

## MARKETING MARGIN AND MARKET EFFICIENCY OF SORGHUM IN BIDA LOCAL GOVERNMENT AREA OF NIGER STATE, NIGERIA.

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### Abstract

*The study examined sorghum marketing in Bida, Niger State. It assessed and described the socio – economic characteristics of sorghum marketers, cost and returns of sorghum marketing as well as marketing efficiency and marketing channels for sorghum. Twenty sorghum marketers were randomly selected from four markets in Bida town, giving a total of eighty respondents. The use of well structured questionnaire was employed to elicit information from respondents. Descriptive statistics was used to analyze the socio – economic characteristics of sorghum marketers. This analysis revealed that 51.25% of respondents were within the age group of 41 years, 63.75% of the respondents were females and only 23.75% had formal education. Capital acquisition was mostly sourced from friends and relatives. Gross margin analysis, marketing efficiency were all used to determine the profitability of sorghum marketing and to determine the market efficiencies. The study revealed a decentralized marketing channel in the different markets studied.*

**Keywords:** Marketing efficiency, gross margin analysis. Sorghum marketing

### Introduction:

Cereal grains are considered among the most basic foods and feeds. They are the major sources of food for the world's increasing population and are also used as feed for livestock (Bishop, 1983). Cereal grains include wheat, sorghum, rice, millet, barley, oats and rye. Cereal grains are excellent sources of needed nutrients, particularly the carbohydrates that furnish energy. They also contain valuable proteins and oils. According to Bookers (1992), grains compared to other food products are unique because of their suitability in transportation and their ability to maintain quality in long – term storage, if properly harvested and stored. Sorghum (*Sorghum bicolor (L) moench*) is an annual cereal crop that belongs to the genus Sorghum and

specie *bicolor* in the wide family of grasses called Gramineece, with good vegetative growth and some characteristics features that enable them to withstand grazing and trough to some extent (Cleaver and Schreiber, 1994). Nigerian Agriculture is largely under small scale farming system and the basic requirement of human life that sustain living is food. One of the most common grains in Nigeria is sorghum. Sorghum has been widely accepted and acknowledged as the most important food crop grown for commercial purposes in Niger State.

Sorghum enterprise production encompasses consumption, processing, sales and marketing. There exist vast uses of the crop for different varieties of food. These includes processing the sorghum into a rich flour and cooking into a thick paste to be eaten with soups, or making it into a thick paste to be given to children as a weaning age meal, and also drink for adults and the sick or as a convalescing meal. In addition it is brewed both locally and industrially into alcoholic and malted drinks.

Marketing plays a crucial role, by enhancing the provision of more and better food at low prices to increasing number of people (Ibrahim, 2002). An ideal of a marketing system, like any other system, is efficiency. An efficient marketing system would enhance better and appreciable profit margins for traders. The marketing of sorghum in Niger State has grown rapidly over the years and is surrounded by a myriad of problems, ranging from high exploitation by middlemen, high marketing costs, and instability of government policies in assisting marketers, inadequate and lack of good infrastructure to ease movement of products. There is therefore the need to assess the efficiency of sorghum marketers and determine the market margin in the study area.

The specific objectives of the study are to:-

- i. describe the socio – economic characteristics of sorghum marketers,
- ii. identify the marketing channel of sorghum and
- iii. determine the marketing margin and efficiency of sorghum marketers.

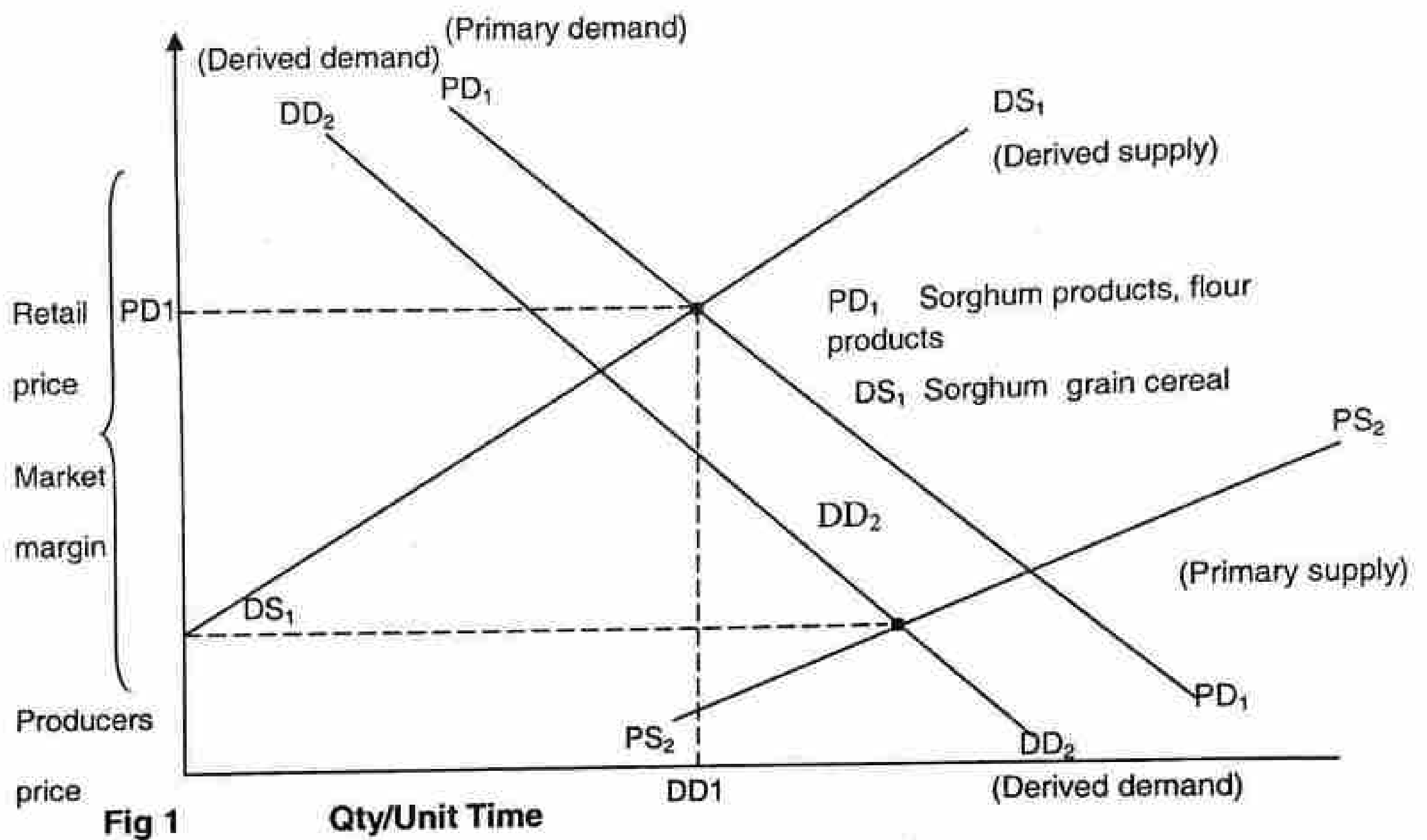
### **Theoretical Framework and Literature Review**

Abott and Makeham (1990), in their study of marketing margin of rice in India reported that middlemen got 55% of consumer price while farmers received 45% of same. Furthermore, studies on the marketing of eggs, beef, pork, fluid milk, bread and canned tomato by Olukosi *et al*; (2005), showed that farmers share on this products were 69% for eggs, 60% for beef, 56% for pork, 44% for fluid milk, 19% for bread and 15% for canned tomato. They further reported that the variations in the differences of the margin obtained by the two categories were as a result of length and nature of the activities undertaken on the produce before getting them to a form and place acceptable to the consumers.

Musa (2003), reported that speed as well as efficiency of marketing operations were crucial factors in determining the profit of a product. In agricultural marketing two major criteria for efficiency are pricing (economic or allocative) and operational (technical) efficiency. Efficiency in the Agricultural industry is the most frequently used measure of market performance. Thus

improved market efficiency is a common concern of farmers, food marketing firms, policy makers, consumers and the society at large. Olukosi *et al.* (2005), made it clear that efficiency is an engineering terminology which is measured as a ratio of output to input. He further added that the higher the efficiency ratio, the higher is the marketing efficiency.

### Graphical Determination of Marketing Margin for Sorghum and Sorghum Products



Source: Olukosi *et al.*, 2005

According to Olukosi *et al.*, (2005), marketing margin could be considered from two points as:

- a. the difference between the price paid by consumers and that received by producers
- b. as the outcome of the demand for and the supply of such services.

Under the first scenario marketing margin is simply the difference between the primary and derived demand for a particular product. The retail price for sorghum and sorghum products is established at the point where primary demand and derived supply intersects i.e.  $PD_1 = DS_1$ , here there is a primary demand  $PD_1$  for sorghum products such as sorghum flour, brewers by product from sorghum etc. while there also reveals a derived supply  $DS_1$  of sorghum grain cereal for the processing of sorghum flour (as a primary demand). This depicts the retail price. The farm level price for sorghum and sorghum products exists at the intersection of the derived demand and primary supply curves i.e.  $PS_2 = DD_2$ . Here there is a derived demand for sorghum grain cereal  $DD_2$  and a primary supply  $PS_2$  of sorghum flour, sorghum by products used by brewers etc. this depicts the producers price.

## Methodology

The area of study is Bida in Niger State, the state lies between latitude  $8^{\circ} - 39^{\circ}\text{N}$  and longitude  $6^{\circ} - 33^{\circ}$ . The state is bordered by Kebbi, Kogi state, Kwara, Kaduna states and Federal Capital Territory to the North – east and south – east, respectively. The state has a border with the Republic of Benin along New - Bussa and Agwara Local Government areas. This has given rise to common inter – border trades between the two countries. Niger State covers a total land area of about 8.3 million hectares, which represents 8% of total land area of Nigeria. About 85% of the total land area is cultivable. (Niger State Government Diary, 2003).

A two – stage sampling technique was employed. Bida local Government is made up of 2 districts, Bida North and Bida south. Firstly, two markets were selected from each district due to high marketing activities in the markets. Secondly 20 marketers of sorghum were randomly selected from each market giving a total number of eighty (80) respondents. Data were collected through the use of structured questionnaire. The data collected were analyzed using simple descriptive statistics like frequency tables, and percentiles, gross margin was used to determine the profitability of sorghum marketing. Estimates of cost and returns were made using average prices given by the marketers both whole sellers and retailers.

Mathematically, the formulas are depicted as follows,

$$\text{Gross margin} = \text{Selling price} - \text{Cost price} \text{ -----(1) (Kohl and Uhl, 1995)}$$

$$\text{Marketing Margin as a proportion of Selling price} = \frac{\text{Selling price} - \text{Supply price}}{\text{Selling price}} \text{ -----(2) (Olukosi et al., 2005)}$$

$$\text{Net margin} = \text{Marketing margin} - \text{Marketing Cost} \text{ -----(3) (Kohl and Uhl, 1995)}$$

$$\text{Marketing profit as a proportion of marketing margin} = \frac{\text{Marketing profit (Net margin)} \times 100\%}{\text{Marketing margin}} \text{ ----- (4) (Olukosi et al., 2005)}$$

$$\text{Marketing Efficiency (M.E.)} = \frac{\text{Value added by marketing} \times 100\%}{\text{Cost of marketing}} \text{ -----(5) (Olukosi et al., 2005)}$$

## Results and Discussion

### Socio –economic Characteristics of Respondents.

Table 1 reveals the socio – economic characteristics of the respondents. It shows that 74% of the respondents were 31 years and above and about 25% were found to fall below 31 years of age. This shows that older and the middle aged traders were involved in marketing of sorghum in the study area. The study further revealed that marketing of sorghum was mainly a preoccupation of the female gender with 63.37 percent of the traders being women. The results

indicated that majority (36.25%), of the respondents had quranic education. 61.25% of the respondents acquired their capital from friends and relatives, 28.75% sourced their capital from personal savings, and none of the respondents sourced their capital from the banks. This infers that sorghum marketers did not have access to bank loan.

**Table 1: Socioeconomic Characteristics of Respondents**

Variables	Frequency	Percentage (%)
<b>Age</b>		
11- 12	4	5
21-31	16	20
31-40	19	23.75
Above 40	41	51.25
<b>Total</b>	<b>80</b>	<b>100</b>
<b>Gender</b>		
Male	29	36.25
Female	51	63.75
<b>Total</b>	<b>80</b>	<b>100</b>
<b>Educational Status</b>		
No formal education	25	28.75
Quranic education	29	36.25
Primary education	4	5
Secondary education	19	23.75
Tertiary	4	5
<b>Total</b>	<b>80</b>	<b>100</b>
<b>Means of capital acquisition</b>		
Friends and relatives	49	61.25
Borrowing from informal source	8	10
Personal savings	23	28.75
<b>Total</b>	<b>80</b>	<b>100</b>

**Source: Field survey, 2006**

### Marketing Channel of Sorghum

Market channel indicates how the various market participants are organized to accomplish the movement of the product from the producer to final consumer. Figure 2 show that the rural assemblers and processors purchase the products directly from farmers. The major channels of movement are depicted by the broken lines while the unbroken lines show the minor path. The marketing channel exhibits that of a decentralized marketing system, since the path of movement shows that rural buyers, processors and even wholesalers purchase directly from the farmers. This further reveals that no organized large central and terminal market consisting of

commission men and brokers existed in the area. This is in agreement with Olukosi *et al.*,(2005) who reported that most agricultural products in Nigeria were mainly of the decentralized type,

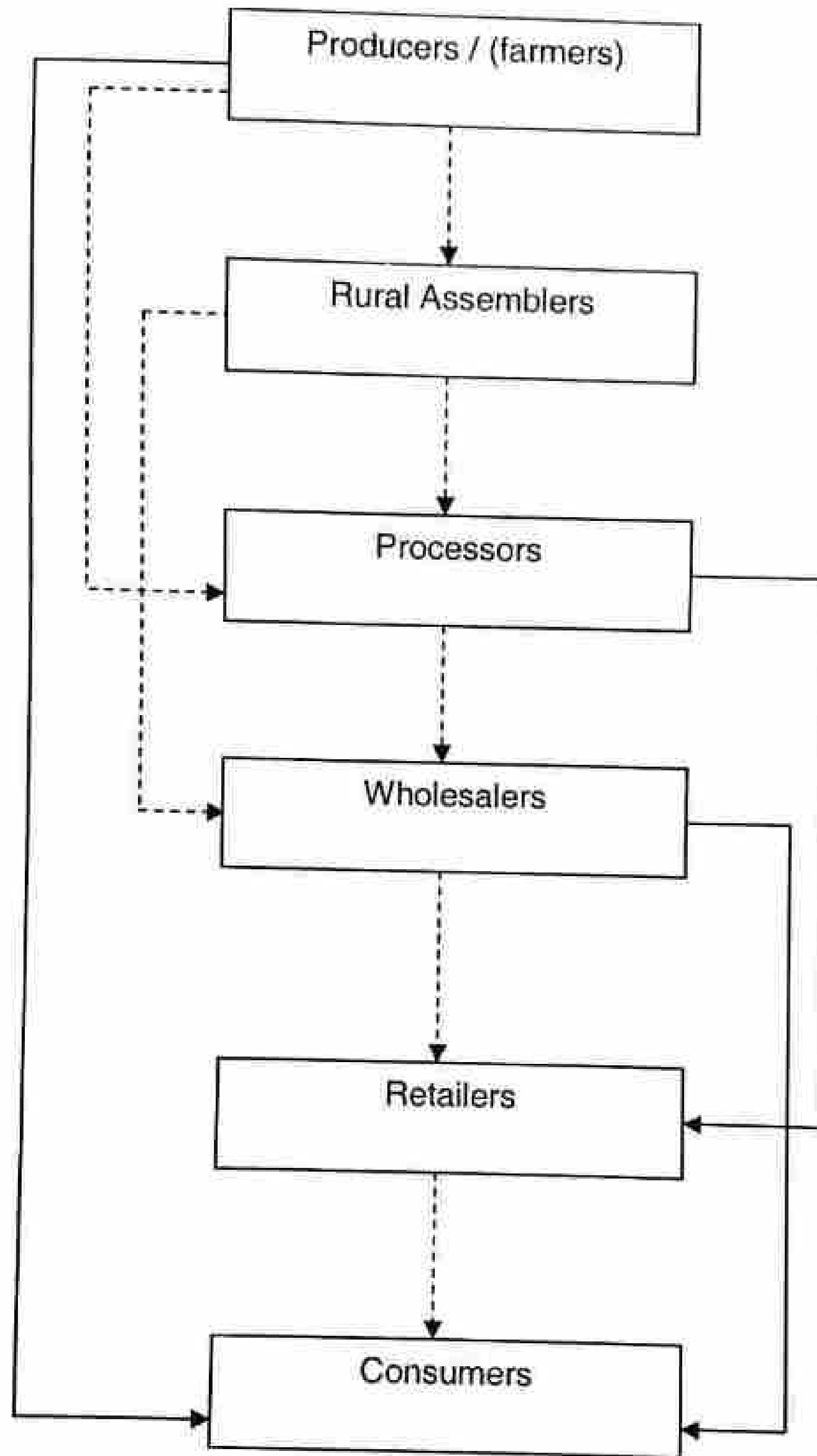


Fig. 2: Existing marketing channel of Sorghum in the study area

Source: Field survey, 2006

Table 2: Market margin and Efficiency of Sorghum Wholesalers

Marketing activity	Central Market (₦)	Makwala Market (₦)	Small Market (₦)	Modern Market (₦)
1. Supply (Farm Gate) Price.	2915.00	2752.00	3152.50	3065.00
2. Marketing costs incurred				
a. Transport Cost/Bag.	200.00	200.00	200.00	210.00
b. Loadings & off loading	40.00	40.00	40.00	40.00
c. Commission & levies	10.00	10.00	10.00	10.00
d. Renting of stall	10.00	None	10.00	20.00
e. Cost of bagging	20.00	20.00	15.00	10.00
<b>Total marketing costs</b>	<b>280.00</b>	<b>270.00</b>	<b>275.00</b>	<b>300.00</b>
3. Selling Price	3425.000	3322.50	3647.50	3572.75
4. Gross Marketing Margin	510.00	570.00	495.00	507.75
5. Gross Marketing Margin as a proportion of selling price	14.89%	17.5%	13.57%	14.19%
6. Marketing Profit (Net Margin)	230.00	300.00	220.00	207.75
7. Marketing Profit as a proportion of Marketing Margin	45.09%	52.63%	44.44%	40.91%
8. Marketing Efficiency	82.1%	90.0%	80.0%	69.25%

Source: Field survey, 200



### **Marketing Margin of Sorghum Wholesalers**

The costs of marketing of sorghum includes costs of transportation, bagging, loading and off – loading, commission and levies and renting of stalls. The results in Table 2 revealed that from the (four markets studied), producers share of the consumers price at the sorghum wholesale market accounted for N2, 915 (14.89% in Central market), N2,752 (17.15% in Makwalla market), N3,152 (13.57% in Small market) and N3,065.00 (14.19% in Modern market). It was evident from the above that, producers obtained a significant proportion of the profit margin along the marketing chain. This finding is in line with the work of Bello (2006), who reported in his studies that, producers got significant profit margin in tomato marketing in Jos metropolis.

The wholesalers share of the profits as revealed by the marketing profit as a percentage of marketing margin, showed significant profits realized of 45.09% in central market, 52.63% in makwalla market, 44.44% in small market and 40.91% in modern market respectively.



Table 3: Market Margin and Efficiency Of Sorghum Retailers

Marketing activity	Central Market	Makwala Market	Small Market	Modern Market
	(N)	(N)	(N)	(N)
1. Supply (Farm Gate) Price.	2975.00	2752.00	2880.00	2700.00
2. Marketing costs incurred				
a. Transport Cost/Bag.	100.00	100.00	100.00	100.00
b. Loadings & off loading	40.00	40.00	40.00	40.00
c. Commission & levies	5.00	10.00	10.00	10.00
<b>Total marketing costs</b>	<b>145.00</b>	<b>150.00</b>	<b>150.00</b>	<b>150.00</b>
3. Selling Price	3275.000	3084.00	3200.00	3000.00
4. Gross Marketing Margin	300	332.00	320.00	300.00
5. Gross Marketing Margin as a proportion of selling price	9.16%	10.76%	10%	10%
6. Marketing Profit (Net Margin)	155.00	182.00	170.00	150
7. Marketing Profit as a proportion of Marketing Margin	51.66%	54.82%	53.13%	50%
8. Marketing Efficiency	106.8%	121.33	113.33%	100%

Source: Field survey, 2006

## Marketing Margin of Sorghum Retailers

The cost of marketing revealed in sorghum retail marketing includes transport costs, loading and off loading and commission and levies. The result in Table 3 revealed that from the four markets studied, the producers share of the consumers price at the sorghum retail market accounted for N2,975 (9.16%), N2,752 (10.76%), N2,880 (10%) and N2,700 (10%). It can also be inferred from the above that producers realize a significantly high proportion of the profit margin along the marketing chain.

The retailers' share of the profits as revealed by the marketing profit as a percentage of the marketing margin showed very high significant profits of 51.66%, 54.82%, 53.13% and 50%. It can be seen that retailers realized more profits along the marketing chain in the studied markets, as compared to their counterparts the wholesalers. This can however, be adduced to the high marketing costs incurred by the wholesalers along the marketing chain. The findings here contradicted that of Bello, (2006), because retailers from this study incurred higher marketing costs than the wholesalers.

## Market Efficiency

The study showed that wholesalers in Central market, Makwalla market and Small market were highly efficient, giving 82.1%, 90% and 80% respectively. The retailers on the other hand in all the four markets were more efficient than the wholesalers. This is in agreement with Musa (2003) and Olukosi *et al.*, (2005), who reported that a higher efficiency ratio is an indication for higher marketing efficiency.

## Conclusion and Recommendation

Findings from the market shows that it is characterized by large numbers of small scale traders majority of whom are women, high marketing cost arising from inadequate infrastructures. A greater proportion of the respondents acquired their capital from friends and relative and could not access bank loans. The marketing channel was of the decentralized type. Producers and wholesalers obtained significant profit margin along the marketing chain. It can be concluded that sorghum marketing is very profitable and efficient in the study area given by the shares of profit margin realized by the role players and also the market efficiency ratios. In view of these findings, it is recommended that the respondents be given financial assistance especially with regards to accessing bank loans. This would enable them expand the frontiers of their sorghum marketing business.

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