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ABSTRACT

This study examined the expenditure pattern of beef and chicken by individual households in Akoko South-West of Ondo State. The study was designed to estimate the monthly expenditure on beef and chicken; evaluate the influence of household income and household size on expenditure as well as determine other factors which influence the monthly consumption of these meat products by households in the study area. Three Hundred household heads were selected from the area using the simple random sampling technique. Questionnaires were the main tool for data collection. Data collected were analyzed using descriptive statistics and regression analysis. The result showed that the average age of the consumers was 33.57 years; their mean household size was about 6 persons, while their average monthly income was about N48,000. 53% of the respondents were women and greater proportion (over 90%) of the consumers had secondary education and tertiary education. The study showed on the average, household monthly consumption of beef and fish were 1.9kg and 2.38kg respectively. This implies that the volume of the products consumed by households differ significantly. Chicken is consumed more than beef in the study area. This could be as a result of the price differential between the products for chicken is cheaper than beef in the area. The proportion of household's total expenditure that went into beef/chicken consumption on average is 10.06% and about 4.21% of household's income is expended on beef/chicken. The study found that the most important factor considered by households while purchasing beef and chicken was income after they have established their preference based on taste, nutritional value and prices.

Keywords: Expenditure Pattern, Beef and Chicken Consumption, Households, Nigeria

INTRODUCTION

Prior to discovery of oil in 1970's, agricultural exports were the backbone of the Nigerian economy with livestock products contributing a significant share of exports. During this period, the country had a well-developed domestic agricultural market. In spite of this sound potential for growth in the domestic market, Nigeria has been witnessing a drastic decline in agricultural production, especially in livestock and meat sectors of the industry (Adesehinwa, et al, 2004). For instance, livestock and fishing contributed about 3% to Nigerian Gross Domestic Product in 2011 (CBN, 2012). This contribution to GDP mainly depends on the production and consequent utilization of the meat and fish products by the consumers.

Protein is required for the growth, maintenance and repair of all body tissues. These proteins can be sourced from either animal or vegetable source. The meat from cattle, goat, sheep, pig and poultry products are the main sources of daily per capita consumption of animal protein (Alais and Lindel, 1990). Nutritionists have posited that animal proteins have superiority over plant proteins because animal proteins have contain all the essential amino acids, as opposed to plant proteins which are deficient in one or more of these essential amino acids (Britton, 2003; Oloyede, 2005). Food Agricultural Organization (1998) estimated minimum protein requirements at 70gm/capital/day while the recommended protein intake from animal source is 35gm/capita/day. A review of the data of food supplies available for consumption in different countries shows that the per capita protein intake in developing countries is comparatively low. Most of the foods consumed in Nigeria are carbohydrates which are obtained mainly in the form of starch (Oloyede, 2005). According to Kubkomawa *et al* (2010), the consumption of animal proteins in Nigeria is very low and study attributed the low proteins intake to harsh economic condition which might have made an average Nigerian to sources cheaper proteins from plants.

A few research studies have been carried out on meat products in Nigeria (Kubkomawa *et al,* 2010; Mba, 1983; Oloyede, 2005, Oyenuga, 1987; Ademosun, 2000; Adesehinwa, et al, 2004; Amao et al., 2006; Afolabi, 2002, Erhabor, et al, 2008; Ogunniyi, et al, 2012; Duruchukwu, 2010; Emokaro & Adamasun, 2012; Onyeneke and Nwaiwu, 2012; Ugwumba and Effiong, 2013). However, these researchers have focused their studies mainly on production and marketing aspects with few being focused on the demand of meat/meat products. Against this background, this study was designed to estimate the monthly expenditure on beef and chicken; evaluate the influence of household income and household size on expenditure as well as determine other factors which influence the monthly consumption of these meat products by households in the study area.

MATERIAL AND METHODS

Study Area

The study was carried out in Akoko South West local government area of Ondo State. The Local Government has its headquarters in the township of Oka-Akoko with an area of 226km^2 and a population of 229, 486 at the 2006 census. It is bounded in the East by Epinmi and Ipe, in the west by Akungba and Supare in the North by Ise Iboropa and Ugbe in the South by Oba and Ikun towns. Predominantly, the vegetation is of the derived savanna with scattered forests all over the area. In terms of atmospheric conditions the situation remains almost the same as elsewhere in Ondo State. For lack of adequate arable farmland, Oka people are predominantly migrant farmers. Most of who engage in mere subsistence farming. They produced foodstuffs like Yams, maize and cassava. The more daring among them also combine the production of cash crops like cocoa, coffee and rubber. Besides, more and more of the Okas are going into commercial activities while others are engaged in tertiary occupation of which carpentry and bricklaying are notable examples.

Towns under the Akoko South-West local government constituencies are: Akungba-Akoko, Iwaro Oka-Akoko, Oba-Akoko and Supare-Akoko. We use purposive criterion sampling to select Akungba Community as our sample area and then randomly chose the respondents. Akungba Akoko was predominantly an agrarian settlement. The people were known for

agricultural activities, only few were engaged in some commercial activities like trading, weaving and artisan. Socio-economic activities were at the barest minimum. The relocation of Ondo State University from Ado-Ekiti to Akungba-Akoko on 9th November 1999, however changed the socio-economic state of the town. The population of the community is almost double in number compare to 1991 population census figure (Ehinmowo and Eludoyin, 2010). According to the 2006 census, the population of the host community Akungba-Akoko was 15,579 and their major economic activities are now farming, teaching, banking and trading.

The present study was carried out through a cross-sectional design and the heads of household were the participants. The data collected from three hundred (300) households pertained to;

i. General information from individual respondents on their social and economic characteristics

ii. Quantity of beef and chicken consumed by individual and;

The data were collected through interviewer administered questionnaires, conducted in August, 2012. We made use of two sampling methods. First, we used stratified sampling, whereby we divided the sample size into four groups; public servants (teachers, workers in local government, state government, federal government), private organization, artisans and others. There after we employed convenient sampling method to administer questionnaire to respondents in each group. Data collected were analyzed with descriptive statistics and regression analysis. Data collected were analyzed by the use of descriptive statistics, price elasticity of demand, and multiple regression analysis.

The implicit model of the regression is $Y = f(X1, X2, X3, X4, X5)$

Where;

Y = Household consumption EXP (N)

X1= Age of consumers (Years)

X2= Household size (No of Persons)

X3= Educational level (Years spent in School)

X4= Income (N)

X5= Sex

e = Error term

RESULT AND DISCUSSION

Income Wise Distribution of Households

Income-wise distribution of sample households in Akungba-Akoko is presented in the Table 1. The sample households were post classified into three groups based on their monthly family income. For the purpose of analysis households that earn less than N40,000 is classified as low income. Those earning between N40,000 and N80,000 were classified middle income and those that earn above N80,000 were grouped as high income grouped. Moreso, the households with monthly income of up to N39,999 were considered to belong to Income Group 1 (IG$_1$); those

with income of N40,000 to N79,999 were grouped into Income Group 2 (IG$_2$) and finally those with income of more than N80,000 were categorized as Income Group 3 (IG$_3$). Accordingly, the proportion of sample households in IG$_1$, IG$_2$, and IG$_3$ was approximately 40 per cent, 45 per cent and 16 percent respectively.

Table 1: Income Wise Distribution Of Households

Households income/month	Income Group	Number of households	Per cent of Total Number of Households
0 - 39,999	IG$_1$	118	39.33
40,000 -79,999	IG$_2$	135	45.00
80,000 – above	IG$_3$	47	15.67
		300	100.00

Socio-Economic characteristics of Sample households

The statistical analyses revealed that majority of the respondents were under 45 years of age (35.23 years on average), had the family size of 4.64 with about 77 percent nuclear families. Most of the respondents had education up to secondary school and intermediate (86.0%). Among the total respondents, about 42% were Public servant and workers in private organization, artisan and under-employed were about 31% and remaining respondents (27.7%) were Farmers, drivers, washman e.t.c. The average annual income of respondents from different sources was found to be about N56,363.

Table 2: Socio-Economic characteristics of Respondents

Variablee	Frequency	Percentage (%)
Age (Years)		
18 – 30	167	55.67
31 – 43	62	20.67
44 – 56	49	16.33
57 – 65	22	7.33
Total	300	100.00
Sex (Gender)		
Male	141	47.00
Female	159	53.00
Total	300	100.00
Marital Status		
Single	155	51.67
Married	118	39.33
Divorce	14	4.67

Widowed	13	4.33
Total	300	100.00
Educational level (years)		
No formal education (0)	10	3.33
Primary education (6)	7	2.33
Junior Secondary school (9)	6	2.00
Senior Secondary school (12)	125	41.67
Tertiary education (16)	108	36.00
Other higher education (18)	44	14.67
Total	300	100.00
Household size (number of persons)		
1 – 3	45	15.00
4 – 6	136	45.33
7 – 9	76	25.33
10 – 12	32	10.67
13 and above	11	3.67
Total	300	100.00
Occupation		
Public servant	64	21.33
Private organisation	62	20.67
Artisan	39	13.00
Unemployed/underemployed	52	17.33
Others e.g farmer	83	27.67
Total	300	100
Family type		
Nuclear	230	76.67
Extended	70	23.33
Total	300	100.00
Eating Habit		
Vegetarian	14	4.67
Non-vegetarian	286	95.33
	300	100.00

Table 3: Consumer preference for Beef and Chicken by Income Group

	Income Groups			Total
	IG$_1$	IG$_2$	IG$_3$	
Beef	114	128	47	289
	(38.0)	(42.66)	(15.67)	(96.33
Chicken	105	121	47	273
	(38.45)	(44.32)	(17.21)	(91)

Percentage in parenthesis

Even though 300 respondents were selected for the study, only 289 respondents eat beef and 273 of our respondents consume chicken. Those who consume neither beef nor chicken are either vegetarians or consume other meat products. The reasons the respondents attributed for their preference were largely taste, availability and habits. So the individuals taste is the key factor for their preference of beef/chicken. During the study period, average cost per kg of beef and chicken in the study area was found to be N900 and N700 respectively. As beef has much market potential, followed by chicken, more emphasis should be given to their production locally. The meat consumption patterns of people of Akungba-Akoko in Ondo State as shown in Table 3 revealed that about 43 percent of beef consumers are middle income earners and that of chicken was about 44 percent.

Table 4: Expenditure on Beef and Chicken by Households Per month

Household Expenditure	Beef		Chicken	
	Frequency	Percentage (%)	Frequency	Percentage (%)
1 – 1,000	99	33.0	101	33.67
1,001 – 2000	151	50.33	108	36.0
2,000 – 4,000	33	11.0	47	15.67
4,001 – 6,000	3	1.0	16	5.33
6,001 – 8,500	3	1.0	1	0.33
	289	96.33	273	91%

Table revealed that over 50 percent of the respondents spent between N1,000 and N2,000 on beef and about 6 percent of the respondents spent between N4,000 and N8,500 on beef. Similar expenditure pattern was revealed for chicken; over 36 percent of the people spent between N1,000 and N2,000 and about 6 percent of the respondents spent between N4,000 and N8,500 on chicken. On the average, beef consumption expenditure is N1,710.31 for 1.9kg/month while that of chicken N1,666.10 for 2.38kg/month. The proportion of household's total expenditure that went into beef/chicken consumption on average is 10.06% and about 4.21% of household's income is expended on beef/chicken.

Table 5: Results of Multiple Regression Analysis Indicating the Determinants of Beef Expenditure using three models

Variables	Lin-linear Model		Log-linear Model	
	Coefficient	P-value	Coefficient	P-value
Age of consumers (X1)	1.403909	0.7274	0.001292	0.6865
Household size (X2)	13.21200	0.4425	0.013200	0.3347
Educational level (X3)	10.21841	0.4446	0.004758	0.6542
Income (X4)	0.005964	0.0000	4.10E-06	0.0000
Sex (X5)	-63.32903	0.5100	-0.023489	0.7584
R^2	0.177208		0.1422421	
Adjusted R-squared	0.156943		0.121077	
Akaike info criterion	15.89365		1.619252	
Schwarz criterion	15.98961		1.71504	
Prob.(F-statistic)	0.0000		0.000008	

*Dependent Variable: Monthly Household Beef Expenditure in Naira

Table 6: Results of Multiple Regression Analysis Indicating the Determinants of Chicken Expenditure using three models

Variables	Lin-linear Model		Log-linear Model	
	Coefficient	P-value	Coefficient	P-value
Age of consumers (X1)	-3.264390	0.1974	-0.003597	0.1034
Household size (X2)	-7.353617	0.4390	-0.003584	0.6649
Educational level (X3)	3.697405	0.6570	0.002733	0.7064
Income (X4)	0.003349	0.8620	2.80E-06	0.0000
Sex (X5)	9.992790	0.8620	0.019783	0.6928
R^2	0.108997		0.101822	
Adjusted R-squared	0.090040		0.082712	
Akaike info criterion	14.99652		0.905223	
Schwarz criterion	15.08327		0.991982	
Prob.(F-statistic)	0.000050		0.000117	

*Dependent Variable: Monthly Household Chicken Expenditure in Naira

The result presented in Tables 5 and 6 shows that log-linear model is preferred to linear model based on model with lowest Akaike info criterion and Schwarz criterion. The results thus show that income is the only significant factor that influences both beef and chicken consumption. The coefficient of household income was positively significant which implies that it has a direct relationship on the beef/chicken consumption; more income to the family will lead to an increase in the quantity to be consumed. For instance, the result shows that a N1,000 rise in income will raise meat expenditure by 4% and increase spending on chicken by about 3%. We use dummy variable to analyze the sex of the respondents. On the effect of socio-economic variables on beef consumption behavior; Age of consumers, Household Size and Education level are important but not statistically significant at 5% level. SEX of the household head is important factors although not statistically significant even at 5% level. To find out the percentage change in beef

consumption expenditure for female respondents versus male respondents, we take the anti-log of the SEX coefficient of -0.023489, subtract 1, and then multiply the difference by 100 (Gujarati and Porter 2009), i.e sex variable will only bring about 2.37% change to beef consumption expenditure while 2.0% change to chicken consumption expenditure. The R^2 value of beef model is an indication that 17% of the variation in expenditure on beef by the consumers is explained by these explanatory variables - income of consumers, age of consumers, household's size of consumers, sex and educational level. About 11% of the variation in chicken expenditure is explained by the selected variables. Other factors like prices of meat products, price of substitutes, taste, religious belief e.t.c, might be some of the factors not capture in the model. This finding was consistent with Akinwumi et al.'s (2011) and Ikpi's (1990) results who reported that beef and chicken were the most preferred meat and their demand is highly influence by household income level. Our result is also not at variant with Onyeneke and Nwaiwu (2012) on beef expenditure.

4.   SUMMARY AND CONCLUSION

This study was designed to estimate the monthly expenditure on beef and chicken; evaluate the influence of household income and household size on expenditure as well as determine other factors which influence the monthly consumption of these meat products by households in the study area. Three Hundred household heads were selected from the area using the simple random sampling technique. Questionnaires were the main tool for data collection. Data collected were analyzed using descriptive statistics and regression analysis. The result showed that the average age of the consumers was 33.57 years; their mean household size was about 6 persons, while their average monthly income was about N48,000. 53% of the respondents were women and greater proportion (over 90%) of the consumers had secondary education and tertiary education. The study showed on the average, household monthly consumption of beef and fish were 1.9kg and 2.38kg respectively. This implies that the volume of the products consumed by households differ significantly. Chicken is consumed more than beef in the study area. This could be as a result of the price differential between the products for chicken is cheaper than beef in the area.
The proportion of household's total expenditure that goes into beef/chicken consumption on average is 10.06% and about 4.21% of household's income is expended on beef/chicken. The most important factor considered by households while purchasing beef and chicken was income after they have established their preference based on taste, nutritional value and prices.

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