

Socio- Economic Predictors of Consumers Preference for Catfish and Tilapia in Lagos and Oyo States, Nigeria

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Abstract

For fish production in Nigeria to be increased, consumption has to be enhanced through a proper understanding of the preference of consumers for these farmed fish species. Hence, the essence of this paper. Questionnaires were administered to 202 fish consumers in Lagos and Oyo States. Stratified sampling method was used to select consuming households. Socio-economic characteristics obtained includes, age, educational status, and marital status of households and household size. Data collected were analysed using descriptive statistics and probit regression model. In Lagos State, fish consumers evaluated were males (64%) and (68.6%) females, within the age group of 41-60 years, while in Oyo State, males were (36%) and females (31.4%), while consumer's age group were less than 40 years. Male (66.7%) and female headed households (47.1%) possess tertiary education in Lagos State, while majority of the male (23.5%) and female headed households (35.3%) possessed secondary education in Oyo State. Majority of fish consumers fell within the household size of 4-7 in Lagos State (64.1%) and Oyo State (55.9%). Male consumers significantly determined consumer preference for catfish at $P < 0.05$ while male and years of education were significant determinants of consumer preference for tilapia fish, $P < 0.05$. Hence, fish farmers should be encouraged to produce more catfish, which will contribute to national economy and consumers enlightened on the nutritive value of eating tilapia fish.

Keywords:

Male, household, Household heads, Probit regression and Determinants

Introduction

Nigeria is a country with vast aquatic and fisheries resources that make significant contributions to livelihoods, food security and overall economy of the nation (Ipinjolu, 2014). In Nigeria, the importance of fish as a source of protein cannot be exaggerated because more than 40% of utilization of animal protein by an average Nigerian comes from fish. The world's population is growing at a geographic rate resulting into high demand for animal protein, thereby increasing the total demand of animal protein in Nigeria (Olaniyan, 2015). Nigeria is the largest consumer of fish in Africa and it is also among the largest fish consumer in the world with over 1.5 million tons of fish consumed annually. Nigeria imports over 900,000 metric tons of fish, as fish demand in Nigeria exceeds local production; its local production is estimated at 450,000 metric tons/year (Adedeji and Okocha, 2011). In Nigeria, the demand for fish has increased as the price of other sources of animal protein have increased which is as a result of rising population and high production cost of other sources of animal protein (Akolisa and Okonji, 2005). In most African countries, the supply of meat and other consumable animals are not enough to meet the increasing protein demand due to increasing population (FDF, 2003).

According to Verbeke and Vackier (2005), the consumption of fish and preference are determined by consumers' social, geographic and cultural characteristics. It is also known that the choices of fish is affected by organoleptic (taste, smell, texture etc) and non-organoleptic (behaviour, beliefs, personal characteristics, risk perception, etc) characteristics (Honkanenet *et al.*, 2005). The purchasing preference of the consumer are influenced by the variety, supply channel, price and production method (Akpinar *et al.*, 2009). For production to be increased, consumption has to be enhanced through a proper understanding of the preference of farmed fish species. Since all activities in the aquaculture production are driven by consumers; it is necessary to determine the factors that influence consumer demand for catfish and tilapia fish species. Therefore, this study presents the current consumer preference of catfish and tilapia fish in Lagos and Oyo States.

Materials and methods

The Study Area

The study was conducted in Oyo and Lagos States, Nigeria. Oyo State is an inland State in south-western Nigeria. It was created on the 3rd February, 1976 with its capital at Ibadan. It is bound in the south by Ogun State and in the north by Kwara State, in the west its bound partly by Ogun State and partly by the Republic of Benin, while in the east it is bound by Osun State. It has an estimated population of over 5, 591,77 million people (National Population Commission, 2006) It is located in the rainforest vegetation belt of Nigeria within longitude 7°23' 47" North and 3°5 5'0"East. In concerted efforts to revitalize agriculture in the State and thereby boost food production, The State Government has established the state-wide Oyo State Agricultural Development Programme (OYSADEP), which is an offshoot of the defunct Oyo North Agricultural Development Project (ONADEP). Oyo State is divided into four agricultural extension zones namely; Ibadan/Ibarapa, Ogbomosho, Oyo and Saki.

The study involved the use of descriptive and inferential statistics on the data obtained from field survey. The descriptive statistics used frequency and percentages. Inferential statistics include probit regression model.

Probit model (simple linear regression) of standard demand function based economic theory of consumer optimization is expressed as; $Y_i = \beta_0 + \beta_1 x_i + e_i$

Where Y_i is preference for the i th type of fish (Catfish/Tilapia)

e_i = The error term

x_1 = Availability of fish (Yes=1, No=0)

x_2 = Freshness of fish (Yes=1, No=)

x_3 = Packaged fish (Yes=1, No=0)

x_4 = Quality of fish (Yes=1, No=0)

x_5 = Price affordability of fish (Yes= 1, No=0)

x_6 = Proximity to place of sales (Yes=1, No=0)

x_7 = State (Lagos=1, Oyo=0)

x_8 = Marital Status of fish consumers (Married=1, Otherwise=0)

x_9 = Household size (numbers)

x_{10} = Awareness of health/nutritional benefits of eating fish (Aware=1, not aware=0)

x_{11} = Gender of consumers (male=1, female=0)

x_{12} = Years of education of consumers (Years)

Results

The results of the analysis for the specific objectives of the study are presented below which includes the socio-economic and organoleptic characteristics of fish consumers and preference for catfish and tilapia fish species in Lagos and Oyo States, Nigeria.

Socio-economic characteristics of fish consumers in Lagos and Oyo States

The age group of fish consumers revealed that, majority of respondents in Lagos State (61.2%) were within the age group of 41-60 years. The respondents within the age group of less than 40 years were 35.8%, while very few respondents (3%) were within the age group of greater than 60 years. In Oyo State, majority of respondents are within the age of less than 40 years (47.1% , 44.1% of respondents were within the age group of 41-60 years and very few respondents were within age group of greater than 60 years (8.8%). This implied there more of fish consumers within the age group of 41-60 years in Lagos State while in Oyo State, more consumers fell within the age group of less than 40 years. The results on educational status showed that, majority of fish consumer in Lagos State indicated tertiary education, 20.9% of respondents possessed no formal education, 17.9% of respondents possessed secondary education and very few respondents (4.5%) possessed primary education in Lagos State. Majority of respondents in Oyo State possessed no formal education (44.1%), 29.4% of respondents possessed secondary education, 17.6% of respondents possessed tertiary education and very few of respondents (8.8%) possessed primary education in Oyo State. Furthermore, male respondents (66.7%) and female

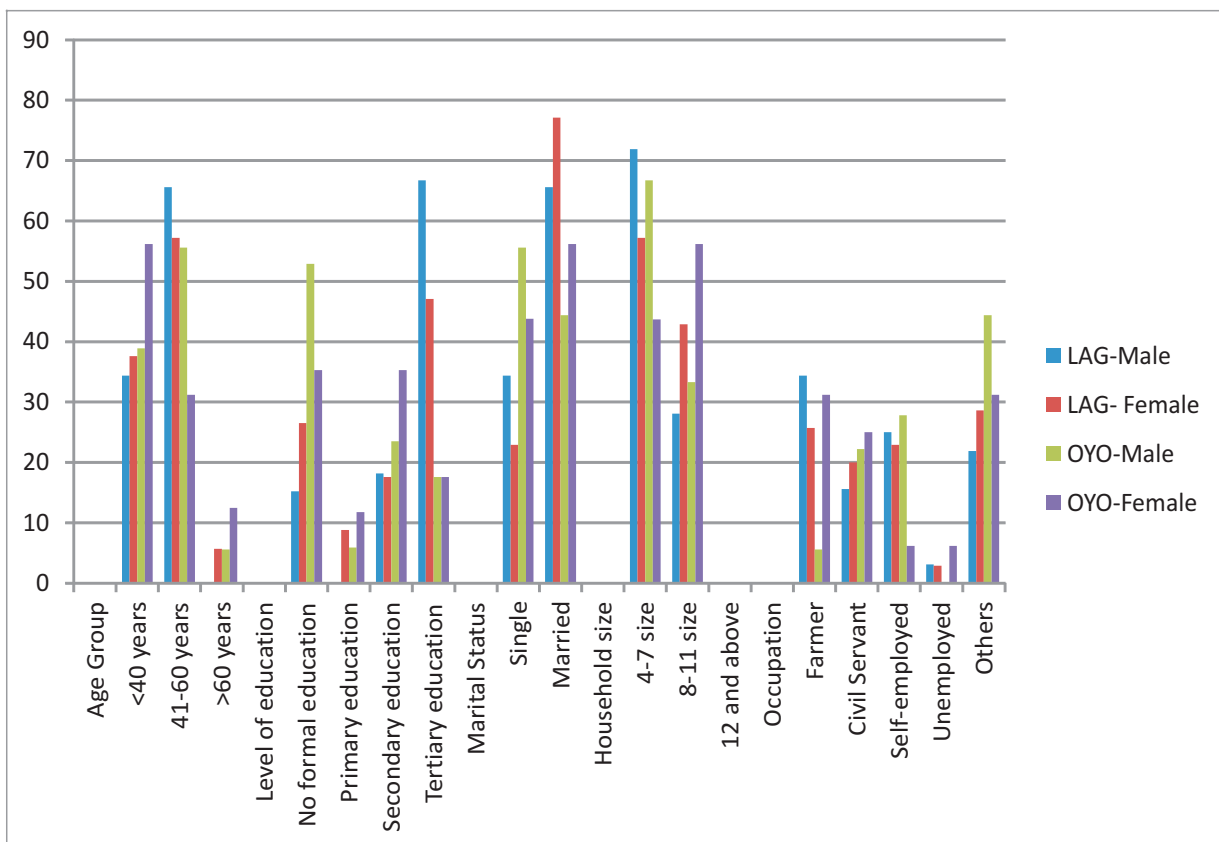


Figure 1: Socio-economic characteristics of fish consumers in Lagos and Oyo States

respondents (47.1%) possessed tertiary education in Lagos State, while majority of male respondents (23.5%) and female respondents (35.3%) possessed secondary education in Oyo State. This implies that, fish consumers in Lagos State were more educated than those in Oyo State.

Marital status of fish consumers depicts that, majority of male (65.6%) and females (77.1%) were married in Lagos State. Also, majority of males (44.4%) and female (56.2%) were married in Oyo State. The percentage of fish consumers in Lagos State that were single were 34.4% of male and 22.9% of female fish consumers, while 55.6% of males and 43.8% of females were single in Oyo State. This implies that, majority of fish consumers in Lagos State (71.6%) were married compare to fish consumers in Oyo State (50%).

Also, socio-economic characteristics of fish consumers showed that based on the household size, majority of respondents fell within the household size of 4-7 in Lagos State (64.1%) and Oyo State (55.9%). Few respondents indicated 8-11 household size in Lagos State (35.8%) and Oyo State (44.1%). This implies that, household size of 4 to 7 are the major family size for Lagos State which comprised of

Table 1: Factors influencing consumers preference for cultured fish

Determination of point of purchase	Lagos State					Oyo State				
	M	%	F	%	Total	M	%	F	%	Total
Availability	4	12.5	4	11.4	8(11.9)	0	0.0	3	18.8	3(8.8)
Freshness	13	40.6	13	37.1	26(38.8)	8	44.4	1	6.2	9(26.5)
Packaging	3	9.4	2	5.7	5(7.5)	1	5.6	2	12.5	3(8.8)
Quality	4	12.5	7	20.0	11(16.4)	0	0.0	1	6.2	1(2.9)
Price	6	18.8	3	8.6	9(13.4)	7	38.9	3	18.8	10(29.4)
Proximity	0	0.0	2	5.7	2(3.0)	0	0.0	3	18.8	3(8.8)
Cheaper	1	3.1	3	8.6	4(6.0)	2	11.1	3	18.8	5(14.7)
No response	1	3.1	1	2.9	2(3.0)	0	0.0	0	0.0	0(0.0)
Are you aware of any nutritional benefits of eating fish										
Yes	28	87.5	30	85.7	58(86.6)	11	61.1	11	68.8	22(64.7)
No	4	12.5	5	14.3	9(13.4)	7	38.9	5	31.2	12(35.3)
Which cultured fish do you prefer										
Catfish	26	81.2	26	74.3	52(77.6)	13	72.2	11	68.8	24(70.6)
Tilapia	6	18.8	9	25.7	15(22.4)	5	27.8	5	31.2	10(29.4)
Reasons for eating cultured fish										
Flavour	4	12.5	7	20.0	11(16.4)	6	33.3	5	31.2	11-32.4
Health and nutrition	26	81.2	24	68.6	50(74.6)	11	61.1	9	56.2	20-58.8
Addition of variety	2	6.2	3	8.6	5(7.5)	1	5.6	2	12.5	3-8.8
Others	0	0.0	1	2.9	1(1.5)	0	0.0	0	0.0	0.0

Key: M= Male, F= female and Freq= Frequency

71.9% males and 57.2% females and in Oyo State 66.7% male and 43.7% female fish consumers.

Finally, occupation status of fish consumers in Lagos State showed that, 29.9% of respondents were fish farmers, 17.9% civil servants, 23.9% of were self-employed, and 3% unemployed and 25.4% of respondents indicate other occupation practiced. In Oyo State, 17.6% were fish farmers, 23.5% civil servants, 17.6% were self-employed, and 2.9% unemployed and 38.2% of indicate other occupations in Oyo State.

Table 1 revealed that majority of respondents (38.8%) indicated freshness as the factor influencing consumer's preference for cultured fish in Lagos State, 16.4% indicated quality price, 13.4% price, 11.9% availability, 7.5% packaging, 3% proximity, 3% others and 6% cheaper in Lagos State. Also based on gender, majority of males (40.6%) preferred freshness of the cultured fish while females (37.1%) also observed freshness.

In Oyo State, majority of the respondents (29.4% and 26.5%) indicated price freshness as the factor influencing consumer's preference for cultured fish, 14.7% indicated being cheap, 8.8% indicated availability, packing and proximity, and 2.9% of respondents indicated quality price. Considering gender, majority of males (44.4%) indicated freshness than females (18.8%). This implies that, freshness and price were the major factors that influenced consumer preference for cultured fish in Lagos and Oyo States.

Furthermore, awareness about nutritional benefits of eating showed that majority of respondents (86.6% and 64.7%) were aware in Lagos and Oyo States, while few respondents (13.5% and 35.3%) were not aware about nutritional benefits of eating fish. Majority of male (87.5%) and female (85.7%) respondents were aware in Lagos State. In Oyo State, male (61.1%) and female (68.8%) respondents were aware about nutritional benefits of eating fish. This means that, males were more aware in Lagos while females were more aware in Oyo State. Type of cultured fish preferred revealed that, majority of respondents (77.6% and 70.6%) preferred catfish and few respondents preferred tilapia in Lagos and Oyo State respectively.

Table 2: Determinants of consumer preference for catfish

Parameter	Estimate	Std. Error	Z	Sig.
Availability	.080	.020	3.950	.001
Freshness	.145	.112	2.067	.003
Packaging	.080	.143	3.891	.041
Quality	.102	.087	2.796	.030
Price	.581	.131	2.800	.023
Proximity	.043	.148	2.898	.040
Others	.040	.115	2.976	.036
State	.034	.130	.262	.793
Marital status	-.222	.134	-1.655	.098
Household size	.053	.108	.486	.627
Are you aware of any health/nutritional benefits of eating fish	.113	.185	.607	.544
Gender	.346	.146	2.362	.018
Years of education	-.021	.011	-1.865	.062
Intercept ^b	-1.727	.531	-3.255	.001

Finally, reason for eating cultured by respondent's showed that, majority of respondents (74.6% and 58.8%) indicate health and nutrition for Lagos and Oyo States, 16.4% of Lagos indicated flavour and 32.4% of Oyo respondents indicated flavour as reasons for eating cultured fish.

Results in Table 2 revealed that availability of catfish, freshness of the catfish when prepared, packaging, perceived quality, the price, proximity to the point of purchase, education and gender significantly determined consumer preference for catfish at P less than 0.05 ($P < .05$). Further results of the estimated values indicated that the price of catfish had the greatest positive influence on consumer preference for catfish in this study. Other factors were not significant since the p values were greater than 0.05. Also, there was no stated differences in consumer preference for catfish at ($P > .05$).

Table 3: Determinants of consumer preference for Tilapia fish

Parameter	Estimate	Std. Error	Z	Sig.
Availability	.021	.020	2.891	.023
Freshness	.235	.120	1.908	.247
Packaging	.003	.103	0.891	.141
Quality	.026	.005	1.083	.342
Price	.029	.118	3.003	.011
Proximity	.024	.452	1.712	.321
Others	.010	.025	1.043	.553
State	.007	.128	.054	.957
Marital status	-.189	.131	-1.439	.150
Household size	.066	.108	.614	.539
Are you aware of any health/nutritional benefits of eating fish	.125	.186	.670	.503
Gender	.334	.147	2.279	.023
Years of education	-.024	.011	-2.132	.033
Intercept ^b	-1.647	.352	-3.185	.003

The results indicated that availability of tilapia fish at the point of purchase, the price, gender and education were the significant determinant factors of consumer preference for tilapia fish. Since the p values (0.011, 0.023 & 0.033) were less than 0.05. Availability, price and gender had positive contribution with respect to its estimated value of 0.346 and education had negative (-0.024) contribution. Other factors were not significant since the p values ($p > .05$) were greater than 0.05.

Conclusion and Recommendation

This study revealed that the level of education and being a male had a significant influence on the demand for catfish and tilapia fish species in the study. Tilapia fish was mostly consumed by females compared to males in Lagos and Oyo States. Also, male headed households preferred catfish to tilapia fish in both States.

Therefore, consumers' preference for catfish and tilapia fish in Lagos and Oyo States, Nigeria is influenced by gender, price and availability. The study recommends the following:

1. Fish farmers should be encouraged to produce more of catfish since it is the most preferred cultured fish in Lagos and Oyo States, Nigeria.

2. Fish consumers should be enlightened on the nutritive value of eating tilapia fish.
3. Fish producers should be trained on the skills of raising tilapia fish.
4. Government should make efforts to increase capital investment in the aquaculture sector.

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