Agroscarch
Vol 3, Nos. 1 & 2, 1997.

FOOD CONSUMPTION PATTERN IN URBAN HOUSEHOLDS: THE CASE STUDY OF UYO METROPOLIS IN AKWA IBOM STATE, NIGERIA.

Gabriel S. Umoh
Dept. of Agric. Economics/Extension
University of Uyo, Uyo
Nigeria.

and

J.T. Atobatele
Dept. of Agric. Economics
University of Ibadan, Ibadan,
Nigeria.

ABSTRACT

This research was conducted to assess the household food consumption pattern in Uyo metropolis of Akwa Ibom State, Nigeria. Cross-sectional data were collected from 90 households for analysis. The results show inverse relationship between per caput food consumption expenditure and family size. Consumption expenditure per household however increases with the level of education, household size and income level. Regression analysis results confirm household disposable income to be major determinant of household consumption of all foods, staples and beverages respectively. The problem highlighted include efforts toward equitable redistribution of income among all income earners.

INTRODUCTION

The attainment of adequate nutritional levels is an important criterion in evaluating the success of development policies. The primary objective of Nigeria's development policy has been to achieve a rapid increase in the standard of living of the average Nigerian. This stems from the role played by adequate nutrition as a precursor for good health which could lead to increased productivity. However, the food situation in the country has become critical as to constitute a nearly intractable problem. Various projections show that the problem is that of supply deficit. For instance, Okuneye (1989) maintained that Nigeria's domestic food supply has been far short of the need of the populace. In consonance with this, Shofowa (1993) quoted Food and Agricultural Organisation's (FAO) (1993) report which classify Nigeria as a low-income, food, deficit and coastal country that requires 1.4 million tonnes of total commercial cereal import for 1992/93.

The problem of food consumption is compounded by rising prices. The federal Office of Statistics 1992

reports confirmed there is a substantial rise in the price index. This is attributed to sharp price increases in food items, drinks, household goods, transport fares, medicaments and vehicle spare parts. The implication of this is that most essential household goods required to meet basic needs are increasingly falling out of the reach of the average Nigerian. The impact of this hardship under the current depression in the country may not be equally felt by all socio-economic groups. Davies (1982) in his study of interrelationship between socio-economic characteristics, food expenditure pattern and nutritional status of low income households concluded that there is a significant difference in the consumption pattern between individuals with a minimum of high school and those with a maximum of primary school. The opportunity for meeting essential living requirement could thus vary from one socio-economic group to another. This has a high potential impact on consumption and therefore on the nutrition of targeted groups.

1. Most micro-level studies of food consumption have identified household disposable income, household size and the educational level of household head as some of the important socio-economic factors that influence food consumption.
2. Benus et al (1976) in analyzing household expenditure pattern held that differences in the consumption patterns are in an economic analysis, ascribed as far as possible to variations in the disposable income of household, since this is the only economic factor that varies between households, They maintained that any difference not explained by income variation was attributed to non-economic factor such as differences in taste which in itself is a reflection of the variation in size and composition of the household.

Similar studies in Nigeria have also found these variables to impact significantly on food consumption in urban as well as rural households (Antonio, 1996; Antonio and Oni, 1974; Antonio and Adeyokunnu, 1974, Adesimi 1978; Adeyokunnu 1978; Falusi 1988; Umoh, 1994). Therefore, the objectives of this study was:

(a) to assess the socio-economic characteristics of households and how they affect consumption pattern in the study area: and;
(b) to examine the determinants of consumption of various food categories.

METHODOLOGY

The procedure adopted for the survey was multistage stratified random sampling. The study area was stratified into cells of high, medium and low density areas which correspond to low, middle and high income areas respectively. This was done with the belief that representative data which reflect the characteristics of the residents of the metropolis could be obtained. The first stage sampling was the streets which were chosen alternately. The second stage sampling unit was the households which were selected by simple random sampling procedure. Cross-sectional data were obtained from 120 respondents using structured questionnaire. 90 of the questionnaire (75 percent response rate) were duly completed with useable data. Questions were designed to cover household income, size, educational level of household head and expenditure on various food items. The survey was conducted between August and September 1993. In the data analysis, household expenditure on each of the food items was used to represent the level of consumption of such items. The relationship between food consumption and household purchasing power was estimated through regression analysis. Four functional forms were initially fitted to the data for exploratory purposes. These were linear, semi-log, exponential and Cobb-Douglas (Log-Log) functions. The choice of the lead equations was based on statistical accuracy of the fitting, the theoretical justification with regards to the signs and magnitudes of the co-efficients, the coefficient of multiple determination (R2) and the t-ratios. The implicit form of the equation is:

Ci = f(X1 , X2 X3)

Ci = Consumption expenditure on the ith group of food items per month .

C1 = Consumption expenditure on all food items.

C2 = consumption expenditure on staples.

C3 = consumption expenditure on beverages.

X1 = Total household disposable income.

X2 = Household size.

X3 = Years of formal education of household head.

It is expected *a priori* that the coefficients of regression of the variables X1 , X2 and X3 will be positively related to the consumption expenditure of the food items under investigation.

In order to determine the partial effects of income on consumption and the additional expenditures that could result from a unit change in income, the income elasticities and the marginal propensities to consume (MPC) were computed for

the three categories of food items. However since the Cobb-Douglas function was found to be the lead equation for all foods, staples, as well as beverages, the regression co-efficients were the direct elasticities of the variables. The Marginal Propensity to Consume (MPC) was computed using the formula;

$$MPC; \frac{b1\ ci}{X1}$$

Where;

b1 = regression co-efficient of X1

ci = mean assumption expenditure on ith food item

X1 = mean household disposable income.

EMPIRICAL ANALYSIS AND RESULTS

Average Monthly Consumption Expenditure of Household Classified by Size

Table 1 presents average monthly consumption expenditure of household classified by size. Based on the mean household size in the study area, household size range of 5 was adopted. The result shows that the modal household size is 1 - 5 while only 6.7 percent of households have size greater than 10 persons.

This confirms Amadi's (1990) finding which recorded the same household size for Port-Harcourt an urban area. Average per household and per caput expenditure of N2,084.70 and N359.40 respectively were recorded. Per caput food expenditure decreased as the household size increases. The result conforms with that reported by Goreux (1960) and Ajewole (1992) that economic efficiency of household management is greater on large household than in small ones.

Average Monthly Consumption Expenditure of Household Classified by Educational Level of Household Head

An examination of table 2 reveals that an average of 48.9 percent of household heads have up to secondary education, 17.8 percent have NCE and other higher certificates while 33.3 percent of the household heads are holders of University degrees, higher diplomas or other equivalents.

Food expenditure per household increase with the level of education so also are per caput food expenditure. This is in line with Davies (1982) submission that there is a significant difference in the consumption pattern between individual with a minimum of high school and those with a maximum of primary school. The finding follows expectation that those with higher education should earn more income and thus comparatively record higher food expenditure.

Average Monthly Consumption Expenditure of Households Classified by Income Group

Based on the average household income in the study area as computed from survey data, income groups were classified in the range of N3,000.00. Households with monthly income less than N3,000.00 is classified as low income households, those with N3,000 - N6,000.00 are grouped as middle while households with income greater than N6,000.00 are classified as high income households. 55.6 percent of the sampled household are in low income group. 33.2 percent in the middle income group and only 12.2 percent in the high income group. An observable pattern in the result is that the higher the income level, the larger the household size and also the higher the food expenditure per household and per caput respectively.

Regression Analysis Results

Consumption Function for all Food Items

The lead equation for the regression equation result of consumption of all food items comprising yam, garri, rice, beans, plantain, meat, fish, eggs and beverages was founds to be the double logarithmic functional form. It offered the highest R2 value of 0.83 and F-ratio of 149.24. The function is given as;

LNC = 474977 + .728943 LnX 1 + .0922691 LnX2 +.046426 LnX3
(15.452)*** (1.622) (2.145)**

R2 = 0.83

F = 149.23***

Values in parenthesis are calculated t-values

** Significant at 5 percent

*** Significant at 1 percent

The R2 of 0.83 means that 83 percent of the variation in the household consumption of all foods per month is accounted for by the independent variables. An F-test indicates that the equation is significant at 1 percent level. The income and household head's educational level's coefficients are positive and significant at 1 and 5 percent levels respectively implying that income and level of education are directly related to food consumption expenditure. There could be three possible explanations for this. Firstly, there is high level price distortion in the market mechanism in the country which renders the determinants ineffective. Secondly, majority of the households in the study area are low income earners (see table 3) who may continue to consume more food as their income increases. And, lastly, the social responsibility of having to cater for a large number of dependent relatives as ones income increases may be responsible for the direct relationship between income and food consumption.

Consumption Function for Staples.

The Double Logarithmic function with an R2 of 0.79 was selected as the lead equation. It was given as:

LnC = .311594 + .806318LnX1 + .07384LnX2 + .105491LnX3

(15.636)*** (1.190) (1.774)

R2 = 0.79
F = 244.47***

Values in parenthesis are calculated t-values.

*** Significant at 1 percent.

The R2 value of 0.79 implies that 79 percent of the variation in the expenditure on staple food items in Uyo metropolis is explained by income, household size, and educational level of household head. However, only income coefficient is significant at 5 and 1 percent levels. The household size and households head's educational level coefficients are not significant at 1 and 5 percent levels but vary in the same direction as staples consumption. The results show that consumption of staple foods is a direct function of household disposable income.

Consumption Function for Beverages

The double logarithmic function offers the highest R2 value of 0.32 and F-value of 30.31 and was thus selected as the lead equation. It is given by:

LnC = + .124993 + .83900 LnX1 + .15253 LnX2 + .02978 LnX3

(5.505)*** (1.358) (.269)

R2 = 0.32
F = 30.31***

Values in parenthesis are calculated t-values. The regression analysis result shows that household disposable income significantly affect expenditure on beverages. Although other variables do not largely determine consumption of beverages, there exist a positive relationship.

The R2 of .32 indicates that income, household size and the level of education of household heads explain only 32 percent of total variation on household consumption. 60 percent are explained by factors not included in the model. This at once, suggest the need for further research into determinants of consumption of beverages in order to identify those variables which with those identified here could explain the changes in beverage consumption.

Income Elasticity and Marginal Propensity to Consume (MPC)

Table 4 and 5 present the income elasticities and the MPC for the consumer goods considered. They are employed to measure the direction of household consumption expenditure's responsiveness to change in income. The elasticities are the direct partial effects of income while

the MPC is the additional expenditure resulting from a one unit increase in disposable income.

The MPC for all foods, staples and beverages are 0.48, 0.34 and 0.05 respectively. These values appear to have the relative magnitude which a *priori* reasoning would lead one to expect. The results suggest that 48, 34 and 5 percents of an increase in household income will be allocated to the consumption of these categories of food items.

Computed elasticities for all foods, staples and beverages are 0.73, 0.81 and 0.84 respectively. This suggests that in response to income increases, households would consume this category of commodities relatively more than others.

CONCLUSION

The research findings clearly bring to light that food consumption increases with the level of education and income. Income is also found to be the major determinant of food consumption. That more than half the sampled households have heads that have acquired only up to secondary education and the clear evidents that majority of the people are low income earners whereas food consumption increases with income and level of education are indications of high level of food insecurity in the area. These call for efforts toward redistribution of income among all income earners and the need to suppress household sizes. Making higher education accessible at affordable cost to the citizenry may be able to empower the people more and raise them above the present level of food insecurity. Furthermore, investigation into other determinants of consumption of beverages could be the right steps towards making this category of food available to the people.

REFERENCES

Adesimi, A.A. (1978). "Structural Patterns and Intertemporal Comparison of Household Food Expenditure in an African Semi-Urban Centre: A Case Study of Ile-Ife, Nigeria "African Journal of Agricultural Sciences" 5(1): 11-16.

Adeyokunnu, T.O. (1980). "An Economic Analysis of Food Consumption and Expenditure in Nigeria "Nigeria Journal of Nutritional Sciences" 1(2).

Ajewole, I.O. (1992). An Economic Analysis of Food Consumption Patterns in Atakunmosa and Ilesha areas of Osun State. Unpublished M.Sc. Thesis, Dept. of Agric. Economics, University of Ibadan, Ibadan.

Amadi K.O. (1990). Household Consumption Pattern in Rivers State under the structural Adjustment Program. Unpublished M.Sc. Thesis, Department of Agric. Econs.

University of Ibadan, Ibadan. 112pp.

Antonio, Q. B. O. (1966). "Food Consumption and Income Relationships in Nigeria: Engels' curve Functions Bulletin of Rural Economics and Sociology. 2(1); 52 - 67.

Antonio; Q. B. O. and T.O. Adeyokunnu (1974). " The Changing Patterns of African Diets in Relation to Income" Bulletin of Rural Economics and Sociology 9(1): 14 - 38.

Antonio; Q. B. O. and S.A. oni (1974). "An Empirical Analysis of Food Consumption Expenditure in Nigeria: A Case Study of Ibadan" The Nigerian Agricultural Journal 11(1): 37-56.

Benus, J.J.K. and H. Shapiro (1976). "The Dynamics of Household Budget Allocation to Food Expenditures" The Review of Economics and Statistics LVIII (2): 129 - 137.

Davies, C.G. (1982) "Linkages Between Socio-economic characteristics of Food Expenditure Patterns and Nutritional Status of Low-income Households; A Critical Review"American Journal of Agricultural Economics, 64 (5).

Falusi, A.O. (1985) Socio-economic Factors Influencing Food Nutrient Consumption of Urban and Rural Households. A Case Study of Ondo State of Nigeria. Nigeria Journal of Nutritional Sciences 6 (20): 47 - 60.

Federal Office of Statistics (1992) Statistical News June,1992.

Goreux, L.M. (1960) "Income and Food Consumption". Monthly Bulletin of Agric. Economics Statistics IX (10)

Okuneye, P.A. (1989) "Shift in Agricultural Production and Potential Effects on Health by the year 2000" Rural Development in Nigeria. 3(2): 20 - 35

Shofowa, D.A. (1993) "Nigeria Consumes 90kg of Cereal Head Yearly Says FAO" The Guardian Newspaper. 4th August 1993.

Umoh, G.S. (1994) "Household Food Consumption and Income Distribution Pattern in Nigeria: A Case Study of Uyo Metropolis" An Unpublished M.Sc. Thesis, Dept. of Agricultural Economics, University of Ibadan: 120 pp.

Table 1: Household Consumption Expenditure by Household size

Household size group	Percent of total household household	Average household size size	Consumption expenditure per household (n) per household (n)	Consumption expenditur expenditur per caput (n)
1 - 5	52.20	3.50	1621.60	461.90
6 - 10	41.10	7.60	2584.10	339.00
11 - 15	5.60	11.80	2927.40	248.10
Over 15	1.10	16.00	1159.00	105.40
All Group	100	5.8	2084.70	359.40

Table 2 Household Consumption Expenditure by Educational Level of Householder.

Educational level of household head	Percent of total households	Average household size	Consumption expenditure per household (n)	Consumption expenditure per caput (n)
Up to Secondary	48.90	6.60	2198.57	333.12
School	17.80	6.30	2888.56	458.50
* NCE, etc.				
**	33.30	6.30	3204.87	508.73
University and Polytechnic				
All Group	100	5.80	2084.70	359.40

* Includes, OND, City and Guild and other Higher Certificates.
** Includes, HND, B.Sc., M.A., MBA, Ph.D, D.Sc. and other equivalent degrees.

Table 3: Household Consumption Expenditure by Income Group

Income group	Percent of total household	Average household size	Average household income	Consumption expenditure per household (n)	Consumption expenditure per caput (n)
Low (Less than N3,000)	55.60	5.10	1595.00	1181.00	230.70
Middle (N3000-N6000)	32.20	6.10	4108.40	2818.90	461.90
High (greater than N6000)	12.20	8.10	8459.10	4256.90	526.10
All Groups	100.00	5.80	3182.70	2084.70	359.40

Table 4: Income Elasticities of Demand for Food Items

Food items	Elasticities
All Foods	0.73
Staples	0.81
Beverages	0.84

Table 5 marginal propensity to consume (mpc) The various Food Items

Foods items	Marginal Propensity to Consume
All Foods	0.48
Staples	0.34
Beverages	0.05