significantly related to income at P> 0.05. The results suggest that processors with more years of processing experience are more likely to earn more profit in the enterprise. The results further showed that the higher marketing efficiency for the Abacha cassava processing of 245.9% was recorded in Obiagu market in the study area. Furthermore, the major constraints militating against cassava processing include poor road network, poor storage and poor infrastructural facilities in the study area. The study recommends that adequate infrastructure particularly storage facilities and good road network should be provided to encourage more involvement in the processing enterprise in the study area.

Keywords: *Cassava, Processing, Constraints, Marketing efficiency*

Citation: M. I. Abubakar, U. C. Emeka and Angulu, U. (2026). Economic Analysis of Traditional Cassava Processing and Market Performance in Udi Local Government Area of Enugu State, Southeast Nigeria. *Direct Research Journal of Biology and Biotechnology*. Vol. 12(1), Pp. 40-44.https://doi.org/10.26765/DRJBB85568122

INTRODUCTION

Nigeria is the largest producer of cassava in the world though with fragmented industry structure and with an

annual production of over 54 million tons of tuberous roots. Despite the country's huge comparative advantage in cassava production, Nigeria is not a major player in the global market of cassava value products. The country is yet to fully utilize the abundant potentials of cassava as a major contributor to Gross Domestic Product (GDP) next to crude oil. This is because the high production and processing cost, transportation and infrastructural deficits make it difficult to add value to cassava in terms of quantity, quality, shelf life and safety, which encourages export and in turn increases the GDP of the country (Emeka, 2021). Cassava is extensively cultivated as an annual crop in tropical and sub-tropical regions for its edible starching tuberous root, which is a major source of carbohydrates. Cassava is a staple food of an average household particularly for a poor rural family in Nigeria. Cassava or its derivaties form part of daily diet both for poor and non-poor households.

Therefore, this makes it an essential factor in food security, poverty alleviation and employment generation among others (Food and Agriculture Organization Statistical Database/FAOSTAT, 2012). Udi Local Government Area is one of the optional regions of cassava production and processing in Enugu State, Nigeria. About one-third of the overall national output of cassava emanated from the Niger Delta area where its inhabitants depend on cassava as a primary source of food and income. Furthermore, it is generally deserved that there is low level of investment in small scale cassava processing and preponderance of resource poor women in cassava processing enterprises in Udi local government area (Emeka, 2021). Against this background, this study conducted economic analysis of Traditional Cassava Processing in Udi local government area of Enugu state, Southeast Nigeria

Empirical Review

Oladejo (2016) reported that it costs about 7 times more to process a ton of cassava by manual methods into *garri* than by mechanical method. Karuwni and Ezuma (1998) conducted a study on economics of indigenous cassava processing in Ibadan of Oyo State, Southwest Nigeria. Their study found that 84 percent of the processors are women and that *garri* in many cases is the major product. They further stressed that the cassava processing peak period is between November and March. Additionally, all the processing technologies have fermentation, grating and boiling as basic step that reduces the cyanide (HCN) of the roots. Whether it is *garri* product from the West and Central Africa or *attieke* from the Ivory Coast, there is a clear uniformity existing in the techniques of preparation and almost identical nature of edible forms.

The International Institute for Tropical Agriculture/IITA (2005) conducted an integrated cassava project and reported that time required grating 140kg of cassava tubers can be reduced from six hours to 20 minutes. Okocha *el al.,* (2006) reported that one processing hour on a machine saves women twenty one hours work each week. It was observed that traditionally, the grated cassava pulps are packed into bags and heavy stones and objects are placed on the bags for about 2-3 days during which period of fermentation occurs. Davies *et al.,* (2008) conducted a study on mechanization of cassava processing in Iwo local government area of Osun State, Southwest Nigeria. Despite the fact this study did not capture gender contributions in cassava processing, the study reported that cassava processing in Iwo area is faced by so many challenges which include harvesting and transporting of cassava produce from farm to homestead and subsequent processing and mainly done by women. Furthermore, most of the stages in processing are carried out manually using simple and inexpensive tools and equipment that are available to small farmers. In addition, transportation of cassava products to markets is made difficult by the poor condition of the roads.

Asimi (2018) analyzed traditional processing of cassava among women in Iwo local government area of Osun State, Nigeria. The study employed multi-stage random sampling technique to select 120 women cassava processors. Data collected were analyzed using descriptive statistics, inferential statistics, gross margin analysis and regression analysis. The results revealed that cassava processing enterprise was profitable in the study area with average gross margin of ₦286,639.6 per production, and some of the challenges faced by women in traditional cassava processing include high cost of processing inputs and lack of capital for business operations. The study recommends that women cassava processors should be sensitized to be aware of appropriate technologies that can reduce labour bottlenecks and enhance cassava processing.

METHODOLOGY

Study area

The study was conducted in Udi local government area of Enugu state, Southeast Nigeria. The study area has geographical coordinates situated between 19°N and 7° 26' E. The area is located in the region of tropical rainforest belt with a rainfall peak is July and September each year.

Sampling Procedure and Sample Size

The study used multistage sampling technique to sample rural people who specialized in cassava processing and those that are well experienced in the processing enterprises. The study targeted three rural areas namely, Umuabi Umuaga and Obinagu respectively. A random sampling method was used to select 20 processors from each of these rural areas thereby giving a total of 60 respondents.

Method of Data Collection

Primary data were collected using self-administered structured questionnaires. Data collected were analyzed using descriptive statistics, marketing efficiency and multiple regression analysis.

Model Specification

The implicit functional form of the model is specified as:

$Y = F(X_1, X_2, X_3, X_4, X_5, X_6)$

Where:
Y = Total value of processed cassava output (Dependent variable)
X_1 = Age
X_2 = Household size
X_3 = Years of experience in cassava processing
X_4 = Labor used hours in processing
X_5 = Distance to the market
X_6 = Level of education attained
$X_1 – X_6$ = Independent variables
The explicit functional double log form was chosen as the lead equation and specified as:
$Y = b_0 + b_1 \log X_1 + \log X_2 + b_3 \log X_3 + b_4 + \log X_4 + b_5 \log X_5 + b_6 \log X_6 + e$
Where
$X_1 - - X_n$ = independent variables already defined
Y = Dependent variables already defined
e = error term

Marketing Efficiency

The marketing efficiency is computed based on the work of Olukosi and Isifor (1990) as shown below:

$$ME = \frac{\text{Value added by Marketing activities x 1000}}{\text{Marketing cost}}$$

$$= \frac{\text{Net margin}}{\text{Marketing cost}}$$

Marketing Margin Analysis

Marketing margin is the difference between the selling and supply prices expressed in absolute terms.
Absolute Marketing Margin is (MMA) = USP – USUP

$$MMR = \frac{USP - USUP \text{ X } 100}{USUP}$$

Where:

MMA = Absolute Marketing Margin
MMR = Relative Marketing Margin
USP = Unit Selling Price
USUP = Unit Supply Price
MMA = Absolute Marketing Margin
MMR = Relative Marketing Margin
USP = Unit Selling Price
USUP = Unit Supply Price

RESULTS AND DISCUSSION

The average age of respondents was 33 years with maximum age of 50 years and minimum age of 21 years, respectively. The least years of cassava processing was 1 year and the maximum processing years of experience was 20 years, while the mean years of cassava processing experience was 16.7 years. The mean monthly income of the processors was N3833.33 with the minimum of ₦32,00 and maximum of ₦70,000, respectively. The results are presented in (Table 1).

Table 1: Summary of Statistics of Quantitative Socio-economic Variables.

Variables	Mean	Minimum	Maximum
Age	33	21	50
Household size	4	1	10
Years of experience in cassava processing	16.7	1	20
Monthly income	3833.33	32,000	70,000

Field Survey, 2025

The descriptive statistics of qualitative socio-economic variables in (Table 2) indicated non-membership of co-operatives of about 85% while majority (61.7%) had secondary level of education respectively. The highest percentage of 40% was captured by *Abacha* cassava product in the study area. From (Table 3) which presents the result of marketing margin and pricing efficiency, the average net margin of *Abacha* , Garri and Fufu cassava products sold across the markets were ₦2200, ₦1100 and N650, respectively. Of these, Obinagu market had the highest net margin of ₦2700 and N100 for *Abacha* and *Garri* cassava flakes products, respectively. The least net margin of ₦1100 for *Abacha* cassava product, ₦700 for *Garri* cassava flakes and ₦300 for *Fufu* product were recorded by Umuabi and Umuaga markets, respectively.

Also *Abacha* cassava margin as a percentage of total marketing margin was 9.24% and greater than that of *Garri* cassava product (4.90%) and Fufu cassava product (8.67%). These margins were higher than the 6% reported by Iheme (1996) in Enugu state. In terms of marketing cost structure, average marketing cost across the markets was ₦850.44 for *Abacha* product, ₦928.60 for *Garri* cassava flakes and ₦450.50 for Fufu products, respectively. Umuaga market had the highest marketing cost of ₦780.65 followed by Obinagua market (780.65)

Table 2: Descriptive Statistics of Qualitative Socio-economic Variables

Variables	Frequency	Percentage
Gender		
Male	19	31.7
Female	41	68.3
Marital status		
Married	49	81.7
Unmarried	11	18.3
Education level		
Primary	23	38.3
Secondary	37	61.7
Occupation		
Trading	39	65
Civil servant	5	8.33
Handcraft	6	10
Schooling	3	5
Transport	7	11.67
Membership of Cooperative		
Yes	9	15
No	51	85
Cassava products		
Garri	15	25
Fufu	18	35
Abacha	27	40

Source: Field Survey, 2025 n = 60

Table 3: Distribution of Marketing Margin and Marketing Efficiency per 50kg Unit of Cassava in the Study Area.

Market	Supply price ₦	Selling price ₦	Handling cost ₦	Net Marketing Margin ₦	Value added ₦	Marketing efficiency (%)	Marketing margin (%)
Abacha product							
Umuabi market	11,200	12,300	409.70	1100	690.3	168.5	8.84
Umuaga market	11,300	12500	377.80	1200	822.2	217.6	6.58
Obinagu market	11,100	13800	780.65	2700	1919.4	245.9	9.60
Across markets	12,400	14,600	850.44	2200	1349.56	158.69	9.24
Garri Product (Cassava Flakes)							
Umuabi market	15,400	16,850	617.95	1450	832.05	134.65	8.60
Umuaga market	16,800	17,500	885.50	700	114.50	19.55	4.00
Obinagu market	16,900	17,900	509.60	1000	490.40	96.23	5.59
Across markets	17,850	18,950	928.60	1100	171.40	18.46	4.90

Source: Field Survey, 2025

Table 4: Distribution of Marketing Margin and Marketing Efficiency per 50kg Unit of Cassava in the Study Area

Market	Supply price ₦	Selling price ₦	Handling cost ₦	Net Margin ₦	Marketing	Value added ₦	Marketing efficiency (%)	Marketing margin (%)
Fufu product								
Umuabi market	6,850	6,950	200.50	300		99.50	49.63	4.32
Umuaga market	6,500	6,855	320.50	355		34.50	10.76	5.18
Obinagu market	6,200	6,450	385.60	550		164.40	42.64	8.53
Across markets	6,950	7,500	450.50	650		199.50	44.28	8.67

Source: Field Survey, 2025

and Umuabi (₦200.50), the least being ₦200.50. The high marketing cost at Umuaga can be attributed to transportation cost, since the market is located about 5 kilometers away from the 1st urban market. Ibok and Akpaeti (2013) asserted that the contribution of transportation to a commodities final monetary value varies with distance shipped, perishability and volume (Table 4).

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