



ANALYSIS OF DEMAND FOR BEEF AMONG HOUSEHOLDS IN OSHIMILI SOUTH  
LOCAL GOVERNMENT AREA

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ABSTRACT

The Study was conducted to establish the demand analysis for beef among households in Oshimili South Local Government Area, Delta State. A total of 120 respondents were randomly selected for the study and primary data was collected through the use of questionnaire and analyzed by the use of descriptive statistics and regression analysis. The result shows that 37.5% of the respondents were in the age range of 31-40 with a mean age of 38.92. Majority (66.55%) of the respondents had 6-10 persons in their household. Less than half of respondents (42.5%) were into business. Result obtained indicates that most households in the study area demanded 1.1-2.0kg of beef per week. The linear model was adopted as the best fit as it has the highest  $R^2$  value as well as highest number of significant variables. The  $R^2$  value of 0.518 implied that about 52% of the changes in the demand for beef were actually caused by the changes in the variables that were entered into the model. The size of the household had a coefficient of 421.75 and significant at  $P < 0.01$ . This showed that the more the size of the household of the respondent the more the demand for meat. Level of education variable had a coefficient of 386.92 and statistically significant at  $P < 0.005$ . This implied that the higher the level of education, the more the demand for beef. The price of beef with a coefficient of -499.67 and is statistically significant at  $P < 0.01$ . The coefficient is also negatively signed. The implication of this is that an increase in the price of beef will lead to a decrease in the demand of the products. The level of income of respondents with coefficient of 982.08 and is statistically significant at  $P < 0.01$ . This implies that the more the income of the consumer the more they demand meat products all things being equal. It was recommended that Government should subsidize the cost of inputs for cattle production, this will in turn cause a reduction in the price of beef.

**Keywords:** Analysis, Beef, Demand, Economics and Household

INTRODUCTION

Agriculture is farming that includes raising of livestock such as ruminants like cattle, goats and sheep and non-ruminants like pigs and poultry. Agricultural economics on the other hand is an applied field of Economics concerned with the application of economic theories in the optimizing of production and distribution of food and fibre. Here, the theory of demand begins with the behavior of consumer, since the market demand is the summation of the individual consumers. Consumption decisions are made by individual or household groups. A consumer is assumed to be rational based on his income and the market prices of various goods and services the consumer plans spending income with the aim of attaining maximum possible utility or satisfaction (Subba *et al.*, 2004).

Demand normally means the desire or willingness for a good but in economics, simple desire or willingness for a good alone may not represent demand. Apart from the desire or willingness, consumer should be able to buy the good. Demand is therefore an effective desire. Thus, desire and ability to buy are the key components of demand. It shows the amount of product



or service the consumers are willing and able to purchase at each price in a set of possible prices during some specified time in a specified market. (Subba *et al.*, 2004). According to Eboh (2009) demand means “propensity of the consumers to buy different quantities of a particular good at different unit prices”. It indicates how much the consumers would be buying when the price per unit of a commodity is changing (Subba *et al.*, 2004).

The term consumer behavior was defined as the behavior that the consumer displays in searching for purchasing, using, evaluating and disposing of products, service and ideas which they expect would satisfy their needs (Schiffman and Kanuk, 2009). The field of consumer behavior also studies how individual’s group and organization select, buy, use and dispose of goods, services, ideas or experience to satisfy their needs and desires (Kotler *and* Armstrong, 2009). A consumer may feel dissatisfaction with the choice of a particular product or commodity either because he had to forego an equal alternative purchase in order to pay for it or because it has continuing service problem (Schiffman and Kanuk, 2009).

Food products of animal origin have played a key role as supplies of human food calories and protein in virtually all parts of the world. Animals are an important source of food, particularly of high-quality protein, minerals and vitamins and micro-nutrients. Animal protein contains essential amino acids that are different in cereals. Eating small amount of animal products will correct amino acid deficiencies in cereal based human diets, permitting more of the total protein to be utilized because animal proteins are more digestible and metabolized more efficiently than plant proteins. Furthermore, there is considerable value in diversity of diet for nutritional purposes as well as palatability. Around the world, animal protein is a major source of diversification of calories away from an over reliance on starchy staples (Delgado *et al.*, 2003).

Animal protein is an essential part of human nutrition because of its biological significance. Tijani *et al.* (2006) reaffirmed that animal proteins are more “biologically complete” than the vegetable proteins with regards to their amino acids composition. The dearth in the quantity and quality of protein is a challenge that is beyond dependence on plant protein alone (Tijani *et al.*, 2016). It suffices therefore to explore quantity and quality of protein of animal origin of which beef is of prime importance. There is also need to find out the demand for beef by the household compared to the supply. The main objective of the study is to conduct a demand analysis for beef consumption among farm households in Oshimili South Local Government Area, Delta State, Nigeria. The specific objectives are to: Determine the socio-economic characteristics of household respondents; determine the quantity of beef demanded among households per week; analyze the socio-economic factor affecting the demand of beef and ascertain the factors that determine the demand of meat in the study area.

## **MATERIALS AND METHODS**

### **The study area**

The study area is Oshimili South Local Government Area. It covers an area of 268 square kilometres. The local government has tropical climate marked by two distinct seasons; the dry and wet seasons. Oshimili Local Government Area is bounded in the north by Oshimili North Local Government Area in the east by the River Niger, in the south by Ndokwa East Local Government Area. The major town is Asaba with communities such as Umuagu. Ugbomanta, Umuonaje, Umuezei, Umuaji, Anwai, Cable Point, West – End and Bonsac. The villages are Elenchele, Okwe, Powerline, Amakom. Oko – Obiokpu, Oko – Anala, Aniugo, Akpako, Oko – Ogbele and Odifulu.



The common occupations in the study area include farming, trading, artisanships, private and public service among others.

### **Sampling and Sampling Techniques**

Multi-stage random sampling technique was used 120 household respondents used for the study.

### **Data Analysis**

Data generated was analysed with descriptive statistics of frequencies, percentages means and regression was also used for analysis.

Model Specification: the multiple regression models were specified and used to analyse the quantity of beef consumed (Y) as function of the selected variables. The explicit form of the mode, the form:

$$Y_c = b_0 + b_1X_1 + b_2 X_2 + b_3 X_3 + b_4 X_4 + b_5 X_5 + b_6 X_6 + e \quad \dots(1)$$

Where;

$Y_c$  = quantity demanded by the consumer (kg)

$X_1$  = price of beef

$X_2$  = income of the consumer (N)

$X_3$  = taste (Dummy 1 = Yes, 0 = No)

$X_4$  = Household size (number)

$X_5$  = Age of household head (years)

$X_6$  = price of chicken

$b_0$  = Constant

## **RESULTS AND DISCUSSION**

### **Socio-economic Characteristics**

#### **Age Distribution**

Result in Table 1 revealed that the age range of 11-20 there was 0.8%, 25.8% were in the age range of 21-30, 37.5% were in the age range of 31-40, 15.83% were in the range of 41-50, 11.6% were in the range of 51-60, 5.83% were in the range of 61-70 and 2.5% were in the range of 71-80. The mean age is 38.92 The implication is that that young households demand for beef is more because they have more young families who require protein just for growth and maintenance. Yakubu *et al.* (2013) found that younger households particularly with children prefer beef to up their nutritional requirements for proper development and growth.

**Table 1: Age Distribution**

<b>Age</b>	<b>Frequency</b>	<b>Percentage (%)</b>	<b>Mean</b>
11-20	1	0.8	38.92
21-30	31	25.8	
31-40	45	37.5	
41-50	19	15.83	
51-60	14	11.6	
61-70	7	5.83	
71-80	3	2.5	
<b>TOTAL</b>	<b>120</b>	<b>100.00</b>	

### Household Size

Result on household size in the study area presented in Table 2 indicated that 40.8% respondents had a household size of 0-5 persons, 55% had 6-10 persons in their household, and 4.2% had 11-15 persons in their household. The mean household size is 4.62. From the obtained result it is shown that household with more persons will have more demand for beef. FAO (2017) said the overall growth in demand for beef would be much accelerated by the surge in human population, rise in income and urbanization.

**Table 2: Household Size**

Household Size	Frequency	Percentage (%)	Mean
0-5	49	40.8	4.62
6-10	66	66.55	
11-15	5	5.42	
<b>TOTAL</b>	<b>120</b>	<b>100.00</b>	

### Occupation

Table 3 showed that 15.8% respondent were farmers, 6.7% were bankers, 21.6% were civil servants, 3.33% were lecturers, 10% were teachers and 42.5% were business men/women. This implies that most people that demand beef and meat are people who are financially free, they do not depend on a fixed wage and also are self-employed.

**Table 3: Occupational Distribution**

Jobs	Frequency	Percentage (%)
Farmers	19	15.8
Banker	8	6.7
Civil Servant	26	21.6
Lecturer	4	3.33
Teacher	12	10
Business	51	42.5
<b>TOTAL</b>	<b>120</b>	<b>100.00</b>

### Quantity of beef Demanded

Table 4 showed the quantity of beef demanded by household daily in the study area. Results indicated that 34% demanded 0-1.0kg, 43% respondents demanded 1.1-2.0kg, 20% demanded 2.1-3.0kg and 3% respondents demanded 3.1-4.0kg of beef in the study area per day. The result has revealed that a large percentage (38%) of people eat less than a kilogram (kg) of beef per day and thus reduced the nutritional benefit of beef needed by the body and this is in line with Osho and Asghar (2014) who stated that per capital consumption of meat has lagged especially in the less-developed countries of the world. This can be attributed to low income and also high price of beef. Olele and Obi (2010) reported that beef demand in most African countries is very low at a level of 2.5kg per day and the demand is even lower especially in the southern and eastern parts of Nigeria where production of animal protein has not been high enough to meet the demands of rapidly growing population.

**Table 4: Quantity of Beef Demanded**

Quantity of meat demanded (kg)	Frequency N=120	Percentages (%)
0-1.0	41	34
1.1-2.0	51	43
2.1-3.0	24	20
3.1-4.0	4	3
<b>TOTAL</b>	<b>320*</b>	<b>100.00</b>

\*Multiple Response Recorded

**Demand Analysis for beef in the Study Area**

The different socio-economic and other factors that could affect the demand of meat in the study area were determined through the use of Ordinary Least Square (OLS) regression analysis. This is in line with the traditional theory of demand. Hence the data generated were fitted into the regression model and tried in different functional forms including linear, semi-log and double log models. The linear model was adopted as the best fit as it has the highest R<sup>2</sup> value as well as highest number of significant variables. The R<sup>2</sup> value of 0.518 implied that about 52% of the changes in the demand for beef were actually caused by the changes in the variables that were included in the model. It also implied that about 48% of the changes in demand were caused by other factors which were not included in the model as presented in the Table 5. An F-ratio of 78.39 that the overall regression equation was significant at P<0.001.

The size of the household with a coefficient of 421.75 and significant at P<0.01% level. This showed that the more the household of the respondent the more the demand for meat. Level of education variable had a coefficient of 386.92 and statistically significant at P< 0.05. This implied that the higher the level of education, the more the demand for beef. Education according to Yakubu *et al.* (2013) will determine the proper dietary course that will improve nutrition and health. Price of the beef had a coefficient of -499.67 and statistically significant at P<0.01. The coefficient is also negatively signed. The implication of this is that an increase in the price of beef will lead to a decrease in the demand of the products. This result is in line with the law of demand which states that the higher the price the lower the quantity demanded and the lower the price the higher the quantity demanded (*ceteris paribus*). The level of income of respondents had a coefficient of 982.08 and statistically significant at P<0.01 level. It is positively signed. This implied that the more the income of the consumer the more they demand meat products all things being equal.

**Table 5: Socio-economic factors that influence Demand for Beef**

Variables	Coefficient	Std error	t-value	Significance
Constant	-535.272	170.408	-3.141	0.003
Sex	-418.062	551.661	-0.758	0.451
Age	489.341	3882.600	0.126	0.900
Marital status	808.095	520.843	1.552	0.077
Household size	421.753	131.367	3.210	0.001***
Education	386.922	197.602	1.958	0.005**
Price	-499.672	130.796	-3.438	0.000***
Income	982.082	155.111	6.332	0.000***
R <sup>2</sup> = 0.518				
F-ratio = 78.39***				

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



## CONCLUSION AND RECOMMENDATIONS

The study showed that beef is an important part of household diet. Although household size is a factor that cannot be overlooked, income is an important determinant on the quantity the household will purchase. The study therefore made the following recommendations: Government should subsidize the cost of inputs for cattle, this will in turn cause a reduction in the price of beef and poultry meat. Since cattle is not reared in Oshimili South Local Government, there is need for intervention in the area reduction in transport cost and provision of storage facilities. These will help to reduce prices of beef and increase the quantity available to households. Government should provide modern abattoirs for cattle slaughter to ensure quality beef are sold to the consumers. Also, consumers of beef should join or form cooperative societies. This will help pool their resources together to purchase the product in bulk and reduce the price and increase the quantity of beef available than when the product is sold at retail prices.

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