Elegbede et al.: Nigerian Journal of Agricultural Economics (NJAE). Volume 8(1), 2018: Pages 127-136

DETERMINANTS OF MEAT CONSUMPTION AMONG STUDENTS OF THE FEDERAL UNIVERSITY OF AGRICULTURE ABEOKUTA, OGUN STATE

Elegbede V. A., Afolami C.A. and Oyedepo E.O
Department of Agricultural Economics and Farm Management, Federal University of Agriculture Abeokuta Ogun State.
Corresponding Author: email: asikavivian@yahoo.com Phone: 08060156956

Abstract
This study examined the determinants of meat consumption among students of the Federal University of Agriculture, Abeokuta, Nigeria. Primary data on personal and socio economic characteristics of respondents were collected among 150 students with the aid of a pre-tested and structured questionnaire. Methods of analysis used were descriptive statistics, bar chart and multiple regression analysis. The results revealed about 69.3%of the respondents were within the age range of 18-24 years and majorities (56%) of the students interviewed were female. The average amount of income spent on meat consumption was N 1,904 per month while the amount spent on substitutes such as egg, snail and cow hides was N 147.90.The result of the distribution of students by total monthly income revealed that 27.3% of the students received below N 5001 per month while 58% of the students received an allowance between N5001 and N15000 per month. The result of the monthly expenditure of the students on various meat types distributed by sex in the study area revealed that beef accounted for the highest percentage of 24.4% of the monthly expenditure among female students while it constituted 24.0% of the males. On the other hand, pork accounted for 7.0% and 6.0% of total monthly expenditure on meat in male and female students respectively. The result further revealed that four variables exert significant influence on the consumption of meat in the study area. The age (X_1) of the students was positive and significant at $P < 0.01$. The student's sex (X_3), amount spent on substitutes(X_5) and place of residence (X_7) of students were negative and significant at ($P < 0.05$) and ($P < 0.01$) respectively. The study concludes that female students spend more on meat than their male counterparts. The amount of money spent on meat substitutes decreases with increase in meat consumption and students living off campus spend more on meat than students living on the campus. The study therefore recommends that processed beef in small units should be made available to students in the hostel and outlets close to students' residential quarters to facilitate easy availability.

Keywords: Consumption Determinant, Students, Meat, University, Ogun State

Introduction

Nigeria is faced with nutritional food problem which is mostly due to inadequate food supply, poor income, lack of proper education on food consumption habits, price of food items and unemployment. This problem has spread to the students who really need good food with good nutritional value in order to be able to withstand the rigour of education and also to meet up with their counterpart in developed countries. Meat is an important component in the daily diet of a large proportion of society and is regarded as a valuable food from a nutritional perspective. Meat provides important nutritional elements including protein, fats, vitamins, and minerals that efficiently aid in the normal functioning of body systems of consumers. Nwaoney, (2011).

Meat is any flesh of animal that is used for food. It is nutritious and highly attractive in appearance (Akinwumi *et al.,* 2011). Meat is the most valuable livestock product and for many people, serves as their first choice source of animal protein (Tsegay, 2012). There are different kinds of meat depending on the source from which they are obtained, for example, mutton from sheep, chevon from goat, beef from cattle, pork from pig and chicken from birds and at the apex of food hierarchy in African context, meat is a focal point in the meals of many homes where it provides the cherished quintessential status (Lokuruka, 2006; Fayemi and Muchenje, 2012).

Preference for meat types has motivated studies on meat species and meat products (Fayemi *et al.,* 2011) and is also, responsible for the growing concerns on food choices and consumption patterns in different societies (Holsten *et al.,* 2012). Studies carried out in Czech Republic indicated that chicken and pork were the most consumed (Ogunwole, and Adedeji, 2014). The impact of these concerns has shown that students living away from home tend to develop peculiar eating habits contrary with those living with their families (Barquera et al., 2003; Papadaki *et al.,* 2007). With due consideration for gender, age groups, educational and income status, the nutritional status, consumption patterns and feeding habits of infants, adolescents and the elderly have been promoted (McArthur et al., 2006; Temple et al., 2006; Adams and Rini, 2007).

Furthermore, students are the potential work-force of any nation being the future heads of parastatals, managers of private companies, policy and decision makers. It is therefore important that the food consumption pattern of students be given adequate consideration. This study was therefore, undertaken to examine the factors affecting meat consumption among students of the University of Agriculture, Abeokuta, Nigeria.

Methodology

The Study Area:

The study was carried out at the Federal University of Agriculture Abeokuta, Ogun State Nigeria. The University is located in Alabata, Abeokuta in the tropical rain forest zone of Nigeria. Its geographical location makes it accessible. FUNAAB was established in January 1988. The University started at its mini campus at Isale-Igbein right in the heart of Abeokuta, the capital of Ogun State. The University moved in December 1997 to its permanent site, a 10,000-hectare campus which is located next to the Ogun-Oshun River Basin Development Authority on Abeokuta-Ibadan road in the North Eastern end of the city, 15km from Abeokuta city Centre. The student population in FUNAAB is about twenty five thousand (25,000) with nine (9) existing colleges.

Data types, Sources and Sampling technique:

Primary data were used for the study. These were obtained through administration of a well-structured questionnaire on the Student of Federal University of Agriculture Abeokuta. Data collected included the socioeconomic characteristics of the respondent students. The sample size for the study was 150 respondent students. Stratified sampling technique was used to select students from whom data were generated for this study. The first stage involved the random selection of 5 levels of the students from a list of levels (100, 200, 300, 400. 500, and PG) in FUNAAB. The second stage involved a random selection of 25 students each from the earlier selected five (5) levels, thus giving a sample size of 150.

Analytical Techniques:

Data collected were analyzed using descriptive statistics, multiple regression analysis and bar chart.

The descriptive statistics such as means, frequencies, percentages were employed to describe the socioeconomic characteristics of the respondents, monthly expenditures on meat types, amount of monthly allowance, amount spent on foods and meat substitute.

Determination of Factors affecting meat consumption among students was examined, using multiple regression model. The multiple regression model showing the relationship between meat consumption and the independent variables are expressed implicitly as follows:

$C = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, U)$

Where:

C= Consumption of meat (N/month)

X_1= Age of students (years)

X_2 = Level of education (years in school)

X_3= sex of student (dummy: male=1, female=0)

X_4= Monthly allowance (N /month)

X_5= Amount spent on substitutes (N /month)

X_6= Amount spent on food (N /month)

X_7= Residential status (dummy: off campus= 1, otherwise 0)

The b_i are regression coefficient and U is error term

Three functional forms employed were linear function, semi – log and Double log functions

Functional Forms

Three functional forms employed are:

i) Linear Function

$C = b_0+b_1X_1+b_2X_2+b_3X_3+b_4X_4+b_5X_5+b_6X_6+b_7X_7+u$

ii) Semi-Log Function

$C = b_0+b_1\log X_1+b_2\log X_2+b_3\log X_3+b_4\log X_4+b_5\log X_5+b_6\log X_6+b_7\log X_7$

iii) Double Log Function

$\text{Log } C = b_0+b_1\log X_1+b_2\log X_2+b_3\log X_3+b_4\log X_4+b_5\log X_5+b_6\log X_6+b_7\log X_7$

Criteria for Choosing the Lead Function Form

The best functional form will be chosen based on Statistical test carried out on the various functional forms.

1. T-test: Which measures the significance contribution of each instrumental variable on the dependent variable?
2. Adjusted Co-efficient of multiple determinations ($\overline{R^2}$): Measures the goodness of fit of the data.
3. Economic criteria i.e. a priori expectation such that $X_1, X_2, X_3, X_4, X_5, X_6, X_7 > 0$ and $X_5 < 0$

Results and Discussion

The socio-economic characteristics of the students examined include age, sex, educational level of students, marital status, total monthly income (allowance) of the students, residential status, amount spent on substitutes as well as amount spent on food as shown in table 1. It was observed that majority (69.3%) of the students are within the age range of 19 to 24 years and constituted the largest group observed in the study while the least group were students between 31 and 34 years constituting 4.0% of the study population. This implies that majority of the students were young and active in age. More female (56%) participants responding to the questionnaire as against (44%) for male this result was in line with the observation of Diez *et al*. (2006) that reported more female participants in their study for identifying market segments in beef. This contrasted the report by authors (Eyo, 2007; Ogunwole *et al*., 2009; Akinwumi *et al*., 2011 and Tsegay,2012) that there were more male participants in Niger-Delta, Ibadan, Ogbomoso and Ethiopia respectively. Only (8%) of the students were married while (92%) were single. Equal numbers of students were sampled using their educational level. 25 people were randomly selected from each level constituting 16.7% of the study population. The result also revealed that (76%) of the students have household size within the range of 1 to 4 people and constituted the largest group observed in the study area. While the least group were students with 9-12 people in a household constituting 22.7% of the study population. About 112 (74.7%) of the students were observed to be Christians while 38 (25.3%) were Muslims. Majority of the students 78 (52%) lived off campus while 72 (48%) of the students reside on campus. This implies that more than half of the students sampled under this study reside outside the University campus.

Monthly Expenditure on Meat Types and Substitutes

Table 2, showed the average amount of the income spent on meat consumption as N 1,904 per month while the amount spent on substitutes such as egg and fish was N 147. This implies that the students spent more on meat.

Table 3: Reveals that 27.3% of the students received below N 5001 per month, majority (44.7%) of the students received an income between N5001 and N10000 per month. While 13.3% of the students received N10001to N15000 per month and 14.7% of the students received above N15000 per month.

Average Monthly Expenditure on Meat Types

Table 4, shows that beef accounted for the highest percentage of 24.4% of the monthly expenditure among female students while it constitutes 24.0% of the males. Also, chicken accounted for 20.4% of the total monthly meat expenditure among female students and 21.5% of total monthly expenditure of meat among male students. Furthermore, pork accounted for the lowest percentage of 7.0% and 6.0% of total monthly meat expenditure in male and female respectively.

Table 5 showed the percentage of the mean monthly income expended on the meat types. The results reveals that beef (N462), chicken (N399) and fish (N294) represent 24.22%, 20.94% and 15.38% percentage respectively of the income of the students.

For the regression model of this study, three functional forms such as linear, semi-log and double log forms were used to estimate the consumption functions as shown in Table 6. The three functional forms tried were examined in terms of the significance of the variables as indicated by the "t" and 'F' values, the adjusted R^2 and the appropriateness of the signs of the regression coefficients to the *a priori* expectations. Using the above criteria, the semi-log form was found to be the best goodness of fit and was chosen as the lead equation to be used in the study.

The semi log had an R^2 was 74.7%, which shows the proportion of the variation in the dependent variable (meat consumption) that is explained by the independent variables in the model. The adjusted R^2 is 73.5% which implies that only 73.5% of the variation in consumption of meat is explained by the seven variables. The F-value is also significant at 1%. Four out of seven regressors X_1 (age of students), X_3 (sex of student), X_5 (amount spent on substitute) and X_7 (student place of residence) are significant at 1%, 5%, 1% and 1%α-level respectively. This implies that these four variables exert significant influence on the consumption of meat in the study area. It can thus be deducted that the age (X_1) of the students was positive and significant at one percent. This implies that an increase in the age of the students will cause a positive increase in meat consumption. The coefficient of the student's sex (X_3), amount spent on substitute(X_5) and place of residence (X_7) of students were negative and significant at 5% and 1% respectively. This implies that the amount spent on substitutes decreases with increase in meat consumption. The place of residence (campus or off campus) exhibits a negative effect on the consumption of meat. This implies that off campus students spend more on meat than on campus students. With respect to sex, the result suggests that female students spend more on meat than their male counter parts.

Ratings of Factors Limiting the Purchase of Meat Types among Students

Majority (70%) of the students considered taste as a very important factor which determines the purchase of the meat types with a mean of 7.26. The nutritional value was considered as the second most highly rated factor affecting the purchase of the meat type. Economic value was considered the third factor limiting the purchase of meat among the students with a mean of 6.21, while availability and the convenience or ease of cooking factors ranked 4^{th} and 5^{th} with a mean of 6.17 and 5.49 respectively. On the other hand, fat content, storability and the cholesterol level ranked 8^{th}, 7^{th} and 6^{th} positions with a mean of 4.73, 4.92 and 5.06 respectively as depicted in Figure 1.

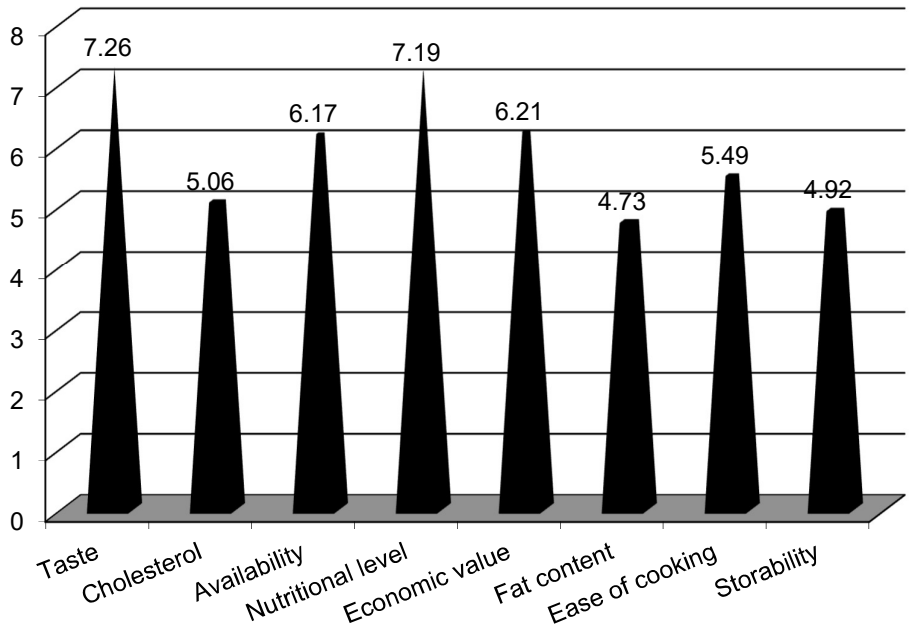

Fig 1 Showing Ratings of Factors Limiting the Purchase of Meat Types. Rated on a scale of 8, where 1 is not important and 8 is extremely important

Conclusion and Recommendation

The study showed that the age of the students, sex of the students and place of residence of students were the significant factors that affect the consumption of meat among students of the University of Agriculture Abeokuta. However, increase in the amount spent on substitute will decrease meat consumption. With respect to sex, the result suggests that female students spend more on meat than their male counter parts. Also, students that are resident inside the campus are more compared with their counterparts off campus. With respect to the students' sex, the result suggests that female students spend more on meat than their male counter parts. On the basis of the rating of the factors limiting the purchase of meat types among students, it was revealed that majority of the students considered taste as very important factor which determines the purchase of the meat types with a mean of 7.26. However, fats content ranked the lowest with a mean of 4.73. This means that taste was considered as a very important factor which determines the purchase of the meat types. In addition, on the perception analysis among the students, the study found out that based on the overall preference of meat types, beef was the most preferred meat type among the students with a mean of 6.01 while pork was the least preferred with a mean of 2.53. From the study, the place of residence; campus or off campus exhibits a negative impact on the consumption of meat. This implies that off campus students spend more on meat than on campus students. The age of the students has a significant positive relationship with meat consumption. This implies that an increase in the age of the students contributes to their meat consumption. The monthly income of the students has a positive relationship with meat consumption. The higher the monthly income of the students, the more they spend more on meat consumption. Amount spent on food also has a positive relationship with meat consumption. The more the amount spent on food, the more the consumption of meat by the students. Also amount spent on substitute has a negative relationship with meat consumption. This implies that amount spent on substitute

decreases with increase in meat consumption. Based on the findings, the study recommends the following: Based on the findings, it therefore implies that these meats- beef, chicken, fish and turkey should be made available to students in many small unit outlets close to students' residential quarters. Furthermore, there is a need to increase the supply of beef, chicken, fish and turkey in shops close to students' residence as they were found to be the most important meat types consumed.

References

Adams T, Rini A (2007). Predicting 1-year change in body mass index among college students. *Journal of American Coll. Health* 55:361-365.

Akinwumi, A. O., Odunsi, A. A., Omojola, A. B., Aworemi, J. R., Aderinola, O. A. (2011). Consumer perception and preference for meat types in Ogbomoso area of Oyo State, Nigeria. In *International Journal of Applied Agricultural and Apicultural Research*, Vol. 7, No. 1-2, p. 96-106.Biesalski, H. K. (2005). Meat as a component of a healthy diet – are there any risks or benefits if meat is avoided in the diet?. Meat Science, 70: 509–524.

Barquera S, Rivera JA, Safdie M, Flores M, Campos-Nonato I, Campirano F (2003). Energy and nutrient intake in preschool and school age Mexican children: National Nutrition Survey 1999. *Salud Publica Mex.* 45(4):540-550.

Dıez, J., Del Coz, J. J., Bahamonde, A., Olleta, J. L., Macie, S., Campo. M. M., Panea B., and Alberti., P. (2006). Identifying market segments in beef: Breed, slaughter weight and ageing time implications. *Meat science* 74: 667-675.

Eyo, E. O. (2007). Consumers' preference for meat from food animals in the Niger Delta, Nigeria. *Nigerian Journal of Animal Production* 34 (1): 113-120.

Fayemi P. O, Muchenje V. (2012). Meat in African context: From history to science. *African Journal of Biotechnology* 11(6):1298-1306.

Fayemi PO, Onwuka CFI, Isah OA, Jegede AV, Arigbede OM Muchenje V (2011). Effects of mimosine and tannin toxicity on rabbits fed processed Leucaena leucocephala (Lam) De Wit. Leaves. *African Journal Agricultural Research* 6(17):4081-4085.

Holsten JE, Deatrick JA, Kumayika S, Pinto-Martin J (2012). Children's food choice process in the home environment. A qualitative descriptive study. *Appet.* 58:64-73.

Lokuruka MNI (2006). Meat is the Meal and Status is by Meat: Recognition of Rank, Wealth, and Respect through Meat in Turkana Culture. *Food Floodways* 14:201-229.

McArthur LH, Donald H, William DH, Forsythe A (2006). Compliance with Food Safety Recommendations among University Undergraduates: Application of the Health Belief Model. Fam. Cons. *Sci. Res. J.* 35:160-170.

Nwaoney, V.A. (2011). Meat Consumption and Consumers' Perception about Meat Types among Students of

University of Agriculture Abeokuta, Ogun State. Nigeria. Unpublished Thesis in the Department of Agricultural Economics and Farm Management, Federal University of Agriculture Abeokuta, Ogun State. Nigeria.

Ogunwole, O. A. and B. S. Adedeji, **(**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* June 2014, Vol. 3, No. 2, pp. 77-95.

Ogunwole, O. A., Rahji, M. A. Y., Olomola, A. O., Hamzat, R. A., Uwagboe, E. O. And Mako, A. A. (2009). Consumer preference for different meats of chicken in Nigeria: A case study of University of Ibadan employees. Book of Abstracts, International Poultry Scientific Forum held at the World Congress Center, Atlanta, GA. USA. January 26- 27.

Papadaki A, Hondros G, Scott JA, Kapsokefalou M (2007). Eating habits of university students living at, or away from home in Greece. *Appet.* 49:169-76.

Temple NJ, Nelia P, Steyn NP, Neil G, Myburgh NG, Johanna H, Nel JH (2006). Food items consumed by students attending schools in different socioeconomic areas in Cape Town, South Africa. *Nutr.* 22:252-258.

Tsegay, H. (2012). Consumer perception and preferences of meat types in Harare and

Vandendriessche F (2008). Meat products in the past, today and in the future. *Meat Sci.* 78:104-113. Vol. 7, No. 1-2, p. 96-106.

Table 1: Socio- economic characteristics of the respondents.

Characteristics	Frequency	Percentage (%)
Age grade		
Below 18 years	8	5.3
19-24	104	69.3
25-30	25	16.7
31-34	6	4.0
35 years above	7	4.7
Sex		
Male	66	44.0
Female	84	56.0
Marital status		
Single	138	92.0
Married	12	8.0
Educational level		
100 level	25	16.7
200 level	25	16.7
300 level	25	16.7
400 level	25	16.7
500 level	25	16.7
Post graduate	25	16.7
Household Size		
1-4	114	76.0
5-8	34	22.7
9-12	2	1.3
Religious Affiliation		
Muslim	38	25.3
Christian	112	74.7
Place of residence		
Campus	72	48.0
Off campus	78	52.0
Total	150	100.0

Table 2: Income expenditure on meat types and substitutes

Amount Spent		Mean (N)	Std. Deviation (N)
Total Expenditure on Meat (N /Month)	150	1904.3	± 615.9
Monthly Allowance (N /Month)	150	13,894.0	± 19,368.3
Total Food Expenditure (N /Month)	150	5,291.3	± 5,992.1
Expenditure on meat substitutes (N/Month)	150	147.9	±97.0

Table 3: Distribution of respondents by monthly income/allowance

Total Monthly Allowance (N)	**Frequency**	**Percent**
Below 5001	41	27.3
5001 – 10000	67	44.7
10001- 15000	20	13.3
Above 15000	22	14.7
Total	150	100.0

Table 4: Monthly expenditure on meat types by sex

Meat Types	**Male**		**Female**	
	Mean Amount (N)	**%**	**Mean Amount (N)**	**%**
Beef	465	24.0	459	24.4
Chicken	416	21.5	383	20.4
Fish	292	15.1	295	15.7
Turkey	281	14.5	253	13.5
Bush meat	175	9.0	189	10.1
Goat meat	171	8.9	186	9.9
Pork	136	7.0	114	6.0
Total	1936	100.0	1879	100

Table 5: Percentage expenditure on different meat types

Meat Types	**Amount Expended (N)**	**Percentage of Total Expenditu (%)**
Beef	462	24.22
Chicken	399.5	20.94
Fish	293.5	15.38
Turkey	267	13.99
Bush Meat	182	9.54
Goat Meat	178.5	9.35
Pork	125	6.55
Total Expenditure on meat	1907.5	100

Source; Field Survey 2017

Table 6: Regression results of the factors which affects meat consumption among students of the Federal University of Agriculture Abeokuta (FUNAAB).

Model	Constant	X_1	X_2	X_3	X_4	X_5	X_6	X_7	R^2	_R^2	F
Linear	3,405.41	456.98***	-77.45	-210.85*	0.003	-5.14**	-0.04	-79.53	0.71	0.7	50.32
t-value	12.749	3.911	-1.051	-1.71	-0.17	-17.651	-0.783	-1.032			
Semi-log	8.545	0.339***	-0.029	-0.138**	0.000011	-0.004***	0.000047	-0.141***	0.747	0.735	59.892
t-value	50.88	4.61	-0.636	-2.225	1.095	-19.252	1.648	-2.909			
Double- log	11.846	0.361***	-0.056	-0.905**	0.181	-0.631***	-0.209	-0.286***	0.671	0.654	39.93
t-value	15.024	2.705	-0.712	-2.21	1.373	-15.747	-1.299	-3.399	0.71	0.7	

*** Coefficient significant at one percent (1%) level

** Coefficient significant at five percent (5%) level

* Coefficient significant at ten percent (10%) level