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Demand Analysis for Frog Meat in Ondo State, Nigeria

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Abstract - This study examined the demand for frog meat in Ondo State, Nigeria. A random sampling technique was used to select 100 consumers of frog meat. The tools of analysis were descriptive statistics like percentage, frequency distribution and tables; Regression analysis was also used to estimate the demand for frog meat and determine factors that influences same. The result of the analysis showed that 74% of the respondents are above 40 years of age, 82% married, 67% had family size of at least 6 and 76% claimed that frog meat is generally acceptable. The demand functions shows that the independent variables specified in the model accounted for 58.8% of the variability observed in the demand for frog meat. Furthermore, age (x_1), family size (x_4) and level of acceptability (x_8) were significant at 5% level, implying that they have important implications for the demand for frog in the study area. This study recommends the heed for the populace to be educated on importance and nutritional implications of the consumption of frog meat.

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I. Introduction

Frogs are classified as amphibians. Amphibians are essentially a tropical group and well represented in Nigeria *(Oldham 2000)*. They are the first group of vertebrate animals to make a serious attempt at life on land. Their history is long and complex.

Few people realize how ancient frogs are, for 190 years, the ancestors of modern frogs have roamed (if not rule) the earth looking much the same as they do today. The secret of their success is their amazing adaptability *(Bay, 2002)*.

They can, in general, move, feed and breathe equally well on land and in fresh water. But nearly all amphibians return to water to breed.

Like all amphibians, frogs are cold-blooded meaning that their body temperature changes with the temperature of the environment. When temperature drops, some frogs dig and burrow underground or in the mud at the bottom of the ponds. *(Larrea, 2001)*. Frogs like to be near ponds which have plenty of algae and plant near the edge usually with shallow edges so that they can easily climb out. In general, the common frogs seems to prefer ponds which have water flowing in and out of them *(Hughes, 1981)*.

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Human population is growing very rapidly, creating a significant and increasing demand for additional animal protein. This demand can only be met most easily by rapidly increasing source of animal protein which include frog production. While the demand for frog is growing in some countries like United States, Australia, Bangladesh and Costa Rica, the production of frog in Nigeria is not yet popular.

The demand for frogs is of vital importance to man, most especially in developing countries like Nigeria where other animal protein from chevon, pork, poultry meat and eggs are limited in supply due to low level of animal husbandry or because their cost price is becoming too expensive to afford. Therefore, frogs could become an eminent source of protein to the populace in substitution for other forms of animal protein.

Frog culture is an important economic activity in Thailand with high demand for the product in foreign market such as Malaysia, Singapore, Hong Kong, Japan, Germany and France *(Akasay, 1994)*. In Laos, there is an increasing demand for consumption in the family, household and local markets. There are restaurants in Vientiane that buy frog on a regular basis for their customers *(Bounsong, 2001)*.

The demand for frog product is lower in Nigeria compared to other countries like India and France because the production of frog is yet to be popular in Nigeria, high prices of the little available product and the low income of the people especially in the rural areas. The availability of bush meat couple with the low literacy level is also responsible for the low demand of the product.

The major sources of frog meat for consumption are through aquaculture and the wild. Aquaculture frog legs are lighter in color and milder in taste than those from the wild. They are also cleaner. This is not a major issue as wild frog legs are susceptible to contamination with Salmonella *(Zancanaro, 1999)*. As one of the world's poorest and most densely populated country, Bangladesh emerged suddenly and dramatically as a major producer of Shrimp, frog legs and fish for export. Bangladesh has earned foreign currency by exporting frog legs *(Russell et al, 1996)*.

The study area is Akure South Local Government area of Ondo State. It has an area of

2,303km. The LGA has Akure as the main town with some communities such as Oda, Ilekun, Ipinsa etc.

The climate of the area is tropical rain forest with raining spanning from March/April to October/November followed by a dry season of four to five months. The major occupation of the people is farming. Apart from farming, the people also engage in other occupations like civil service and trading. 100 consumers of frog meat were randomly selected in Akure metropolis and data were collected using structured questionnaire. The questionnaire elicited information on the socio-economic characteristics, source of frog meat, factors affecting the demand for frog meat and the level of acceptability among them.

The data collected were analyzed using descriptive statistical looks like percentage, frequency distribution and tables Regression analyses was used to estimate and the demand for frog meat and determine the factors that affect same.

The hypothesized demand equation is a stated below:

$$Y = f(x_1, x_2, x_3, x_4, x_5, x_6, x_7, x_8, e_i)$$

and the explicit model presented in the linear form thus

where $Y = B_o + B_1x_1 + B_2x_2 + B_3x_3 + R_4x_4 + B_5x_5 + B_6x_6 + R_7x_7 + B_8x_8 + e_i$

Y = quantity of frog meat purchased.
x_1 = taste
x_2 = gender
x_3 = age
x_4 = marital status
x_5 = level of education
x_6 = family size
x_7 = religion
x_8 = level of acceptability
e_i = error term.

II. Discussion

Table 1 shows that 74% of the respondents are above 40 years of age. This may imply that relatively elderly people consume frog meat. Also from Table 2, 58% of the respondents were females, meaning that the decision taking as regards food items to purchase may be in the domain of the women folks. Furthermore, 82% of the respondents (Table 3) were married, implying that frog meat could be a cheap source of animal protein necessary for family sustenance.

From Table 4, 67% of the respondents had family size of at least 6 thus meaning that frog meat is a delicacy cherished by families. Furthermore, Table 5 reveals that 93% of the respondents can at least read and write; and this may have broaden their outlook to life thus appreciate the nutritive value of frog meat. Also, Table 6 shows that majority (72%) of the respondents are of Christian faith. This could be a reflection of the admixture of the people's religious inclinations is the study area though it was claimed that some Islamic sects viewed frog meat as 'haram' or unclean, and not to be taken.

Table 7, shows that 99% of the respondents affirmed that frog meat is palatable. This may be the reason for the respondents preference for frog meat. Also, Table 8 revealed that 74% of the respondents claimed that frog meat is acceptable thus implying that frog meat is a potential source of animal protein for the people.

Table 9 shows the demand function for frog meat. From the result, it could be deduced that the specified independent variables in the linear regression model, accounted, for 58.8% of the variability of the demand for frog meat. Also Age (x), family size (x_4), and level of acceptability (x_8) were variables that are significant at 50% level. This implies that these variables has important implications for the demand for frog meat in the study area.

The positive signs associated with Age (x_1), family size (x_4) and level of acceptability (x_8) implies that the higher values of these variables the higher the demand. This conforms with a prior expectations since it had earlier been established that (74%) elderly people consume frog meat hence that older the respondents the higher the demand for the commodity. Also the higher the family size the higher the demand for frog meat since it had been inferred that frog meat could be of cheap source of animal protein. Furthermore, obviously the higher the level of acceptability of frog meat the higher the level of demand.

III. Conclusion and Recommendation(s)

This study examined the demand for frog meat in Ondo State, Nigeria. Frogs could become an eminent source of protein to the populace in substitutions for other forms of animal protein which had limited supply due to low level of animal husbandry thus their cost price becoming too expensive to afford.

In the study area, Age (x_1), family size (x_4) and level of acceptability (x_8) were variables that has important implications for demand for frog meat. Based on these findings, it is therefore recommended that the populace should be educated on the importance and nutritional implications of frog meat.

Table 1: Socio-economic Characteristics

Age	Frequency	Percentage (%)
20-39 years	26	26.0
40-59 years	49	49.0
- 60 years	25	25.0
Total	100	100.0

Table 2

Gender		
Male	42	42.0
Female	58	58
	100	100.0

Table 3

Marital Status		
Single	10	10.0
Married	82	82.0
Widow	3	3.0
Divorced	5	5.0
	100	100.0

Table 4

Family size		
1-5	33	33.0
6-10	52	52.0
11-15	10	10.0
16-20	5	5
	100	100.0

Table 5

Level of education		
No. formal education	7	7.0
Adult education	9	9.0
Primary education	2	2.0
Secondary education	28	28.0
Tertiary education	54	54.0
	100	100.00

Table 6

Religion		
Christian	72	72.0
Muslim	25	25.0
Traditional worship	3	3.0
	100	100.00

Table 7

Taste		
Very palatable	46	46.0
Palatable	53	53.0
Not Palatable	1	1.0
	100	100.0

Table 8

Level of acceptability	Frequency	Percentage (%)
Highly accepted	49	49.0
Moderately accepted	3	3.0
Accepted	22	22.0
Not accepted	26	26.0
	100	100.00

Table 9 : Regression Analysis Result of demand for frog meat.

Factors	Estimated Coefficient	Standard error
Constant	10.567	
Age	0.778*	0.521
Gender	-1.470	2.163
Marital status	0.163	0.086
Family size	5.894*	2.088
Level of education	1.229	0.963
Religion	0.443	0.828
Taste	-1.971	4.133
Level of Acceptability	*6.337*	0.850
R^2	0.588	
$\acute{R}^2$	0.522	
F statistics	10.822	

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