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# THE DEMAND ANALYSIS FOR FRESH FISH IN ABEOKUTA METROPOLIS OF OGUN STATE, NIGERIA

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## ABSTRACT

*This study examined the demand analysis for fresh fish in Abeokuta metropolis of Ogun State, Nigeria. Data were collected with the aid of structured interview schedules and direct interview to elicit information from 150 fresh fish consumers randomly selected from within the locality of three major fresh fish markets (Olomore, Itoku, and Kuto). The data collected were analyzed using descriptive statistics and regression analysis which revealed that most of the fresh fish consumers (95.9%) were literates with mean household size of 5 persons. Also, 70% of the respondents are female out of which 71.3% are married, 52.8% were in the active age of 31-40 years old, and 70% are Yoruba speakers. Few (33.3%) of the high income earners spends the least income expenditure on fresh fish while 67.7% of the low income earners spends on frozen fish. It was evident from the study that the quantity of fish demanded increases as household size, income and age increases. The regression results shows that 36.8% of the total variation in the demand for fresh fish are variables, while the remaining 63.2% were not explained by variables with R value of 0.368 according to the equation. Based on the findings, it was discovered that many people preferred fresh fish to frozen fish; efforts should be made to discourage importation of frozen fish and divert the huge amount spent on importation on expansion of aquaculture industry for the provision of more fresh fish for the consumers.*

**Key words:** Demand analysis, fresh fish, Abeokuta Metropolis, Nigeria

## INTRODUCTION

In Nigeria, fish production is not only important as a source of food protein, but it also can be used to bring about institutional changes. These changes can offer access to production assets and resources, which can help to empower the poor and directly promote their livelihood (Obikezie, 1999). Unfortunately, Nigeria is not producing enough fish for consumption; also, the fish industry is not providing the much needed financial empowerment that the fish farmers need. According to the Food and Agriculture Organization of the United Nations (FAO, 2006 & FDF, 2008) there is a huge supply demand gap for fish and fishery products in Nigeria. According to the report, there is about 0.62 million metric tons of supply in comparison to the 2.66 million metric tons of demand. This makes Nigeria one of the largest importers of fish in the developing world, importing 2.04 million metric tons annually and valued \$594.4 million in 2007 (FDF, 2008). It is therefore necessary to ensure that improved fish production technologies that have been developed and disseminated are adopted, in order to increase fish production. The fishery industry is crucial to the World economy. The livelihoods of millions of people worldwide are dependent

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on fish farming (Green facts, 2004). Fish provides a rich source of protein for human consumption. The flesh of fish is also readily digestible and immediately utilizable by the human body, which makes it suitable and complementary for regions of the world with high carbohydrate diet, like Africa (FAO, 2005). Research results have linked seafood consumption to reduced risk of disease.

In Nigeria, per caput consumption was 9.68 kg/head/year (FDF, 2008), fish and fish products constitute more than 60% of the total protein intake in adults especially in rural areas (Adekoya and Miller, 2004). It also provides employment opportunities to many rural dwellers in different fields of fishing activities such as production, processing, preservation and transportation. In marketing, fresh fish passes through various market participants and exchange points before they reach the final consumers.

Ogun State being one of the coastal states in Nigeria has about 15 Kilometers marine areas and numerous rivers, streams and inland ways which support varied fishing activities. In spite of these potentials, domestic fish production is grossly inadequate to meet the demand. This general trend in fish supply suggested that domestic production is not increasing at the same rate with yearly increase in demand. The annual demand for fish is 401,128 tons against supply level of 10,561 metric tons (Akande, 1996).

Fish complement meat as an affordable protein source but the price of the latter is beyond what most Nigerians can afford therefore quite a sizeable proportion of the Nigerian's population depends on fishing as a source of income. An increase in consumers' taste and preferences for a particular product tends to increase the quantity demanded for that product. Consumer's tastes and preferences affect demand for a given product and in measuring taste and preferences, only the qualitative impact on demand can be evaluated not the quantitative impact.

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 (Olaoye *et al.*, 2010). In order to balance the shortfall between fish production and high increase in fish demand, there is the need for analyzing fish demand in Abeokuta metropolis, among others is recognized for consumption of fish but fish demand has received little or no research attention resulting in insufficient knowledge on consumer's preferences in terms of forms of fish. The researcher maintained that investigation in fish demand is important in several respects, among them is the fact that the producers will improve on marketing and processing of fish because when they know the form of fish preferred by the consumers (fresh, frozen, fried or smoked), they could focus exactly on the taste of the consumers. This would reduce fish spoilage as a result of low demand by the consumers. Therefore, a study of this nature is imperative to determine consumer's tastes and preferences with a view to finding the form of fish preferred by the consumers (fresh, frozen, fried or smoked). As a measure to bridge the fish demand with its supply, Nigeria resulted into importation of fish causing a considerable drain in foreign reserve. Despite expenses on fish importation, the gap between fish supply and demand continue to widen more so as the population increases with increase in zoonotic diseases in livestock.

### **Objectives of the study**

The broad objective of this study is to determine the demand analysis for fresh fish in Abeokuta metropolis of Ogun state, Nigeria

### **Specific objectives are to:**

- analyze various factors influencing the demand for fresh fish;
- identify problems associated with the demand for fresh fish;
- examine how the socio-economic characteristics of the respondents affect the demand for fresh fish.

### **Hypotheses**

$H_{01}$ : there is no significant relationship between socio-economic characteristics of respondents and demand analysis for fresh fish.

$H_{02}$ : there is no significant relationship between preference for fish types and demand for fresh fish.

## METHODOLOGY

**Study Area:** This study was carried out in Abeokuta South and North of Ogun State. The city is located in South Western Nigeria, with estimated population of 222,653. The city is located 110km by road north east of Lagos; it is within 1000km of the Atlantic Ocean in the eastern part of Ogun State and possesses a warm tropical climate. Agriculture and trading are the major occupation of the inhabitants. It is the trade centre of a farming region where yam, cassava, grain, tobacco and cotton are grown.

**Data collection and sampling techniques:** A combination of purposive and random sampling technique was adopted, these techniques were used because the number of population elements cannot be ascertained but they can only be imagined. Three major fresh fish markets (Olomore, Itoku and kuto) in Abeokuta metropolis were selected to form the sampling frame. Simple random sampling was used to draw 50 respondents each (fresh fish consumers) within the locality of each market. Thus a total sample of 150 respondents was interviewed using a structured interview schedules and direct interview.

**Method of data analysis:** The method of data analysis adopted in this study includes simple descriptive statistics, frequency, percentages, bar chart, pie charts, tables and mean were used to describe the data collected on the socio-economic characteristics of the respondents, expenditure on fresh fish and preferences for fish types. Multiple regression analysis was used to make inferences and conclusion.

Model specification:

$$Y = b_0 + b_1 X_1 + b_2 X_2 + b_3 X_3 + b_4 X_4 + b_5 X_5 + e$$

Where; Y = Selling price of frozen fish per cartoon (Naira),  $b_0$  = Constant,  $X_1$  = Age (Years),  $X_2$  = Educational level (Years),  $X_3$  = Household size (Persons),  $X_4$  = Occupation,  $X_5$  = Marital status, e = disturbance error term,  $b_0$  = ---  $b_5$  = Co-efficient of regression estimate,  $X_1$  ----  $X_5$  = independent variable

## RESULTS AND DISCUSSION

### Socio-economic characteristics of the respondents

Results in Table 1 shows that, most (70%) of the respondents were females out of which 71.3% are married, this implies that the female are the food planners who specializes in dictating the diet of a particular family as they are the major determinants of the nutritional level of a family. The highest consumers of fresh fish on preferential basis are the age class of 31-40years (52.8%) while age 60 years and above consumed the lowest of 3.3%, this is against the general believe that at old age people tends to eat more of fresh fish due to its softness and easy digestibility but in line with the age bracket in which people are considered to be economically active and perfect to take concrete decisions even on what to consume per unit time (Ali *et al.*, 2008).

Entries in Table 1 also revealed that 62.6% are civil servants while 7.3% were artisans which indicate that there is a sharp difference in the demand for fresh fish with respect to their occupation. Most (95.9%) of the respondents had one form of education or the other which implies high level of literacy among the respondents and this assisted them in making preference of kinds of fish consumed because of possible improved socio-economic status and ability to purchase fish (Coster and Otufale, 2010). Most (70%) of the respondents speak Yoruba and 64% were Christians which revealed that Yoruba speakers are the dominant ethnic group in Abeokuta metropolis but language or religion is not a factor that determines the demand for fresh fish since there are no taboos or customs that prevents the eating of fresh fish.

### Demand for fresh fish

Table 2 shows the distribution of monthly expenditure on fresh fish based on their income, respondents that earns above N60,000.00 monthly, consumes over N5,000.00 worth of fresh fish per month while low income earners of below N40,000.00 consumes between N500.00 and N 2,000.00 per month. 47.5% of the respondents consume either frozen fish or smoked fish while 52.5% consumes fresh fish. 30% consumed *Clarias gariepinus* (Eja Aro) compared to 15% that consumes other species of fish whose nomenclature they do not know.

The number of people that makes up a family is another factor that influence the demand for fresh fish within the study area, 52% has a household size between 6 and 10 people while 8% has a household size of 15 to 20 individuals as depicted in Figure 1. This implies that increase in the household size leads to an increase in the demand for fresh fish because of more mouths to feed per unit meal. If everybody is giving the opportunity to choose between fresh fish and other substitutes, almost everybody will go for fresh fish as 80% of the respondents' preferred fresh fish as a source of animal protein. Many (33%) preferred fresh fish as a result of its nutritional quality while only 4% preferred it because of its low cholesterol level.

The hypothesis result revealed that the average monthly expenditure on fresh fish by respondents increases as income increases, it was evident that age, educational level and household size, had direct relationship with average expenditure on fresh fish, occupation and marital status had no definite pattern with average expenditure on fresh fish. It was shown that large proportion of respondents' preferred fresh fish to smoked fish or frozen but there is a reduction in consumption of fresh fish compared with frozen fish as a result of the price.

The result of the regression analysis conferred the equation of best fit on the double-log equation as it was chosen because it has more number of significant values, highest  $R^2$  and F value with much more explanatory co-efficient, 36.8% of the total variation in the demand for fresh fish are variables while the remaining 63.2% were not explained by variables with R value of 0.368.

**Table 1: Socio-economic characteristics of the respondents**

Parameters	Frequency	Percentage (%)
<b>Sex</b>		
Male	45	30
Female	105	70
<b>Total</b>	<b>150</b>	<b>100</b>
<b>Marital Status</b>		
Single	38	25.3
Married	107	71.3
Divorced	5	3.3
<b>Total</b>	<b>150</b>	<b>100</b>
<b>Age (Years)</b>		
21-30	27	17.8
31-40	80	52.8
41-50	13	8.5
51-60	25	16.9
60 and above	5	3.3
<b>Total</b>	<b>150</b>	<b>100.0</b>
<b>Occupation</b>		
Civil Servants	94	62.6
Business entrepreneurs	45	30.0
Artisan	11	7.3
<b>Total</b>	<b>150</b>	<b>100.0</b>
<b>Education</b>		

No formal education	6	4
Primary education	9	6
Secondary education	34	22.6
Tertiary education	101	67.3
<b>Total</b>	<b>150</b>	<b>100.0</b>
<b>Ethnic group</b>		
Yoruba	105	70
Hausa	21	14
Igbo	24	16
<b>Total</b>	<b>150</b>	<b>100</b>
<b>Religion</b>		
Christian	96	64.0
Muslim	45	30.0
Others	9	6.0
<b>Total</b>	<b>150</b>	<b>100.0</b>

Source: Field survey, 2009

Table 2: Fresh fish preferences and reasons for its consumption

Parameters	Frequency	Percentage (%)
<b>Preference for fresh fish</b>		
Yes	120	80
No	30	20
<b>Total</b>	<b>150</b>	<b>100.0</b>
<b>Reasons for the preference</b>		
Highly nutritional	51	33
Good taste and texture	24	16
Health reasons	15	11
Low cholesterol	6	4
Easy to chew	24	16

Affordability	18	12
Others	12	8
<b>Totals</b>	<b>150</b>	<b>100.0</b>
<b>Preferred Species</b>		
<i>Clarias gariepinus</i>	48	30
<i>Heterobranchus sp</i>	51	33
<i>Tilapia sp</i>	24	16
<i>Chrysichthys nigrodigitatus</i>	9	6
Others	18	15
<b>Total</b>	<b>150</b>	<b>100.0</b>

Source: Field survey, 2009

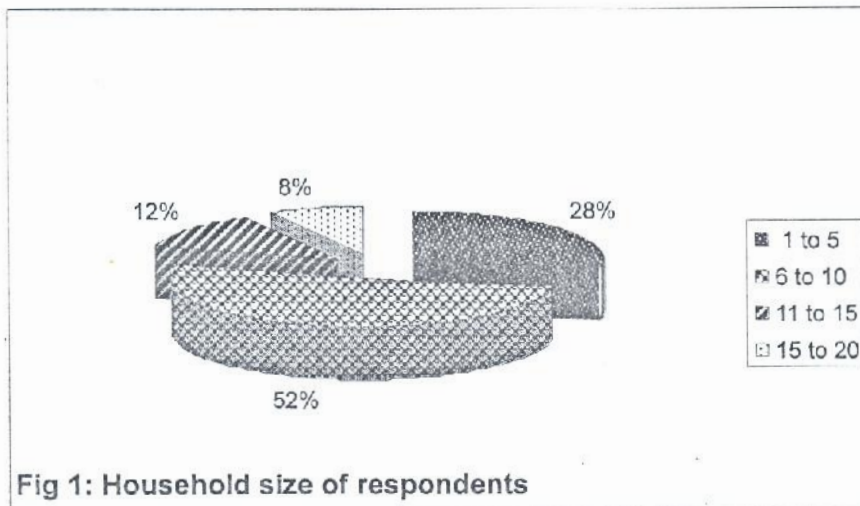


Fig 1: Household size of respondents

Table 3: Frequency distribution on their expenditure on fresh fish

Income per month N	Average expenditure on fish per month	Frequency	Percentage
0.00 – 19,999.00	1,000.00	10	6.67
20,000.00 - 39,999.00	1,500.00	21	14.0
40,000.00 – 59,999.00	2,000.00	69	46.0
60,000.00 – 79,999.00	3,500.00	11	7.33
80,000.00 – 99,999.00	4,000.00	9	6
100,000 & above	5,000.00	30	20

Source: Field survey, 2009

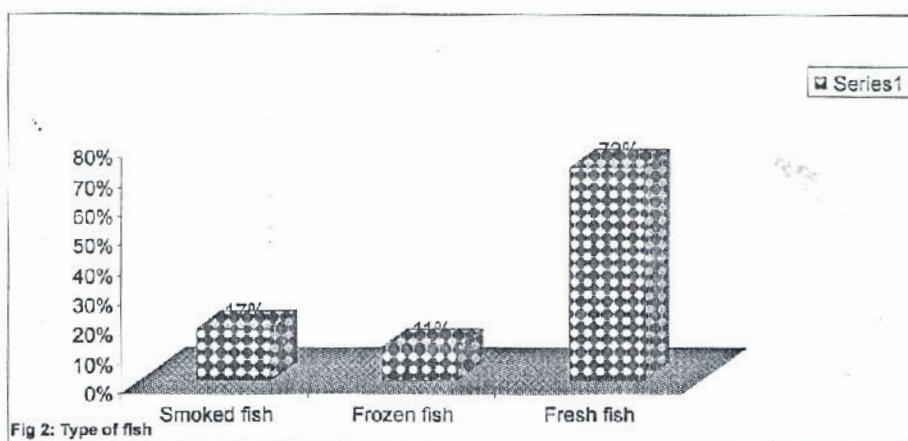


Table 4: Socio-economic characteristics affecting the demand for fresh fish

Functional forms	B <sub>0</sub>	B <sub>1</sub>	B <sub>2</sub>	B <sub>3</sub>	B <sub>4</sub>	B <sub>5</sub>	B <sub>6</sub>	B <sub>7</sub>	R	R <sup>2</sup>	F-value
Linear	0.780	0.0035	1.077 ***	- 0.0162	-- 0.014	- 0.0678	-0.136	0.640	0.309	0.237	4.336
t-value	0.402	0.502	4.037	-0.116	-0.090	-0.568	-0.446	-0.837			
Semi-log	0.164	- 0.0124	0.393 ***	0.0387	0.0156	- 0.0191	- 0.0734	0.222	0.363	0.298	5.542
t-value	0.239	-0.528	4.799	0.787	0.275	-0.153	-0.680	0.821			
Double-log	0.771	0.0575	0.554 ***	0.116* *	-0.155	0.0532	-0.252	0.314	0.368	0.303	5.654
t-value	1.408	0.573	4.477	0.076	-1.171	0.446	-0.726	0.766			

\*\*\* Significant at 1%, \*\* Significant at 5%, \* Significant at 10%

## CONCLUSIONS AND RECOMMENDATIONS

This study examined the demand analysis for fresh fish in Abeokuta metropolis with a view of finding the trends in fresh fish consumption and consumers preferences for fresh fish types. The study showed that income, education, age are major determinant of the consumers demand for fresh fish while factors such as age, household size, marital status, substitutes, sex are secondary determinant. The study also revealed that high income earners preferred fresh fish to its substitutes. Based on the findings, the following recommendations were made for the improvement in the fresh fish demand, marketing and consumption in the following areas;

- Efforts should be made in increasing capital investment in the fishery sub-sector.
- Since the study revealed that many people prefer fresh fish to other types of fish, efforts should be made to discourage importation of frozen fish and diversion of the huge amount to the aquaculture industry for more production of fresh fish.
- Grants, loans and subsidies should be given to fish farmers and marketers to enable them purchase modern equipment in order to increase supply for fresh fish.
- Private individuals and corporate bodies should be encouraged to venture into fish production in Nigeria.

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