

Consumer Purchasing Behaviour for Fruits and Vegetables among Civil Servants in Essien Udim Local Government Area, Akwa Ibom State, Nigeria

Ohen, S. B.^{1*} Umeze, G. E.² Inyang, E. O.³

1. Department of Agricultural Economics and Extension, Faculty of Agriculture, University of Calabar, Calabar, Nigeria
2. C/o Department of Agricultural Economics and Extension, Faculty of Agriculture, University of Calabar, Calabar, Nigeria
3. C/o Department of Agricultural Economics and Extension, Faculty of Agriculture, University of Calabar, Calabar, Nigeria

*E-mail of corresponding author: suzyben01@yahoo.com

Abstract

Despite the increased awareness of the importance of fruits and vegetables to healthy living, low fruit and vegetable intake has been a widespread characteristic among Nigerians. The purpose of this study was to analyze the determinants of consumer purchasing behaviour for fruits and vegetables in Essien Udim Local Government Area in Akwa Ibom State, Nigeria. Its objectives were to determine the socio-economic characteristics of the respondents, assess the various factors responsible for consumption and preference, quantify the impact of determinants influencing the frequency of fruits and vegetables purchase, as well as make suggestions and recommendations based on the findings. To achieve the purpose of this study, a multi stage sampling was used. Purposive sampling technique was used to draw sixty-five respondents from an already stratified sample according to the grade level of civil servants. Primary data were collected using semi-structured questionnaire. The data collected were analyzed using simple statistical techniques such as frequency and percentages. Polychotomous ordered probit regression model was also employed. Results from the ordered probit regression indicated that frequency of monthly purchase of fruits and vegetables was significantly determined by the monthly income while other variables such as age, sex, marital status and educational level had no significant effect on the frequency of monthly purchase. Hence, government should lay more emphasis on increasing the per capita income of low income earners and also focus more on increasing local production of these food items in order to ensure their availability at affordable prices.

Keywords: Determinants, Consumer Behaviour, Fruits and Vegetables, Consumer Preference

1. Introduction

A modern food consumer is highly concerned about the safety and quality of the food products purchased. This concern goes simultaneously with their awareness of the relationship between the production practice and quality of food products, as well as environmental concern in regards to food. Moreover, the awareness has contributed towards growing demand for food from non-conventional production practices as well as an increasing consumer interest in having a closer relationship with food producers (Wier, Hansen, Anderson and Millock, 2003; Vermeir & Verbeke, 2006). Research has provided convincing evidence to support the premise that diets rich in vegetables confer health benefits and may even be protective against the risk of different types of diseases such as cancer, stroke and diabetes (Van and Pivonka 2000; Stan, Kar, Stoner, Singh, 2008). In addition to this, the World Health Report (2002) has shown that low fruit and vegetable intake is estimated to cause about 31% of ischemic heart disease and 11% of stroke worldwide. However, it is estimated overall that up to 2.7 million lives could be saved potentially each year if fruit and vegetable consumption was sufficiently increased.

According to Connor, (1994), there is an increased awareness of the importance of a healthy diet and positive perception of fruits and vegetables. There is a great amount of research work attributed to the attitudes of consumers towards safe food, both in broad sense and with a particular accent towards organic fruits and vegetables (Torjusen, Sangstad, O'Doherty-Jensen and Kjaernes, 2004; Yiridoe, Bonti-Ankomah and Martin 2005). However, a rapid growth in demand and production of these food categories necessitate continuous research in order to document and understand the evolution of the markets. The necessity to investigate consumer's attitudes towards these food categories is even more expressed in the case of countries where the corresponding markets have emerged only relatively recently. In this case, the underlying knowledge regarding consumer attitudes, perception and behaviour in relation to organic fruit is rather insufficient.

According to Simonne, Behe, Gregg, Duck and Walden (2006), consumers in different regions place differing levels of importance on the many quality characteristics of fruits and vegetables and it was observed that price and variety were the two main attributes of importance to vegetables such as tomato in Nigeria, with younger and less price sensitive consumers placing more importance on other attributes such as production methods. Hence, the key factors influencing purchase of safe vegetables in Nigeria were income, pesticide residue awareness, education and age whereas consumer's willingness to pay (WTP) for pesticide-free fresh fruits and vegetables was significantly and positively related to income and risk concern and negatively related to education (Boccaletti and Nardella 2000).

1.1 Statement of the Problem

Fruits and vegetables are generally high in vitamins and mineral although they are relatively expensive due to their cost of production as well as high consumer demand. Increasing consumption of fruits and vegetables are encouraged as part of a healthy diet that will lead to lower personal and social health costs.

Despite the importance of fruits and vegetables as a component of a healthy diet, most urban households in the study are unable to afford the required quantity of fruits and vegetables per day since they are regarded as poor people with low per capita income and since the commodities attract high prices.

According to FAO (2003), increased fruit and vegetable consumption has been established as a global priority. Low consumption of these food items have resulted in heavy carbohydrate intake which can only supply the body with energy while other essential elements are lacking. In spite of the numerous fruit and vegetable sources, there is still a short fall in consumption/intake in the country and such shortfall have resulted in pronounced malnutrition, infant mortality and some chronic diseases such as diabetes mellitus, cancer, cardiovascular diseases and obesity.

Based on the information above, this research will seek to address the following research questions:

1. Among fruits and vegetables which of them do consumers' purchase most?
2. What are the factors limiting increased consumption of fruits and vegetables?
3. To what extent do factors such as age, sex, educational level, marital status and monthly income affect the purchasing behaviour of the consumer?

1.2 Objectives of the Study

The main objective of this study is to identify the factors affecting consumer purchasing behaviour for fruits and vegetables in Essien Udim Local Government Area in Akwa Ibom State.

The specific objectives are to:

- Determine the socio-economic characteristic of the respondents.
- Assess various factors responsible for consumption and preference by fruit and vegetable consumers.
- Quantify the impact of determinants affecting the purchase of fruits and vegetables in the study area.
- Make suggestions and recommendations based on the findings.

2. Methodology

2.1 Study Area

The study was carried out in Essien Udim Local Government council of Akwa Ibom State which lies within latitude 5°08'N and longitude 7°41'E. Essien Udim by all standards is a rural community. Before the civil war, the portion described as central Annang, with its full autonomy as a council was merged with Ikot Ekpene urban and Otoro country council. Essien Udim was created out of this structure on May 3rd 1989, deriving its name from the two units of Essien Annang and Udim. Essien Udim has a total of 135 villages and 10 wards. The population of the local government as given by 2006 census report is 193, 257; male 97, 888 and female 95, 369. It is bounded by Abia State to the North and West, on the East by Ikot Ekpene and Ikono Local Government Area while on the South, it bordered by Abak and Etim Ekpo Local Government Area. The study area is inhabited by civil servants and the major economic activities include farming, trading, tailoring, welding, carpentry, hair-making and printing.

2.2 Research Design and Sampling Procedure

The research population comprises male and female civil servants in the local government council. The study adopted a multi sampling technique where the sample was purposively drawn from a stratified sampling technique which was employed in selecting the respondents (staff) of different salary levels to be interviewed. The two strata identified were: the high and low income level (high income earners, grade level 07-15 or step 01-15 and low income earners grade level 01-06 or step 01-15). A total of 65 questionnaires was administered, 40

among high income earners and 25 among low income earners. The reason for limiting this study to this establishment is because they are composed of different categories of income level and they have standardized income structure which could be verified and again since it is a government establishment, they are enlightened and are relied upon to give fairly accurate responses.

2.3 Data Collection

The study used primary data obtained from a semi-structured questionnaire and administered over a span of three weeks in the respondents' offices. The questionnaires were used to seek wide range of information including socio-demographic details of the respondents, household description, general dietary patterns and lifestyle determination, overall fruit and vegetable purchasing behaviour, household's fruit and vegetable self-sufficiency level; acquaintance, beliefs and perception of fruits and vegetables. Secondary sources of data were obtained from annual reports and published materials such as journals, magazine, internet and text books.

2.4 Data Analysis

The data was analyzed using descriptive and inferential statistics. Objective 1 and 2 were analyzed using mean, frequencies and percentages in the presentation and discussion of the tables. To analyze the factors influencing consumer purchasing behaviour for fruits and vegetables, a four point likert scale was used. The responses were ranked into Not At All Important, A Little Important, Important and Very Important. Nominal values of 1, 2, 3 and 4 were assigned to the ranks respectively. Objective 3 was analyzed using probit regression model.

2.5 Model Specification

The model specification developed is known as consumers' choice model and this model satisfactorily fulfills the criterion which falls within the group of models of qualitative choice. The ordered probit model can be specified as a latent regression thus:

$$Y_1^* = \beta^1 X_i + \varepsilon$$

Where Y_1 = Frequency of Monthly Purchase (₦/kg)

β' = Vector of unknown parameters

X_1 = Sex of the respondent (Male or Female)

X_2 = Respondent's marital status (Single, married, divorced).

X_3 = Age of the respondent (years)

X_4 = Household size (number)

X_5 = Educational level of the respondent (years)

X_6 = Respondent's monthly income (₦ Naira)

This model was used due to the fact that the explained (or predicted) variable is polychotomous, within three outcomes from frequency of purchase monthly namely 'daily', '2-3 times a week' and 'weekly'. Responses were modeled on independent or explanatory variables which can either be factors or categorical covariates such as sex, marital status and educational level while the continuous covariates are age, income and household size. Several explanatory variables which are believed to have an influence on the frequency monthly purchase of fruit and vegetables are included in this analysis based on the findings in the literature. Hence, such explanatory variables that are expected to cause a variation in the dependent variable are sex which is a categorical covariate with an indeterminate a priori sign, age is a continuous covariate with an indeterminate a priori sign, marital status which is a categorical covariate with an indeterminate a priori sign, educational level is a categorical covariate with a positive expected sign, and monthly income is also a categorical covariate with a positive expected sign.

3. Results and Discussion

3.1 Sex of Respondents

Table 3.1: Distribution of Respondents based on Sex

Gender (Sex)	Frequency	Percentage
Male	25	38.46
Female	40	61.54
Total	65	100

Source: Field Survey, 2012.

Table 3.1 shows that 61.54 percent of the respondents are female while 38.46 percent are male. Hence, the table

shows an unbalanced gender structure which implies that there are more female workers than male in the Local Government Area.

3.2 Marital Status

Table 3.2: Distribution of Respondents based on Marital Status

Marital Status	Frequency	Percentage
Single	15	23.08
Married	38	58.46
Divorced	8	12.31
Widow	4	6.15
Total	65	100

Source: Field Survey, 2012.

Table 3.2 revealed that 23.08 percent of the respondents were single, 58.46 percent were married, 12.31 percent were divorced and 6.15 percent were widows. The implication of having married as the status with the highest percentage is that the purchase of fruits and vegetables will be influenced positively since married couples tend to have a larger number of persons in the same household.

3.3 Age of Respondents

Table 3.3: Distribution of Respondents based on Age

Age Bracket (Years)	Frequency	Percentage
20-30 years	28	43.08
31-40 years	22	33.85
41-50 years	10	15.38
51-60 years	5	7.69
Above 60	Nil	-
Total	65	100

Source: Field Survey, 2012

Table 3.3 shows that majority of the sampled respondents were within the age bracket of 20 – 50 years with 92.31 percent followed by the ageing group (51 -60 years) representing 7.69 percent. There is no respondent above 60 years of age. The larger percentage of the respondents (20-50 years category) are still physically and psychologically active, thus are more likely to have varying preference for fruits and vegetables. However, this age bracket of 20-50 years preferred fruits such as pineapple, apple, and watermelon whereas those between 51-60 years preferred orange, banana and paw-paw which are cheap and easily affordable. With the following result, it indicates that the study area is made up of energetic people who have high propensity to consume and also developed a strong preferential and taste habit that could go a long way in influencing their consumption pattern and habit for fruits and vegetables.

3.4 Household Size

Table 3.4: Distribution of Respondents based on Household Size

Household Size (Number)	Frequency	Percentage
0 – 2	9	13.85
3 – 5	18	27.69
6 – 8	32	49.23
9 – 10	5	7.69
Above 10	1	1.54
Total	65	100

Source: Field Survey, 2012.

Data from Table 3.4 shows the distribution of household size and its corresponding percentages. The table shows that the household size of 0-2 members has 13.85 percent, 3-5 has 27.69 percent, 6-8 has 49.23 percent which constitute the largest number of members. Also the household size of 9-10 persons has 7.69 percent, and above 10 members has 1.54 percent. According to Aromolaran (1999), the larger the size of a family, the more their demand for fruits and vegetables will increase. The household size with the largest number of members are more likely to be comprised of both educated, high income earners, married couples with children and young people whose preferences for fruit and vegetables are very high.

3.5 Educational Level

Table 3.5: Distribution of Respondents based on Educational Level

Educational Level	Frequency	Percentage
M.Sc	7	10.77
B.Sc	37	56.92
HND	12	18.46
OND	8	12.31
SSCE	1	1.54
Total	65	100

Source: Field Survey, 2012.

Table 3.5 above shows that 10.77 percent of respondents had M.Sc (Masters), 56.92 percent had B.Sc, 18.46 percent had HND, 12.31 percent had OND while 1.54 had SSCE. The table above indicates that higher educational level (B.Sc) is a yardstick for gainful employment in the establishment. The fact that all the respondents are educated implies that they are likely to appreciate the importance of fruits and vegetable intake.

3.6 Monthly Income

Table 3.6: Distribution of Respondents based on Monthly Income

Monthly Income	Frequency	Percentage
< N20,000	1	1.54
N20,000 – N50,000	8	12.31
N51,000 – N80,000	12	18.46
N81,000 – N100,000	37	56.92
> N100,000	7	10.77
Total	65	100

Source: Field Survey, 2012.

Table 3.6 shows the distribution of respondents according to income categories. High income earners constitute a percentage of 98.46 percent while the low income earners constitute 1.54 percent of the respondents. Analysis from this study showed that high income earners spend more on quality fruits and vegetables due to their higher disposable income whereas the low income earners could not afford such due to the high cost of the items.

3.7 Supplementary Monthly Income

Table 3.7: Distribution of Respondents based on Supplementary Monthly Income

Supplementary Monthly Income (₦)	Frequency	Percentage
< 10,000	5	7.69
10,000 – 20,000	7	10.77
21,000 – 30,000	15	23.08
31,000 – 40,000	30	46.15
41,000 – 50,000	8	12.31
Total	65	100

Source: Field Survey, 2012.

Data from table 3.7 shows that apart from the normal monthly income of the respondent, most of them had supplementary means of livelihood other than their salaries. Thus, such incomes helped in cushioning the effect of harsh economic conditions. Majority of the sampled respondents (46.15 percent) earned between ₦31,000 – ₦40,000 as the highest supplementary monthly income from other sources followed by those who earned between ₦21,000 – ₦30,000 (23.08 percent). 12.31 percent earned between ₦41,000 – ₦50,000, while 10.77 percent earned between ₦10,000 – ₦20,000. 7.69 percent of the respondents earned > ₦10,000 the lowest amount of supplementary monthly income.

3.8 Salary Grade Level and Step

Table 3.8: Distribution of Respondents based on Salary Grade Level and Step

Category of Staff	Grade Level	Step	Frequency	Percentage
Junior staff	01-03	01-08	11	16.92
	04-06	09-15	14	21.54
		Total number of junior staff	25	38.46
Senior staff	07-09	01 – 06	20	30.77
	10-12	07 - 08	13	20.00
	13 and above	09 – 15	7	10.77
		Total number of senior staff	40	61.54
		Total number of staff	65	100

Source: Field Survey, 2012.

Table 3.8 shows the various salary grade levels comprising of senior and junior staff in Essien Udim Local Government establishment. About 61.54 percent of respondents were senior staff while 38.46 percent of respondents were junior staff. Hence, majority of respondents were senior staff of the LGA. The table further revealed that about 16.92 percent, 21.54 percent, 30.77 percent, 20.00 percent and 10.77 percent of the sampled respondents were within the salary grade level 01-03; 04-06; 07-09; 10-12 and above 13 respectively with corresponding steps 01-08; 09-15 for junior staff and step 01-06; 07-08; and 09-15 for senior staff depending on their various grade levels.

3.9 Official Designation and Salary Grade Level

Table 3.9: Distribution of Respondents based on their Official Designation and Salary Grade Level

Respondent's Official Designation	Salary Grade Level	Frequency	Percentage
Head of Department	13 and above	7	10.76
Principal Executive officer	10-12	13	20.00
Administrative officer	08-09	14	21.54
Executive officer	07	6	9.23
Clerical officer	05-06	8	12.31
Clerical assistant	03-04	8	12.31
Messenger	02	8	12.31
Cleaner	01	1	1.54
Total		65	100

Source: Field Survey, 2012.

Table 3.9 shows various respondents' official designation (post) held in the establishment. Hence, majority of the sampled respondents were administrative officers with salary grade level 08-09 followed by principal executive officer with salary grade level 10-12; executive officer with salary grade level 07; clerical officer with grade level 05-06; clerical assistant with salary grade level 03-04; messenger with salary grade level 02 and lastly cleaner with salary level 01 respectively. The table further indicates their frequencies and percentages. Hence, the official designation with the highest percentage was administrative officer with 21.54 percent; followed by the principal executive officer with 20.00 percent; clerical officer with 12.31 percent; clerical assistant with 12.31 percent; messenger with 12.31 percent, head of department with 10.76 percent and cleaner with 1.54 percent respectively.

3.10 Preferential Consumption

Table 3.10: Distribution of Respondents based on Preferential Consumption of Fruits and Vegetables

Fruits	Vegetables
Orange**	Fluted pumpkin+++
Pineapple+++	Green**
Apple +++	Waterleaf**
Banana**	Cucumber+++
Watermelon +++	Tomato**
Paw-paw**	Cabbage+++

Source: Field Survey, 2012

Note: +++ = Most consumed fruits/vegetables
 ** = Least consumed fruits/vegetables

The respondents in the study location showed marked variability in terms of preference, taste, visual attractiveness, price of the product, health, safety considerations, perception and income level of respondents as informed by their decision to consume certain fruits and vegetable sources in preference to others. Consequently, the survey showed that the three most consumed fruits were watermelon, pineapple and apple while the three least consumed fruits were orange, banana and paw-paw. Similarly, the three most consumed vegetables were fluted pumpkin, cucumber and cabbage whereas green, waterleaf and tomatoes were reported as the least consumed.

3.11 Factors that determines the Consumption of their Preferred Food Items

Table 3.11: Ranking of Consumer based on the Factors that determines the Consumption of their Preferred Food Items

Factors	Not At All Important	A Little Important	Important	Very Important	Mean	Rank
Availability within area of residence	1	6	15	43	3.54	1
Visual attractiveness (freshness)	3	5	18	39	3.43	4
General dietary pattern of household	2	8	20	35	3.35	7
Price of item	1	5	19	40	3.51	2
Price of close substitute	2	6	22	35	3.38	6
Household size	12	17	13	16	2.29	10
Health status	1	4	22	38	3.49	3
Marital status	10	15	18	22	2.80	9
Income/salary grade level of respondent	3	7	15	40	3.42	5
Perception and beliefs	4	6	20	35	3.32	8

Source: Field Survey, 2012

Results of the ranking of consumers based on the factors that determine the consumption of the preferred food items in table 3.11 showed that availability within town/area of residence ranked first followed by price of the item and health status. This implies that consumers may consume more if fruits and vegetables are readily available. Next to it was visual attractiveness (freshness), income/salary grade level of the respondent. Household size ranked last among the factor that determines the consumption of this food items.

3.12 Frequency of Monthly Purchase

Table 3.12: Distribution of Respondents based on Frequency of Monthly Purchase of Fruits and Vegetables

Frequency	Number of Respondents	Percentage
Daily	44	67.69
2-3 times a week	12	18.46
Weekly	9	13.85
Every 2 weeks	-	-
Monthly	-	-
Total	65	100

Source: Field Survey, 2012

Table 3.12 shows the frequency of purchases, most respondents indicated that their purchases are done daily with 67.69 percent; 2-3 times a week with 18.46 percent (that is, among the high income earners) while the low income earners purchased weekly with 13.85 percent. There was no respondent who purchased fruits and vegetables either in every 2 weeks or monthly. This implies that respondents are aware of the benefits of fruits

and vegetables.

3.13 Amount Spent on Purchases

Table 3.13: Distribution of Respondents based on the amount spent on purchasing Fruits and Vegetables

Amount Spent (₦)	No of Respondents	Percentage
< 100	1	1.54
101 – 400	8	12.31
401 – 800	12	18.46
801 – 1000	37	56.92
> 1000	7	10.77
Total	65	100

Source: Field Survey, 2012

Data from table 3.13 shows that 56.92 percent of respondents spent between ₦801– ₦1000 on fruits and vegetables in a month. Most low income earners made purchases of about < ₦100 – ₦400 while the high income earners made purchases of ₦801 and above ₦1000. The reason for this disparity may depend on their monthly income, disposable income, family size and the frequency of purchase.

3.14 Determinants of Purchasing Behaviour for Fruits and Vegetables

Table 3.14: Ordered Probit Estimates for Determinants of Purchasing Behaviour for Fruits and Vegetables.

	Variables	Estimates	Std. Error	Wald	Significance
Threshold	FPM = 1	3.223	8.832	0.133	0.715
	FPM = 2	8.817	9.176	0.923	0.337
Locations	Age (1)	-1.623E-15	4.813	0.000	1.000
	Age (2)	1.611E-15	4.029	0.000	1.000
	Age (3)	1.058E-14	8.379	0.000	1.000
	Age (4)	0	-	-	-
	Monthly income (1)	6.019	9.549	0.397	0.529
	Monthly Income (2)	12.101	5.749	4.430	0.035*
	Monthly Income (3)	6.019	3.066	3.855	0.050*
	Monthly Income (4)	0	-	-	-
	Educational Level (1)	-4.121E-15	6.848	0.000	1.000
	Educational Level (2)	0	-	-	-
	Educational Level (3)	0	-	-	-
	Educational Level (4)	0	-	-	-
	Educational Level (5)	0	-	-	-
	Marital Status (1)	9.751e-15	8.899	0.000	1.000
	Marital Status (2)	1.213e-14	8.357	0.000	1.000
	Marital Status (3)	0	-	-	-
	Marital Status (4)	0	-	-	-
	Sex (0)	2.599e-15	3.784	0.000	1.000
Sex (1)	0	-	-	-	
Diagnostic Statistics	Pseudo R2 (cox and snell)	0.815			
	Chi-square	109.702			
	-2log likelihood	30.093			

Source: Field Survey, 2012

Note: *(Significant at 5%), **(significant at 1%)

An ordered probit regression analysis was performed to identify the factors that influence consumer purchasing behaviour for fruits and vegetables.

Diagnostic Statistics/Parameter Estimates

The improvement in fit made by the explanatory variables included in the model is measured by the model chi-square statistics of 109.702, which is significant at the 1% level of probability indicating that the independent variables included in the model jointly predicted the dependent variable in the ordered probit regression

significantly. The strength of association between the dependent and independent variables captured by Cox and Snell pseudo R^2 which its estimated value is 0.815 indicates that the strength of association between the dependent and independent variables is about 82%. Our estimates indicates that only two income coefficients are significant at the 5% level in determining the frequency of purchase of fruits and vegetables in Essien Udim Local Government Area in Akwa Ibom State as high or low consumers.

From table 3.14, we found that the coefficients of monthly income groups ₦20, 000 – ₦50, 000 and ₦51, 000 – ₦80, 000 are positive and statistically significant at the 5 percent level of probability indicating that for every one unit increase in income (that is moving from income level one to income level two), we are likely expecting a 12.101 increase in frequency of monthly purchase if all other variables in the model are held constant. Engel's Law states that demand increases as income increases but as disposable income of a consumer increases the percentage or amount spent on food decreases if all other factors remain constant. In the same vein, moving from income group two to three (via a unit increase), we expect a 6.019 increase in the frequency of purchase monthly if all other variables in the model are held constant.

From the same table, we find that the age of respondent although was said to be a key determinant of frequency purchased monthly, did not significantly affect the consumption of fruits and vegetables in Essien Udim local government area, although age (1) is positive with a negative estimate of -1.623, age (2) and (3) had an in determinant positive sign with an estimate of 1.611 and 1.058 as shown in table 3.14. Generally, literature shows that age increases with a strong varying preferential and taste habit for vitamin sources such as fruits.

It is observed also that marital status 1 and 2 had a positive effect of 9.751 and 1.213 but were insignificant. This implies that both married and single respondents are likely to have larger number of household members thereby influencing that frequency of purchase positively as they tend to consume more fruits and vegetables than the divorced and widow who may decide to live without their household members. Cundiff and Govoni (1980) and Tom (1992) seems to share the view that peer groups such as families who spend considerable time together are of fairly common age and social background as such tends to have similar lifestyle, interest and same pattern of consumption. According to Etim (1998), there has been little research on the relationship between size of family and spending pattern (frequency of purchase). It was found that the number of people in a household appears directly related to the frequency of purchase of fruits and vegetables.

Though Sex (0) had no significant contribution in determining the frequency purchased monthly in Essien Udim Local Government Area, it had a positive effect of 2.599. The gender of the respondents was seen as insignificant because it isn't necessarily a determinant of frequency of monthly purchase. This is so because either male or female can purchase more of fruits and vegetables due to their awareness and perception of how important they are to their health. According to Connor (1994), there is an increased awareness of the importance of a healthy diet and positive perception about fruits and vegetables.

Educational level is an important determinant in determining the frequency of purchase monthly in Essien Udim local government area. Educational level (1) was insignificant and also had a negative effect of -4.121 as shown in table 3.14. Generally, literature shows that educational level is a yardstick for gainful employment in the establishment which in turn increases their frequency of purchase monthly, this is due to the fact that the low income earners had a lower educational level and as such their monthly income was unable to purchase more fruits and vegetables. Hence, there is less likelihood for a low educational level respondent to purchase more fruit and vegetable monthly; instead they tend to meet their needs by engaging themselves in other activities that could bring money to sustain them.

3.15 Location of Purchase

Table 3.15: Distribution of Respondents based on their Location of Purchase

Location	Frequency	Percentage
Farm	9	13.85
Open market	50	76.92
Street hawking	6	9.23
Total	65	100

Source: Field Survey, 2012.

Table 3.15 shows that 76.92 percent of the respondents preferred purchases in an open market reason being that it is readily available or nearer to their residence, 13.85 percent preferred purchases from farm, the reason being that the price is usually low, nearer to their residence and also that the products are usually attractive (fresh) whereas 9.23 percent of the respondents preferred purchasing on street (by street hawkers), the reason is due to the fact that it is nearer to their residence.

4. Conclusion and Recommendations

From the study, it has been revealed that availability within town/area of residence, price of the item and visual attractiveness were the most important factors that influenced the preference for consumption of fruits and vegetables. It was also seen that the frequency of monthly purchase of fruits and vegetables in Essien Udim Local Government Area is determined by their monthly income. Based on the above findings, the following recommendations were made:-

1. Nutrition policy in Nigeria should lay more emphasis on increasing consumer awareness of the benefits of balanced diet and also to build the motivation and skills needed to expand fruits and vegetable intake.
2. Efforts should be made by government towards increasing the salaries of workers (staff) as well as controlling inflation thus increasing their per capita income so as to increase the intake of fruits and vegetables.
3. More studies should be carried out to examine the factors influencing consumer purchasing behaviour for fruits and vegetables and also understanding consumer expectations in terms of product taste, texture, form, price, convenience, quality and safety attributes.
4. Non-governmental outfits and other research firms should develop new and improved fruits and vegetable-based food products that meet consumer expectations and lead to increased fruit and vegetable consumption.
5. Government should implement and evaluate promotional campaigns and education programmes, alongside efforts to increase the availability of and access to fruits and vegetables.

References

- Aromolaro, A. B. (1999). The Nigerian Nutritional Problems. A case study of Ibadan and selected villages M.Sc. Thesis, University of Ibadan.
- Boccaletti, S. and Nardella, M. (2000). "Consumer willingness to pay for pesticide-free fresh fruit and vegetables in Italy" *International Food and Agribusiness Management Review* 3(3):297-310.
- Connor, J. M. (1994). Northern America as a precursor of changes in Western European food purchasing patterns. *European Review of Agricultural Economics*. 11(2):155-173.
- Cundiff, D. and Govoni, A. (1980). *Fundamentals of Marketing*. Prentice-Hall, Englewood Cliff: New Jersey, 128-14.
- Etim, S. J. (1998). Consumers' preference of luxury food items and its underlying basis in Calabar. B.Sc. research project, University of Calabar.
- Food and Agricultural Organization (2003). *Increasing Fruit and Vegetable Consumption Becomes a Global Priority*. (Accessed 07/01). Available at <http://www.foa.org/English/newsroom/focus/2003/fruitveg1.htm>
- Simonne, A. H., Behe, B. K., Gregg, B. M., Duck, M. W. and Walden, R. M. (2006). "Consumers prefer low-priced and high-lycopene-content fresh-market tomatoes". *Hort Technology* 16(4):674-681.
- Stan, S., Kar, S., Stoner, G. D. and Singh, S. V. (2008). "Bioactive food components and cancer risk reduction". *J. Cell Biochem* 104(1):339-56.
- Steele, M. and Odumeru, J. (2004). "Irrigation water as source of foodborne pathogens on fruit and vegetables". *Journal of Food Protection* 67(12):2839-2849.
- Thompson, G. D. and Kidwell, J. (1998). Explaining the choice of organic produce: cosmetic defects, price and consumer preferences. *American Journal of Agricultural Economics*, 80, 277-287.
- Tom, C. (1992). *Basic Marketing Principles and Practice*. (Third Edition). Cassell Publisher Ltd.
- Torjusen, H., Sangstad, L., O'Doherty-Jensen, K., and Kjaernes, U. (2004). *European Consumers' conceptions of organic food: A review of available research*. Oslo, National institute for consumer research.
- Van, D. M. and Pivonka, E. (2000). "Overview of the health benefits of fruit and vegetable consumption for the dietetics professional: selected literature." *J Am Diet Assoc* 100(12):1511-21.
- Vermeir, I. and Verbeke, W. (2006). Sustainable Food Consumption: Exploring the Consumer" Attitude-Behavioural Intention" Gap. *Journal of Agricultural and Environmental Ethics*, 19, 169-194.
- Wier, M. Hansen, L. G., Anderson, L. M. & Millock, K. (2003). Consumer preferences for organic foods. In: *Organic agriculture: Sustainability, markets and policies*. CABI Publishing, 257-271.
- World Health Organization (2002). *The World Health Report: Reducing risks, promoting healthy life*. Geneva 2002, ISBN 9-2415-6207-2.
- Yiridoe, E. K., Bonti-Ankomah, S. & Martin, R. C. (2005). Comparison of consumer's perception towards organic versus conventionally produced foods: a review and update of the literature. *Renewable Agriculture and Food system*, 20(4):193-205.