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Comparative Analysis of Processed and Fresh Fish Marketing in Yola North and Girei Local Government Areas of Adamawa State, Nigeria

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Abstract:

The study compared processed and fresh fish-marketing in Yola-north and Girei Local Government Areas of Adamawa State. Primary data were used for the study generated randomly among 160 respondents from four markets in the study area. Descriptive techniques were used to analyze the data. The result showed that majority, 62% and 60% of processed and fresh fish-marketers were in their active and productive age bracket of 31-50 years. Similarly, most had one form of formal education or the other, and many of the respondents were married with an average household size of 6 and 4 persons for processed and fresh fish marketers respectively. Most of the respondents used personal savings to finance their business operations. They have an average of about 13 and 10 years of experience in processed and fresh fish-marketing in that order. Both processed and fresh fish marketing were profitable with gross margin of ₦998.29 and ₦459.26 respectively, but processed fish marketing was found to be the most profitable. It was recommended that credit facilities be provided to the marketers and cold rooms and storage facilities be provided in the market to reduce fish spoilage.

Keywords: analysis, comparative, fresh-fish, marketing, processed-fish

1. Introduction

Marketing has been defined as all processes involved from the production of a commodity until it gets to the final consumer (Crammer *et al.*, 2001). These processes ascertain that the right product is available at the right place, at the right price and at the right time to fully satisfy the consumer (Okoh *et al.*, 2008). Marketing is of high importance to agriculture, thus, “before we think of production, we must first of all think of an available market for such a product”. Fish is the most important animal protein food available in the tropics (Eyo, 1992). It is often the most popular diet in the world and was long termed the “poor man’s protein”. In rural and fishing communities in Nigeria, fish is known to play a significant role in the diet, providing up to 75% of the total animal protein intake (Department for International Development-Food and Agriculture Organization, 2002). In many developing countries, the dependency on fish remains high as substitutes in the form of other animal foods are inaccessible to the poor. It also provides employment opportunities to many rural dwellers in different fields of fishing activities such as production, processing, preservation and transportation.

The fisheries subsector represents a major food source, which is invaluable for the protein they provide and the industrial products they produce. Fish is economically, socially and culturally important as a global dietary aspect of sustainable food security. Economically fish provides an important source of food and income for both men and women and fishing has an important social and cultural position in riverine communities. Availability of fish to the consumers at the right time, right form, and right place and at the lowest possible cost requires an effective marketing system. In marketing, fish passes through various market participants and exchange points before they reach the final consumers (Ali *et al.*, 2008). Nigeria has a great potential of fish resources whose distribution and value chain needs to be strengthened and developed to bridge the gap between demand and supply of fish in Nigeria (Amao *et al.*, 2006). However, a deficit of 2.17 million metric tonnes is required to meet the ever increasing demand augmented by massive importation of frozen fish, which is a rigorous drain on the exchange earnings of the nation (Federal Department of Fisheries FDF, 2008). Therefore, the objectives of this study are to:

- i. identify the socioeconomic characteristics of the respondents;
- ii. determine cost and returns of processed and fresh fish marketing; and
- iii. to compare the profit margin of processed and fresh fish marketing in the study area.

2. Methodology

2.1 The Study Area

This study was conducted in Yola North and Girei Local Government Areas of Adamawa State, Nigeria. Yola North lies between latitude 9°13'48"N and longitude 12°27'36"E of the Equator. It is 1,965 ft (599 m) above sea level; with a total population of 336,648 people, according to estimates, while Girei Local Government area lies between latitude 9°22'N and longitude 12°33'E (Brown *et al.*, 2005). The area has wet seasons which start from April to late October, It has a mean annual rainfall of about 1,000 mm and a dry season that last from November to March. They are bordered by Demsa, Yola South, Song and Fufore Local Government areas. It has a major river (River Benue) which passes through both Local Government Areas. The communities around the river have developed fishing businesses over the years. The peak of fish harvest from the river is from August to October while in April to May, it drops to its lowest level in the year, and major species of fish around the area are Catfish and Tilapia.

2.2 Sources of Data and Sampling Techniques

Data for this study were derived mainly from primary source which were collected with the use of a questionnaire, Purposive and simple random sampling techniques were used to sample fresh fish marketers and processors. Four markets were purposively selected two from each local government area. Jimeta ultra modern market and Jimeta bypass market were selected from Yola north local government area while Viniklang fish market and Labondo markets were purposively chosen from Girei local government area because of the large presence of fish marketers. One hundred and sixty (160) fresh fish marketers and processors/marketers were randomly selected from the four markets in a ratio proportional to market size i.e. Sixty (60) in Jimeta market, 30 in jimeta bypass market and 35 each in Viniklang and Labondo markets.

2.3 Analytical Techniques

Descriptive statistics such as means, tables, percentages, gross margin and frequency distribution were used for the study. Mathematical Expression of the Analytical Techniques is as follows:

$$2.3.1 \text{ Gross margin (GM)} = \sum P_i Q_i - \sum K_j X_j \dots\dots\dots (1)$$

Where

GM = Gross Margin

P_i = Unit price of output (₦)

Q_i = Quantity of output (Kg)

K_j = Unit cost of variable input (₦)

X_j = Quantity of variable input

\sum = Summation sign

GI = Gross Income

TVC = Total variable Cost (₦)

$$2.3.2 \text{ Mean } \bar{X} = \frac{\sum X_i}{n} \dots\dots\dots (2)$$

Where

$\sum X_i$ = summation of the sample and

N = total number of observation.

3. Results and Discussion

3.1 Socioeconomic Characteristics of Fresh Fish Marketers and Processors/Marketers

Age is an important variable which shows how young/old an individual is; The result in Table 1 shows that about 60% of the fresh fish marketers were within the most active age bracket of 31-50 years with a mean age of 36 years. Whereas about 62% of the fish processors/marketers fall also within the most active age bracket of 31-50 years with an average age of about 40 years. This implies that most of the marketers are in their active economic age bracket, which is consistent with the findings of Madugu and Edward (2011) who reported that 31-40 years made up the largest age bracket of processed fish marketers in Adamawa State. The gender response of the respondents shows that about 79% of the fresh fish marketers were female, 30% were male. On the other hand, female constituted 62% of the processed fish marketers and male respondents accounted for 38%. This means that female dominate more in the marketing of fresh fish in the study area. Gaya *et al.* (2006) observed that the frozen fish market is a female dominated market. Similarly, the result reveals that around 65% of fresh fish marketers were married, and about 25% and 10% were single and widowed respectively, whereas 76% of the fish processors/marketers were married and approximately 16% were single, leaving about 9% widowed. Marriage is an important factor in the livelihood of individuals in our society as it is perceived to confer responsibility on individuals. The result indicates that majority (66%) of the fresh fish marketers had a household size of 1-5 persons with a mean household size of 4 persons. On the other hand, processor/marketers had about 49% with 1-5 family size with an average household size of 6 persons. Education is an important factor which can influence fish processing and marketing and determine level of awareness on the rate of return on value addition in fish. It can be seen that about 68% had one form of formal education or the other. Conversely, about 69% of the processed fish marketing had one form of formal education or the other; implying that literacy level of processed fish marketers in the area was fairly high enough to support information on processing/marketing and technology use.

Response on years of experience indicates that majority (about 53%) of fresh fish marketers had experience of 10 years and above with an average of about 10 years. Whereas 68% of the processors/marketers had experience of 10 years or above with an average of 13 years of experience in fish processing and marketing in the study area. Marketing experience is important in determining the level of profitability obtained by a marketer. Main occupation response reveals that, approximately 55% were engaged in fresh fish marketing as their primary occupation, 24% of the respondents claimed that farming was their main occupation and 21% said they were students. While 62% of processors/marketers said they were primarily engaged in fish processing and marketing. The result shows that, about 58% of fresh fish marketers used personal savings to finance their business operations and 42% of the respondents relied on friends and family as their major source of capital. Conversely, 59% of the processors/marketers also used personal savings as their main source of capital, 41% of them sourced their capital from their families and friends. It is therefore evident that personal savings is the most reliable and ready source of funds for marketers and processors of fish in the study area.

The result reveals that 66% of the fresh fish traded in the study area was catfish and 34% was fresh tilapia. While on the other hand, 62% of fish processed and sold was catfish and 38% of total processed fish was tilapia. This may be due to the hardy nature of catfish, which may be traded alive for a longer period and command a premium price. The analysis revealed that 50% of the fresh fish traded in the study area were from both captured (wild) and cultured (aquaculture) fishery. While 49% of the processed fish came from cultured fish, 32% was from artisanal fishermen and about 18% was from both sources. According to Adebayo and Anyanwu (2013) the trend of aquaculture production in Nigeria and its implication for food security revealed that capture fish will continue to provide the bulk of fish food supply in Nigeria as the bulk of fish being consumed still comes from the artisanal sector. The result shows that, about 44% of the respondents were engaged in smoked fish processing, around 14% were sun dried fish processors, and approximately 21% were engaged in both smoked and sun dried fish processing, the other 21.12% of the respondents were roasting (pepper fish)/frying processors. This indicate that majority of the respondents were smoked fish processors which is one of the common types of fish processing and preservation methods in the study area.

Variables	Fresh fish marketers		Processors/marketers	
	Frequency	%	Frequency	%
Age (years)				
≤30	15	24.19	16	22.54
31-40	24	38.71	24	33.80
41-50	13	20.97	20	28.17
51-60	8	12.90	9	12.68
>60	2	3.23	2	2.82
Total	62	100.00	71	100.00
Mean	35.77	39.50		
Gender				
Male	13	20.97	27	38.03
Female	49	79.03	44	61.97
Total	62	100.00	71	100.00
Marital Status				
Married	40	64.52	54	76.06
Single	16	25.81	11	15.49
Widowed	6	9.68	6	8.45
Total	62	100.00	71	100.00
Household Size				
1-5	41	66.13	35	49.29
6-10	17	27.42	31	43.66
11-15	4	6.45	5	7.04
Total	62	100.00	71	100.00
Mean	4.31	6.37		
Educational Level				
No Formal Education	20	32.26	23	32.39
Primary School	23	37.09	16	22.54
Secondary School	14	22.58	21	29.58
Tertiary School	5	8.06	11	15.49
Total	62	100.00	71	100.00
Experience (years)				
≤2	2	3.23	3	4.23
3-5	7	11.29	7	9.86
6-9	19	30.65	13	18.31
≥10	33	53.23	48	67.61
Total	62	100.00	71	100.00
Mean	10.02	12.72		
Main Occupation				
Fish Sellers	34	54.84	45	62.38
Farming	15	24.19	20	28.17

Student	13	20.98	6	8.45
Total	62	100.00	71	100.00
Source of Capital				
Personal Savings	36	58.07	42	59.15
Family & Friends	26	41.94	29	40.85
Total	62	100.00	71	100.00
Type of Fish				
Catfish	41	66.13	44	61.97
Tilapia	21	33.87	27	38.03
Total	62	100.00	71	100.00
Source of Fish				
Artisanal	20	32.26	23	32.39
Fish Farmers	11	17.74	35	49.30
Both	31	50.00	13	18.31
Total	62	100.00	71	100.00
Type of Processing				
Smocking	--	--	31	43.66
Sun drying	--	--	10	14.10
Both	--	--	15	21.12
Roasting(Pepper Fish)	--	--	15	21.12
Total	--	--	71	100.00

Table 1: Socioeconomic characteristics of the respondents

Source: Field survey, 2015

3.2 Cost and Returns of Processed and Fresh Fish Marketing per Kilogramme

The gross margin analysis of processed and fresh fish marketing per kilogramme is showed in Table 2. The result shows that the total variable cost of processed fish marketing was ₦844.95/kg. The analysis also shows that, total average revenue was ₦1,843.24/kg while the gross margin was found to be ₦998.29 and return on investment was ₦1.18, meaning for every one naira invested, ₦1.18 was gained. The result shows that fish processing and marketing of processed fish was profitable, thus agreeing with the works of Iiyasu *et al.* (2011), Adeosun and Adebukola (2012), Ebewore (2013), and Nwabueze and Nwabueze (2010), who also reported that marketing of processed fish was profitable if carefully managed. While the analysis of fresh fish marketing per kg in the study area reveals that total variable cost of fish marketing per kilogramme was ₦625.56. Total average revenue per kilogram was ₦1,084.82. The gross margin/kg was ₦459.26 with 0.42 returns on investment meaning, for every one naira invested, 42 kobo was gained per kilogramme. This implies that fresh fish marketing was also profitable in the study area but not as much as that of processed fish which had a ₦998.29 gross margin. There was a ₦539.03 difference between the gross margin of processed fish and fresh fish marketing in the study area.

Variables	Processed fish		Fresh fish	
	value(₦)	Percentage	value(₦)	Percentage
A. Variable Cost				
Cost of Fish	659.03	77.99	557.95	89.19
Transportation	23.76	2.81	16.26	2.59
Packaging	8.30	0.98	--	--
Fees/Levies	29.51	3.49	18.64	2.98
Storage	4.28	0.51	--	--
Handling	2.82	0.33	--	--
Personal Expense	34.81	4.12	19.77	3.16
Processing Cost	45.72	5.41	--	--
Other Cost	27.72	3.28	12.94	2.07
Total Variable Cost	844.95	100.00	625.56	100.00
B. Revenue	1,843.24		1,084.82	
Gross Margin	998.29		459.26	
Return on investment	1.18		0.42	

Table 2: Cost and Returns of Processed and fresh Fish marketing per Kilogramme

Source: Field Survey, 2015

4. Conclusion and Recommendations

The socioeconomic characteristics showed that majority of the respondents were in their most active and productive age bracket of 31-50 years, most had one form of formal education or the other, similarly, many of the respondents were married with an average household size of 6 and 4 persons for processed and fresh fish marketers respectively. Most of the respondents used personal savings to finance their business operations; they have an average of about 13 and 10 years of experience in processed and fresh fish marketing respectively. The study further concludes that both processed and fresh fish marketing are profitable with gross margin of ₦998.29 and ₦459.26 respectively,

but processed fish marketing was found to be most profitable in the study area. It was recommended that credit facilities should be made readily available to the marketers and cold rooms and storage facilities be provided in the market to reduce fish spoilage.

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