

## Economic Analysis of Marketing Locally Milled Rice at Micro Scale in Ogoja Local Government Area of Cross River State, Nigeria

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### ABSTRACT

Nigeria is a major producer, importer and consumer of rice in Africa. The country produces and mills about 60% of the quantity of rice being consumed by its citizens. Ogoja Local Government Area of Cross River State is a significant producer of paddy rice in the South-South Zone and major supplier of same to the popular Abakaliki Small Scale Rice Mills. The study examined the profitability of marketing locally milled rice at micro scale level in the Local Government Area. Five villages were purposively sampled for the study due to the high population of rice traders/marketers within them. They were Bansara, Ebung, Ekwaro, Down Ibil and Ishiaya. The study depended mainly on primary data which were collected through structured questionnaires, oral interviews, personal observations and the use of a weighing scale. A total number of fifty (50) questionnaires were administered to rice traders who were randomly selected from the five (5) villages and ten (10) respondents from each village. Data were analysed using descriptive statistics, budgeting analysis, profitability analysis and marketing efficiency measures. The results of the study revealed that the majority of rice traders were male, literate and within economically productive age bracket. An average net income of N2726.5 per 100kg paddy rice was obtained for rice traders with an average rate of return of 0.35 and a gross ratio of 0.73. The marketing efficiency measure showed that rice traders had a marketing efficiency index of 1.38. The major challenges of the rice traders were insufficient supply of paddy rice and lack of access to credit.

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**Keywords:** Rice, Milling, Economic Analysis, Ogoja.

### Introduction

Rice (*Oryza sativa*) is a unique major food crop of the world by virtue of the extent and variety of uses and its adaptability to a broad range of climatic, and

edaphic and cultural conditions (Mikkelsen and Dedatta 1980) It is the second largest consumed cereal (after wheat) and provides for more than half the world's population about 80 per cent of its food calorie requirements Inuwa *et al.* (2011). In Nigeria, rice occupies an important place as one of the major staples which can provide the nation's population with the nationally required food security minimum of 2,400 calories person per day FAO (2000) (quoted in Bamidele *et al.* (2010). According to Doreo-Partners (2013), rice accounts for 15% of Nigerian's diets. In 2010 the total demand for milled rice in Nigeria was estimated to be about 5 million metric tons out of which 3.2 million metric tons of paddy rice i.e. 2.21 million metric tons of milled rice was produced locally and the deficit of 2.79 million metric tons was bridged by importation Inuwa *et al.* (2011). In 2011/2012 Nigeria was able to raise her local rice production to 2.9million metric tons USDA GAIN (2013) Imports in year 2012/2013 were forecast at 2.3 million metric tons which would have reduced importation by 17.56%. It was hoped that local production of milled rice would be 2.9 million metric tons in the said period USDA GAIN (2013). However the floods which occurred in July through October in 2012 aborted every plan of Government of increasing the country's local production of paddy and milled rice. Out of the estimated 2.58 million hectares harvest forecast for the year 2012/2013 only about 2 million hectares were actually harvested due to flooding resulting in the production of only 2.4 million metric tons of milled rice instead of the 2.9 million metric tons estimated. USDA GAIN (2013). The Government is putting everything place to increase local rice production and make the country self-sufficient in the face of the frightening projection which puts Nigerian's demand for milled rice in 2050 at 36 million metric tons, an increased demand that will be driven majorly by population increase and urbanisation Doreo-partners (2013) and cause the country to be spend 150 billion US dollars (~~N~~23.4 Trillion) in importation. According to the Federal Minister of Agriculture, Nigeria would not be able to afford such a huge expenditure THIS DAYLIVE (2012). Some of the strategies to achieving self-sufficiency are the inauguration of the Government Agricultural Transformation Agenda (ATA) under which a Rice Transformation Agenda (RTA) is being pursued. The main thrusts of the RTA is in the increasing of the total hectares on which rice is cropped, provision of improved seed variety (NERICA), fertilizers and other agro-chemical and processing mills at subsidized rates through the Growth Enhancement Support (GES) Scheme of the Federal Government Gyame (2012).

Tariffs on imported brown rice have been raised to 30% and to 100% for milled rice in order to protect local rice production THIS DAYLIVE (2013) and a total ban on rice importation are expected to be in effect as from 2015. The combined effects of these measures should result into the production of an estimated 3.1 million metric tons of milled rice in year 2013/2014 USDA GAIN (2013) and 6.4millions metric tons of same in 2014/2015 Gyame (2012). With these plans of increasing local production of rice, attention should also be imperatively given to the aspect of rice processing and marketing. It is therefore, the objective of his study to do an economic analysis of the marketing of locally milled rice at micro scale. The specific objectives of the study are:

1. Determination of the cost components of marketing locally milled rice
2. Determination of the net income profitability and marketing efficiency index of locally milled rice.

### **Materials and Methods**

The study area was Ogoja Local Government Area of Cross River State. Ogoja is a distance of 198 kilometres north of Calabar the capital of Cross River State and 84 kilometres east of Abakaliki the capital of Ebonyi state. The Local Government has a land area of 973qkm with a population of 171,901 (2006 provisional census). Ogoja is naturally blessed with many hectares of swamp land on which rice is annually being cultivated. Though there are few small rice mills at Ndok-Junction in Igoli-Ogoja, more than 90 per cent of the paddy rice produced in Ogoja Local Government Area is being carted to Abakaliki for milling and sales. This is so because few milled rice wholesale buyers patronise the Ndok-Junction, Ogoja rice mills. Five villages namely: Bansara, Egbung, Elwaro. Down Ibil and Ishiaya were purposively selected because of the high population of rice traders within their boundaries. Incidentally, the rice traders equally cultivate rice and begin the marketing season with the output of their own farms. Thereafter, the traders begin to buy, process, and mill and sell rice repeatedly until they can not get paddy rice to buy. The study covered a period of 6 months (December 2012 to May 2013) in which prices as well as supplies of paddy rice were weekly monitored.

By the month of May, the milled rice traders hardly find paddy rice to buy so the processing/marketing season ends. Also prices of milled rice were monitored during the said period. Data were collected with aid of structured questionnaires, oral interview, personal observations and the use of a 50kg

weighing scale. Purposive random sampling technique was employed in administering the questionnaires because the study was targeted at milled rice traders. A total of 50 milled rice traders were selected for the study from the 5 villages. All 50 questionnaires were returned and used for the study.

Descriptive statistics, budgeting analysis, profitability analysis and marketing efficiency index were employed for the analysis of the data.

The Net Income was calculated as follows:

$$NI = GI - TC \dots\dots\dots (1)$$

Where

- NI = Net Income (N)
- GI = Gross Income (N)
- TC = Total Cost (N)

The profitability of marketing milled rice was determined using the following.

$$\text{Rate of Return} = \frac{NI}{TC} \dots\dots\dots (2)$$

NI and TC are already defined.

**Gross Ratio:** Measures the overall success of an investment; the lower the ratio, the higher the rate of return per Naira.

$$\text{Gross Ratio} = \frac{TC}{GI} \dots\dots\dots (3)$$

TC and GI have been defined.

The Marketing Efficiency Index is measured as follows:

$$MEI = \frac{NI}{MC} \dots\dots\dots (4)$$

Where

- MEI = Marketing Efficiency Index
- NI = Already defined
- MC = Marketing cost

Erhabor *et al.* (2008) defined marketing efficiency index as the amount of profit that accrues to every one Naira spent on the marketing process.

## Results and Discussion

**Table 1: Socio-Economic Characteristics of Respondents**

Variable	Frequency	Percentage
Sex		
Male	50	100
Female	0	0
<b>Total</b>	<b>50</b>	<b>100</b>
<b>Age Range (Years)</b>		
15 – 24	0	0
25 – 34	19	38
35 – 44	13	26
45 – 54	10	20
55 – 64	6	12
Above 65	2	4
Total	50	100
<b>Educational Level</b>		
No. Formal Education	0	0
Primary	20	40
Secondary	21	42
Tertiary	9	18
<b>Total</b>	<b>50</b>	<b>100</b>
<b>Household Size</b>		
1 – 4	23	46
5 – 9	23	46
10 – 14	4	8
<b>Total</b>	<b>50</b>	<b>100</b>
<b>Experience (Years)</b>		
1 – 5	4	8
6 – 10	7	14
11 – 15	11	22
16 – 20	6	12
21 – 25	9	18
26 above	13	26
<b>Total</b>	<b>50</b>	<b>100</b>
<b>Quantity (tons) Processed per Season (6 months)</b>		
1 – 10	3	6
11 – 20	5	10
21 – 30	35	70
31 – 40	4	8
40 – 50	3	6
Above 50	0	0
<b>Total</b>	<b>50</b>	<b>100</b>

**Source: Field Survey 2013**

Table 1 revealed that all sampled rice traders were male. This is in line with the study of Ugwuanyi *et al.* (2008) which reported that male dominated the rice processing trade due to the physical labour required in handling agricultural marketing. The milled rice trade involves travelling from village to village in

search of paddy rice, measurements, turning/bagging, carriage/loading/carting and parboiling which are too cumbersome for females.

84% of respondents fall within the age bracket of between 25-54 years with a mean age of 40 years and are therefore, considered as youths. This has a positive effect on milled rice trading in respect to the cumbersome activities associated with it since youths are endowed with strength and vigour.

According to Ugwanyi *et al.* (2008), education is an important socio-economic factor that influences people's decision because of its influence on people's awareness, perception, reception and adoption of innovations that can bring about increase in profit margin. The educational levels of the respondents as shown revealed that 60% of them have secondary and tertiary education and 40% have primary education. These levels of education are good enough to influence the search of market opportunities, parboiling and drying skills and the adoption of improved technologies.

A household is made of a head, wife/wives, children and extended family relatives Alabi and Adebayo (2008). In the above table it is revealed that the average household size of the respondents was 6. This is equally in line with the findings of Ugwuanyi *et al.* (2008) who reported an average family size of 6 for milled rice traders in Uzo- Uwani Local Government Area of Enugu State.

This large size could positively or negatively affect productivity/income generation and expenditure depending on the age structure and financial demands of the individual members of the household. Adult members of a household contribute positively to family income while household composing majorly of children will reduce family income through payment of school fees and other bills.

The processing and marketing experience of the respondents is presented in Table 1. Most of the respondents (78%) have processing and marketing experience of between 11 and above 26 years. This could mean that they have acquired the good experience required in paddy rice purchasing, parboiling, drying and marketing of milled rice.

The average quantity of paddy rice processed in a trading season which stretches over a period of 6 months (December to May) is presented in Table 1.

The mean quantity was 25 metric tons. It is noted that traders hardly find rice to buy as from the month of May so they return to their farms.

**Table 2: Costs and Returns Analysis for Milled Rice Traders 100kg Paddy**

Rice Items	Amount (N)	% Cost	Rank
Variable cost	(N100kg bag)		
Paddy Rice	5700	73.7	1
Transportation of Paddy Rice	100	1.3	6
Fire Wood	125	1.6	5
Water	75	1.0	7
Parboiling / Drying	250	3.2	4
Cost of bags, needle and thread	120	1.6	5
Bagging and sewing	100	1.3	6
Loading and offloading	120	1.6	5
Transportation of parboiled rice	400	5.2	3
Produce / Haulage	120	1.6	5
Milling cost	565	7.3	2
Depreciation on parboiling items	55.5	0.7	2
Average total expenditure	7730.5	100	
Average selling price/bushel	23kg	3700	
Average gross income	10456		
Average Net Income	2726.5		
Average Annual Net Income	681625		
Average rate of return	0.35		
Average gross ratio	0.73		

- Output of 100kg Paddy Rice = 65kg Milled Rice
- 1 Bushel of Milled Rice = 23kg
- Average Quantity of Paddy Rice Processed Per Annum/Trader = 25Tons  
i.e 25000kg

**Source: Analysis of Field Survey 2013**

Cost and returns analysis for milled rice traders in Ogoja LGA is presented in table 2. The average variable cost of processing and marketing 100kg paddy rice was N7730.5 with the cost of purchasing paddy rice ranking first N5700. The least cost factor was the cost of water N75. The fixed cost consists of depreciation on parboiling drums, basket, mats, spades and rakes. The Average net income of N2726.5 was realised from processing 100kg paddy rice. This translated to an average annual net income of N681625 per milled rice trader for a trading season of about six months. An average rate of return of 0.35 was realised for processing 100kg paddy rice -meaning that for every N1.00 invested, N0.35 (35kobo) was realised. The average gross ratio of 0.73 was obtained and since this value was less than 1, profit was made.

### Marketing Efficiency Index for 100kg Paddy Rice

**Table 3: Average Cost Components in Marketing 100kg Paddy Rice (₦)**

Component	Amount (₦)	% Cost	Rank
Transportation of paddy and parboiled rice	500	25.3	2
Firewood	125	6.3	4
Water	75	3.8	7
Parboiling / drying	250	12.7	3
Items for bagging	120	6.1	5
Bagging and sewing	100	5.1	6
Loading and offloading	120	6.1	5
Produce / haulage	120	6.1	5
Milling charge	565	28.6	1
Total	1975		
Net income	2726.5		
Marketing efficiency index	1.38		

**Source: Analysis of Field Survey 2013.**

The cost components of processing and marketing 100kg/paddy rice in Ogoja LGA of Gross River State are presented in table 3. The total average cost of processing and marketing of 100kg/paddy rice was N1975. The cost of milling N565 (28%) was the highest cost factor. This finding agrees with Ugwuanyi *et al.* (2008) who recorded high milling cost component for rice marketing in Uzo-Uwani LGA of Enugu State. Transportation ranked second N500 (25.3%) and parboiling/drying rank third N250 (12.7%) the least important cost was water cost N75 (3.8%). The marketing efficiency index was 1.38 indicating that a profit of N1.38 was made from every one Naira spent on the marketing process.

### Conclusion and Recommendation

The study revealed that rice processing/marketing is profitable and economically efficient in the study area. An average net income of N2726.5 per 100kg paddy rice was obtained for rice traders with an average rate of return of 0.38 and a gross ratio of 0.73. An average annual net income of N681625 was obtained per trader. For the every N1 spent on the marketing process N1.38 was gained. The major challenges of the rice traders were insufficient supply of paddy rice, lack of access to credit and high cost of transportation. In the Agricultural Transformation Agenda, Government should pay adequate attention to irrigation and make credit easily available to milled rice traders. Also rural roads should be maintained and made passable at all times.



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