

Determinants of Rural Household Demand for Fish in Communities of Water and Non-Water Bodies in Oyo State, Nigeria

Bernadette T. Fregene*, Adeyinka. O. Abiona and Bolarin. T. Omonona
Department of Aquaculture and Fisheries Management
University of Ibadan, Ibadan, Nigeria
Email: tosanfregene@yahoo.co.uk

Presented at International Institute of Fisheries Economics & Trade (IIFET)
11 - 15 July
University of Aberdeen, Scotland, U.K

Introduction

- Fish is major source of supply of the necessary protein in household diet in Nigeria.
- The demand for fish is high.
- Low-valued imported frozen fish, outstrips the local production.
- Nigeria imported 11,445,330.43 tonnes of frozen fish valued US\$166,366.3 million worth of fish in 2013.
- Sourced from the EU, South America, South Pacific zone and African countries such as Mauritania and Senegal.
- Combination of the large population, annual growth rate of over 3%, high meat/poultry prices, and rising incomes drives the demand for fish consumption.

Problem Statement/Justification

- Short fall in protein intake in Nigeria is due to poverty, ignorance, inadequate preservation and processing technologies and cultural/religious beliefs.
- Most low income households assume that fish is meant for the adult members of the family; hence, nutrition problems still persist most especially among the young.
- One out of five persons is undernourished and that hunger, malnutrition and serious health problems are still inherent in many parts of Nigeria (Adeniyi *et al.*, 2012).
- Major challenge is how to improve household food intake.
- In terms of the quality and quantity of diet;
- The problem of nutritional imbalance of the teeming population of the country (Abdulahi, 2009).
- Understanding the demand side of the issue is imperative.

Objectives

- Examine the household income of the household heads in the study area.
- Assess the factors affecting rural household demand for fish types in water and non-water body in Oyo State.

Methodology

- Multi-stage sampling technique was used based on the four zones of Oyo State Agricultural Development Programme (ADP).
- Selection of 20 villages: each from areas with water and non-water bodies.
- Sample of 250 households were used for the study; 125 household members sampled in each case.
- Socio – economic characteristics of households, income and expenditure on fish consumed data were collected seasonally.
- Probability of factors affecting households' demand was modeled by maximum likelihood probit.

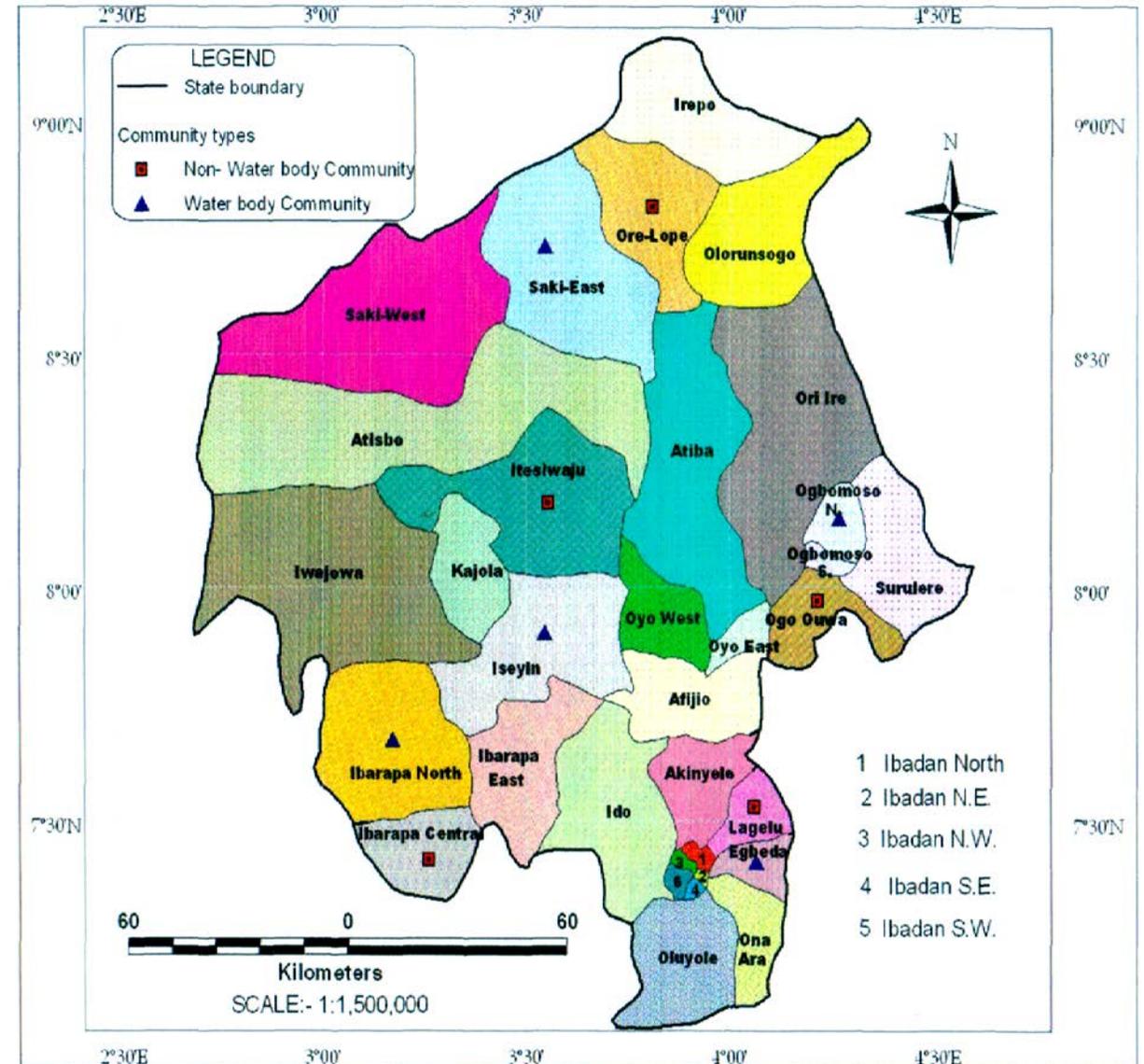


FIG. 3.4: MAP OF OYO STATE SHOWING WATER BODY AND NON-WATER BODY COMMUNITIES.
SOURCE: Reconnaissance Survey (2008).

Probit Regression

$$Z_i = W_i \gamma + v_i$$

Where:-

$Z_i = 1$, if a household consume fish or any of its products; 0, otherwise.

w_i = vector of explanatory variables; ($i = 1, 2, \dots, 10$)

Therefore:-

W_1 = Ln of per capita households income (LNPCHHI)

W_2 = Square of per capita households income (SQPCHHI)

W_3 = household size (HHSZ): (number of persons in households)

W_4 = proportion of children to workers in the households (PCHTWHH)

W_5 = Season (SSN): (rainy and dry); (dry season=1, 0=rainy season)

W_6 = Water body (WB) (0=water body, 1= non-water body)

W_7 = Household head education (HHHEDU) (years of formal education of households head)

W_8 = Household head age (HHHAGE) (in years)

W_9 = Household head occupation (HHHOCUP) (farming=1, 0=otherwise)

W_{10} = Ln fish expenditure (LNFEXP)

γ = vector of the coefficient estimates

v = error term

Table 1: Distribution of Annual Income of Household Heads

Annual income ₦	Water body	Non-water Body	Total
<100,000	0(0.0)	9(3.6%)	9(3.6%)
100,000-199,999	87(34.8%)	61(24.4%)	148(59.2%)
200,000-299,999	35(14.0%)	52(20.8%)	87(34.8%)
300,000-400,000	3(1.2%)	0(0.0%)	3(1.2%)
>400,000	0(0.0%)	3(1.2%)	3(1.2%)
Total	125(50.0%)	125(50.0%)	250(100.0%)

Table 2: Estimate of Probit Regression for Factors Affecting Rural Households' Demand for Marine Fish Species

Independent variables	Dependent Variables Expenditure Share of Marine Fish Species					
	Dry Season Coefficient	z-value	Rainy Season coefficient	z-value	Entire sample coefficient	z-value
CONST	0.35	1.92	0.35	1.95	0.35	2.48
LNPMARF	-0.47***	-6.48	0.16**	2.25	-0.16	-3.04
LNPCHHI	0.04	0.83	0.08**	2.06	0.06	2.12
LNSQPCHHI	-0.06	-1.49	-0.51	-1.36	-0.05	-1.72
HHHSIZE	0.01	0.05	0.05	1.25	0.00	0.45
CHDR	0.12	1.34	0.55***	6.38	0.38	5.86
TIMEQTR	0.04***	4.73	-0.01*	-1.87	0.01	1.65
WB	-0.18***	-4.34	0.18***	4.39	0.00	0.08
HHHEDU	-0.02**	-2.76	-0.01	-0.76	-0.02	-2.79
HHHAGE	-0.01	-0.42	-0.01***	-3.49	-0.00	-1.84
HHHOCUP	0.01	0.06	-0.03	-0.74	-0.02	0.93
MR	-0.05	-0.47	0.24**	3.22	0.11	1.69

***1% significant level; **5% significant level; and *10% significant level.

Table 3: Estimate of Probit Regression for Factors Affecting Rural Household's Demand for Cultured Fish Species

Independent Variables	Dependent Variables Expenditure Share of Cultured Fisheries					
	Dry Season	z-value	Rainy Season coefficient	z-value	Entire sample coefficient	z-value
CONST	0.39**	2.32	0.63***	5.17	0.54	4.91
CULF	-0.22***	-5.18	-0.21***	-5.18	0.46	14.45
CHHI	-0.12**	-2.88	-0.02	-0.46	-0.06	-2.09
QPCHHI	0.03	0.83	0.12***	4.08	0.08	3.38
SIZE	-0.01	-1.36	0.02*	1.75	0.00	0.25
DR	0.01	0.21	-0.19**	-2.88	-0.13	-2.34
RQTR	-0.02**	-2.13	0.02**	3.36	0.00	0.61
	0.13***	3.51	-0.09**	-3.02	0.01	0.52
LEDU	0.02***	3.10	-0.01	-1.61	0.01	1.36
LAGE	0.02	1.17	-0.01	-0.28	-0.05	-0.03
LOCUP	0.04	1.08	-0.05*	-1.81	-0.06	-0.27
	0.03	0.30	-0.63	-1.09	0.01	0.17

***1% significant level; **5% significant level; and *10% significant level.

Table 4: Estimate of Probit Regression for Factors Affecting Rural Household's Demand for Captured Fresh Water Fish Species

Independent Variables	Dependent Variables					
	Expenditure Share of Captured Fish Species					
	Dry Season	z-value	Rainy Season coefficient	z-value	Entire sample coefficient	z-value
CONST	0.25	1.23	0.03	0.15	0.11	0.84
CAPF	0.68***	10.73	0.05	0.79	-0.05	-1.00
CHHI	0.08	1.62	-0.06	-1.57	-0.00	-0.13
QPCHHI	0.03	0.64	-0.07*	-1.83	-0.03	-1.04
IZE	0.01	1.03	-0.03**	-2.57	-0.01	-0.62
DR	-0.12	-1.36	-0.36***	-4.14	0.26	-3.77
EQTR	-0.02**	-2.36	-0.01	-0.66	-0.01	-0.49
	0.02	0.98	-0.09**	-2.12	-0.02	-0.49
LEDU	-0.01	-0.06	0.02**	2.07	0.01	1.71
LAGE	-0.00	-0.58	0.01***	3.78	0.00	1.82
LOCUP	-0.04	-0.91	0.08**	2.11	0.02	0.93
	0.02	0.16	-0.18**		-0.12	-1.77

***1% significant level; **5% significant level; and *10% significant level.

Discussion

- Higher the educational background of the household the more the demand for marine fish consumption in the rainy season and the entire sample, while the less the demand for marine fish on the dry season.
- Younger people demand for more marine fish than older ones in the rainy season.

Lessons Learnt

- Demand for fish were affected by the production environment and closeness to water bodies.
- Price, education, children, age, income and household size positively influenced demand for fish species in both rainy and dry seasons.
- Availability, variety, taste and texture have been found to be key determinants of fish demand.

*Thank You and
God bless*