

# Market Indices of Fish Products Sold in Makurdi Metropolis, Nigeria

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**Abstract**— The market indices of fish products sold in Makurdi Metropolis was studied to ascertain the possible market variables that drive fish marketing in Makurdi. A total of 100 Structured and Semi-structured questionnaires were administered to fish retailers during the research period that lasted for three months (November 2016 - January 2017). 34 (49.30%) Respondents had been into fish marketing or <10 years of whom 54 (78.30%) had non-formal education and used family members (58%) in the business. It was observed that the rural/village markets (22, 31.90%) had the highest sale using wholesale bargain (40, 58.00%) as the unit of sale. The fish sold were mostly from fishermen (54%) and could earn for the retailers a mean net profit of ₦11,492.03. Spoilage was noted to be the major marketing challenge. It was concluded that adequate measures should be put in place to improve the preservation practice of the catch.

**Keywords**— Market indices, fish products, Retailers, Makurdi Metropolis, River Benue.

## I. INTRODUCTION

The demand for fish products like any other need of man has been on the rise especially due to the increasing population and the increasing awareness of the health values of fish and fish products. Fish products are known to have polyunsaturated fatty acids PUFAs ( EPA, eicosapentaenoic acid and DHA, docosahexaenoic acid and omega 3 fatty acids) which are not associated with cardiovascular diseases. In this way, people prone to high blood pressure and other ageing diseases have placed demand on fish products much more than other protein sources increasing the demand gap. In Nigeria, demand for fish has been reported to be doubling as other sources of animal protein become expensive due to the ever-

increasing human population and high production cost of other protein sources (Akolisa and Okonji, 2005).

To make fish available to consumers at the right time and in the right place requires an effective marketing system. The operation of such marketing system is premised on the market indices of fish products necessary for guiding productive practices in the distribution and sale of fish products. These market indices include collection of fish, transportation to landing sites, processing and preservation, packing (packaging the fish), transportation to market centers, pricing, buying and consumption/utilization.

Artisanal fish production in Benue State between 1994 and 1998 was at the average of 1207 metric tonnes per annum which was 0.8% of total fish production from the inland states and 0.4% of the total fish production by all the states of the Federation (FDF, 2008). Although production from capture fisheries has been on the decline, the number of people going into fishing showed a pronounced annual increase in both the Marine and Inland states (Agishi, 1996). The Benue River, about 1000km upstream joins the Niger, seasonal floods inundate the flood plains (Hughes and Hughes, 1992). As the flood recedes, a multitude of ponds and swamps are left behind in which fish are abundant. Retention of water in these ponds lasts for a long period because the flood plains are rich in salt and alluvial clays and a small percentage of sand which do not allow high rates of seepage.

It is also imperative to study the market indices and dynamics so as to cope with product peculiarity of fish products which makes it rather difficult to market due to rapid spoilage. Gupta and Gupta (2006) reported that fish is a highly perishable commodity that undergo spoilage as soon as it is harvested, the spoilage process (Rigor mortis) starts within 12 hours of their catch in the high ambient temperatures of the tropics and once spoilage sets in the

odour/flavour, texture, colour and sometimes the chemical composition changes. As such good knowledge of its marketing is essential as regards its product safety and profitability in its sales.

There is a widening gap between production and demand due to inadequate demand information which is capable of hindering optimization of production and marketing in the fish production sub-sector (Ajana, 1999). Therefore a study of this nature is imperative to examine strategies to effective marketing and with a view to examine the constraints associated with the effective marketing. In order to balance the shortfall between fish production and high increase in fish demand, there is need for obtaining marketing information on fish retailers in Makurdi metropolis this would provide useful criteria judgment on the source of fish supply and markets with most sales of fish in Makurdi as well as the economic analysis of variables.

The research work characterized the demography of respondents and provided information regarding fish by retailers to make amendments or control a number of lapses that may be affecting marketing of fish in terms of fish spoilage, low patronage, cost of transportation, government tax and theft and highlighted the benefits of in Makurdi metropolis. Knowledge of the market indices would afford stakeholders the opportunity to formulate policies that would aid robust marketing dynamics in a manner that would create better marketing options for fish and fish products.

## II. MATERIALS AND METHODS

The Benue River, about 1000km upstream joins the Niger, seasonal floods inundate the flood plains (Hughes and Hughes, 1992). As the flood recedes, a multitude of ponds and swamps are left behind in which fish are abundant. Retention of water in these ponds lasts for a long period because the flood plains are rich in salt and alluvial clays and a small percentage of sand which do not allow high rates of seepage.

Makurdi is located in Benue valley with the river Benue which is a major tributary of the River Niger which rises in the mountains of central Cameroon and flow South – West for 1500km before joining the River Niger in Central Nigeria flowing through it (Sarch *et al.*, 1997).

A total of 100 questionnaires were administered to fish retailers during the research period that lasted for three months (November 2016 - January 2017). Stratified random sampling techniques was used to identify households within the community to provide information on retailers, grouped depending on the nearest major markets and fishing communities within each division then randomly sampled for questioning. Structured and Semi-structured were used to obtain information from

respondents. The information collected included the marketing of fish.

## III. RESULTS

Table 1 shows the demographic characteristics of fish retailers in Makurdi Metropolis. It was observed that 49.30% of the respondents spent 1-10 years in fish marketing. This was followed by respondent's years in fish trading above 30 years (20.30%) and years ranging from 21-30 years (17.40%) and 11-20 years (13.00%). Respondents with non-formal education had the highest percentage (78.30%) followed by respondents with secondary education (8.70%) and respondents with tertiary education representing 7.20%. the lowest percentage of 5.80% was recorded for respondents with primary education. The type of labour engaged, had 58.00% representing family members and hired labour recorded 42.00%.

Table.1: Demographic Characteristics of Fish Retailers in Makurdi Metropolis

Variables	Frequency	Percentage
<b>Years in Fish Trading</b>		
1-10	34	49.30
11-20	09	13.00
21-30	12	17.40
>30	14	20.30
<b>Educational Status</b>		
Non-formal Education	54	78.30
Primary	04	5.80
Secondary	06	8.70
Tertiary	05	7.20
<b>Type of Labour Engaged</b>		
Hired	29	42.00
Family members	40	58.00

Table 2 shows the marketing information. For the purpose of distinct periods in seasons of most sales, the study period was grouped into two, i.e. rainy season with 82.60% and dry season recorded 17.40%. Rural market/villages (21.90%) had the highest sales followed by the urban market (26.10%), other towns outside Makurdi (23.20%) and by the river bank (18.80%). The marketing groups were retailers (68.10%), rural assemblers (18.80%), wholesalers (7.20%) consumers and non-specific or others with the same percentages as (2.90%). The unit of sales were wholesale bargain (58.70%), basket (30.40%) and by weighing (11.60%). The determinations of unit price were local market price

(50.70%), other fishermen’s prices (38.40%), price fixed by trade associations (8.70%), and haggling (5.80%). Sources of marketing information were radio (62.30%), cell phone (15.90%), television (10.10%), interpersonal interaction (8.70%) and newspaper (2.90%).

(44.00%), Fish Women Traders (15.00%) and Fresh Fish Women Association (4.00%).

Table.2: Market Information of Fish Sold in Makurdi

Variables	Frequency	Percentage
<b>Season of Most Sales</b>		
Dry	12	17.40
Rainy	57	82.60
<b>Market with most sales</b>		
By river bank	13	18.80
Urban markets	18	26.10
Rural	22	31.90
Markets/villages		
Others towns outside Makurdi	16	23.20
<b>Marketing Groups</b>		
Wholesalers	05	7.20
Retailers	47	68.10
Rural Assembly	13	18.80
Consumers	02	2.90
Others	02	2.90
<b>Unit of sales</b>		
Kilogramme	08	11.60
Basket	21	30.40
Others (wholesale bargain)	40	58.00
<b>Determination of Unit Price</b>		
Haggling	04	5.80
Other fishermen’s prices	24	34.80
Price Fixed by Trader Association	06	8.70
Local Market Price	35	50.70
<b>Customer Incentives</b>		
Accommodation	13	18.80
Discount	54	78.30
Others	02	2.90
<b>Marketing Information</b>		
Newspaper	02	2.90
Television	07	10.10
Radio	43	62.30
Cell phone	11	15.90
Interpersonal Interaction	06	8.70

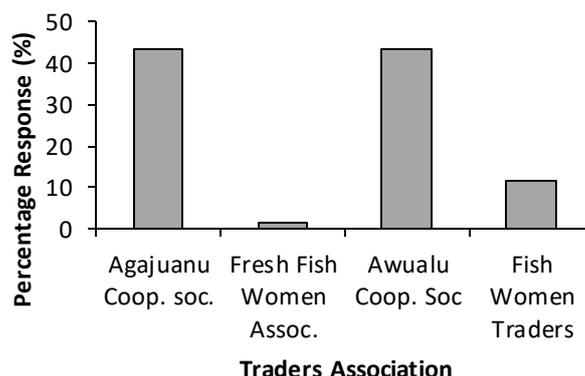


Fig.1: Traders Associations of Fish in Makurdi

Figure 2 shows the markets with most sales of fish products and are presented with their various percentages Wadata (33.00%), Gboko/Wannune (17.00%), Daudu/Utyondu (15.00%), Wurukum (7.00%), Apir/Ikpayongu (5.00%), Agan (4.00%) and finally others or non-specific(3.00%).

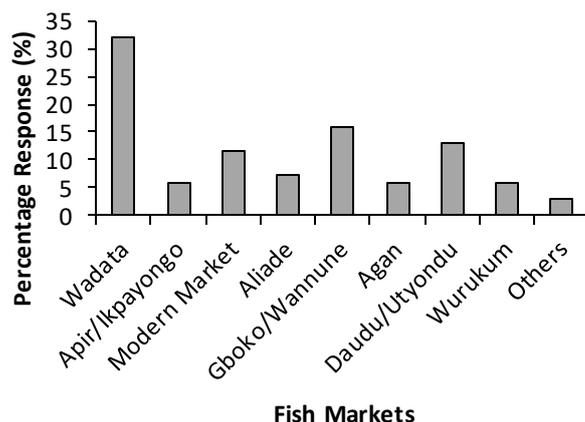
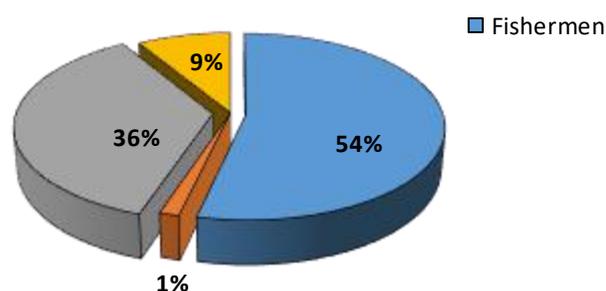


Fig.2: Markets with Most Sales of Fish Products

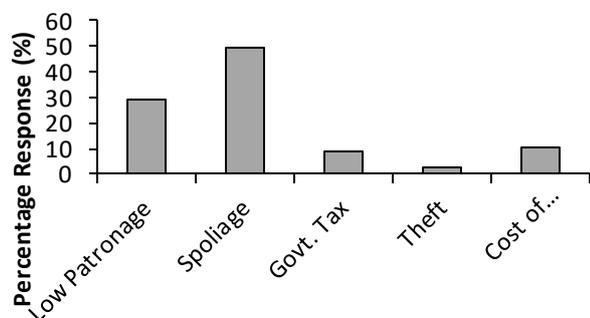
Respondents obtained their fish product from four sources. Figure 3 shows the percentage distribution of fish supply by respondents. Fishermen constituted the major sources with (53.60%) followed by both fishermen and aquaculture (36.20%) and others from non-specific suppliers (8.70%).



The various fish traders associations in the study area are presented in figure 1. They include Awualu Cooperative Society (45.00%), Agajuana Cooperative Society

Fig.3: Sources of Fish Available for Sale in Makurdi Metropolis

Marketing problems in the study area are presented in figure 4 with their various percentages, fish spoilage (50.00%), low patronage (30.00%), cost of transportation (10.00%) and theft (5.00%).



Marketing Challenges

Fig.4: Marketing Problems of Fish Products in Makurdi

Respondents suggested Solutions to marketing problems observed are presented in figure 5. According to the majority of respondents, providing preservation facilities by the government should be given a number one priority ( 35.00%), other suggested solutions were Security of fisher folks (15.00%), early arrival of fish (14.00%), loan facility for fish vendors (11.00%), standardizing price and awareness of nutritive value of fish (4.00%).

Table 3 shows the economic analysis of fish marketing in Makurdi Metropolis. The mean sales was ₦ 44,289.85 and the total expenditure was valued at ₦2,284.78. The gross margin was estimated at ₦13,776.81 while the net profit was valued at ₦11,492.03.

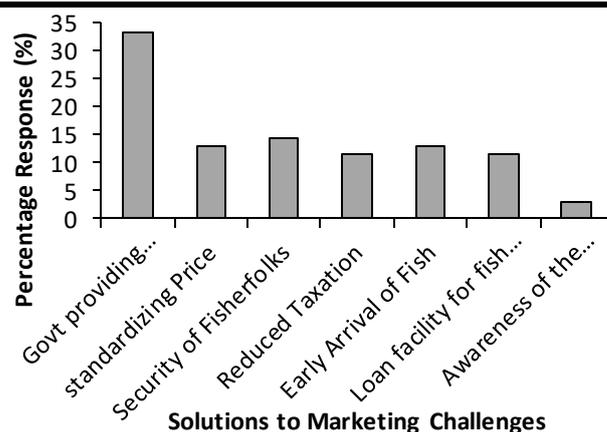


Fig.5: Solutions to Marketing Problems of Fish Marketing in Makurdi Metropolis

#### IV. DISCUSSION

It was observed that the respondents with non-formal education were the highest number of fish sellers. Artisanal fisheries subsector is usually noted to be predominated by uneducated members of the society. This agreed with the earlier findings of Njoku (2004) and Samson (2006). Due to their poor educational backgrounds, they tend to elude standardized pricing and sales. This explains why wholesale bargain was recorded highest as the widely used unit of sales. This unit of sales favour the second-tier middlemen who have the propensity of taking advantage of the fast spoilage of fish against the fishermen and the first-tier retailers. Sales were also dominated by local/village markets for the reason that, the actual fishermen who did the catch and their families (who formed the first-tier retailers) had difficulty keeping the fish over long period and instead sold at point of catch.

Wadata market was observed to be the market with most sales due to its location. Large quantity of fish is brought to the market from Agatu settlement via water-transport in addition to the catch from the river Benue. Second-tier Retailers take advantage of the inabilities of the rural fishermen to keep the caught fish beyond certain time periods. Ali *et al.*, (2008) also observed that fresh fish products in Maiduguri were mostly transported to other stations where they were not caught by retailers.

Table.3: Economic Analysis of Fish Marketing in Makurdi Metropolis

Income				Expenditure			
Variable	Min	Max	Mean (N)	Variable	Min	Max	Mean (N)
Sales	3,000	85,000	44,289.85	Transportation	150	8,000	1,150.00
				Market Charges	100	15,000	1,196.92
				Others	100	5,000	2,550.00
Total	-	-	44,289.85		-	-	2,284.78
Gross Margin	13,776.81						
Net Profit	11,492.03						

Spoilage was noted as the major challenge of marketing fresh fish in Makurdi Metropolis.

This is essentially explained from the fact that, fish deteriorates much faster than any food product followed

by unpasteurized milk (Eyo, 2001). Tomek and Robinson (1981) reported that fish supply and marketing suffer from various set back ranging from shortage of supply, price fluctuation due to drying up of source, poor distribution and length of chain, spoilage in transit etc. The minimum sales made estimated could likely be from the first-tier retailers while the maximum sales were made by retailers who could transport the fish to urban markets for sale. The mean sales only represented the wide range of sales of fish from the various retailers. It is therefore established that although fish marketing could be a profitable venture, the second-tier retailers are better-off in terms of profit due to the inability of the fishermen and first-tier retailer to prolonging the keeping-time of the catch.

In improving the food security programme of the nation, fish which is considered the most readily available protein source should be given keen attention. The depleting catch from the wild has been a worrisome national issue. Adequate measures should be put in place to improve the preservation practice of the catch. This would not only improve the profit margin of the fishermen but also guarantee product quality and safety.

## V. CONCLUSION

It was concluded that a majority of the fish sellers get their fish product from fishermen for trading. Their most prominent challenge in the business was high spoilage which opine government intervention in the provision of storage facilities could solve the problem. They however make appreciable profits in spite of these challenges.

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