

ECONOMIC ANALYSIS OF YAM FLOUR MARKETING IN ILORIN METROPOLIS OF KWARA STATE, NIGERIA

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Abstract

Yam is highly perishable and bulky to transport. An efficient food marketing system could minimize post-harvest losses as well as encourage expansion in food production thereby enhancing the level of food security in Nigeria. However, marketing of yam flour in the nation had received less attention in terms of empirical research than its production. This study therefore analyzed the economics of Yam flour marketing in Ilorin metropolis of Kwara State, Nigeria. The specific objectives were to: describe the socioeconomic characteristics of yam flour marketers in the study area; describe the market structure, margin and efficiency and identify the major factors militating against efficient yam flour marketing in the study area. Snow ball sampling technique was used to select 110 yam flour marketers across six markets where yam flour is predominantly sold. Data obtained were analyzed using descriptive statistics, market margin, market efficiency and Gini coefficient analytical tools. Majority (94%) of the marketers were female, with an average age of 24 years. The average gross market margin is N70,000 per tonne, while the marketing efficiency was 55%. A Gini coefficient of 0.578 was obtained. This indicates that yam flour marketing approaches perfect competition and a high level of inequality in the market share controlled by the marketers. Inadequate access to credit facilities, high cost of transportation and seasonality of yam were the major problems militating against the efficient marketing of yam flour in the study area. Therefore, effort should be geared towards making credit facilities available to the yam flour marketer in the study area. Also, good feeder roads should be provided in the yam flour producing areas so as to minimize the cost of marketing operations and thereby increase the marketing efficiency.

Keywords: Marketing, Yam flour, Marketing efficiency, Market margin

INTRODUCTION

The marketing of agricultural products begins immediately after harvesting at the farm gate. It involves transportation to the markets or directly to the consumers. It also involves storage, in order to adjust supply. It may also involve sorting and processing to enhance the shelf life of the agricultural produce.

Nigeria has been said to be the largest producer of yams globally, followed by Ghana, Côte D'Ivoire, Benin, Togo, and Cameroon (FAO, 2013). Yams are mostly marketed in their raw state. Transportation and marketing are carried out both by farmers and traders (Ike & Inoni, 2006; Verter & Bečvářová, 2015). As a food crop, yam is an increasingly important staple food in Nigeria. It is one of the very few food crops that are widely acceptable and eaten in all the six geopolitical zones that exist in the country. Hence, the place of yam in the diet of Nigerians cannot be overemphasized. In fact, due to the importance attached to yam, many communities in Nigeria celebrate the new yam festival annually.

As at 1985, Nigeria yam production was 18.3 million tonnes, representing 73.8 percent of total yam production in Africa (WIKI, 2011). This production figure as doubled with Nigeria producing 35.017 million metric tonnes with a value equivalent of US\$5.654 billion by the year 2008 (WIKI, 2011 & FAO, 2011). The cultivation of yam is very lucrative despite price fluctuations in the markets (Izekor & Olumese, 2010). An average profit per seed yam, after harvest and storage, was calculated at over US\$13, 000 per hectare harvested, and over 60% of people grow yams as a primary source of livelihood in Nigeria (IITA, 2011).

However, it has been estimated that an average of over 25% of the yield of yam is lost annually to diseases and pests while, 50% of the yams produced and harvested in Nigeria is lost in storage (Arene 2007; Onayemi, 2013). Fresh yams are difficult to store and are subject to post-harvest losses during storage (Afoakwa & Sefa-Dedeh, 2001; Olusanya & Jeger, 2006). These losses serve as an impetus for processing yam into various products especially yam flour for longer shelf life. For instance the shelf life of as well processed and stored yam flour could be as long as 18 months. Yam flour is mainly produced in Nigeria through the traditional means that usually depend on sunlight for drying.

Research has focused on yam production with little attention to the marketing of its major product, yam flour. FAO (1997) opined that if available food could be evenly distributed locally and internationally, each person would be assured of 2,700 calories a day, which is the recommended daily calorie intake. The importance of analyzing the state of yam flour marketing and its profitability cannot be overemphasized.

The specific objectives of this study are to; analyze the socio-economic characteristics of yam flour marketers in the study area, describe the marketing channel adopted in yam flour marketing in the study area, examine the marketing structure of yam flour marketing in the study area, analyze the marketing margin and efficiency of yam flour marketing in the study area as well as identify the problems

militating against efficient marketing of yam flour in the study area.

METHODOLOGY

Study Area

This study was carried out in Ilorin metropolis the capital of Kwara State, Nigeria. Kwara State has a land area of about 35,705 square kilometers (sq Km) and it is located between latitude $8^{\circ}5'-10^{\circ}4'N$ and longitude $4^{\circ}55'-6^{\circ}5'E$. The natural vegetation cover consists of rain forest in the South and Guinea Savannah to the North.

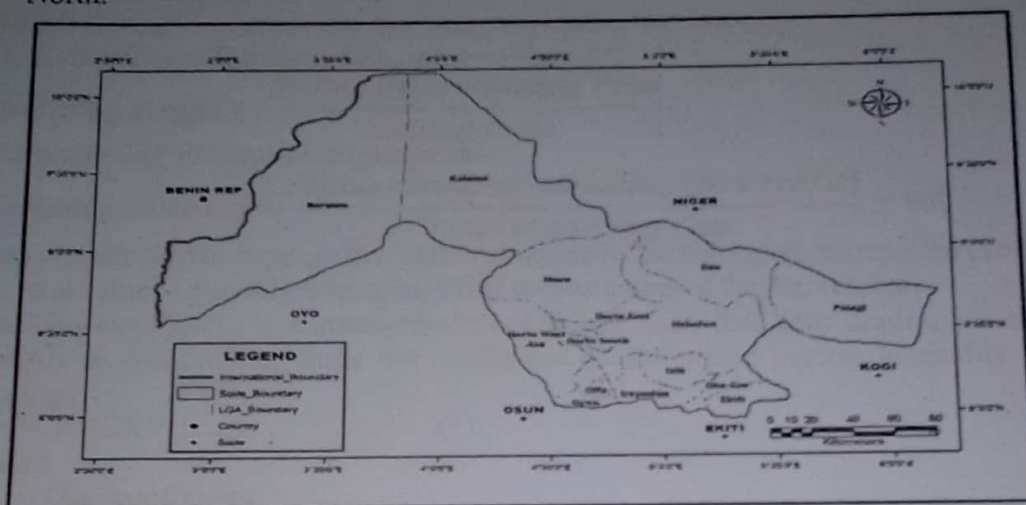


Figure 1: Map of Kwara State
Sampling Techniques

A three-stage sampling procedure was adopted to select the sample population for the study. The first sampling stage involves a purposive selection of six markets in the Ilorin metropolis, this emanated from the fact that these markets have the highest yam flour marketers. The second stage involves a snowball sampling of different yam flour marketers across the six markets, this help to generate the sampling frame for this study. The third stage involves the random selection of one hundred and ten (110) yam flour marketers for the 6 markets.

Analytical Techniques

The socio-economic characteristics of the yam flour marketers were analyzed using descriptive statistics. The Likert type scale and index ranking were used to analyze

the constraints to yam flour marketing. Flow chart was used to illustrate the various yam flour marketing channels in the study area.

Market margin analysis was used to analyze the profitability of yam flour marketers in the study area. It is the difference between the value of a commodity when it is ready for sale from the farm (cost price) and its value when it is finally bought by the consumer (selling price). Marketing margin can be estimated as:

$$\text{Marketing Margin} = \text{selling price} - \text{cost price} \dots \dots \dots (1)$$

Cost price = Farm price of the commodity

$$\text{Net Marketing Margin} = \text{Marketing Margin} - \text{Marketing Cost}$$

Marketing Cost = Transport, Loading, and Shop rent

$$\text{Marketing margin} = \frac{\text{Selling Price} - \text{Supply Price}}{\text{Selling Price}}$$

The marketing efficiency is expressed as:

$$\text{Marketing efficiency} = \frac{\text{Value added by marketing (Net Profit)}}{\text{Total Marketing Cost}} \times 100$$

This was adopted to measure the market structure of the marketers through the use of the total value of monthly sales as an index measurement of the market share.

The Gini coefficient is a standardized coefficient such that zero implies perfect equality in distribution, while the coefficient of one means perfect inequality in earnings.

$$G = 1 - \sum XY \dots \dots \dots (1)$$

Where

G = Gini coefficient

X = Proportion of sellers

Y = Cumulative proportion of total sales/income

$\sum$ = Summation of XY

Index ranking

Index ranking was used to analyze the constraints to yam flour marketing. Responses for this was rated by using a four-point likert scale with the scoring order of 4, 3, 2 and 1 as very severe, severe, less severe, and not severe respectively. A weighted average index (WAI) analysis was then estimated using the formula:

$$WAI = \frac{f_1W_1 + f_2W_2 + f_3W_3 + f_4W_4}{f_1 + f_2 + f_3 + f_4} \dots \dots \dots (1)$$

$$WAI = \frac{\sum f_i W_i}{\sum f_i} = \frac{W_i}{\sum f_i} \dots \dots \dots (3)$$

Where: F = frequency; W = weight of each scale; i = weight; WI = weighted index

RESULTS AND DISCUSSION

Socio-Economic Characteristics of the Yam Flour Marketers

Table 1: Socio-economic characteristics of the Marketers

Variables	Frequency	Percentage	Mean
Gender			
Female	103	93.6	
Male	7	6.3	
Age			
≤20	1	0.9	
21-30	15	13.6	
31-40	41	37.3	42.07
41-50	33	30.0	
≥50	20	18.1	
Marital Status			
Single	2	1.8	
Married	103	93.6	
Widowed	5	4.5	
Cooperative Membership			
Member	110	100.0	
Educational Level			
No formal Education	54	49.1	
Primary Education	28	25.5	
Secondary Education	22	20.0	
Tertiary Education	6	5.5	
Source of Fund			
Personal	55	50	
Relatives	46	41.8	
Cooperative	1	0.9	
Moneylender	8	7.3	
Source of market Information			
Cooperative	10	9.1	
Friends	28	25.5	
Radio	1	0.9	
Others	71	64.5	
Marketing Experience			
1-10	38	34.56	16.74
11-20	46	41.81	
>20	26	23.63	
Total	110	100	

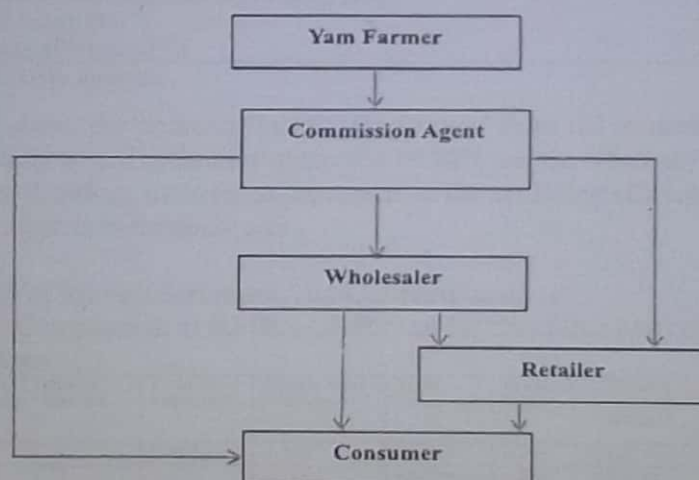
Source: Data analysis

Table 1 show that the majority (93.6%) of the marketers are female with a mean age of 42 years and marketing experience of 17 years. This implies that yam flour marketing is dominated by active female adults. Also, 50.9% had a formal education; this may probably influence their efficiency and decision making. It is remarkable to note that all (100%) of the yam flour marketers in the study belonged to a cooperative society. The major means of information transfer is from their family members (64.5%) followed by a cooperative society (28%).

Marketing Channels of Yam Flour in Ilorin Metropolis

A marketing channel is a pathway through which a product passes from the producer to the ultimate consumer (Sathiadhas et. al. 2011). The analysis of the marketing channel was intended to provide systematic knowledge of the path in which yam flour follows right from the point of production to the point of consumption. According to Olukosi et. al. (2005), marketing channel helps in assessing the importance and performance of the marketing system. Figure 1 shows the marketing channels of yam flour in the study area. The study revealed that the channel is centralized and not decentralized. It is centralized because farmer's produce is brought together in a large market. The farmers who are also the processors sell directly to commission agents, while the wholesalers from commission agents. The wholesalers also sell to the retailers who in turn sell to the final consumers, at the same time the wholesaler also sell for consumers that want to buy in large quantities.

Fig. 1: shows the Marketing Channel for Yam Flour in the study area



Source: Data analysis

Analysis of Marketing Margin and Marketing Efficiency of Yam Flour in the Study Area

Table 2: Marketing and Efficiency of the Respondents in Yam Flour Marketing

Parameters	Average Cost ₦/Tonnes
Purchase price of Yam flour (A)	580,000
Variable cost	
Loading and offloading	5000
Transportation cost	10,000
Packaging material	5000
Fixed cost	
Rent	10,000
Sanitation fee	2000
Security fee	2500
Local Govt. charges	10,500
Total marketing cost (B)	45,000
Total cost	625,000
Selling price (C)	650,000
Gross market margin (D) [D = C - A]	70,000
Marketing margin (Net marketing margin) [D - B]	25,000
Gross marketing margin as % of selling price	10.76
Farmers' share (%)	89.24
Marketing efficiency (%)	55

Source: Data analysis

Table 2 shows the marketing margin, the farmers' share and marketing efficiency in the study area. The farmers' share was 89.24% and the efficiency was 55%. There is, therefore, room for improvement in the marketing efficiency of the yam flour marketers in the study area.

Analysis of Market Structure And Concentration

Table 3: Computation of the Gini Coefficient for Yam Flour Marketing in the Study Area

Range of Income(₦)	No of Sellers	Prop. of Sellers(X)	Cumm. prop. of Sellers	Total Sales (₦)	Prop. of Sales	Cumm. Prop. Of Sales(Y)	XY
≤25000	54	0.490	0.490	771400	0.204	0.204	0.099
25001-50000	26	0.236	0.726	882740	0.234	0.438	0.103
50001-75000	19	0.173	0.899	1131300	0.299	0.737	0.127
75001-125000	9	0.083	0.982	683300	0.181	0.918	0.076
125001-150000	1	0.009	0.991	128000	0.034	0.952	0.008
>150000	1	0.009	1.0	180000	0.048	1	0.009
TOTAL	110			3776780	1		0.422

Gini coefficient = $1 - \sum XY = 1 - 0.422 = 0.578$.

Source: Data Analysis

Table 3 shows the results of the analysis of the market concentration of the respondents using the Gini-coefficient formula. A value of 0.578 was obtained. This value is less than 1, indicating that yam flour marketing approaches pure competition in the study area. This enables yam flour marketers to take advantage of opportunities, to expand and improve in response to demand and price changes.

Constraints to Yam Flour Marketing in The Study Area

Table 4: Constraints to Yam Flour Marketing

Source: Data analysis

CONSTRAINTS	NOT SEVERE		LESS SEVERE		SEVERE		VERY SEVERE		RATED SCORE	RANKING
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage		
Lack of credit facilities	-	-	1	9	9	8.2	100	90.9	445	1 st
Bad roads	1	0.9	8	7.3	12	10.9	89	80.9	409	2 nd
The high cost of transportation	4	3.6	21	19.1	70	63.6	15	13.6	316	3 rd
Seasonal variation	23	20.9	39	35.5	35	31.8	13	11.8	258	4 th
Low supply	12	10.9	64	58.2	29	26.4	5	4.5	247	5 th
Commission agents	39	35.5	33	30.0	32	29.1	6	5.5	225	6 th
Poor storage facilities	81	73.6	20	18.2	6	5.5	3	2.7	151	7 th
Others(robbery)	-	-	-	-	1	0.9	4	3.6	19	8 th

The result on table 4 revealed that inadequate access to credit; poor feeder road network and high cost of transportation are the leading constraints to yam flour marketing in the study area.

CONCLUSIONS AND RECOMMENDATIONS

It can be inferred from the study that yam flour marketing in the study area approaches perfect competition. It also shows that the marketing of yam flour is profitable and efficient in the study. Government and other important stakeholders should ensure the provision of credit facilities to yam flour marketers in the study area. Also, there is a need for the construction of good feeder roads for efficient transportation of yam flour from the rural areas (production domain) to the markets to ensure higher efficiency and profit among the yam flour marketers.

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