

Economics analysis of rice marketing in Mubi North Local Government Area of Adamawa State, Nigeria

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Abstract. *The purpose of the study was to make an economic analysis of rice marketing in Adamawa State, Nigeria. Rice marketing system, constraints associated with cost and return of rice marketing and problem of rice marketing were examined. A total of 60 respondents were selected using multi-stage random sampling technique. A structured questionnaire was designed in line with the objective of the study and administered by means of interview scheduled in generating the data analyzed. Both descriptive (frequency, tables and percentages) and inferential statistics (profitability analysis, total cost and return) were employed to the analyzed the data. The result of the analysis showed that the major form of processed rice that is marketed in the area is regular milled white rice. The gross margin obtained was ₦235690.00 (US\$656.55) showing that the marketing of rice is profitable. From the study, the profitability ratio shows that it is viable with every ₦1.00 invested in rice marketing giving a return of ₦2. The major constraints associated with rice marketing include high cost of transportation and inadequate processing facilities. The study suggests an improvement of the road network system and provision of agricultural credit to enable rice traders expand the volume of their operations. It was also recommended that agricultural training workshop in rice marketing should be used from time to time to educate producers and marketers on storage and distribution processes.*

Keywords: rice marketing, respondents, questionnaire, profitability analysis, gross margin

Introduction

Rice has become an important strategic, daily staple food in Nigeria and the potential land for cultivation is between 4.6 and 4.9 million hectares. Out of this only 1.7 million or 35% of the available land area is presently cropped to rice (Nwilene et al., 2014). According to FAO, the five highest rice producing countries are China (204 285 000 metric/tones), India (152 600 000 metric/tones), Indonesia (69 045 141 metric/tones), Vietnam (43 061 569 metric/tones) and Thailand (37 000 000 metric/tones) (FAOSTAT, 2014). Direct seeded rice culture is a promising cost-effective technology requiring less labour and water than the conventional transplanted one. But uneven crop stand and high weed infestation are among the constraint for its wide scale adoption (Farooq et al., 2011). Despite variation across the country, the average rice yield was 2.3 t/ha (IFPRI, 2014).

In West Africa sub-region, Nigeria is the largest producer of rice (Oyinbo et al., 2013). About 5.4 million metric tons of rice is consumed annually in Nigeria. Rice has been an important food for most people in sub-Saharan Africa particularly West Africa where the consumption of cereals mainly sorghum and millet has decreased while that of rice has increased as a result of shift in consumers' preference, urbanization and increase in population. Rice is notably palatable and can digest easily. It is grown approximately on 3.7 million hectares of land in Nigeria, covering 10.6% of the 35 million hectares of land under cultivation, out of a total arable land area of 70 million hectares (Cadoni and Angelucci, 2013). Increasing rice production could therefore, contribute to domestic food security and foreign exchange earnings for the nation.

Marketing is that part of economics which deals with the cre-

ation of time, place and possession utilities. According to Aderigbe (1997) marketing of local rice is divided into four stages which include: production through harvesting, movement from the farm to processing centres, movement of the milled rice from processing areas to urban consumption centres and finally the wholesaling and retailing in urban centres. After the abolition of the marketing boards, private individuals were in full charge of marketing of locally produced rice. An association of market men and women exists in most urban markets (UNEP, 2005). The most significant characteristic of a sound marketing system lies in the distribution channel (Rahman et al., 2006).

Despite recorded increase in rice production and importation, the government have always proposed serious attention in the area of primary production; that is, raising domestic output of rice. But usually lacked implementation and adequate knowledge especially in the study area on how rice market is organized, how the various key actors are performing in terms of distribution of gains along the chain. The challenges facing performers along the rice value chains in the country and their feasible solutions are not clearly known. Thus, research on the rice subsector is important so as to provide insights on the marketing conduct and channels, distribution of accrued benefits and associated challenges. In most traditional selling systems, farmers tend to receive minimal profit (RIU, 2010).

Marketing of agricultural products, particularly rice in different areas. Such studies focused on a wider range area such as the concept of market and marketing, grain marketing to the economic aspects of marketing. Furthermore, scholars have also delved into the problems of agricultural marketing as well as its importance in economic development. In this part of the study an

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attempt is made to cite and examine the relevant works of other authors and researchers on the economics of marketing an agricultural product, especially analysis of rice marketing.

Material and methods

Study area

The study was conducted in Mubi North Local Government Area (LGA) of Adamawa state, Nigeria. This area is one of the 21 LGA of Adamawa State. The area lies between Latitude 9°50' and 10°50'N and longitude 10°10' and 13°50'E of the Greenwich meridian. It has land area about 2864.24 km² with a population of 245460 persons and density of 160.5 persons/km² (NPC, 2006). The concentration of people in the region might be attributed to physical as well as historical factors. Such physical factors like favourable climate and soil condition have without doubt contributed to the success of agriculture in the region. The climatic condition of Mubi North LGA is typically tropical, hence marked by two seasons; the wet season and the dry season. The tropical climate is marked by dry and raining season with annual rainfall of 900-1100mm. The rainfall begins in April and ends in October (Adebayo 1999). The predominant ethnic groups found in the area include: Fali, Gude, Fulani and few Hausa speaking community and their predominant occupation is farming, trading food grain/commodity marketing which generate a lot of income and wealth to the people. As such agriculture became an important sector of the economy to the community, virtually at all levels, house-hold engage in one form of farming or another, but mostly on subsistence level (Adebayo, 2004).

Sources of data collection

Data for this study were obtained from primary sources. The data was collected from the respondents with the aid of a structured questionnaire.

Sample size and sampling techniques

The structured questionnaire was designed in line with the objective of the study. Data were collected using multi-stage random sampling. Mubi district was purposively selected based on its relative importance in rice marketing. Two markets were randomly selected from the districts and the final stage in the sampling exercise was the random selection of 60 respondents.

Methods of data analysis

Descriptive statistical analysis (frequency tables and percentages) and inferential statistics such as Profitability analysis model were used to analyze the data.

The profitability model is given as:

$$NF1 = TR - (TVC + TFC),$$

Where:

NF1 = Net farm income;

TR = Total revenue;

TFC = Total fixed cost;

TVC = Total variable cost.

Total cost and total returns marketing analysis

The formula is as follows;

$$GM = TR - TVC,$$

Where:

GM = Gross margin (Naira/ha);

TR = Total revenue (Naira/ha);

TVC = Total variable cost (Naira/ha).

Results and discussion

Socio-economic characteristics of the respondents

The results presented in Table 1 shows the distribution of the respondents by their age. 50% of the rice marketers were within 35-44 years of age, 21.7% were between 45-54 years, 15% were between 55-64 and less than 3.3% were more than 65 years of age. This means that the majority of the rice marketers were between 35-50 years. This may be because it is an economically active age range, and still have the energy for marketing. This is in line with the study of Adubi (2003). The data also shows the respondents with ≥65 years constituted the lowest percentage of (3.3%). This could be the result of their old age. Thus, the physical energy they need for performance in marketing has declined and this accounts for why they constituted the very low percentage.

Table 1. Socio-economic characteristics of rice marketers

Variables	Frequency	Percentage, %
Age (years)		
35-44	30	50.0
45-54	13	21.7
55-64	9	15
≥ 65	2	3.3
Gender		
Male	32	53.3
Female	28	46.7
Total	60	100
Marital status		
Married	52	87.0
Single	8	13.0
Total	60	100
Educational level		
Non formal	11	18.0
Primary	25	42.0
Secondary school	19	32.0
Tertiary	5	8.0
Total	60	100
Amount of credit obtained (₦) (1 ₦ = 0.0028 US\$)		
No credit	11	18.3
1000 - 10000	29	48.3
11000 - 20000	9	15.0
21000 - 30000	4	6.7
31000 - 40000	4	6.7
More than 40000	3	5.0
Total	60	100
Quantity of rice (bags)		
1 - 6	45	75.0
7 - 9	12	20.0
10 - 15	3	5.0
16 - 50	0	0
Total	60	100
Information source		
Other farmers as (friends)	18	30.0
Consumer	8	13.3
Intermediaries/traders	34	56.7
Total	60	100
Information source		
Useless	2	3.3
Moderate	40	66.7
Good	18	30.0
Total	60	100
Types of rice available on the market		
Parboiled	26	43.3
Brewers	2	3.3
Regular milled white rice	22	36.7
Rice meal and flour	10	16.7
Total	60	100
Type of intermediary		
Wholesaler	17	28.3
Retailer	43	71.7
Total	60	100

Source: Field survey, 2018

The study reveals that male respondents comprise 53.3% while 46.7% go for the female. This shows that more than half of the respondents are males. This means that more males participate in rice marketing. Women are less involved maybe due to stress of conveying rice from one place to the other and also the rigor of changing its form.

Table 1 showed that the bulk of the respondents were married (87%) and 13% were single. This shows the majority of the marketers were married. The reason why the majority (87%) of the respondents are married is maybe the fact that married people have responsibilities more than those who are not so they need to go into rice marketing to provide food for their family members. However, the single have few or no responsibilities for which they need to provide for their needs.

The level of education of a trader is of significant importance in his decision-making process, whereas the majority had both primary and secondary education (74.0%). This means that rice marketers who are fairly educated would find it relatively easy in their dealing with consumers with respect to communication. Education level is evident to have an impact in all development activity of a human being (Quartey, 2011). This study agrees with the findings of Akpokodje et al. (2001) and Umeh and Aatorh (2007) who observed that most rice marketers can read and write in their study at their educational level.

The distribution of the respondents by the amount of credit received. The result revealed that 18.3% had no access to credit, 48.3% received between ₦1000-10000, 15.0% received between ₦11000-20000 and 6.7% each received between ₦21000-30000 and ₦31000-40000. Only 5.0% received above ₦40000. Accessibility to credit increases farmers' liquidity which, in turn, enhances their ability to purchase inputs and pay for hired labour. According to Oyewole (2012), accessibility of farmers to credit facilities would increase their access to marketing inputs which would increase marketing productivity.

The data shows the various level of quantity of rice produced by producers and marketers. Most of the handled or produced were producing within the range of 1-6 bags (1 bag = 100kg) of rice. The average output of rice produced by the farmers can be put at 45 bags (4500kg) while the average rice produce handled by the marketers is put at 12 bags. Given that a bag of rice is equivalent to 100kg, one can then conclude that the quantity of rice produced by farmers and/or handled by marketers is high enough to attract government interest and annual special grant for national economies of scale.

The study found that 30.0% are accessing market information from friends, 56.7% from intermediaries and 13.3% through consumers. High reliability of information from intermediaries indicates high concentration of the same in these villages, and the information given to them, though from different intermediaries, there is a danger of distorting it through collective pricing strategy. To understand patterns of interaction between different actors, it is first important to map linkages in general ways, but then it is also necessary to understand the nature and purpose of these linkages (Hall et al., 2007). The result indicates that marketers are satisfied with the information brought to

them (65.7% moderate), but they could not have said otherwise in absence of a modern system to compare with. A poor system of information on marketing to producers and heavy reliance on information from traders, who are likely to defend their own interests, indicates inefficiency in marketing.

Table 1 shows that, there are two main market intermediaries' retailers and wholesalers in the study area. Out of 60 respondents, 43 (representing 71.7%) were retailers while the remaining 17, which accounts for 28.3%, were wholesalers. To understand patterns of interaction between different actors, it is first important to map linkages in general ways, but then it is also necessary to understand the nature and purpose of these linkages (Hall et al., 2007).

The study indicated that the major method of processing rice is by parboiled (43.3%) because of higher market demand for the well-parboiled grain. Some respondents prefer regular milled white rice (36.7%). This shows that the dominant rice marketed in the area is the regular milled white parboiled rice. The study is in line with Kohls and Uhl (1990) on marketing of agricultural products that deals with types of rice available in the market.

Profitability analysis of rice marketing

The results in Table 2 showed that the total variable cost (TVC) was ₦103350, total fixed cost (TFC) was ₦ 9660, total cost of ₦113010, total revenue was 339040 with a net revenue of ₦226030 and Gross margin was ₦235690. Therefore, the Net farm income (NFI) obtained from the result was calculated with the total cost incurred and a total revenue given a total Net farm income of ₦226030. The profitability ratio of 2.00 suggests that every 1₦ invested in rice marketing is a viable venture. This finding is in line with Ohajianya and Onyenweaku (2003) conduct a similar study on analysis of costs and returns in rice in Ebony state. The cost incurred in rice marketing and the financial benefit from it was determined using gross margin analysis.

Table 2. Gross margin of rice processing and marketing (per annum)

Items	Frequency	Percentage. %
Total revenue	339 040	
Variable cost		
Seedling	10250	9.9
Fertilizer	7000	6.8
Labour	13000	12.6
Storage	25100	24.3
Pesticide	17500	16.9
Transportation	30500	29.5
Total variable cost	103350	100
Fixed cost		
Fixed (Bushel)	3600	37.3
Mat	1920	19.9
Shovel	840	8.7
Rake	720	7.4
Basine	1500	15.5
Basket	1080	11.2
Total fixed cost	9660	100
Total cost (TFC+TVC)	113010	
Gross margin (TR-TVC)	235690	
Net farm income (TR-TC)	226030	
Profitability ratio	2.00	
Net farm income (NFI)	226030	

Source: Field survey, 2018

Challenges associated with marketing of rice

The major challenges facing the respondents in their marketing activities were inadequate marketing facilities (33.3%), inadequate processing facilities (28.3%), which leads to low quantity of rice produced and lack of uniformity in price, inadequate credit facilities (21.7%) and problem of inaccessibility to feeder roads (16.7%), which leads to high cost of transportation (Table 3). Other constraints associated with rice marketing are lack of adequate storage facilities. The possible solutions to these constraints are provision of good roads to reduce cost of transportation, provision of adequate storage and producing facilities, provision of agricultural credit to enable rice marketing personnel and rice farmers expand. This means that the challenges involved in marketing of rice are inadequate marketing of rice facilities. This is in line with the study of Bassey et al. (2013) on intermarket performance and pricing efficiency of imported rice marketing in South Nigeria.

Table 3. Challenges associated with rice marketing

Challenges	Frequency	Percentage, %
Transportation	10	16.7
Credit facilities	13	21.7
Inadequate processing facilities	17	28.3
Inadequate marketing facilities	20	33.3
Total	60	100

Source: Field survey, 2018

Conclusion

Rice marketing is one of the major staple food marketing in Mubi North Local Government Area, Adamawa State and Nigeria at large. Although different policies have been formulated to enhance its production, the marketing of processed forms of rice seems not to have been given adequate recognition especially in the areas across Adamawa State. In spite of the major challenges of inadequate storage and processing facilities, the profitability analysis shows that the marketing of processed rice is a viable venture. Therefore, there is need for more research into adequate storage and processing methods of rice that is within the financial ability of the rural marketers especially in the study area.

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