The Influence Of Socio-Economic Characteristics on Consumers' Preference on Fish Purchase In Yola North Local Government Area, Adamawa State

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Abstract— *The study examined the influence of socio-economic characteristics on consumer's preference on fish purchase in Yola North local government area of Adamawa state. Data from the study were obtained using a well-structured questionnaire administered randomly to 100 consumers out of which 99 were retrieved. Multiple Regressions was used as a tool to examine the influence of socio-economic characteristics on consumer preference on fish purchase. The result of the study revealed that majority of the consumers who prefer fish were between the ages of 41-50; 48.48% were males, 51.52%were females. Majority (78.79%) of consumers were married. The results further revealed that the consumers had attended one form of formal education or the other. 21.2%had secondary education, 77.8% had tertiary education, while 1.0% had other form education. Analysis of the consumers' household size revealed that 44.4% were found to be between 4-6 persons. An analysis of consumers' preference for fish was found in the study. Results revealed that 16.2% purchased their fish from wholesalers, 76.8% from retailers and 5% from importers. 2% purchase from other source. Most of the fish purchased were both fresh and smoked fish (47.5%). Results also showed that the average monthly income of the consumers were 58.6% (51,000>) and 67.7% of the consumers like at least very much to eat fish. The regression analysis gave an* R^2 *of 88.01% and the independent variable* X_1 *(Age),* X_3 *(educational level),* X_4 *(income) and* X_5 *(household size) were positively significant and affect the amount spent on fish. The study also revealed that income, availability of fish and good storage facility were factors limiting consumers' preference for fish in the study area. Recommendations on the study was that infrastructural facilities should be made available, and fish farmers should be supported by providing them with some incentives to encourage them to produce more to meet the increasing demand of the teeming population.*

Keywords: consumer, preference, fish, socio-economic

I. INTRODUCTION

Fish is one of the world's most important source of meat; it is the chief source of meat supply to more than half of the world population.

Fish is a key ingredient on the global menu, an important basis for livelihood worldwide. It needs to be placed where it belongs: high on the global agenda and integrated into thinking, action and policies at the highest level of all nations (NAGA, World Fish 2005).

Nigeria's total domestic fish production for 1995, 1996 and 1997 were 371,053; 355,934; and 384,275 metric tons respectively. For the 1997 figure, the contribution by sector indicated that lakes and rivers contributed 185,094 metric tons; aquaculture contributed 18,537 metric tons; inshore coastal and brackish water contributed 179.74 metric tons , while the Exclusive Economic Zone, EEZ (offshore) contributed 1,570 metric tons (Federal Ministry of Agriculture and National Resource FMANR, 1998) Adamawa State, where the study area is located produced about 11,897, 11,494 and 11,105 metric tons in 1995, 1996 and 1997 respectively (FMANR, 1998).

Demand for fish in Nigeria has doubled as other sources of animal protein have become expensive due to rising population and high production cost of other animal protein sources (Akolisa and Okonji, 2005). The recent ban on the importation of broiler table meat, other poultry products by the Federal Government of Nigeria has made fish and fish products even more popular (Ojo and Fagbenro, 2004).

Fish is a major source of protein and essential food items in the diet of many Nigerians, because it is relatively cheaper than beef, chicken, mutton and turkey. (Tabor, *et al*,

1990). Most of the consumed species are very cheap such as sendinella, Bonga, Moonfish, illisha and Tilapia especially in the coastal and inland rural areas where incomes are generally low. (Ladipo *et al*, 1998).

Fish provides 40% of the dietary intake of animal protein of the average Nigerian (Federal Department of Fisheries, 1995). According to Adekoya, (1996), fish and fish products constitute more than 60% of the total protein intake in adults especially in rural areas. Fish is highly nutritious, tasty and easily digested. It is much sought after by a broad cross-section of the world's population, particularly in developing countries. It is estimated that around 60 percent of people in many developing countries depend on fish for over 30 percent of their animal protein supplies, while almost 80 percent in most developed countries obtain less than 20 percent of their animal protein from fish. However, with the increased awareness of the health benefits of eating fish and the ensuing rise in fish prices, these figures are rapidly changing (www.fao.org.)

Fish provides a good source of high quality protein and contains many vitamins and minerals. It may be classed as either whitefish, oily or shellfish. Whitefish, such as haddock and seer, contain very little fat (usually less than 1%) whereas oily fish, such as sardines, contain between 10-25%. The latter, as a result of its high fat content, contain a range of fat-soluble vitamins (A, D, E and K) and essential fatty acids, all of which are vital for the healthy functioning of the body. (Wikipedia, 2013). Research over the past few decades has shown that the nutrients and minerals in fish, and particularly the omega 3 fatty acids found in pelagic fishes, are heart-friendly and can make improvements in brain development and reproduction. This has highlighted the role for fish in the functionality of the human body. (Wikipedia, 2013). FAO estimates that fish provides 22% of protein intake and exceed 50% in the poorest countries where animal is expensive and scarce (FAO, 2003). In Nigeria, only a negligible proportion of the fish caught in rivers and lakes are marketed fresh, a greater proportion is preserved by smoking and sun drying. (Ikeme and Bhandary, 2001)

Preferences and perceptions are important elements of demand theory but most of the economic analysis for market demand is based on price and income. Traditionally, demand analysis assumes that preferences and perceptions never change. However, it is obvious that consumer preferences will change and these changes are important element in the demand analysis. Consumer behavior should then be based on experience, perception, preference and choice Fayyaz, *et al* (1995).

Despite considerable research, no integrated theoretical explanation exists that can give marketers a total understanding of the relationship between consumer purchase behavior and its influence on the market demand for fish (Chaston, 1987).

Kinnucan *et al*. (1993) suggests that knowledge of diverse consumer preferences is one of the first steps in understanding the demand for fish and the efficient distribution of market resources.

This study will therefore aims to

Describe the socio-economic characteristics of fish consumers in the study area;

- identify the common consumer preference in fish purchase;
- Examine the influence of socio-economic characteristics of the respondents on consumer preference on fish purchase and;
- Identify the factors affecting the consumer's preference for fish.

II. METHODOLOGY

This research was carried out in Yola North Local Government Area of Adamawa State. Yola lies between latitude $9^{0}14^{1}$ and $9^{0}21^{1}$ North and between longitude $12^{0}18^{1}$ and $12^{0}28^{1}$ East of the Greenwich Meridian, it is 185.9 meters above sea level (Adebayo, 1999). Yola North Local Government Area has a population of over 199,647 inhabitants (NPC, 2006), it covers an estimated area of 8,068 km^{2}. It is situated in the sudan savannah vegetation zone of the country. The climate of the study area is typically marked by wet and dry seasons. The wet seasons starts in April and ends in October; while the dry season commences in November and ends in late March. The average minimum temperature is 15.2^{O}C; the hottest months are March and April, with maximum temperature of 42.78^{O}C (Adebayo and Tukur, 1999). Adebayo, (1999) reported that the maximum temperature can reach 40^{O}C particularly in March-April which is the hottest period while minimum temperature can be as low as 18^{O}C between December and January, relative humidity between January and march is extremely low (20-

30%), it starts increasing as from April and reaches its peak (80%) in August and October. The annual rainfall is about 958.99mm with August and October as the wettest months.

The predominant tribes in the area are the Fulani's, Hausa's, Laka and others (Fakuade, 1999). The major occupation of the people in the study area is farming and cattle rearing. There are also a good number of civil servants and business men (traders).

A total of one hundred respondents were selected using multistage random sampling technique.

Data for this study was basically from primary source. The data were collected using structured questionnaire.

III. ANALYTICAL TOOLS

Descriptive and inferential statistics were used in the analysis of the data obtained from the field. The descriptive statistic involved the use of frequency distribution and percentages. Inferential statistics involved the use of multiple regression model .

The model is specified below

$$Y = b_0+b_1x_1+b_2x_2+b_3x_3+b_4x_4+b_5x_5+u_i$$

Where:

Y = Amount spent on fish (Naira)

B_o = Constant term

B_1 to b_5 = Coefficient of independent variable

X_1 = Age of respondent

X_2 = Sex of respondent

X_3 = Education

X_4 = Income

X_5 = Household size

U_i = Error term

IV. RESULTS AND DISCUSSION

The socio-economic characteristics of consumers which may affect consumption were examined. This are depicted in table 1 including; Gender, Age, Marital status, Educational background, Household size and Primary occupation

The gender distribution shows that 51.2% of the respondents were female while 48.48 were male indicating that majority of the respondents are female whose main responsibility in the house is to take care of the family.

TABLE 4.1

DISTRIBUTION OF RESPONDENTS ACCORDING TO GENDER

Sex	Frequency	Percentage(%)
Male	48	48.48
Female	51	51.52
Total	99	100

Source: field survey, 2013

The age distribution shows that majority (90%) of the consumers fall within the age bracket of 20-50 years. And only 5% are above 50 years old. This could indicate that most of the respondents are married with children who love to consume fish and have one responsibility or the other. According to Amao *et al*, (2006) people in this category will require more protein that matches their body composition.

TABLE 4.2

DISTRIBUTION OF RESPONDENTS ACCORDING TO AGE

Age	Frequency	Percentage(%)
20-30	25	25.25
31-40	27	27.27
41-50	42	42.42
Above 50	5	5.1
Total	99	100

Source: Field Survey, 2013

Marital Status of Consumers

The majorities (78.79%) of the fish consumers were married; about 19.19% were singles, while 2.02% were divorced.

TABLE 4.3

DISTRIBUTION OF RESPONDENTS ACCORDING TO MARITAL STATUS

Marital Status	Frequency	Percentage(%)
Married	78	78.79
Single	19	19.19
Divorced	2	2.02
Total	99	100

Source: Field Survey, 2013

TABLE 4.4

DISTRIBUTION OF RESPONDENTS ACCORDING TO EDUCATIONAL LEVEL

Educational Level	Frequency	Percentage (%)
Primary	0	0
Secondary	21	21.2
Post-Secondary	77	77.8
Others	1	1.0
Total	99	100

Source: Field Survey, 2013

The household of the consumers revealed that majority (44.44%) of the respondents have between 4-6 persons in their household. Large family size implies increase in family expenses since almost all members depends on the family. Ogwumike, (2002) reported that the number of persons living in a household is in close relation with consumption. Emphasizing that the total expenditure and household size are positively and directly related.

TABLE 4.5

DISTRIBUTION OF RESPONDENTS ACCORDING TO HOUSEHOLD SIZE

Household Size	Frequency	Percentage (%)
1-3	19	19.19
4-6	44	44.44
7-9	29	29.3
10-12	7	7.07
Total	**99**	**100**

Source: Field Survey, 2013

The majority(57.6%) of the respondents are civil servants. 31.3% of them are traders, 1% are farmers and 10.1% goes for other forms of occupation like driver, house wife, student etc.

TABLE 4.6

DISTRIBUTION OF THE RESPONDENTS ACCORDING TO OCCUPATION

Occupation	Frequency	Percentage (%)
Civil Servant	57	57.6
Trader	31	31.3
Farmer	1	1.0
Others	10	10.1
Total	**99**	**100**

Source: Field Survey, 2013

Table 2 shows the Consumer Preference in Fish Purchase

It was found that most(76.8%) of the consumers purchased their fish from retailers , while 16.2% of the consumers in the study area purchase their fish from wholesalers.

TABLE 4.7
DISTRIBUTION OF RESPONDENTS ACCORDING TO SOURCES OF FISH

Source	Frequency	Percentage(%)
Importers	5	5.0
Wholesalers	16	16.2
Retailers	76	76.8
Others	2	2.0
Total	**99**	**100**

Source: Field Survey, 2013

The study revealed that most of the consumers prefer purchasing both fresh fish and smoked fish (47.5%). 32.3% of consumers preferred purchasing smoked fish while 19.2% of the consumers purchasing fresh fish.

TABLE 4.8
DISTRIBUTION OF RESPONDENTS ACCORDING TO TYPE OF FISH PURCHASE

Types	Frequency	Percentage
Smoked Fish	32	32.3
Fresh Fish	19	19.2
Both	47	47.5
Others	1	1
Total	**99**	**100**

Source: Field Survey, 2013

The respondents that consume fish 0-3 times per week constituted 27.3% while the majority(72.7%) constituted for respondents consuming fish 4-7 times per week.

TABLE 4.9
FREQUENCY OF FISH CONSUMPTION PER WEEK

Frequency	Number	Percentage(%)
0-3	27	27.3
4-7	72	72.7
Total	**99**	**100**

Source: Field Survey, 2013

Result indicates that most(58.6%) of the consumers of fish are high income earners. The preference for fish may be associated with level of income since fish is generally cheaper compared to meat, its closer substitute in the study area. This result agrees with Ballenger, *et al* (2003) which says that as U.S. incomes rise, consumers spend more on expensive fresh foods, prepared foods, and dining out.

TABLE 4.10
AVERAGE MONTHLY INCOME OF CONSUMERS

Monthly Income	Frequency	Percentage (%)
1000-10,000	4	4.04
11,000-20,000	2	2.0
21,000-30,000	4	4.0
31,000-40,000	16	16.16
41,000-50,000	15	15.2
51,000 and >	58	58.6
Total	**99**	**10**

Source: Field Survey, 2013

The study revealed that 23.2% of the consumers like exceptionally to eat fish. 67.7% of the consumers like very much to eat fish, while 9.1% like at least slightly to eat fish. None of the respondents very much dislike eating fish or extremely dislikes eating fish. This means that fish is a nutritious meal liked and appreciated by most people.

TABLE 4.11
DEGREE OF PREFERENCE FOR FISH CONSUMPTION

Degree of Preference	Frequency	Percentage(%)
Like exceptionally to eat fish	23	23.2
Like at least very much to eat fish	67	67.7
Like at least slightly to eat fish	9	9.1
Total	**99**	**100**

Source: Field Survey, 2013

The Result of the Regression Analysis is presented in table 3

Linear function gave the best fit and is used in the analysis. The entire coefficients are positively signed and have various probability levels. The standard error of Y estimate = 0.18. The co-efficient of multiple regressions (R^2) was given to be (0.88), this implies that about 88% of the variation in Y in consumers preference is explained by the inputs captured in the regression. The regression result shows that four of the five explanatory variables have significant effect on the consumer preference for fish. These variables are X_1(Age), X_3 (Education), X_4 (Income), X_5 (Household size).

The coefficient for X_1 (Age) is statistically significant at 1% probability level. This implies that age is a critical factor in consumers' preference for fish. An increase in age will bring about a corresponding increase in the preference for fish. This is because as people advances in age, consumption of beef in high quantity is discouraged. Fish consumption is highly encouraged due to its nutritive value. The coefficient for X_3 (Education) is statistically significant at 1% probability level. Implying that the more educated an individual is, the more he will prefer to go for highly nutritive food considering its importance to the body. Such individuals may not opt for low quality food except when faced with financial constraints or lack of availability of such quality. This agrees with Armah and Kennedy (2000) as cited by Parker (2001), that Individuals with greater than a high school education were 37 percent more likely to pay more for pasture-raised pork. X_4 (Income) is statistically significant at 1% probability level, implying that income is a critical factor in consumers' preference for fish. An increase in income will bring about increase in consumers' preference for fish. This is in conformity with Armah and Kennedy (2000) findings as cited by Parker, (2001) that families with incomes greater than $50,000 were 27 percent more likely to pay more for pasture-raised pork. The coefficient for X_5 (Household size) is statistically significant at 1% probability level. This also implies that increase in the number of household size will bring about an increase in the consumers' preference for fish.

TABLE 4.12
REGRESSION RESULT

Functional forms	Output	Constant	X_1	X_2	X_3	X_4	X_5	R^2	Std Error	F-ratio
Linear	Y	2.1755 (30.7978)***	0.4627 (3.3113)***	0.0065 (0.2481)*	0.4953 (6.1693)***	0.0729 (8.0292)***	0.0553 (2.7738)***	88.01	0.18	20.9739***
Exponential	Ln Y	3.2541 (27.5961)***	0.0036 (1.4803)*	0.0227 (0.5431)*	0.0130 (1.5685)*	2.93 (6.7868)***	0.0118 (1.3764)*	51.24	3890.508	21.5942***
Double Log	Ln Y	0.9665 (2.7405)***	0.1183 (0.5555)*	0.0042 (0.0668)*	0.1489 (0.8485)*	0.0732 (8.1033)***	0.2406 (2.0791)**	49.38	0.18	20.1168***
Semi Log	Y	-63081.9 (-18.0672)***	19998.21 (19.4649)***	-4703.56 (-2.30745)**	-751.0889 (-1.1666)*	-2521.861 (-1.4129)*	950.3303 (0.9842)*	50.47	1914.113	144.888***

****** indicates significance at 1% probability level, ** indicates significance at 5% probability level, * Indicates significance at 10% probability level. Note: all figures in parenthesis are t-values***

Factors Affecting the Consumers' Preference for Fish

The factors affecting consumers' preference are numerous ranging from production to consumption. The major problems include income, availability of the product, cheapness compared to close substitute, nutritive value etc.

The table 4.12 below shows the distribution of farmers according to the various problems faced.

TABLE 4.13
DISTRIBUTION OF CONSUMERS ACCORDING TO THE PROBLEM FACED.

Factors	Frequency	Percentage (%)
Income	83	18.91
Availability	79	17.96
Storage Facility	72	16.40
Cheapness compared to		
Close substitute	80	18.22
Transportation	43	9.79
Price	33	7.52
Taste	49	11.2
Total	**439***	**100**

Source: Field Survey, 2013

***Multiple responses**

Table 4 show the identified major problems affecting consumers' preference for fish were availability of fish (17.96%), income of consumers (18.91%), storage facilities (16.40%) and cheapness to close substitute (18.22%).

V. CONCLUSION AND RECOMMENDATIONS

The study revealed that consumers' preference for fish in Yola North Local Government Area of Adamawa State, Nigeria is determined by income, age, educational qualification and household size. Gender was found to be less significant in the consumers' preference for fish. The study further revealed that fish consumption is economical compared to its closed substitutes because it is cheap, nutritious and also available. The major problem confronting consumers' preference for fish in the study area includes income of consumers, availability of fish, storage facility and cheapness compared to close substitute.

Based on the findings in this study, the following recommendations are made:

i. The private sub-sector and individuals should be encouraged to establish fish ponds to reduce expenditure and improved consumption.

ii. Incentives and credit facilities should be given to fish farmers and fish sellers to enable them expand production capacity to earn higher income.

iii. To reduce fish spoilage, preserve fish quality, remove unpleasant odour and cost of processing, good storage facility should be provided.

iv. Thorough inspection and standardization should be enforced for the safety of the consumers.

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