



ANALYSIS OF LOCAL PARBOILED RICE MARKETING IN TARABA STATE.

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ABSTRACT

The study analyzed local parboiled rice marketing in Taraba State. The specific objectives were to: describe the socio-economic characteristics of the local parboiled rice marketers; analyze the profitability of local Parboiled rice marketing in the study area; determine the effects of socio-economic characteristics; and identify major problems faced by local Parboiled rice marketers. Multistage techniques were adopted for the study. Data were collected with the aid of a structured questionnaire and analyzed using descriptive and inferential statistics. The result revealed that 79.47% of the parboiled rice marketers were male, mean age of parboiled rice marketers in the study area was estimated at 35 years. The mean household size of the respondents was 5 persons. The result also indicated that literacy level among the respondents was high (97.37%). The mean years of marketing experience were estimated at 5 years, with a minimum of 1 year and a maximum of 17 years of marketing experience. Gross, marginal, and net profits were computed to be ₦56,400 and ₦55,215, respectively; this implies that parboiled rice marketing in the area was profitable. The result of multiple regression analysis revealed that the coefficients of five out of the eight explanatory variables used in the model were significant at varying levels of significance and had the expected signs. The value of the coefficient of determination (R^2), 0.79, indicated that 79% of the variation of gross margin of the respondents was explained by the variables used in the model. The study recommended that the local parboiled rice processors should form a cooperative to access credit facilities and solve the problem of high taxation.

Keywords: Local Parboil Rice, Marketing, Profitability Analysis

INTRODUCTION

The agricultural sector has been a key player in the developmental process of the Nigerian economy and occupies a dominant position of food sufficiency. The sector over the years has contributed significantly to the Gross Domestic Product (about 41% of GDP) and employed about 86% of the Rural households and about 65% of the total population in the Country. The contribution of agriculture to overall development, especially in developing countries like Nigeria, includes the provision of increased food supplies, the provision of capital and capital formation, increasing foreign exchange for development, and increasing rural welfare (Sadiq *et al.*, 2022). Rice (*Oryza sativa*), which belongs to the family Poaceae (formerly Gramineae) and genus *Oryza*, is one of the major staple foods consumed by a large proportion of the Nigerian population. Recent estimates indicate that rice is consumed by over 70% of Nigerians, making it a critical component of national food security. Globally, rice is cultivated on over 160 million hectares with annual production exceeding 750 million metric tonnes (Food and Agriculture Organization [FAO], 2023). According to recent FAO statistics, the leading rice-producing countries remain China, India, Indonesia, Bangladesh, and Vietnam, which together account for the bulk of global rice output (FAOSTAT, 2023).

In the West African sub-region, Nigeria remains one of the largest producers and consumers of rice, with annual consumption estimated at over 7 million metric tonnes, reflecting increasing demand driven by population growth and changing dietary preferences (Food and Agriculture Organization, 2023; United States Department of Agriculture, 2024). Rice has become increasingly important in sub-Saharan Africa, particularly in West Africa, where consumption has risen significantly relative to traditional cereals such as sorghum and millet. This shift is largely attributed to rapid urbanization, income growth, and changing consumer preferences toward more convenient and easily prepared foods (International Food Policy Research Institute, 2022). Dauna *et al.* (2018) defined agricultural marketing as an indication of consumer preference through the price they are prepared to pay. Agricultural Marketing can be referred to as that part of economics which deals with the creation of time, place, and possession utilities. Marketing of local rice is divided into four stages, which include: production through harvesting, movement from the farm to processing centers, movement of the milled rice from processing areas to urban consumption centers, and finally, the wholesaling and retailing in urban centers. Marketing of local rice, like any other crop in Nigeria, is all about economic activities that are concerned with the flow of the commodity from the point of production until it is in the hands of end users or consumers (Daniel and Uziel, 2020).

Even though rice is cultivated almost all around the ecological zones in Nigeria, its sustainability to mankind still remains small. The majority of rice production and processing in Nigeria is in the hands of resource-subsistent farmers who lack the economic and social power to fully adopt technologies (Udah et al., 2021). The processing and marketing of rice in Nigeria still have some challenges that need to be addressed so that the consumption of the local rice can be encouraged. One of the main issues lies in the processing methods, which significantly affect quality and, in turn, lead to lower demand and reduced market value of the product (Daniel and Uziel, 2020). However, considerable previous research studies have focused on the economics, efficiency, and profitability of rice production in the study area (Zubairu et al., 2018; Luqman et al., 2026). This shows that there is little empirical information on local parboiled rice marketing in Taraba State; this study intends to bridge this gap in knowledge.

Objectives of the Study

The specific objectives of this study were to:

- i. describe the socio-economic characteristics of the local parboiled rice marketers,
- ii. analyse the profitability of local parboiled rice marketing in the study area,
- iii. determine the effects of socio-economic characteristics on the Gross Margin of the respondents
- iv. identify major problems faced by local parboiled rice marketers in the study area.

MATERIALS AND METHODS

Study Area

This study was conducted in Taraba State, Nigeria. The state had a population of about 2,300,736 as of 2006 (NPC 2006). With a population projected growth rate of +2.94% per year, the current population of Taraba state should be about 3,989,477. The State is situated in the North-eastern part of Nigeria, and it lies between Longitudes 90 30'E and 110 45'E and Latitudes 60 25'N and 9 0 30'N. Taraba State shares borders with Plateau, Nasarawa, and Benue States to the West, Adamawa and Gombe States to the North, and to the East with the Republic of Cameroon. There are 73 spoken languages in Taraba State; the major tribes are Jukun, Wurkum, Mumuye, Fulfulde, Kaka, and Jonjo, just to mention a few (Bashi, 2021). The State is named after the Taraba River, which traverses the Southern part of the State. The mean annual rainfall ranges from 1300mm in the south to 1000mm in the north. The rainy season commences in April and ends in November, with a maximum of 200 days. The dry season extends from November to late

March and is marked by the hot north-easterly harmattan. Given the 3.2% projected annual growth of the population of Taraba State by the National Population Commission (2006), the population as of 2022 is estimated at 3,798,569 people. The state has a land area of 54,473 km² (Usman 2025). The land is naturally good for agriculture with good weather for maximum yields. It is, therefore, no surprise that the state is nicknamed "Nature's Gift to the Nation". Agriculture is the major occupation of the people of the State, employing over 70% of the total population. Cash crops produced in the State include coffee, tea, groundnut, and cotton. Crops such as maize, rice, sorghum, millet, cassava, and yams are also produced in commercial quantities. Livestock production, such as poultry, cattle, goats, sheep and pig farming, is also done on a fairly large scale. (Bashi, 2021).

Sampling Procedure

The population for this study was made up of local rice parboilers in Taraba State. A multistage sampling procedure was used for this study. The first stage involved purposive selection of five (5) LGAs (Donga, Jalingo, Gassol, Karim Lamido and Wukari) because of their prominence in rice value addition activities in the State. The second stage involved random selection of one market each from the selected LGAs to give a total of five markets. The selected markets were: Akate- Donga, Gadan Bobboji-Jalingo, Tella-Gassol, Mutum Daya-Karim Lamido and Rice mill-Wukari. Thirdly, from the list of local rice processors obtained at various markets through their leaders. A total of 190 respondents were randomly selected in proportionate to the size of the market.

Data Collection and Analysis

Data for this study were cross-sectional data collected from primary sources. Data were collected from the local rice par boiler marketers (respondents). Data were collected using structured interview schedules with the aid of questionnaires.

The following analytical tools were used to achieve the stated specific objectives of the study:

- (i) Descriptive statistics;
- (ii) Gross Margins Analysis
- (iii) Multiple regression Analysis
- (iv) Descriptive statistics

Model Specification

The Gross Margin Analysis model was used to estimate the profitability of aquaculture and it is stated as follows;

$$GM = TR - TVC \text{ ----- (1)}$$

$$TC = TVC + TFC \text{ ----- (2)}$$

$$NR = GM - TFC \text{ ----- (3)}$$

$$BCR = \frac{TR}{TC} \text{ ----- (4)}$$

Where:

GM = Gross Margin

TVC = Total Variable Cost

TC = Total Cost

TFC = Total Fixed Cost

NR = Net Returns

BCR = Benefit-Cost Ratio

To determine the effects of socio-economic characteristics on Gross Margin of the marketers a multiple regression model was employed. The functional form of the model is specified as:

$$Y = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8).$$

The explicit form of the model is expressed as:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \mu$$

Where:

Y = Profit of Local Rice Marketers (₦)

β_0 = Constant term (Intercepted)

$\beta_i - \beta_0$ = parameters to be estimated

μ = Error term

Variables

X_1 = Initial capital (₦)

X_2 = Age of marketers (years)

X_3 = Sex (Male =1, Female =0)

X_4 = Marital status = (Married =1, Single =0)

X_5 = Membership of group (Yes=1, No=0)

X_6 = Family size (Number of household members)

X_7 = Quantity handled per week (kg)

X_8 = Marketing cost (₦)

RESULTS AND DISCUSSION

Socio-economic Characteristics of the Respondents

Socioeconomic characteristics are an economic measure of a person's economic and social position relative to age, sex, marital status, household size, educational background, and marketing experience, among others. The study reveals that par-boiled rice marketers in the study area were predominantly young (mean age: 35 years; 89.5% aged 16–45). This implies that most of them can afford to engage in various livelihood activities that will contribute to improved household wellbeing. This finding agrees with the study of Lawal et al. (2024) on rice marketing in Yobe State, who reported that the majority of rice marketers were within active working age, enhancing their participation and efficiency in marketing activities. The distribution of respondents by gender reveals that 66.3% of the marketers were female, while 33.7% were male. This may be because the steps involved in assembling, processing, and parboiling rice for marketing may be difficult for males to withstand. This supports the findings of Inuwa et al. (2024), who observed that women dominate rice processing and marketing activities in Kano State due to their involvement in post-harvest handling and trading operations. Most (97.4%) of the marketers were literate with one form of formal education or the other, enhancing their capacity to adopt innovations. The finding further shows that the majority (63.2%) of the marketers were married, potentially contributing to livelihood stability. The marketers' experience levels are substantial, with most (47.3%) of the respondents having 6-10 years' experience in marketing, aligning with evidence that experience enhances market operations. Most households are large (with an average of 5 persons) remains a potential labour source, though their importance may be declining with urbanization (Rukwe et al 2023).

Table 1.1 Socio-Economic Characteristics of Local Parboiled Rice Marketers

Characteristics	Frequency	Percentage (%)
Age		
≤ 25	20	10.5
26-35	80	42
36-45	60	31.5
46 years & above	30	16
Sex		
Male	64	33.7
Female	126	66.3
Educational Level		
No formal Education	15	8
Primary School	87	45.7
Secondary School	50	26.3
Tertiary	38	20
Year of Marketing Experience		
1-5	68	35.7
6-10	90	47.3
11 years & above	32	17
Family Size		
1-5	66	35
6-10	97	51
11 & Above	27	14
Marital Status		
Single	50	26.3
Married	120	63.2
Divorced	20	10.5
Major Occupation		
Full-time Parboiled Rice Marketers	90	47.3
Farming	60	31.5
Artisan	30	16
Civil Servant	10	5.2
Source of Capital		
Personal saving	70	37
Friends/Family	60	31.5
Cooperative Society	40	21
Bank Loan	20	10.5

Source: Field Survey Data, 2025

Average Costs and Return of Parboiled Rice per Month

From the result in Table 4.8, the total cost of parboiled rice per month was ₦396,685, while total revenue was ₦454,500, gross marginal and net profit were ₦56,400 and ₦55,215, respectively; this implies that parboiled rice marketing in the area was profitable. The finding is in agreement with Esheya (2021) in a study that evaluates the profitability of rice processing in Ebonyi State, Nigeria. Reported that the high values of both gross income and net farm income are an indication that rice processing is a profitable agribusiness venture in the study area. The

estimated Return on Investment (ROI) of 13.83% implies that for every ₦1.00 invested in the parboiled rice business, the marketer realized approximately ₦0.14 (14 kobo) as profit. This positive ROI indicates that the enterprise is profitable, although the return is lower than the average return of ₦0.45 per ₦1 invested reported by Obiabo et al. (2024) among small-scale agro-processing enterprises in Benue State, Nigeria. Nevertheless, the positive return confirms the economic viability of the parboiled rice business

Table 1.2: Average Analysis of Costs and Return of Parboiled Rice per Month

Items	Value (₦)
A. Revenue	
Sale of Parboiled Rice	454,500
Total Revenue	454,500
B. Variable Cost	
Cost of Parboiled Rice	388,500
Cost of Loading	1,050
Cost of Offloading	1,050
Transportations	4,250
Cost Storage	2600
Miscellaneous Cost	650
Total Variable Cost	398,100
C. Fixed Cost	
Rent per month	910
Taxes per month	275
Total Fixed Cost	1,185
Gross Margin= TR-TVC= A-B	56,400
Total Cost = TFC+TVC=C+B	399,285
Net Profit = GM-TFC OR TR-TC	55,215
ROI= NP/TC X 100	13.83%

Source: Computed from Field Survey Data, 2025

Analysis of the Effects of Socio-economic Characteristics on the Gross Margin of the Local Parboil Rice Marketers

The result of the multiple regression analysis used to examine the analysis of effects of socio-economic characteristics on the gross margin of the respondents is presented in Table 4.9. The double logarithm function was chosen as the lead equation based on economic, econometric and statistical criteria. The coefficients of five out of the eight explanatory variables used in the model were significant at varying levels of significance and have the expected signs. These variables include: Initial Capital (X_1), Age of Marketer (X_2), Membership of a group (X_5), Quantity being handled per week (X_7), Marketing cost (X_8). The value of the coefficient of determination R^2 of 0.79 indicates that 79% of the variation of gross margin of the respondents is explained by the variables used in the model, an indication that the data have fitted well into the model. The overall model is also significant at 1% level, as indicated by the value of the F-statistic. The coefficient of initial capital (X_1) is significant at 1% level and positively related to the gross margin. This implies that an increase in initial capital of parboiled rice marketers will lead to an increase in the gross margin. This finding is consistent with the study of Hassan *et al.* (2026), who reported that the coefficient of initial capital is positively related to the gross margin. Meaning that an increase in initial capital of parboiled rice marketers will lead to an increase in the gross margin.

The age of the marketer (X_2) was statistically significant at 1% level and had a greater influence on the parboiled

rice gross margin of the marketer. This means that the gross margin of the parboiled rice marketer increases with a rise in the marketer's age. In other words, older parboiled rice marketers tend to have higher gross margins than the younger ones. This result compares favourably with the findings of Hassan *et al.* (2026). The positive sign in membership of a group (X_5) indicates that being a member of a cooperative society will lead to an increase in the gross margin of the parboiled rice marketer in the study area. The finding is contrary to the finding of Gaya *et al.* (2024), who reported that an increase in membership, holding other variables constant, will lead to a decrease in the marketer's gross margin. The coefficient of quantity being handled per week (X_7) is also significant at 1% level and positively related to the gross margin. This implies that an increase in the quantity of parboiled rice handled per week will lead to an increase in the gross margin.

The Marketing cost (X_8) is significant at 1% level and inversely related to the gross margin. This implies that an increase in gross margin is accompanied by a corresponding decrease in the price paid by marketers for the commodities. This is in agreement with economic theory. All things being equal, when the cost of parboiled rice sold to marketers decreases, and the selling price of the commodity remains unchanged, marketers are more likely to make higher profits, which will in turn increase the gross margin. This collaborates with the findings of Onogwu *et al.* (2023).

Table 1.3 Result of Multiple Regression Analysis

Variables	Parameters	Coefficients	Standard Errors	T- value	Sign
Constant	β_0	2.388	0.358	6.677***	0.000
Initial Capital (X_1)	β_1	0.373	0.040	9.385***	0.000
Age of Marketer (X_2)	β_2	0.320	0.107	2.988***	0.003
Sex (X_3)	β_3	0.015	0.022	0.692	0.490
Marital Status (X_4)	β_4	-0.046	0.025	-1.844	0.067
Membership of a group (X_5)	β_5	0.044	0.018	2.449**	0.015
Family size (X_6)	β_6	-0.014	0.052	-0.272	0.786
Quantity being handled per week (X_7)	β_7	1.129	0.111	10.215***	0.000
Marketing cost (X_8)	β_8	-0.466	0.094	-4.939***	0.000
R-squared 0.793					
F-statistic 87.022***					

Source: Field Survey Data, 2025

*** Significant at 1% level ** significant at 5% level

Constraints Associated with Parboiled Rice Marketing

The constraints to parboiled rice marketing, according to the respondents, are shown in Table 4.12. The table reveals that the most severe constraints to parboiled rice marketing were inadequate capital, (82.11%) and inadequate transportation, (69.47%) as they ranked first and second respectively according to severity, the findings agrees with Maman *et al.* (2025) who reported that inadequate capital and unstable price were the major constraints of marketing of the locally processed rice among small-scale processors in Lafia local government area of Nasarawa State Other constraints, though not severe, include the low price of the commodity (11.05%) and packing (21.58%). These constraints can affect the efficiency of parboiled rice marketing.

Table 1.4 Constraints in Parboiled Rice Marketing in the Study Area (n = 190)

Constraints	Frequency*	Percentage	Rank
Inadequate Transportation	132	69.47	2
Inadequate Storage facilities	67	35.26	4
Packing	41	21.58	8
Uploading and Offloading	55	28.95	5
Taxation	83	43.68	3
Lack of credit facility	156	82.11	1
Low price of the commodity	21	11.05	9
Price fluctuation	53	27.89	6
Location not strategic	18	9.47	10
Inadequate Market Information	45	23.68	7

Source: Field Survey, 2025 *Multiple Response

CONCLUSION

The finding of the study was that local parboiled rice marketing is profitable in the study area. The study reveals that par-boiled rice marketers in the study area were predominantly young. This implies that most of them can afford to engage in various livelihood activities that will contribute to improved household wellbeing. The study also reveals that the most severe constraints to parboiled rice marketing were inadequate capital and inadequate transportation, as they ranked first and second, respectively, according to severity.

RECOMMENDATIONS

1. The locally processed rice marketers are encouraged to form a cooperative to enable to access credit and also enjoy bulk purchase and sales.
2. Government, financial institutions, and development partners should design low-interest and easily accessible credit schemes specifically targeted at rice marketers to address the challenge of inadequate capital.

3. Good road infrastructure should be provided to ease the transportation of farm produce from the farm to the market.

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