

An Analysis of Yam Flour Marketing in Olorunda Local Government Area of Osun State, Nigeria

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Abstract

Yam flour marketing is one of the Agribusiness ventures undertaken mainly by women (100%) in the study area. The business was profitable in that the Gross Margin (GM) of N 199,312.84 and the Marketing Margin of (MM) of N 19,575 were high and appreciable per caput. The marketers were in one or the other in a married state and no single woman was involved. They had a relatively large family size (6-10 members) and had at least one form of education. They were of mixed religion and funded their business mainly through cooperatives and daily contributions. They were all retailers and they mostly sold white yam flour (90%). It was revealed that Loan, Cost of Yam flour, Cost of Transportation and The total amount sold were the factors influencing profitability of Yam flour marketing in the study area. While Loan and Total amount sold had positive coefficients and were statistically significant at 10% and 1% respectively, Cost of Yam flour and Cost of Transportation impacted negatively on profitability and they were statistically significant at 5% and 1% respectively.

KEYWORDS: *Agribusiness Ventures, Processing technology, Married State, comparative advantage and yam flour*

1.0

INTRODUCTION

1.1 Background of the study

Yam flour is one of the products to which yam can be processed unto and its one of the agribusiness ventures undertaken by women. It is one of the most stable products when considering the nature of yam which is high in moisture content. This makes yam vulnerable to various forms of pests and micro-organisms. Processing reduces the moisture content, prevents attacks from pests and micro-organisms and thus extends the store life. Processed yam can be easily stored for a long period (12 - 18 months) in absence of moisture (IITA, 2013). Yam can also be processed into other products apart from yam flour, among several food forms into which yam can be put include pounded yam, boiled yam, roasted or grilled yam, fried yam slices and yam balls, mashed yam (pounded paste), yam chips and flakes. Fresh yam tubers are also peeled, chipped, dried and milled into flour. This flour is cooked in boiling water and turned into thick paste and eaten with soup. Among the Yorubas in Western Nigeria, yam flour is highly

avored where the reconstituted food (dried yam chips that are crushed and ground into flour to make elastic dough) is called Amala" or "Telibo-wo" and in east of the river Niger, it is called "Akwunaji".(Orkwor et al., 1998 :IITA,2002). Yam is an important staple food crop in tropical countries and the humid part of the world. It accounts for over 70% of the daily calorie intake of millions of people with Nigeria producing 71% of the total world production (Onwueme 1978). Several recipe of yam are prepared for domestic consumption and a large quantity can be produced for export and industrial processing. Yam is therefore a highly economic crop that contributes greatly to Gross Domestic Product (GDP) of the country (Salako et al, 2002). Since Nigeria has a comparative advantage in yam production, it is imperative for the country to add value to it and presents many products of yam to the world market in standards that are in conformity with the modern day best practices. Yam is a perfect staple food appreciated for its taste and cultural role in West Africa, especially in Nigeria as the world largest producer of yams, with annual production estimated at 26.587 million metric tons (Fasasi, 2006). The static or declining trend may not be unconnected with production resources which are not being efficiently utilized leading to low productivity (Fasasi, 2006). The most economically important species grown as staple foods in Africa are *Dioscorea rotundata* (white guinea yam), *D. cayanensis* (yellow yam) *D. durnetorum* (bitter yam), and *D. bulbifera* (aerial yam), (Onwueme 1978; Raemaekers, 2003). Yam flour is best made from two of these species which are the white guinea yam and water yam of which the flours from white yam are better and durable in the absence of moisture. Yams are the fifth most harvested crops in Nigeria, following after cassava, maize, guinea corn, and beans/cowpeas. More so, after cassava, yams are the most commonly harvested tuber crops in the country (National Bureau of Statistics, 2012). Yams are produced in over 5 million hectares in 47 countries in tropical and subtropical regions of the world. More than 95% of the 47 million metric tonnes of yam produced annually comes from sub Saharan Africa (IITA, 2008).

It ranks second after cassava among roots and tubers (Odigbo et al., 2015). In the West African sub-region, yam has the potential to alleviate poverty and ensure food security among rural producers, traders, processors and consumers (Chukwu and Ikwelle, 2000). Its tubers can be eaten in different forms, ranging from roasting, boiling, frying, pounding into paste as well as processing into yam flour which can be eaten with soup. Its peels can also be processed into livestock feed. Hence it is considered an important staple to combat food insecurity in areas where it is cultivated. The Nigerian Agricultural policy since Independence had always favored production thereby neglecting other aspects of the value addition that could enhance economic development like processing farm produce into durable formats and marketing. Olukosi et al. (2005), opined that a well-developed marketing system enhances the pace of economic development by encouraging specialization, generation of foreign exchange, development of an exchange economy, and provision of income and employment opportunity for marketing agents. Marketing agent perform wide range of functions. These functions include, assembling, processing, grading, and transportation. Assembling is the collection of product in order for them to be available in large quantity to attract buyers. Processing is transforming the raw products into forms most suitable as required by the ultimate consumers (Smith and Quelch, 1993). Grading is the selection and grouping of yams into their various sizes (Kohl and Uhl 1985).

Agricultural marketing is central to agricultural development and the overall growth and development of the economy. Previous studies have shown that efficient marketing system

stimulated production (Awoyinka and Ikpi, 2005). Yam flour is one of the Nigerian food products which could be exported if produced and displayed in a more hygienic and attractive packaging formats that can attract foreign buyers. The lack of quality consciousness by the producers and sellers is astonishing, considering the fact that processed yam of various forms is a major staple food in the country, there are many export opportunities for Nigerian products to countries in the West African sub- region. (Philips et al, 2004).

. Marketing is one of the significant aspects of Nigerian agriculture. Despite the critical roles of marketing in Nigeria's agricultural development, successive government paid more attention to extraction of petroleum crude which is now Nigeria's main supplier of foreign exchange. As Nigerian population expands, there is the need to expand the economy and to ensure sustainability and food security. According to the United Nations estimates about 2.33 per cent of the world population lives in Nigeria thereby making the country the 7th most populous in the world with a population of 164,471,000 in July 2011 (United Nations, 2011).

Research Questions

- 1) What are the socio-economic characteristics of yam marketers in the study area?
- 2) What are the costs and returns of yam flour marketing in the study area?
- 3) What is the marketing margin of yam flour marketing in the study area?
- 4) What are the factors affecting profitability of yam flour marketing in the study area?
- 5) What are the constraints facing yam flour marketing in the study area?

Objectives of the study

General Objective

The general objective of this study is to analyze yam flour marketing in Olorunda Local Government Metropolis of Osogbo in Osun state).

Specific Objectives

The specific objectives are to:

- i. describe the socio-economic characteristic of yam flour marketers in the study area.
- ii. estimate the costs and returns of yam flour marketing in the study area.
- iii. determine the marketing margin of yam flour marketing in the study area.
- iv. analyze the factors affecting yam flour marketing in the study area.
- v. identify the constraints facing the yam flour marketing in the study area.

2.0 MATERIAL AND METHODS

Study Area

This study was carried out in Olorunda Local Government Area of Osun State, Nigeria. The headquarters of the Local Government Area is in Igbona which is part of Osogbo Metropolis. The other parts are made up of several towns and villages such as Oba Ile, Oba Oke, Osolo, Odesola, Amusan, Awoniyi, Jagun and Onigiliro. The Yoruba ethnic group forms the majority of

the people in the Local Government Area. The Yoruba language is commonly spoken while religions of Christianity and Islam are widely practiced in the area. The current population of Olorunda Local Government Area is 179,444 inhabitants with a total area of 97km² .according to NPC,2006). There are 11 wards in Olorunda Local Government Area namely; Agowande, Akogun, Atelewo, Ayetoro, Balogun, Illie, Obaoke, Owode I, Owode II, Owoope. Olorunda Local Government Area has a vibrant trade section with a number of important markets where a plethora of commodities are bought and sold. Farming is also an important economic activity in the area where crops like yam, pepper, maize, cassava are produced.

Population of the Study

The population of the study was the whole of the yam flour marketers in Olorunda Local Government Area, Osun state, Nigeria.

Sampling Technique and Sample Size

Multistage sampling technique was used to select yam flour marketers from the study area. The first stage was purposeful selection of Local Government Area and 2 major markets of Igbona and Oluode noted for their involvement in yam flour marketing. The second stage was random selection of 60 respondents from each market giving a total of one hundred and twenty (120) respondents.

Method of Data collection

Primary data were collected through the use of well-structured questionnaire. Literate respondents filled the questionnaire while interview schedule was conducted for the illiterates and those that had no time to attend to it. The questionnaire included information on the socio-economic characteristics of the respondents such as age, marital status gender, level of education, household size, years of experience, primary occupation, market information on sales of yam flour etc.

Method of Data Analysis

The data collected for this study were analyzed using descriptive and inferential statistics, Gross margin and Marketing Margin and the Regression Analysis.

Descriptive statistics

These were means and the frequency tables and percentages employed to achieve the socio-economic characteristics of the respondents like age, educational level, sex, marital status etc. and the problems associated with yam flour marketing.

Gross Margin Analysis

The Gross margin analysis is a model that is used to estimate the costs, returns, profitability of yam flour marketing. The total revenue represents the value of the output from the sales of yam flour. The variable cost varied with the level of marketing and these included expenditure on yam flour, storage, labour, packaging etc. The Gross margin (GM) analysis of yam flour marketing in the study area is expressed as;

$$GM = TR - TVC$$

$$TR = P \times Q$$

Where GM = Gross Margin in Naira

TR = Total Revenue in Naira

TVC = Total Variable cost in Naira

P = Price of Yam flour in Naira

Q = Quantity of Yam flour.

Marketing Margin

The marketing margin is the difference in the price paid to the first seller and the price paid by the final buyer. It is a measure of market performance of the product. It is expressed as:

Marketing Margin = Consumers Price – Producers Price

Regression Analysis

Regression analysis is a set of statistical processes for estimating the relationships between a dependent variable and one or more independent variables. Regression analysis is a reliable method of identifying which variables have impact on a topic of interest. The process of performing a regression allows you to confidently determine which factors matter most and which factors can be ignored, and how these factors influence each other. The Regression Analysis attempts to examine the extent of change in the dependent variable (Y) that is determined by selected independent variables. (x_1, x_2, \dots, x_n) It is explicitly expressed as

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 \dots \dots \dots \beta_n X_n + u$$

Where;

Y = Profit

β_0 = Constant

$\beta_1 - \beta_{11}$ = Measured the degrees of association between X and Y

$X_1 \dots X_n$ = Independent variables

u = The disturbance/error term

3.0 RESULTS AND DISCUSSION

Socio-economics Characteristics of Yam flour Marketers

Distribution of Respondents by Age

The result in the table 1 indicates that 33.3% of the respondents were within the age range of 36 - 45 years, 25.8% were within the age range 46 -55 years, also, 25.8% were within the age range greater than 55years and 15.0% were within the age range of 26 -35 years .This implies that most of yam flour marketers (74.2%) were in their active economic age in that they fell below 56 years of age.

Table 1: Distribution of the respondents by age

| Age | Frequency | Percentage (%) |
|--------------|------------|----------------|
| 26 - 35 | 18 | 15.1 |
| 36 - 45 | 40 | 33.3 |
| 46 - 55 | 31 | 25.8 |
| >55 | 31 | 25.8 |
| Total | 120 | 100.0 |

Sex distribution of the respondents

The result in table 2 below shows the sex distribution of yam flour marketers in the study area. The table shows that all (100%) of the marketers were females. This indicates that yam flour marketing in the study area was dominated by the females. Ekong, (2003), supported this by stating that women account for about 70 percent of food production, 100 percent of those who process basic food stuffs and 50 to 90 percent in marketing agricultural produce.

Table 2: Sex distribution of the respondents

| Sex | Frequency | Percentage (%) |
|--------------|------------|----------------|
| Male | 0 | 0.0 |
| Female | 120 | 100.0 |
| Total | 120 | 100.0 |

Marital Status Distribution of the Respondents

The result in table 3 shows that most yam flour marketers 77.5% were married, 19.2% were widowed and 3.3% were divorced. This implies that most marketers were one time or the other in a married state.

Table 3: Distribution of the respondents by marital status

| Marital Status | Frequency | Percentage (%) |
|----------------|------------|----------------|
| Single | 0 | 0.0 |
| Married | 93 | 77.5 |
| Widowed | 23 | 19.2 |
| Divorced | 4 | 3.3 |
| Total | 120 | 100.0 |

Religion distribution of the respondents

The result in the table 4 shows that 28.3% of the respondents were Christians, 44.2% were Muslims while 27.5% were Traditional worshippers. This indicates that most marketers were Muslims and that yam flour marketing accommodates all religions without any bias.

Table 4: Distribution of the respondents by religion

| Religion | Frequency | Percentage |
|--------------|------------|--------------|
| Christianity | 34 | 28.3 |
| Islamic | 53 | 44.2 |
| Traditional | 22 | 27.5 |
| Total | 120 | 100.0 |

Household size distribution of the respondents

Table 5 shows that 72.5% of the respondents had between 6-10 family members, 23.3% had between 1-5 family members while 4.2% had greater than 10 members in their families. This indicates that most of the yam flour marketers had between 6-10 family members which was rather large but which could assist them in marketing activities. Typically large family size has significant relationship with much greater risk of poverty (Maxwell, 1996). In Nigeria; many smart families engage members of their large family as part of the agribusiness labor force to reduce cost and to prevent them from becoming liabilities.

Table 5: Distribution of the respondents by household size

| Family Size | Frequency | Percentage (%) |
|--------------|------------|----------------|
| 1-5 | 28 | 23.3 |
| 6-10 | 87 | 72.5 |
| >10 | 5 | 4.2 |
| Total | 120 | 100.0 |

Education Distribution of the Respondents

The result in the table 6 revealed that 40.0% of the respondents attended primary education, 34.2% attended secondary education, 20.0% had adult education and 5.8% had no access to education. This implies that most of the yam flour marketers (94.2%) had one form of education or the other which could assist them in harnessing market information to their advantage.

Table 6: Distribution of the respondents by education

| Educational Level | Frequency | Percentage (%) |
|-------------------|------------|----------------|
| No Education | 7 | 5.8 |
| Primary | 48 | 40.0 |
| Secondary | 41 | 34.2 |
| Adult Education | 23 | 20.0 |
| Total | 120 | 100.0 |

Distribution of respondents by Source of Credit

Distribution of yam flour marketers by source of credit is shown in table 8 below. It reveals that most marketers had access to Cooperatives(61.7%).21.7% had access to daily contributions,4.2% had access to micro finance banks, 0.8% of the marketers was aided by her families and friends while 11.7% had no access to credit. It could be seen from the foregoing that the formal sector contribution is lacking. Cooperatives and daily contribution agents were

active in the study area. These sources according the marketers were truthful to them and hardly let them down.

Table 8: Distribution of the respondents by Source of Credit

| Source of Credit | Frequency | Percentage (%) |
|---------------------|------------|----------------|
| No access to credit | 14 | 11.7 |
| Cooperatives | 74 | 61.7 |
| Bank | 5 | 4.1 |
| Family and Friends | 1 | 0.8 |
| Contribution | 26 | 21.7 |
| Total | 120 | 100.0 |

Marketing Experience Distribution of the Respondents

The result in table 7 shows that 52.5% of the marketers had been marketing yam flour for within the range of 6-10 years, 28.3% of the marketers had been marketing yam flour for more than 10 years, 19.2% of the marketers had been marketing within the range of 0 -5 years. This indicates that most of the marketers had a marketing experience of between the ranges of 6-10 years which is long enough for them to make right marketing decisions.

Table 9: Distribution of respondents by marketing experience.

Marketing

| Experience | Frequency | Percentage |
|--------------|------------|--------------|
| 0-5 | 23 | 19.2 |
| 6-10 | 63 | 52.5 |
| >10 | 34 | 28.3 |
| Total | 120 | 100.0 |

4.1.10 Membership of Association Distribution of Respondents

Table 10 result indicates that 99.2% of the respondents were in associations, while 0.8% was not in any association. This shows that all respondents except one belonged to one marketing association or the other. The only one that did not belong to any associations was a new comer who had not found her feet.

Table 10: Distribution of the respondent by association belonged.

| Association | Frequency | Percentage (%) |
|--------------|------------|----------------|
| Yes | 119 | 99.2 |
| No | 1 | 0.8 |
| Total | 120 | 100.0 |

Distribution of Marketers by type of Yam flour

The table 11 shows the type of Yam flour sold by the marketers. The table shows that 90.0% of the respondents marketed White Yam flour while 10.0% of the respondents marketed Water Yam flour. Most of the marketers were into White Yam flour which is more durable and which was more preferred by customers.

| Type of Yam flour | Frequency | Percentage (%) |
|-------------------|------------|----------------|
| White Yam flour | 108 | 90.0 |
| Water Yam flour | 12 | 10.0 |
| Total | 120 | 100.0 |

Distribution of Marketers by source of Yam flour

The table 12 presents the source, where Yam flour marketers got their supply. The table revealed that since they were all retailers, most of the respondents (60.0%) got their supply from farmers directly while 48.0% got their yam flour from wholesalers.

Table 12: Frequency Distribution of Source of Yam flour

| Source of Yam flour | Frequency | Percentage (%) |
|---------------------|------------|----------------|
| Farmers | 72 | 60.0 |
| Wholesalers | 48 | 40.0 |
| Total | 120 | 100.0 |

Cost and Returns of Yam flour Marketers

Table 13 presents the estimated costs and returns associated with Yam flour marketing in the study area which were calculated per caput. Gross margin and Marketing margin were used respectively to determine the profit and market performance of Yam flour marketing. They revealed that the greater proportion of the average variable cost of the Yam flour marketing was recorded in the cost of yam flour cake. The total revenue (TR) was found to be ₦ 371,484.17 and the total variable cost was found to be ₦ 172,171.33 giving a gross margin of ₦ 199,312.84. The cost and return analysis showed that the average gross margin was positive and high, this implies that yam flour marketing was profitable in the study area. Also, the marketing margin was found to be ₦ 19,575 which implies that the net margin was a good and appreciable one, hence, as the quantity of yam flour sold increases, the net margin increases as well, implying a positive correlation between the quantity of yam flour sold and net revenue. Also, since the Benefit Cost Ratio was 2.01 which was greater than 1, it implies that Yam flour marketing was profitable in the study area.

$$\text{Gross Margin} = \text{TR} - \text{TVC}$$

$$\text{GM} = \text{₦ } 371,484.17 - \text{₦ } 172,171.33$$

$$\text{GM} = \text{₦ } 199,312.84$$

$$\text{Marketing Margin} = \text{Consumers Price} - \text{Producers Price}$$

$$\text{MM} = \text{₦ } 141,250 - \text{₦ } 121,675$$

$$\text{MM} = \text{₦ } 19,575$$

$$\text{Profit} = \text{TR} - \text{TC}$$

$$\text{₦ } 371,484.17 - \text{₦ } 177,444.4$$

$$= \text{₦ } 194,039.77$$

$$\text{Benefit cost ratio} = \frac{\text{Total Revenue}}{\text{Total Cost}}$$

$$\text{BCR} = \frac{371,484.17}{177,444.4}$$

$$\text{BCR} = 2.01$$

Table 13: Estimated Cost and Return for Yam flour Marketers

| Parameters | Amount (₦) Mean |
|----------------------------|--------------------|
| Gross Revenue | 371,484.17 |
| Cost of Yam flour | 141,250 |
| Transportation | 2,329.83 |
| Shop rent | 23,364 |
| Storage cost | 2,961.25 |
| Packaging cost | 495.42 |
| Labour cost | 1,770.83 |
| Total Variable cost | 172,171.33 |
| Total Fixed cost | 5,273.08 |
| Total Cost | 177,444.4 |
| Profit | 194,039.77 |
| Gross margin | 199,312.84 |
| Marketing Margin | 19,575 |
| Benefit cost ratio | 2.01 |

Source: Field Survey

Factors Affecting Profitability of Yam Flour marketing in the study area

The table 14 below presents the regression result of factors affecting profitability of Yam flour marketing in the study area. The results revealed that these variables:: Loan, Cost of Yam flour, Cost of Transportation and The total amount sold were the factors influencing profitability of Yam flour marketing and they were statistically significant. The regression results shows that the variables Loan and Total amount sold had positive coefficients and were statistically significant at 10% and 1% respectively. This implies that an increase in these two variables would lead to an increase in the profit of Yam flour in the study area. On contrary, the regression result shows that variables Cost of Yam flour and Cost of Transportation were negative and were statistically significant at 5% and 1% respectively. This indicates that an increase in the variables would lead to a decrease in profit of Yam flour. The R square was high at 0.967. The higher the level of R square implying that the explanatory variables included in the model were able to explain about 97% of the variability in the profitability of Yam flour while the remainder could be traced to the error term or left in the wild. The F-test shows that the overall model was significant at 1%.

Table 14: Factors affecting Profitability of Yam Flour marketing in the study area

| Variable | Co-efficient | Standard error | T-ratio |
|-----------------------|--------------|----------------|----------|
| Constant | -31562.706 | 46795.902 | -0.674 |
| Age | -2414.554 | 1784.741 | -1.353 |
| Religion | -1419.653 | 2254.085 | -0.630 |
| Source of Yam flour | -2865.066 | 4696.896 | -0.610 |
| Loan | 0.00 | 0.00 | 1.662* |
| Cost of storage | -0.113 | 0.462 | -0.245 |
| Yam flour Association | 9.543 | 41.483 | 0.230 |
| Cost of Yam flour | -0.670 | 0.279 | -2.402** |

| | | | |
|------------------------|---------|----------|-----------|
| Cost of Transportation | -3.924 | 1.071 | -3.664*** |
| Cost of Packaging | -2.154 | 2.663 | -0.809 |
| Cost of Labour | -0.830 | 0.540 | -1.538 |
| Constraint | 144.314 | 1517.806 | 0.095 |
| Total Amount sold | 0.960 | 0.020 | 48.793*** |

Source: Field Survey

R-square = 0.967

Adjusted R-square = 0.962

Significant level 10% (*)

Significant level 5% (**)

Significant level 1% (***)

Constraints Facing Yam Flour Marketing in the Study Area

The result in the table 15 below revealed the major challenges faced by yam flour marketers. The study reveals that the major challenge faced by the Yam flour marketers in the study area was price fluctuation because of the instability in the price of yam used for the production of yam flour. Other constraints facing the yam flour marketers were Scarcity of yam for processing (19.2%), Transportation Problem (14.2%), Lack of storage facilities (8.3%) and inadequate capital (8.3%).

Table 14: Distribution of the respondents by constraints faced

| Constraints | Frequency | Percentage (%) |
|----------------------------|------------------|-----------------------|
| Lack of storage facilities | 10 | 8.3% |
| Transportation Problem | 17 | 14.2% |
| Price fluctuation | 60 | 50.0% |
| Inadequate capital | 10 | 8.3% |
| Scarcity of yam | 23 | 19.2% |

Source: Field Survey

4.0 Conclusion

Since most profitability indices had shown that yam flour marketing was profitable in the study area, since most marketers used this venture to support their relatively large families, effort should be geared towards expanding other aspect of agriculture value chain by the policymakers. The Nigerian Agricultural policy since Independence had always favored expanded production thereby neglecting other aspects of value addition that enhance economic development like processing farm produce into durable commodities and marketing. Formal sector lending should be given its due priority in the study area.

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