



Determinants of Consumption of Food Away From Home In Lagos Metropolis, Nigeria

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Abstract

This study assessed the determinants of FAFH consumption in Lagos State, Nigeria. Data were obtained through multistage sampling technique, which involves the selection of two local government areas in the heart of Lagos metropolis and two local government areas in the peri-urban area of the metropolis. Descriptive statistics, Probit and Tobit regression models were employed for data analysis. Generally the level of expenditure on FAFH was influenced by sex; the household size and the proportion of adults in the household, when decomposed into bolus, non-bolus and snacks, the results indicate that sex, household size and the proportion of females in the household influenced the level of expenditure on bolus while the proportion of adults in the household and the proportion of females in the households affects the level of expenditure on non-bolus and only the sex of the consumers determine the level of expenditure on snacks. Female folks resident in Lagos metropolis and by extension, in Nigeria, should reduce their consumption of snacks and thereby reduce the danger of obesity associated with the high consumption of snacks. There is the need for the women folks to lay more emphasis on food at home to enable them to teach the younger folks how to cook several dishes. The present day increase in the numbers of FAFH consumers in Nigeria necessitates the need for appropriate government agency to ensure the establishment of standardized food facilities for FAFH, monitor the preparation of FAFH and the safety of FAFH.

Key Words: Food, Away, Home, Bolus, Non-bolus, Consumption, Lagos

Introduction

Food-away-from-home consumption has increased globally particularly in developed and developing countries. In China for instance, more Chinese are now eating outside the home in restaurants, hence dining out caused their FAFH expenditure to increase from 5.03% in 1992 to 14.7% in 2002 (Insik Min, 2004). Nigeria, a nation that was formerly a producing nation has recently become a consuming nation due to a shift in focus from agriculture to oil sector in the 1970s. Hence the prices of agricultural products as well as manufactured products are skyrocketing on daily basis, and thereby keep the inflation rate on two-digits. The current inflation or high price of commodity in Nigeria has compelled more married women to seek paid employment as a means of augmenting the family income and thus improve the standard of living of the family which may result in irregularities of food eating at home (Odukoya, 2005). A similar consequence is the consumption of food way from home by children while in and out of school.

One major characteristics of consumption pattern in many countries as the economies develop is the increasing significance of expenditure on food way from home. According to Ma et al., 2006, FAFH serve as a dynamic stimulant in the development of industries such as those related to hotels, restaurants, and other institutions (HRI) in the food sector. Nayga and Capps, 1992 attributed the emergence and growth of FAFH expenditure to factors such as greater proportion of women participating in the labor market, which raises the opportunity cost of home production of food and the demand for greater variety by consumers. Growth in FAFH consumption has been associated with increase in household income. Research reports on FAFH in many countries sch as as Spain (Angulo, Gil, and Mur, 2002), Malaysia (Lee and Tan, 2006) and China (Ma et al., 2006, Bai et al., 2008).

According to Jayachandran et al (2005), FAFH tends to be less nutritious and higher in calories than foods prepared at home. Also, eating away from home has been linked to over weight and obesity in adults and children, food poisoning through microbiological contamination, improper use of additives



and the presence of other adulterants and environmental contaminants (FAO, 1995). Shiferaw et al, 2000 discovered that consumers of FAFH are susceptible to food borne diseases arising from the consumption of high-risk food and unsanitary food handling practices. Jayachandran et al (2005) also alluded to the 1994 National Labeling and Education Act (NLEA) which requires manufacturers to include a nutrition information panel on the label of almost all packaged foods but it does not require any similar disclosure for foods purchased at restaurants, canteens etc (Food-away-from-home). The lack of nutrition information for FAFH means that if consumers misjudge the nutrient content of meals eaten out, they may inadvertently over consume some nutrients and under consume others. They also discovered that FAFH commands a large and increasing share of total food expenditures.

The World Health Organization (WHO) in 1996 gave out guidelines on safety requirements for street vended foods in order to ensure that safe street foods are consumed worldwide. Meanwhile, before then the Nigerian government had adopted certain laws like the Nigerian public health law of 1957 and the foodstuffs and regulated premises adoptive bye-laws of 1957, all aimed at ensuring food safety. However, the level of awareness, compliances and enforcement of these guidelines and laws among the general public most especially away-from-home food vendors are not known.

Recently in Nigeria, there is a rapid increase in the number of fast foods joints, commercial food centers (restaurants, canteens and bukateria), food hawkers and street vendors. Despite this discovery, little or no research have been done on the consumption patterns (in terms of how much is spent on FAFH), what kinds of food are eaten outside the home, reasons for eating outside, which facilities are visited most and the factors that determine FAFH expenditure. Hence, the objectives of this study are to (a) characterize the FAFH consumption expenditure pattern in Lagos (b) identify factors that affect FAFH; and (c) estimate the responsiveness of FAFH to changes in consumer income and selected household socio-economic characteristics.

Methodology

This study was conducted in Lagos metropolis. Lagos is small in land area but with a high population density owing to the fact that Lagos is the nerve center of commercial and industrial activities in Nigeria. Primary data employed for this study was obtained through a multistage sampling technique. The first stage was a random selection of four local government areas amongst the twenty local government areas in Lagos state. Two local government areas were selected in the heart of Lagos while the other two were selected in the peri-urban of the state.

Model Specification

t-test of difference of two means, Probit and the Tobit regression models were employed for the data analysis. The t-test was employed to authenticate significant difference between household expenditure on Food at home and food-away-from-home.

$$H_o = H_0: X_1 = X_2$$

$$H_a: X_1 \neq X_2$$

The test statistics, given the large sample ($n = 120$) involved in this study is the Z-statistics.

$$Z_c = \frac{X_1 - X_2}{\sqrt{S_1^2/n_1 - S_2^2/n_2}}$$

Where:

X_i = Mean of the variables (expenditure, age, sex, education etc) for the ith food category.

$i = 1$ for FAH and $i = 2$ for FAFH.

s_i^2 = Variance of the household expenditure on the ith food category.

n_i = Sample size of the ith food category.



The null hypothesis of no significant difference in the mean household expenditure on FAH and FAFH will be rejected if $|Z_c| > Z_{1-\alpha/2}$, otherwise, we fail to reject H_0 .

TOBIT MODEL FOR DETERMINANTS OF FAFH EXPENDITURE

This study is essentially an attempt to explain a two-stage decision process- the choice of food commodities purchased by households (FAFH or FAH or both) and the extent of expenditure on each of these commodities. Theoretically, studies of this type should entail the use of a binary choice probability model (Probit or logit) to analyze the first stage problem of commodity choices, while some other forms of regression models (typically censored or truncated regression) may then be used to analyze expenditure levels. The need for some form of censored regression arises because expenditure estimates are only permitted to take on non-negative values. Thus, in this study, Tobit model was used to analyze the influence of selected household characteristics on FAFH expenditures. The Tobit procedure combines both the probit and censored regression in one model (McDonald and Moffit, 1990) and has been widely used in similar studies elsewhere (McDowell et al, 1997).

The Tobit model may be expressed as follows-

$$y_i = \begin{cases} x_i \beta + u_i & \text{If } x_i \beta + u_i > 0 \\ 0 & \text{If } x_i \beta + u_i \leq 0 \end{cases} \quad i = 1, 2, \dots, N$$

Where N is the number of observations, y is the dependent variable, x_i is a vector of explanatory variables, β is a vector of unknown coefficients, while u is an independently distributed error term assumed to be normally distributed with zero mean and a constant variance (σ^2) (McDonald and Moffit, 1990).

Mathematically, the empirical model for the study is given as:

$$y_i = b_0 + \sum b_{ki} X_{ki} + e_i; \quad i = 1, 2, \dots, n \quad \text{and } k = 1, 2, \dots, k$$

Where- y_i is the i th household's monthly expenditure on FAFH; X_{ki} is the value of the k th explanatory variable in the i th household. The operational definitions of the variables in the model are as follows:

- Y = FAFH Expenditure (₦/month)
- X_1 = Household income (₦/month)
- X_2 = Age of household head (years)
- X_3 = Gender of household head, Male = 0 and Female = 1
- X_4 = Educational level of household head (years of formal schooling)
- X_5 = Marital status of household head, 0 if married and 1 if otherwise.
- X_6 = Household size.
- X_7 = Proportion of children below 10 years in the household.
- X_8 = Proportion of adolescents, 10 - <18 years, in the household.
- X_9 = Proportion of females in the household.

The parameters of the model were estimated using the Tobit regression procedure in appropriate econometric software.

Results and Discussions

Socio-economic characteristics of the FAFH consumers

The modal age group of the FAFH consumers is 31-40 years, indicating that relatively young folks consume away from home which might not be unconnected with the nature of their jobs which take them away from home for almost 24 hours. The results also show that males consume more FAFH than their female counterparts and in the same vein the literate respondents expend more on FAFH than the illiterates. Majority (61.3%) of the FAFH consumers are civil servants and businessmen. These two



categories are likely to consume more of FAFH due to the tight schedule of the businessmen and the time constraint of the civil servants who are under obligation to resume very early at their duty posts. The socio economic characteristics of FAFH consumers are presented in Table 1.

Probit regression result on the choices of Bolus, Non bolus and Snacks

The influence of socio-economic variables on the choice of FAFH was viewed globally, (that is consumption of all types of food away from home). Specifically, the influence of household characteristics on bolus, non-bolus and snacks and other fast foods was also examined. The results are presented in Table 2. The result shows that the household size of the respondents and the proportion of adults in the household are the significant variables that determine the choice of FAFH consumption. It is evident that the likelihood of FAFH consumption predominantly decreases as household size increases; on the other hand FAFH consumption predominantly increases with the proportion of adults in an household. However, the response to change in household size is very inelastic in comparison with proportion of adults. The result also indicates that the educational level, household size and the proportion of adults in the household are the significant variables that influence the probability of non-bolus consumption. The probability of consuming non-bolus decreases with increase in household size and educational status while the probability increases with the proportion of adults. In the same vein the likelihood of consuming bolus away from home declines with household size, however, the response of household size to the consumption of bolus is less inelastic than its response to the consumption of non-bolus. The likelihood of consuming snacks away from home is determined by sex and proportion of adults. The likelihood of snack consumption increases with the proportion of adults and males have higher probability of consuming snacks away from home than their female counterparts.

Tobit regression result on the Expenditures on Food-Away-From-Home (FAFH)

The socio-economic characteristics influence on the expenditures on food away from home is presented in Table 3. The major determinants of the FAFH consumption in Lagos metropolis are sex, the household size and the proportion of adults in the household. The coefficients of sex of the respondents is significant at 5% while that of household size and the proportion of adult in the household are significant at 10%. The coefficients of sex and proportion of adults are positive indicating that men consumed more FAFH than their female counterparts while the higher the proportion of adults in a household the greater the consumption expenditure on FAFH. The coefficient of household size on the other hand is negative, indicating that consumption of FAFH declines with increase in household size. This is contrary to expectation but it is plausible because larger household might imply more hands will be available to do the home chores, which include cooking. The insignificant effect of household income on consumption of food away from home is in consonance with the findings of McCracken and Brandt (1998).

Tobit regression result on the Expenditure on bolus, non-bolus and snacks

The effect of socio-economic characteristics on the FAFH consumption expenditure was decomposed into consumption of bolus, non-bolus and snacks with the aim of specificity of their determinants. The results are presented in Table 4. Sex of the consumers, the household size and the proportion of females in the household are the significant variables that determine the consumption of bolus outside the home while the consumption of non-bolus are influenced by the proportion of adults in the household and the proportion of females in the household. Consumption of snacks outside home however is significantly determined by sex only. The coefficients of the household size and proportion of females have expected negative sign, thereby indicating that consumption of bolus away from home declines with increase in household size and proportion of females in the household. This might not be unconnected with the fact that large household size and high proportion of females indicate that the household has labour requirement for the preparation of the bolus, which in the southern part of Nigeria is assumed to be the



sole responsibility of females. This finding is in consonance with the finding of McCracken and Brandt, (1987). On the other hand the expenditure on non-bolus away from home is significantly and positively influenced by proportion of adults and females. This implies that consumption of bolus away from home increases with increase in proportion of adults and proportion of females in an household.

The positive coefficient of sex in snacks consumption away from home in line with apriori expectation indicates that females consumed more snacks outside home than their male counterparts. The results of this study agree with the findings of Allhouse, (2001).

Conclusion and Recommendations

Generally the level of expenditure on food away from home was influenced by sex; the household size and the proportion of adults in the household, when decomposed into bolus, non-bolus and snacks, the results indicate that sex, household size and the proportion of females in the household are the significant variables that influence the level of expenditure on bolus while the proportion of adults in the household and the proportion of females in the households affects the level of expenditure on non-bolus and only the sex of the consumers determine the level of expenditure on snacks. Females in Nigeria should reduce their consumption of snacks and thereby reduce the danger of obesity associated with the high consumption of snacks and in addition there is the need for the women to lay more emphasis on food at home to enable them to teach the younger folks how to cook several dishes.

The present day increase in the numbers of FAFH consumers in Nigeria necessitates the need for appropriate government agency to ensure the establishment of standardized food facilities for FAFH to monitor the preparation of FAFH and the safety of FAFH.

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Annexure

Table 1: Socio-economic characteristics of FAFH Consumers

VARIABLES	FREQUENCY	PERCENTAGE
Age (Yrs)		
30 or less	21	26.3
31 – 40	29	36.3
41 - 50	18	22.5
51 – 60	12	15.0
Sex		
Male	48	60.00
Female	32	40.00
Marital Status		
Single	19	23.8
Married	52	65.0
Divorced	4	5.0
Widowed	5	6.2



Educational Status		
No formal education	4	5.0
Primary education	23	28.8
Secondary education	34	42.5
Tertiary	19	23.8
Household Size		
1 – 3	34	42.5
4 – 6	35	43.8
7 and above	11	13.8

Table 2: Probit Regression Result for bolus, non-bolus and snacks

Variables	Coefficients for bolus	Marginal effects	Coefficients for non-bolus	Marginal effects	Coefficients for snacks	Marginal effects
Constant	3.3402** (2.4650)		0.38184 (0.39518)		-0.68493 (-0.55382)	
Income	- 0.00073 (- 0.33403)	- 0.00025	-0.00190 (-1.0322)	-0.00056	-0.00132 (-0.58586)	-0.00049
Age	- 0.02048 (-0.76232)	- 0.71973	-0.00324 (-)	-0.00309	-0.00632 (-0.23423)	-0.00233
Sex	- 0.02037 (- 0.58787)	- 0.70386	(- 0.16018)	0.07958	0.54548* (1.6508)	0.20117
Singles	0.02228 (0.35274)	0.00770	0.30450 (1.1495)	-0.03167	-0.14273 (-0.23388)	-0.05264
Educational level	-0.07023 (-1.3402)	0.002426	0.26264 (0.53607)	-0.03936	0.04345 (0.96993)	0.01603
House hold size	- 0.20977** (- 1.9615)	- 0.07246	-0.01292 (- 0.39616)	-0.13325	-0.12140 (-1.0070)	0.04477
Paid employment	- 0.40749 (-1.0707)	- 0.14076	-0.11920 (- 1.2998)	-0.10159	0.10123 (0.27800)	0.03733
Artisan	0.60955 (0.08444)	0.02106	(- 0.02647 (0.09167)	0.05620	0.52786 (0.82918)	0.19467
Proportion of Children	0.00003 (0.00003)	0.00001	-0.00969 (- 0.01869)	0.14006	0.87535 (0.76058)	0.32282
Proportion of Adult	1.4135 (1.3766)	0.048824	(- -0.09102 (- 0.10053)	0.94226	2.1495** (2.0364)	0.21201
Proportion of females	- 0.22345 (-0.33800)	- 0.07719	0.83667* (1.6791)	0.39128	0.57487 (-0.91357)	
Log likelihood	- 50.446		-495.131		-52.387	

Figures in parentheses are t-values



Table 3: Tobit regression result on the Expenditure on FAFH

Variables	Coefficient
Constant	1.1791 (1.2662)
Income	-0.00170 (-0.99505)
Age	0.00114 (0.059104)
Sex	0.63971** (2.4476)
Singles	-0.01972 (-0.04233)
Educational level	-0.01442 (-0.45408)
House hold size	-0.14930* (0.08315)
Paid employment	0.12038 (0.43376)
Artisan	-0.02601 (-0.05247)
Proportion of Children	0.41143 (0.48332)
Proportion of Adult	1.4390* (1.8721)
Proportion of females	-0.14753 (-0.30305)
Log likelihood	-636.90616

Figures in parentheses are t values



Table 4: Tobit regression result on the expenditure on bolus, non-bolus and snacks

Variables	Coefficients for bolus	Coefficients for non-bolus	Coefficients for snacks
Constant	1.6109 (1.6926)	0.38184 (0.39518)	-0.60635 (-0.52900)
Income	-0.00027 (-0.15682)	-0.00190 (-1.0322)	-0.00168 (-0.78184)
Age	0.00514 (0.26199)	-0.00324 (-0.16018)	-0.00663 (-0.26931)
Sex	0.52776** (1.9580)	0.30450 (1.1495)	0.51097* (1.7604)
Singles	0.00167 (0.00351)	0.26264 (0.53607)	-0.42815 (-0.76261)
Educational level	-0.04931 (-1.5161)	-0.01292 (-0.39616)	0.04528 (1.1113)
House hold size	-0.18631** (-2.1545)	-0.11920 (-1.2998)	-0.07857 (-0.78239)
Paid employment	0.01552 (0.05494)	0.02647 (0.09167)	0.10221 (0.30904)
Artisan	-0.25195 (-0.49666)	-0.00969 (-0.01869)	0.52338 (0.93049)
Proportion of Children	1.0889 (1.2442)	-0.09102 (-0.10053)	0.08030 (0.07785)
Proportion of Adult	0.52456 (0.66911)	1.9657** (2.4105)	1.4341 (1.5848)
Proportion of females	-0.86731* (-1.7062)	0.83667* (1.6791)	-0.27469 (-0.47817)
Log likelihood	-535.74336	-495.13141	-305.41573

Figures in parentheses are t-values