MARKETING OF FROZEN FISH IN REMO DIVISION OF OGUN STATE, SOUTH-WEST NIGERIA

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ABSTRACT

This study examined the marketing of frozen fish in Remo division of Ogun State. Data were collected with the aid of structured questionnaire to extract information from 25 frozen fish marketers randomly selected from the three selected markets in the study area. The study revealed that majority of the frozen fish marketers (60%) were males with age ranging from 41-50 years. Majority of the fish marketers (64%) are literate, who kept formal records of daily sales. Majority of the respondents are experienced fish marketers with over 15years experience in the business. The cost and return analysis showed that fish marketing is profitable. Despite these positive indicators of marketing performance, fish marketers identified lack of government assistance, lack of capital, high cost of fishing materials, spoilage during storage and lack of space to display fish in the market as their most important problems in fish marketing. Based on the findings of the study, it was recommended that the government should assist the fish marketers by making provision for credit and loan facilities, encourage formation of cooperative societies, provision of storage facilities to minimize spoilage and regulation of the tax rate.

Keywords: Frozen fish, marketers, marketing, performance, Remo

INTRODUCTION

Fish is a major source of high-quality animal protein in most parts of Africa, contributing about 50 to 60 percent of the animal protein intake of the population especially in rural communities (Ayoola, 2010). The fishery sector is a vibrant industry and it accounts for a significant share of western Africa's national income with average contribution of 4.1% of GDP, almost half of which is linked to the post-harvest industry (FAO, 2014). Trade is important in the fishery industry as a creator of employment, food supplier, income generator and contributor to economic growth and development in several African countries. Domestic and intra-regional trade of fish (both marine and inland waters) is important with great potential for enhancing regional integration and food and nutritional security (WorldFish, 2015). Fish marketing involves all the activities designed for the spatial flow of the caught fish from fishermen until they are in the hands of the ultimate users. An efficient marketing system allows perishable products such as fish products to reach consumers in good quality. In addition, when a marketing system is efficient it gives producer a good profit margin and consumer satisfaction for the fish purchased.

In Nigeria, fish marketing system varies depending on type of fish product and the distance between producer/source of supply of fish product and the retailer/consumer. It has been reported that fish supply and marketing suffer from various set backs ranging from shortage of supply/uncertainty in fish production, price fluctuation due to drying up of the source, spoilage in transit and so on (Coster and Otufale, 2010). In addition, fish producers and marketers experience high handling cost, difficulties in adjusting supply to variations in demand, transportation of fish from areas of surplus to areas of deficit, providing different kinds of finished products to meet the diversified demands of final consumers, and inconsistent trade policies (Ali and Memon, 2008; Onu and Illiyasu, 2008) Despite these, the agencies involved in the marketing of the commodity appear to be on the increase as a result of increase in human population and therefore, the demand tends to be high. Coster and Otufale (2010) indicated that increase in concentration implies more scope for the middlemen to exploit either the consumers by charging high or the producer by paying them lower price. Marketing of fish is not usually on the basis of the fishermen-consumer (Lawal and Idega (2004), therefore prices of fish change as it passes through middlemen such that by the time it reaches consumers it becomes expensive. According to Eyo (1992) time elements is the obstacle of market price stabilization for most perishable goods that are not fully consumed at their point of production. They require the involvement of

middlemen outside and within their market place. The time lag production and that of sale will undoubtedly have a positive effect in form of price increase. Shimang (2005) related price changes to the transfer cost of transportation, processing and preservation against spoilage. Marketing margin is an important indicator of market performance (Olukosi *et al*., 2005).

Frozen fish marketing provide employment to large population of stakeholders among which includes processors, traders (wholesalers and retailers). Effective processing and marketing of frozen fish could bring about increased consumption rate which in turn will increase the demand for the product. Also, increase demand of frozen fish could lead to increase in price which would bring more money in terms of profit margin to frozen fish marketers and processors but there exists a lacuna in information on the enterprise marketing potentials in Remo division of Ogun State, that can serve as a guide to stake holders (fish marketers, farmers, government and non–governmental agencies) in understanding the prevailing marketing opportunities of frozen fish within and outside the study area. Hence, the study focused on examining the economics of frozen food marketing in Remo division of Ogun State, Nigeria.

MATERIALS AND METHODS

The study area

The study was carried out in Remo division of Ogun State, South – West, Nigeria. Ogun State has a total population of 3,728,098 according to National Population Commission (N.P.C, 2006). The state is located in the rainforest vegetation belt of Nigeria within longitude 2 45’ and 3° 55' E and latitudes 7 01 N and 7° 8' N in the tropics. It is bounded in the west by Benin Republic, in the south by Lagos state and Atlantic Ocean, in the east by Ondo State, and in the north by Oyo State. It covers a land area of 16,409.28 km^2, less than two percent (2%) of the country’s landmass (Olaoye *et al.*, 2007). Ogun State consists of twenty Local Government which is categorized into four divisions namely, Egba, Yewa, Ijebu and Remo zones. The main occupations of Remo people are agriculture, trading and fishing etc.

Sampling Procedure and data collection

Purposive sampling of all identified frozen fish marketers in Remo division were undertaken. Quantitative method was used for collection of primary data; this was collected with aid of a structured questionnaire which was administered to the respondents by trained enumerators. Simple descriptive statistics, gross margin analysis and regression analysis were employed to analyse the samples.

Questionnaire Design

A structured questionnaire was used in the collection of data from the wholesalers. The questionnaire was divided into three sections

Section A: comprised information on socio economic characteristics of actors like age, sex, marital status, household size, highest education attained, occupation, type of operation for producers and other sources of income. Descriptive statistics such as frequency and percentage were used to assess the small scale enterprise socio-economic characteristic.

Section B: comprised information on forms of fish sold, the quantity of fish bought and sold, transportation form and cost, capital cost, operational cost, revenue etc.

Cost-return structure

The budgetary technique was used to determine the gross margin income of frozen food. The cost-return structure was estimated as follows.

GMI = TR– TVC …… (1)

TR= Py. Yi …….

TC = TVC + TFC …… (2)

TVC = Pxi X ……. (3)

NI = GM – TFC ……. (4)

Where:
GMI= Gross Margin Income

TR = Total Revenue (₦)
TC = Total Cost (₦)
TVC = Total Variable Cost
NI = Net Income (₦)
Py = Unit Price of Output market (₦)
Y = Quantity of Output (kg)

Regression analysis

This was achieved using Logit regression analysis to determine the efficiency of frozen fish marketing in the study area. The model is stated below;

$Y = \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + \beta_8X_8 + \beta_9X_9 + \beta_{10}X_{10} U$

Y = Net return
α = constant of the equation
β = coefficient of the independent variables
X_1 = Gender (female= 1, male= 0)
X_2 = Age (years)
X_3 = Religion
X_4 = Marital status (married = 1, otherwise =0)
X_5 = Years spent in school (years)
X_6 = Household size (number)
X_7 = Primary Occupation (Dummy: If fish marketing =1; otherwise=0)
X_8 = Years of experience (years)
X_9 = Cooperative membership (Dummy; cooperative member=1; otherwise=0)
X_{10} = Respondent mode of marketing (Retailer = 1; otherwise = 0)
U = error term

RESULTS

The results for the socio-economic characteristics of fish marketers are shown in Table 1. For gender, 60 % of the respondents were male while 40 % were female. Age range of 41-50 dominated with a record of 64 % with age range of 51-60 having 24 %. Respondents who had tertiary education were 64 % while 32 % had secondary school education. Sixty percent of the respondents sourced for capital from their personal savings while 24 % sourced from bank loans. The results for the fish types sold by the respondents are presented in Table 2. All the respondents sold the same types of fish which include mackerel, horse mackerel, sardine, croaker, blue whitening and other species of fish.

Table 1: Socio-economic characteristics of respondents

Gender	**Frequency**	**Percent**
Male	15	60.0
Female	10	40.0
Total	**25**	**100.0**
Age Range	**Frequency**	**Percent**
31-40	3	12.0
41-50	16	64.0
51-60	6	24.0
Total	**25**	**100.0**
Marital status	**Frequency**	**Percent**

Single	1	4.0
Married	24	96.0
Total	**25**	**100.0**
House-hold	**Frequency**	**Percent**
4-6	20	80.0
7-9	2	12.0
10-12	3	8.0
Total	**25**	**100.0**
Level of education	**Frequency**	**Percent**
Secondary education	7	32.0
Tertiary education	16	64.0
Others (specify)	2	4.0
Total	**25**	**100.0**
Religion	**Frequency**	**Percent**
Christianity	17	68.0
Islam	8	32.0
Total	**25**	**100.0**
Working Experience	**Frequency**	**Percent**
6-10	5	20.0
11-15	5	20.0
over 15	15	60.0
Total	**25**	**100.0**
Source of capital	**Frequency**	**Percent**
Information money lender	1	4.0
Personal savings	15	60.0
Family and friend	1	4.0
Cooperative	2	8.0
Bank	6	24.0
Total	**25**	**100.0**
Mode of marketing	**Frequency**	**Percent**
Wholesales	21	84.0
Retail	4	16.0
Total	**25**	**100.0**

Table 2: Fish species marketed in the study area

Species	Frequency	Percentage
Mackerel (Titus)	25	100.0
Horse Mackerel (Kote)	25	100.0
Sardine	25	100.0
Croaker	25	100.0
Blue Whitening (Panla)	25	100.0
Others	25	100.0

Table 3 showed the results of the analysis of the cost and return structure of frozen fish marketing in the study area. Total variable cost accounted for the largest proportion (64.66%) of the total cost of frozen fish in the study area. This shows that large amount of money spent by fish marketers in the study area was majorly for purchase of fish facilities. Total revenue in the study area was ₦5, 326,000.00k while the total cost was ₦8,208,504.00k. The Net Profit for frozen fish in the study area was ₦ 42,418.09k.

Table 3: Costs and returns figures in frozen fish marketing in the study area

Variable	Average (₦)	% of total Cost
Total revenue	5,326,000	
Variable Cost		
Sardine cost	875,000.00	10.66
Blue whitening/Panla cost	1,889,140.00	23.01
Horse Mackerel/kote cost	1,224,800.00	14.92
Mackerel/Titus Total cost	1,278,520.00	15.58
Fuel cost	40,204.00	0.49
Total variable cost	5,,307,664.00	64.66
Fixed variable		
Depreciation on building	1,230,000.00	14.98
Depreciation on refrigerator	1,273,640.00	15.52
Depreciation on generator	397,200.00	4.84
Total Fixed Cost	2,900,840.00	35.34
Total cost	8,208,504.00	100
Gross Margin (TR– TVC)	18336	
Net income (TR-TC)	42418.09	
BCR (TR/TC)	2.09	
Gross ratio (TC/TR)	0.48	
Rate of Return (NI/TC)	27.57	

The estimates of the lead equation of the multiple regression models are presented in Table 4. Based on the R-Squared value, F-ratio, and the number and sign of significant variables, the logit regression analysis was chosen as the lead equation. The coefficients of variables such as age of respondent and household size of the respondent showed positive sign implying that all things being the same, demand for frozen fish increases as the value of each of these variables is increased. Results also revealed that gender is positively related and statistically significant at 1%. This indicates that gender significantly influence the consumer through mode of interaction with the fish marketer. On the other hand, the coefficient of the religion, marital status, years spent in school, primary occupation, years of experience and mode of marketing were not statistically significant.

Table 4: Efficiency of frozen fish marketing in the study area

Variable	Co-efficient	t-value
(constant)*		3.344
Gender (X_1)	0.380	3.219***
Age (X_2)	0.231	1.791*
Religion (X_3)	0.147	1.337
Marital Status (X_4)	0.050	0.434
Years spent in school(X_5)	-0.117	-1.064
House-hold(X_6)	0.309	2.973**
Primary Occupation (X_7)	-0.049	-0.444

Years of experience(X_8)	-0.065	-0.558
Mode of marketing (X_9)	0.074	0.683
R-square	0.254	
Adjusted R-Square	0.149	
F – Value	2.421*	

****=Significant at 1%; **=Significant at 5%; *=Significant at 10%*

Table 5 showed the ranking of the problems faced by the frozen fish marketers. Lack of capital, high cost of fish materials, constituted the highest percentage with 100 percent; this was followed by government assistance, spoilage during storage, inadequate market information and price inflation with 96 percent; lack of space to display fish in the market recorded 92 percent; inability to access to credit was 88 percent and poor patronage, 76 percent. The results show that the fish markets in the study area lack adequate capital to start-up frozen fish business. Furthermore, the marketers lack government attention in terms of infrastructure development, credit and loan assistance. The problems of capital were due to insufficient capital for business expansion since majority of the frozen fish marketers relied on their personal saving thus limiting their scale of operation. The result further revealed that many fish sellers face constraints of poor patronage, spoilage during storage, lack of space to display fish in the market and inadequate market information.

Table 5: Distribution of factors militating against effective marketing of frozen fish

Constraints	Frequency	Percentage
Lack of government Assistance	24	96.0
Lack of capital	25	100.0
High cost of fish materials	25	100.0
Spoilage during storage	24	96.0
Lack of space to display fish in the market	23	92.0
Poor patronage	19	76.0
Inadequate market information	24	96.0
Inability to access to credit	22	88.0
Price fluctuation	24	96.0
Others(specify)	25	100.0

DISCUSSION

The majority of the respondents were male (60%) while female respondents constituted 40 percent. The result did not agree with the observation of Lawal and Idega (2004), who reported that in Benue State, 90 percent of the frozen fish marketers were female. Similarly, Gaya *et al*. (2006) observed that the frozen fish market is a female dominated market. Age of marketers ranged from 31-40years. Sixty-four percent of the respondents were between the age group 41-50 years. The report is in agreement with Gaya *et al*. (2006), who observed that those involved in economic activities like fish marketers are in their economic active age.

Dikito-Watchmeiser (2001) opined that marital status is an important factor in social rural participation and acceptance. Also, Oladoja *et al.* (2008) contended that marriage is an important factor in the livelihood of individuals in our society as it is perceived to confer responsibility on individuals. In this study, 96 percent of the respondents were married. The implication of the finding is that marriage remains a valued culture in the study area. Ebewore (2013) and Banmeke (2003) asserted that, family size is an important index in any rural development intervention which can affect the outcome of such intervention. None of the respondents had small household size of between 1-3 members; eighty percent had household size of between 4-6 while only twelve percent of the

respondents have large family size of 7 and above. A minority of the respondents (4 percent) had no formal education while 96 percent were literate. According to Coster and Otufale (2010), literacy will ensure accurate and adequate record keeping of daily transactions. Marketing experience of the frozen fish marketers showed that 60 percent of the respondent had spent more than 15years in frozen fish marketing, while 40.0 percent have spent between 6 and 15 years of experience. This implies sustainability of the fish marketing in the study area. Sources of capital of the fish marketers revealed that majority of the respondents (60 percent) were in the business through their personal saving while banks and cooperative societies are other sources of fund to the marketers. The fish trader were predominantly wholesalers (84 percent).

According to the responses from the respondents, mackerel, horse mackerel, sardine, croaker, blue whitening and other fish types were sold in all the marketing outlets in the study area recording 100 percent occurrence. From the analysis, the marketing margin is high compared to the marketing cost, an economic implication that the fish marketers in the study area are making profit. This is in agreement with Coster, and Otufale (2010).

CONCLUSION

The study was aimed at the assessment of fish marketing in Remo Ogun state. The study revealed that although fish marketing in the study area was profitable, however, many fish sellers face constraints like poor storage/preservation, inadequate capital and poor transportation. Marketing of fish is a profitable enterprise. Hence, improving the marketing system of fish in the study area is essential for sustainability. Provision of improved storage facilities and financial assistance from the government and financial institutions will most probably improve marketing of fish in the region.

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