

# Comparative Analysis of Household Consumption of Beef and Chevon in Ibadan Metropolis, Oyo State, Nigeria

Adesope A., O. Oguntayo, O. Fatoki\*, F. Odediran and G. Bello

Department of Forest Economics and Extension Services, Forestry Research Institute of Nigeria, Jericho Hills Ibadan, Oyo State, Nigeria

\*Corresponding author e-mail: gobite2002@yahoo.com Phone no.: +234 703 2255018

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## Abstract

*This study was conducted to compare the consumption for beef and chevon as two major sources of protein in the metropolis of Ibadan. Primary data was used for the study and multi-stage sampling method was used to select 150 respondents in the study area. The data were analysed using descriptive statistics, likert scale and linear regression. The results revealed that majority of the beef and chevon consumers sampled were female, married with the mean age of 42 years. Beef had a higher demand in terms of meat preferred and frequency of purchase than chevon. Majority of the respondents prefer beef to chevon in terms of taste, market price and availability with weighted score of 219, 212 and 224 respectively. Chevon was preferred to beef in terms of odour and health benefits with weighted score of 225 and 223 respectively. Income and education were the significant variables that explained household expenditure on beef while age, education and chevon preference were the significant variables that explained household expenditure on chevon. The study therefore concluded that hygienic environment in abattoirs and markets where meats are sold should be encouraged in order to increase consumption of meat. Price intervention programmes should be introduced to stabilize fluctuation in meat prices.*

**Keywords:** Beef, chevon, household consumption, expenditure and Ibadan.

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## Introduction

Meat is the flesh of animal that can be used for food. It has high nutritional value and very attractive in appearance (Akinwumi *et al.*, 2011). The most valuable product of a livestock is meat and many people consider it as the main source of protein (Tsegay, 2012). There are varieties of meat due to the sources from which they can be obtained. For instance, there are beef that can be gotten from cattle, mutton from sheep, pork from pig, chicken from birds, chevon obtained from goat. In African context, meat is the apex of food hierarchy and it is regarded as a focal point in various meals taken at many homes and restaurants where it provides quintessential status (Lokuruka, 2006; Fayemi and Muchenje, 2012).

Proteins used by man are either obtained from vegetables or animals. Proteins from animal source have more concentrations of

protein and different levels of amino acids when compared to protein obtained from plants. Beef, chevon, mutton, pork and chicken are the major sources of daily consumed animal proteins in Nigeria (Olaleye, 2004). As reported by Omotosho (2004), minimum protein required daily in Nigeria for an adult is between 65g and 85g; it was recommended that at least 35g of this minimum requirement should be from animal source.

Meat from domestic goat that is often called chevon (Henry, 2009) is reputed for having strong and gamey flavor but it can be mild which depends on how it is raised and prepared. Chevon is regarded as red meat like beef but it is leaner and has lower cholesterol, fat and protein than both lamb and beef as well as less energy than beef or chicken (Ademosun, 2001). Therefore, chevon requires slow cooking and low heat to preserve its moisture and tenderness. Production of chevon is rapidly growing but it

is lower than that of beef by 4%. Beef that is obtained from cow also contains good quantities of amino acids in protein form, vitamins B group particularly riboflavin and niacin, iron, calcium, ash and phosphorus.

Animal protein is an important dietary component for Nigeria's elite and middle income class but its cost limits the accessibility by the poor. The issue of low protein intake is still common among different income classes in both rural and urban areas. Decline in protein intake is as a result of scarcity and unaffordable prices of protein-rich foods like egg, fish, meat and milk which has made malnutrition to be widespread in Nigeria (Asiabaka, *et al.*, 1999; Obasi, 2003). Beef and chevon are more readily available compared to other protein sources in Nigeria and they are essential sources of nutrient for growth and development (Luz, *et al.*, 2009).

Animal protein production in eastern and southern part of Nigeria is not high enough to meet demand in these regions (Obi, 2000). According to Aromolaran (2004), market prices, credit facilities, taste and wealth are the major factors most likely affecting household demand for meat products. These problems have resulted in unbalanced diet as meat is very important to human diet and further leading to poor nutritional status which eventually results in stress, low productivity, weakness, absenteeism and lethargy (Jamison and Leslie 2001). Food and Agricultural Organization, FAO, (2017) recommended that minimum per capita daily protein intake should be 53.8g, but the daily protein intake level in Nigeria is 45.4g which is below the recommended level.

Alimi (2007) reported that unprecedented growth in human population in the last 50 years resulted in an increase in demand for food especially beef in developing countries. Beef and chevon production has not been able to meet the demand for the increasing population and livestock distribution in Nigeria is not adequate (Emokaro and Amadasun, 2012). The problem discussed above formed the motivation for this study to compare the demand for beef and chevon in Ibadan metropolis that is highly populated with good combination of different class of consumers. The study examined the factors influencing the consumption of beef and

chevon as they are rich sources of protein for the body and protein intake in Nigeria is below the recommended level. Therefore it is essential to compare and analyze household consumption of beef and chevon to help provide solution to the low intake of protein in Nigeria.

## **Methodology**

### **Study area**

The study was carried out in Ibadan metropolis, the capital of Oyo state in Southwest Nigeria located on seven hills (average elevated 700 feet (200 meters), 100miles (160km) from the Atlantic coast. Ibadan metropolis is made up of eleven local government areas consisting of five urban areas and six semi-urban. For the purpose of this study the urban area is considered and they are Ibadan North, Ibadan Southeast, Southwest, Northeast and Northwest. It was estimated that the population of Ibadan is about 3.7 million (world population review 2019). The major economic activities in Ibadan are manufacturing, agriculture and service industries.

### **Data collection method and sampling techniques**

The data for this study was collected using questionnaires. A multistage sampling procedure was employed in selecting respondents in the study area. At the first stage, Ibadan north, Ibadan east and Ibadan southeast local government were purposively selected to capture a good number of beef and chevon consumers in Ibadan metropolis. At the second stage, five wards were randomly selected from each of the three local government areas to arrive at 15 wards. Finally 10 beef and chevon consumers were randomly selected from each ward to make up a total of 150 respondents that make up the sample size. Meanwhile, 136 copies of questionnaires were retrieved from the field and were used for the analysis.

### **Results and discussion**

Descriptive statistics such as frequency count percentages was used to analyse socio economic characteristics of the respondents. Likert scale was used to elicit the Perception of Beef and chevon consumers on factors

influencing meat preference and Perception of consumers on the problem militating against the demand for Beef and chevon. The Likert scale used ranged from 1 to 2 and 1 to 5 (where Most preferred =2 and less preferred=1 while Strongly Agree=5, Agree=4, Undecided=3, Disagree=4 and Strongly Disagree=5). The range gives the weight of the responses. The scoring was done by multiplying each frequency by their numeric values and then total summation to get the scores and ranking (Ngodigha, 2016). Linear regression model was used to analyse the factors influencing expenditure on Beef and Chevon. Monthly expenditure on Beef and chevon model in this study is implicitly stated as:

$$Y = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, e_i)$$

Where Y = Expenditure on Beef and chevon

X<sub>1</sub> = Household Income (naira)

X<sub>2</sub> = Age (years)

X<sub>3</sub> = Marital status (Married =1, otherwise=0)

X<sub>4</sub> = Price (naira)

X<sub>5</sub> = Education (years)

X<sub>6</sub> = Household Size

X<sub>7</sub> = Preference for beef/chevon (Yes=1, No=0)

e<sub>i</sub> = error term

### Results and discussion

#### Socioeconomic characteristics of the sampled beef and chevon consumers in the study area

Table 1 showed the socio economic characteristics of consumers of beef and chevon in Ibadan metropolis. Most (63.97%) of the household heads were females while 36.03% were males. The majority of females in the study will help guarantee better household consumption information. This is in consonance with Akerele *et al.*, (2015) who reported that there were more females (57.5%) than males (42.5%) in the study carried out on beef consumption pattern in Yewa south local government in Ogun state, Nigeria. The mean age of the respondents is 42.34 which show that they are economically active and this is in line with the age distribution of the country where the aged citizens are very minimal. Majority (75%) of the respondents were married thereby strengthening the needed household level decision making process. Table 1 revealed that the average household size of the respondents is 5 members implying that the household size of the respondents is moderate

**Table 1: Socio-economic characteristics of Beef and Chevon Consumers in Ibadan Metropolis**

Variables	Frequency	Percentage
<b>Gender</b>		
Male	49	36.03
Female	87	63.97
<b>Age</b>		
25-34	6	4.41
35-44	78	57.35
45-54	42	30.88
>55	10	7.36
Mean	42.34	
<b>Marital Status</b>		
Single	15	11.03
Married	102	75
Divorced	10	7.35
Widowed	9	6.62
<b>Household Size</b>		
1-5	83	61.03
6-10	53	38.97
Mean	5.06	
<b>Level of Education</b>		
None	3	2.20
Primary	24	17.65
Secondary	45	33.09
Tertiary	64	47.06
<b>Occupation</b>		
Trading	54	39.71
Artisanship	32	23.53
Civil servant	21	15.44
Others	29	21.32
<b>Income</b>		
< 15,000	32	23.53
15,000 -44,000	55	40.44
45,000 -60,000	33	24.26
> 60,000	16	11.77
Total	136	100

Source: Field survey, 2020

which can help boost their purchasing power.

Furthermore, almost all (97.8%) the respondents in the study area had a form of

education as only 2.20% are uneducated. This implies that the majority of the respondents are educated which would have influenced their awareness of the nutritional benefits of beef and chevon consumption. Beef and chevon consumers who earned between ₦15,000 and ₦44,000 had the highest percentage (40.44%) while 24.26% had income ranging between ₦45,000 and ₦60,000 while those with income above ₦60,000 had the lowest percentage (11.77%). This shows that the respondents are not really earning a good monthly income. As income level determines the food consumption of households, this will negatively affect their consumption and they are like to consume less of protein foods such as beef and chevon.

### Consumers preference, demand and pattern of beef and chevon consumption in the study area

Table 2 showed that most (57.35%) of the respondents prefer Beef while 42.65% prefer chevon. This may be due to the fact that beef is cheaper and readily available in large quantities compared to chevon availability. This is in

**Table 2: Consumers preference and pattern for beef and chevon**

Variables	Frequency	%
<b>Types of meat preferred</b>		
Chevon	58	42.65
Beef	78	57.35
<b>TOTAL</b>	<b>136</b>	<b>100.00</b>
<b>Frequency of Beef Purchase</b>		
Every week	55	40.44
Fortnightly	29	21.32
Once a month	34	25.0
Occasionally	18	13.24
<b>TOTAL</b>	<b>136</b>	<b>100.00</b>
<b>Frequency of Chevon Purchase</b>		
Every week	21	15.44
Fortnightly	10	7.35
Once a month	40	29.41
Occasionally	65	47.79
<b>TOTAL</b>	<b>136</b>	<b>100.0</b>

*Source:* Field survey, 2020

consonance with Adetunji and Rauf (2012) that beef was the most preferred meat type among the sampled respondents in the study. Furthermore, Ademosun (2000) supported this by stating that Nigerian's by nature are meat-eating people having high demand for beef especially in the metropolis. Table 2 also showed that more respondents who purchased beef meat weekly had a percentage of 40.44% while respondents who purchased Chevon weekly had a percentage of 15.44%. This corroborates the report of Ogunwale and Adedeji (2014) and Eyo (2007) that beef meat is the most purchased meat type.

### Perception of beef and chevon consumers on factors influencing meat consumption

Table 3 showed the perceptions of consumers on factors which affect the preference for beef or chevon was elicited using the likert scale. Taste, smell/odour, religion, market price, availability and health benefits were considered. Table 3 shows that in terms of taste, beef had a higher score (219), indicating that most consumers preferred the taste of beef to that of chevon. This is an agreement with the result of the study of Adetunji and Rauf (2012) that taste of beef meat was the major reason for the preference among the respondents. Chevon had a higher score (225) in respect of smell/odour indicating that most meat consumers preferred the smell of chevon. Most consumers preferred beef in respect of market price as it had a higher score (212). This could be associated with the higher price of chevon when compared to beef. Beef was more preferred in respect of availability as it had a higher score (223). This is in contrast with the study of Adetunji and Rauf (2012) that availability is not a major factor for consumer's choice or preference. With respect to health benefits, chevon was more preferred than beef this could be attributed to the fact that chevon has its distinct nutritional attributes (it contains fewer calories, fat, and cholesterol) when compared to other red meats according to Ivanovic *et al.*, (2016).

### Problems militating against the consumption of beef and chevon

Table 4 shows that dirty environment was perceived as the most significant problem

**Table 3: Perception of consumers on factors influencing beef and chevon consumption**

Variables	Response		Weighted Score	Average
	Most preferred	Least preferred		
<b>Taste</b>				
Beef	83	53	219	109.50
Chevon	53	83	189	94.50
<b>Smell/Odour</b>				
Beef	46	90	182	91.00
Chevon	89	47	225	112.50
<b>Market price</b>				
Beef	76	60	212	106.00
Chevon	60	76	196	98.00
<b>Availability</b>				
Beef	88	48	224	112.00
Chevon	48	88	184	92.00
<b>Health benefits</b>				
Beef	52	87	188	94.00
Chevon	84	49	223	111.50

*Source:* Field survey, (2020)

militating against the demand for beef with a score of 405 while household size was the least significant with a score of 264. Both distance to source and changes in price ranked

third with a score of 303 while shelf life and season ranked 2nd and 4<sup>th</sup> with scores of 325 and 294 respectively. Table 4 also showed that dirty environment was perceived as the

**Table 4: Problems militating against the consumption of beef and chevon**

Factors	Strongly agree	Agree	Undecided	Disagree	Strongly disagree	Score	Weight	Rank
<b>Beef</b>								
Household size	4	10	11	61	49	264	44.00	5 <sup>th</sup>
Season	4	13	25	53	41	294	49.00	4 <sup>th</sup>
Shelf life	8	28	18	37	45	325	54.17	2 <sup>nd</sup>
Distance to source	6	24	17	38	50	303	50.50	3 <sup>rd</sup>
Changes in price	10	22	11	39	54	303	50.50	3 <sup>rd</sup>
Dirty environment	41	21	5	32	37	405	67.50	1 <sup>st</sup>
<b>Chevon</b>								
Household size	3	11	10	62	48	261	43.50	6 <sup>th</sup>
Season	4	10	31	46	43	288	48.00	5 <sup>th</sup>
Shelf life	6	22	28	41	37	321	53.50	3 <sup>rd</sup>
Distance to source	8	26	20	42	38	326	54.33	2 <sup>nd</sup>
Changes in price	8	22	21	41	42	315	52.17	4 <sup>th</sup>
Dirty environment	40	22	13	29	30	415	69.17	1 <sup>st</sup>

*Source:* Field survey, (2020)

most significant problem militating against the demand for chevon with a score of 415; household size was the least significant with a score of 261. Distance to source, shelf life, changes in prices and season ranked 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> with scores 326, 321, 315 and 288 respectively.

#### Linear regression showing factors influencing expenditure on beef and chevon in the study area

The result of the linear regression indicating the factors influencing expenditure on beef and chevon is presented Table 5. The result revealed that income and education had a significant positive relationship with monthly expenditure on beef at 1% while price and household size had a significant negative relationship with

expenditure on beef at 5%. The results show that a unit increase in household income would lead to a 0.206 unit increase in beef consumption. This indicates that expenditure on beef increased with increase in household income. This is in line with the study of Akerele *et al.*, (2015) that income had a positive relationship with expenditure on beef. Also, an increase in year of formal education translated to increase in expenditure on beef. This is possible because if additional year of formal education is acquired, there is likely to be more awareness and knowledge of the importance of animal protein in diets which might increase consumption. This is in contrast with Akerele *et al.*, (2015) that education had a negative relationship with expenditure on beef.

Furthermore, Table 5 showed that a unit

**Table 5: Linear regression showing factors influencing expenditure on beef and chevon**

Variables	Coefficient	Standard Error	p-value
<b>Beef</b>			
Household Income	0.206***	0.073	0.005
Age	-0.001	0.007	0.976
Marital status	-0.0207	0.173	0.877
Price	-0.115**	0.037	0.037
Education	0.362***	0.009	0.004
Household size	-0.205**	0.029	0.035
Preference for beef	0.595	0.134	0.000
R <sup>2</sup>	0.3438		
Adj R <sup>2</sup>	0.2969		
p>f	0.0000		
<b>Chevon</b>			
Household Income	-0.002	0.076	0.983
Age	0.018**	0.007	0.015
Marital status	-0.093	0.142	0.515
Price	-0.276**	0.126	0.031
Education	0.139*	0.083	0.096
Household size	-0.172	0.163	0.291
Preference for beef	0.804***	0.129	0.000
R <sup>2</sup>	0.4357		
Adj R <sup>2</sup>	0.3934		
p>f	0.0000		

*Source:* Field Survey, 2020

\*\*\*, \*\*, \* represents 1%, 5% and 10% level of significance respectively

increase in price of beef will lead to 0.115 decrease in the quantity of meat purchased. This is expected because households that are not able to cope with an increase in price of beef will consume other protein source that is cheaper or purchase smaller quantities. The negative sign of the coefficient of the price of beef conforms is in line the popular law of demand. This is in agreement with Nzeh *et.al*, (2019) that an increase in the price of beef will lead to a decrease in the consumption of beef. An increase in household size translates to 0.205 decrease in monthly expenditure on beef which is explained by the fact that increase in household size may result in a situation in which the household might opt for cheaper sources of protein.

The result of Chevon showed that age, years of formal education and chevon preference had a significant positive relationship with monthly expenditure on chevon and was significant at 5% and 1% respectively. This implies that a unit increase in age, education and chevon preference will lead to a 0.018, 0.139 and 0.804 increase in monthly expenditure on chevon. Price had a negative relationship with monthly expenditure on chevon and was significant at 5%. This indicates that for a unit increase in price there will be 0.276 decrease in monthly expenditure on Chevon.

### **Conclusion**

Majority of the respondents sampled were females, married and are in their economic active age.

Most of the respondents consume both meat and chevon meat but beef is more preferred in terms of taste, market price and availability while chevon is most preferred in terms of odour and health benefits. A larger percentage of the respondents purchase beef on a weekly basis while chevon is purchased occasionally. The major problems militating against beef consumption are dirty environment where beef meat is sold, shelf life and changes in price while that of chevon consumption are dirty environment, distance to market and shelf life. Price, income and educational level were the major factors influencing household expenditure on beef and chevon in Ibadan metropolis.

### **Recommendations**

The study recommends that government should introduce price intervention programmes to stabilize the fluctuation in meat prices because increase in price results in low demand. Policy measures that can help boost the purchasing power of the consumers should be designed as this will contribute to improving the nutritional status of the people. Finally, there should be an orientation programme for meat sellers on the maintenance of healthy market environment.

### **References**

- Ademosun, A.A. (2000): Structural Adjustment and Nigerian Livestock Industry, Stupor Infancy. Keynote Address delivered at the Nigerian Society for Animal Production. Conference held at University of Agriculture, Markudi on 22 - 25 August.
- Ademosun, A.A. (2001). Appropriate management for West African Goat in the Tropics: Goat Production in the Humid Tropics, Proceeding of a workshop at University of Ife, Ile-Ife, Nigeria. Smith O.B and Bossman H.G (Eds). Pp. 11-18.
- Adetunji, M.O. and Rauf, M.O. (2012). Analysis of household demand for meat in Southwest, Nigeria. *GJSFR*, 12(1): 9-14.
- Akerele, E.O, Ologbon, O.A, Otunaiya, A. O; and Ambali, I.O (2015): Analysis of Beef Consumption Pattern among Rural Households in Yewa South Local Government Area Of Ogun State, Nigeria. *Journal of Sustainable Development in Africa*, 17(8), 2015, ISSN: 1520-5509. Clarion University of Pennsylvania, Clarion, Pennsylvania.
- Akinwumi, A.O, Odunsi, A.A, Omojola, A.B, Aworemi, J.R. and Aderinola, O.A (2011): Consumer perception and preference for meat types in Ogbomoso area of Oyo State, Nigeria. *International Journal of Applied Agricultural and Apicultural Research*, 7(4): 96 - 106.
- Aromolaran O. (2004): Household Income Women's Share of Income and Calorie Intake in South Western Nigeria Food Policy, 29(50): 507-530.
- Eyo, E.O. (2007): Consumers' preference for meat from food animals in the Niger

- Delta, Nigeria. *Nigeria Journal of Animal Production*, 34(1): 113-120.
- Fayemi P.O. and Muchenje V. (2012). Meat in African context: From history to science. *African Journal of Biotechnology*, 11(6): 1298-1306.
- Food and Agricultural Organization, FAO, (2017). The State of Food Security and Nutrition in the World. Retrieved from [www.fao.org/3/a-17695e.pdf](http://www.fao.org/3/a-17695e.pdf) on 9<sup>th</sup> September, 2020.
- Alford, H. (2009). Small Landholder information Service. Department of Agriculture and Food. Government of Western Australia. 24P.
- Ivanovic, S., Pavlovic, I. and Pisinov, B. (2016): The quality of goat meat and its impact on human health. *Biotechnology Animal Husbandry*, 32: 111–122.
- Jamison, D.T. and Leslie J. (2001): Evidence from China and Comparison. *Food and Nutrients Bulletin*, 24(2): 145-154.
- Lokuruka, M.N.I. (2006): Meat is the Meal and Status is by Meat: Recognition of Rank, Wealth, and Respect through Meat in Turkana Culture. *Food Floodways Journal*, 14: 201-229.
- Luz, M., Malabayabas, M., Yorobe, J.M. and De Castro N.L. (2009). Household Demand Analysis for Fresh Meat in the Philippine. *Philippine Journal of food Science*, 12: 123-156.
- Mdafri, A. and Borsen B.W. (1993). Demand for Red Meat Poultry and Fish in Morocco. An Almost Ideal Demand System. *American Journal of Agricultural Economics*, PP. 155-163.
- Ngodigha, S.A., Alagoa, K.J. and Abowei, J.F.N. (2018). Status and Constraints of Artisanal Fisheries in Ekperiana (Ekperikiri) Fishing Area, Niger Delta. *Journal of Ecology and Environmental Science*, 2(4): 24–29.
- Nzeh, C., Eboh, E., Agwu, E., Nweze, N., Oji, K., Orebiyi, J., Lemch, J., Okpupara, A. and Aura, E. (2019): Comparative analysis of the demand for beef and mutton among households in Enugu metropolis, Nigeria. *Journal of Animal Production Research Advances*, Tapas Institute of Scientific Research and Development. 5(2): 1–15.
- Obi, C.I. (2000). Game Production-An Accumulative to Beef Game Production. An Alternative to Beef Cattle Production in Southern Nigeria Forum, 4: 36-40.
- Obasi, P.E. (2003): Demand for Protein Foods in Imo State, Nigeria: The case of meat and fish. *Journal of Agriculture and Food Sciences*, 1(2): 115-124.
- Ogunwole, O.A. and Adedeji, B.S. (2014): Consumers' Preference and Perception of the different Types of Meat among Staff and Students of the University Of Ibadan, Nigeria. *Journal of Agriculture and Environmental Sciences*, 3(2): 77–95.
- Olaleye, S.O. (2004): Demand for beef and Fish in Ibadan. Unpublished M.Sc. Project, Department of Agricultural Economics, University of Abeokuta. PP. 121-156.
- Omotosho, J.S. (2004): “Key note address” Proceedings of FISON, Annual Conference. Fishers Society of Nigeria. PP. 11-34.
- Regmi, A. (2002): Urbanization and Food Consumption. A USDA City study\_ [aregmi@ers\\_usda.gov](mailto:aregmi@ers_usda.gov).
- Tsegay, H. (2012). Consumer perception and preferences of meat types in Harare and Haramaya province, Ethiopia. *Journal of Microbiology, Biotechnology and Food Science*. 2(3): 959.
- World Population Review, (2019); Accessed on June 3, 2019.