

## **DETERMINANTS OF HOUSEHOLD CONSUMPTION PATTERN OF SELECTED STAPLE FOODS IN BENDE LOCAL GOVERNMENT AREA OF ABIA STATE, NIGERIA**

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### **ABSTRACT**

*The study ascertained the determinants of consumption pattern of selected staple foods in Bende Local Government Area of Abia state. Primary data were collected using questionnaire from 126 household heads, and were analyzed using descriptive statistics, Ordinary Least Square regression, and Z-test. Findings from the study revealed that the mean age of households' head, households' size, education level of households' head, households' income were 37.60 years, 6 persons, 14.64 years, and ₦47660.04 respectively. The mean differences in household budget and expenditure on rice, garri and yam were (₦268.25), ₦3.17 and ₦33.33 respectively. From the empirical results, the determinants of rice consumption were age of the household heads, household size, education level and income. For garri consumption were age of the household heads, household size, and income. For yam consumption were age of the household heads, household size, education and income. There is a significant difference in the expenditure pattern on rice, garri and yam. The study recommended households should make extra-budget monthly for rice consumption and maintain their monthly budget for garri and yam consumption; policymakers should give consideration to age of household head, gender, household size, marital status, education level and income when formulating policy for the consumption of rice, garri and yam; and government should provide subsidies to farmers for the production of rice, garri and yam, and also encourage farmers to join cooperative society.*

**Keywords:** Determinants, Household, Consumption, Pattern, Staple Foods, Bende

### **INTRODUCTION**

Food is a basic human need and a major source of nutrients needed for human existence. Although food is one of the basic human needs, it has been a great challenge for many nations to satisfy the demand for it. This has led to the development strategies to meet the need of food for ever growing population by many developing nations, however these strategies must not merely be directed at ensuring food security for all but must also achieve the consumption of adequate quantities of safe foods for healthy life (Amao et al., 2006). In Nigeria, food supply is not distributed equally throughout the country, states and sometimes within the households (Iyangbe & Orewa, 2009). In recent years market-driven agriculture has made a significant impact on food consumption pattern of rural households, and urbanization and rising income levels have changed consumption habits of urban households. Moreover, a shift in food preferences and consumption pattern as well as affect nutritional status of the people. For better health and elimination of malnutrition, a diversified and balanced food basket is required (Sangeetha et al., 2013).

Previous studies on agriculture focused on production pattern, crop diversification and their determinants (Chand, 1996; Joshi et al., 2003; Kumar and Gupta, 2015) and nutritionists have emphasized on the consumption of calories, micro and macro nutrients intake and importance of diversified food consumption for better health (Drescher et al., 2007; Lumole, 2013; Viswanathan et al., 2015). A recent study has identified various linkages and pathways between agriculture and

nutritional outcome in South Asia (Pandey *et al.*, 2016). However, information on linkage between food production and consumption pattern seems to be lacking. Several reasons have been given for the shortage of food in the agricultural systems of Africa. In addition, the ever-increasing size of population has put great pressure land and water resources, which are the major agricultural production factors. In fact, future agricultural output will have to be produced with less land and less water and in a resource friendly way. In Nigeria, food production has been adversely affected over the ranging from government policies on agriculture to use of poor inputs. There is therefore need to identify the predominant staple foods consumed and their food consumption patterns in order to assist them improve their welfare.

The broad objective of the study was to ascertain the determinants of consumption of selected staple food in Bende Local Government Area of Abia state. Specifically, the study described the socio-economic characteristic of the household heads; examined the household budgeting and expenditure pattern on rice, garri and yam; ascertained the determinants of consumption of rice, garri and yam. The following hypothesis was tested: to ascertain the significant differences in the expenditure pattern on rice, garri and yam in the study area.

### **METHODOLOGY**

The study was carried-out in Bende Local Government Area (LGA) of Abia State which lies between 5.4309° N, 7.5247° E. Bende is make up of many communities such as Itumbauzo, Uzuakoli, Umuhu-Ezechi, Nkpa, Ozui-Tem, Umu-Menyi, Igbere, Alayi, Ugwueke, and Item. The population of Bende LGA as at 2006 census was 192,621, (National Population Commission, 2006). The rainy season ranges from April to October and the dry season occurs from November to March. The mean annual rainfall ranges from 200mm to 250mm with the southern areas receiving more than the northern areas. The temperature ranges between 22<sup>0C</sup> minimum to 31<sup>0C</sup> maximum. The vegetation is predominantly low land rain forest. Agriculture is the predominant occupation of the people, for almost all the farm families either as primary or secondary occupation. The ecological zone favors the growing of tree crops, roots and tubers, cereals, vegetables and nuts. These crops are grown in small holder plots usually in mixtures of at least two simultaneous crops.

The study employed a multi-stage random sampling procedure. In the first stage involved random selection of six communities from the list of communities in the Local Government. The second stage involved random selection of three villages from the list of villages in each of the selected communities. The third stage involved the selection of seven household from the selected villages making a sum total of one hundred and twenty six household heads. Primary data were collected with structured questionnaire and personal interview form the respondents.

Data were analyzed using descriptive statistics such as mean and percentage as well as inferential statistics which include Ordinary Least Square multiple regression model and Z-test.

The multiple regressions model is expressed explicitly as:

$$Y = B_0 + B_1 X_1 + B_2 X_2 + B_3 X_3 + B_4 X_4 + B_5 X_5 + B_6 X_6 + e_i \quad \text{Eqtn 1}$$

Where:

Y = Rice consumed (Kg); X<sub>1</sub> = Age of household heads (Years); X<sub>2</sub> = Gender (male = 1, female =0); X<sub>3</sub> = Household Size (numbers); X<sub>4</sub> = Marital Status (married = 1, single = 0); X<sub>5</sub> = Education level (Years); X<sub>6</sub> = Income (₦); Bs' = Coefficients and e<sub>i</sub> = error term.

Y = Garri consumed (Kg); X<sub>1</sub> = Age of household heads (Years); X<sub>2</sub> = Gender (male = 1, female =0); X<sub>3</sub> = Household Size (numbers); X<sub>4</sub>= Marital Status (married = 1, single = 0); X<sub>5</sub> = Education level (Years); X<sub>6</sub> = Income (₦); Bs' = Coefficients and e<sub>i</sub>= error term.

Y = Yam consumed (Kg); X<sub>1</sub> = Age of household heads (Years); X<sub>2</sub> = Gender (male = 1, female =0); X<sub>3</sub> = Household Size (numbers); X<sub>4</sub>= Marital Status (married = 1, single = 0); X<sub>5</sub> = Education level (Years); X<sub>6</sub> = Income (₦); Bs' = Coefficients and e<sub>i</sub>= error term.

$$Z_{cat} = \frac{\underline{X}_i - \underline{X}_j}{\sqrt{\frac{S^2 \underline{X}_i}{n_i} + \frac{S^2 \underline{X}_j}{n_j}}} \quad \text{Eqtn 2}$$

Where:

$\underline{X}_i$  = Mean expenditure of ith food item in naira;

$\underline{X}_j$  = Mean expenditure of jth food item in naira;

$S^2 \underline{X}_i$  = The standard deviation of expenditure of ith food item in naira;

$S^2 \underline{X}_j$  = The standard deviation of expenditure of jth food item in naira;

$n_i$  = Number ith food item respondents;

$n_j$  = Number jth food item respondents.

## RESULTS AND DISCUSSION

### Socio-economic characteristics of the household heads

The socio-economic characteristics of the household heads is presented in Table 1.

**Table 1: Socio-economic Characteristic of the household heads in the study area**

<b>Variables</b>	<b>Frequency</b>	<b>Percentage (%)</b>	<b>Means</b>
<b>Age (years)</b>			
25-34	44	34.9	37.60
35-44	53	42.1	
45-54	17	13.5	
55-64	12	9.5	
<b>Household size (No. of persons)</b>			
3-7	99	78.6	6.00
8-12	24	19.0	
13-17	3	2.4	
<b>Education (years)</b>			
Primary	11	8.7	14.64
Secondary	69	54.8	
Tertiary	46	36.5	
<b>Household Income (₦)</b>			

10000-29000	27	21.4	47660.04
30000-49000	42	33.3	
50000-69000	33	26.2	
70000 and above	24	19.0	
<b>Gender</b>			
Male	87	69	
Female	39	31	
<b>Marital status</b>			
Single	29	23	
Married	73	58	
Widow and Divorce	24	19	
<b>Total</b>	<b>126</b>	<b>100</b>	

*Source: field survey data, 2019*

Table 1 above showed the distribution of household head according to age, 34.9% of the household heads were between the ages of 25 – 34, 42.1% which is highest percentage had respondents within the age range of 35 – 44 and the age range of 55 – 64 having lowest percentage rate of 9.5%. The mean value of 37.60 implied that majority of the respondents were in their active age as indicated in the highest percentage (42.1% ) age range 35 – 44 years. This finding is in consonance with Ruel *et al.*, (2005), who found that age bracket of 40 years and above show greater appetite for grains and vegetables in the sub-Saharan Africa.

Majority of the respondents represented by 78.6% indicated that they had a household size that ranges between 3 – 7 persons, 19% had a household size of between 8 – 12 individuals, while only 2.4% had a household size of between 13 – 17 persons. The result showed 8.7%, 36.5% and 54.8% of them attended primary, tertiary secondary schools respectively. This is in line with the research findings of Ruel *et al.*, (2005) where more educated households were found to adopt healthier lifestyles. The exposure of the respondents to secondary and tertiary education signifies the reason behind the individual's maintenance of small to average household size, because they are likely to have the knowledge of family planning and birth control.

The mean household income was ₦47660.04 and majority of the respondents represented by 33.3% had income level that ranges between ₦30000-49000 while 21.4%, 26.7% and 24% had income level that ranges between ₦10000-29000, ₦50000-69000 and ₦70000 and above respectively. Large percentages of the respondents represented by 69% were male with 31% of them being female. This is expected because many households are headed by male in Nigeria. Majority (58%) of the household heads were married.

**Table 2: Household budget and expenditure pattern of the food items**

<b>Variables (Monthly)</b>	<b>Rice</b>	<b>Garri</b>	<b>Yam</b>
<b>Mean household budget on food items (₦)</b>	2692.86	1618.25	1326.19
<b>Mean household expenditure (₦)</b>	2961.11	1615.08	1292.86
<b>Differences between budget and expenditure (₦)</b>	-268.25	3.17	33.33
<b>Percentage of household budget expended (%)</b>	<b>109.96</b>	<b>99.80</b>	<b>97.50</b>

*Source: field survey data, 2019*

Table 2 showed the results of the households budget and expenditure pattern on rice, garri and yam. The percentage budget expended was 109.96% with a budget to expenditure difference of -268.25. This implied that the expenditure on rice exceeded the amount budgeted. This is expected due to instability in price of food items and continuous rise in price. Percentage of household budget expended for the consumption of garri and yam were 99.80% and 97.50% respectively, and the budget to expenditure differences for garri and yam were ₦3.17 and ₦33.33 respectively. This implied that less than the amount budgeted for the purchase of garri and yam was spent respectively. Furthermore, the mean expenditure for the staple food items, rice (₦2961.11) and garri (₦1615.08) were higher than that of yam (₦1292.86). This is consonance with the findings of International Institute of Tropical Agriculture (IITA) (2007) and Nigeria Food Consumption (NFC) 2003 survey who reported that other staples are consumed far more than yam because they are more affordable and available.

### **Determinants of Rice Consumption**

The distribution of households according to rice consumption is presented in Table 3

**Table 3: Determinants of Rice Consumption in the Study Area**

<b>Variables</b>	<b>Linear</b>	<b>Exponential+</b>	<b>Semi log</b>	<b>Double log</b>
<b>(Constant)</b>	270.533*** (7.482)	6.980*** (40.785)	-16783.572*** (-6.378)	1.350* (1.737)
<b>Age of hh head</b>	7.881*** (3.494)	5.051* (1.647)	899.790* (1.363)	0.208 (1.068)
<b>Gender</b>	270.864 (1.225)	0.081 (1.206)	338.583 (1.468)	0.102* (1.498)
<b>Household size</b>	39.106* (1.850)	0.019*** (3.350)	381.495* (1.314)	0.168 (1.958)
<b>Marital status</b>	-21.084 (-0.674)	-0.058 (-0.572)	201.118 (0.639)	-0.014* (-1.155)
<b>Education</b>	-1.019 (-0.028)	0.002* (2.219)	-117.492 (-0.254)	-0.024 (-0.172)
<b>Income</b>	0.042*** (7.614)	1.356E-005*** (8.021)	1508.845*** (6.098)	0.517*** (7.076)
<b>R2</b>	0.530	0.684	0.481	0.563
<b>Adjusted R2</b>	0.506	0.659	0.455	0.541
<b>F-ratio</b>	22.359***	27.196***	18.392***	25.539***

*Source: field survey data, 2019, where \*\*\* significant at 1%, \*\* significant at 5%, \*significant at 10% and hh = Household.*

Table 3 showed the regression results of the determinants of rice consumption in the study area and exponential function was chosen as the lead equation. The F-value was 27.176 and significant at 1%. The coefficient of multiple determination ( $R^2$ ) for linear function was 0.684 which implied 68.4% of the variability in the consumption of rice was explained by the independent variables: age of household head, gender, household size, marital status, education level and income.

The coefficient of age of household head, household size, education level and income were directly related with rice consumption at 10%, 1%, 10% and 1% significant levels respectively. This implied that increase in age, household size, education level and income will increase rice consumption. The finding of age consonance with Ruel *et al.*, (2005), who found that age bracket of 40 years and above show greater appetite for grains and vegetables in the sub-Saharan Africa. The income result is consistent within income theory which states that income is directly related to consumption.

### Determinants of Garri Consumption

Distribution of households according to determinants of garri consumption is presented in Table 4

**Table 4: Determinants of Garri Consumption in the Study Area**

Variables	Linear	Exponential	Semi log	Double log+
<b>(Constant)</b>	1103.797*	6.749***	-6306.326**	1.956***
	(2.037)	(22.952)	(-2.627)	(11.512)
<b>Age of hh head</b>	3.247	-0.002	287.726***	0.041*
	(0.211)	(-0.195)	(3.478)	(1.127)
<b>Gender</b>	-219.084	-0.087	-196.815	-0.071
	(-1.026)	(-0.754)	(-0.936)	(-0.622)
<b>Household size</b>	2.264*	0.015	130.813	12.19**
	(1.051)	(0.636)	(0.494)	(2.659)
<b>Marital status</b>	331.089	0.284	226.462	0.209
	(0.207)	(0.912)	(0.908)	(0.947)
<b>Education</b>	-41.820	-0.022	-595.333	-0.320
	(-1.187)	(-1.151)	(-1.411)	(-1.408)
<b>Income</b>	0.019***	1.283E-005***	770.009***	0.519***
	(3.482)	(4.418)	(3.412)	(4.261)
<b>R2</b>	0.566	0.530	0.613	0.675
<b>Adjusted R2</b>	0.504	0.462	0.551	0.634
<b>F-ratio</b>	9.013	7.781	9.854	15.146

*Source: field survey data, 2019, where \*\*\* significant at 1%, \*\* significant at 5%, \*significant at 10% and hh = Household.*

Table 4 showed the regression results of the determinants of garri consumption in the study area and double log function was chosen as the lead equation. The F-value was 15.146 and significant at 1%. The coefficient of multiple determination ( $R^2$ ) for double log function was 0.675 which implied 67.5% of the variation in the consumption of garri was explained by the independent variables: age of household head, gender, household size, marital status, education level and income.

The variables age of household head, household size and income were positively significant at 10%, at 5% and 10% respectively. This implied that an increase in age of household head, household size and income will lead to increase in the garri consumption in the area. The positive result of income is consistent with Olanyinka and Aminu (2006) who reported that income and other economic factors affect purchases, and by extension affect availability, quantity purchased and subsequently consumed.

### **Determinants of Yam Consumption**

Distribution of households according to determinants of yam consumption is presented in Table 5

**Table 5: Determinants of Yam Consumption in the Study Area**

<b>Variables</b>	<b>Linear</b>	<b>Exponential</b>	<b>Semi log+</b>	<b>Double log</b>
<b>(Constant)</b>	106.568 (0.286)	5.919*** (21.397)	9002.240*** (5.175)	0.534 (0.422)
<b>Age of hh head</b>	-5.774 (-0.545)	-0.010 (-1.219)	117.574** (2.269)	-0.163 (-0.513)
<b>Gender</b>	68.897 (0.469)	0.103 (0.941)	102.249 (0.671)	0.131 (1.177)
<b>Household size</b>	50.951** (1.668)	0.045* (1.965)	331.931* (1.730)	0.313** (2.244)
<b>Marital status</b>	76.843 (0.407)	0.116 (0.826)	-4.788 (-0.023)	0.048 (0.317)
<b>Education</b>	5.827* (1.240)	0.010 (0.559)	68.409* (1.524)	0.083 (0.373)
<b>Income</b>	0.024*** (6.488)	1.797E-005*** (6.577)	850.811*** (5.202)	0.677*** (5.694)
<b>R2</b>	0.442	0.460	0.578	0.432
<b>Adjusted R2</b>	0.414	0.433	0.557	0.404
<b>F-ratio</b>	15.717**	16.881**	27.207***	15.108***

*Source: field survey 2019, where \*\*\* significant at 1%, \*\* significant at 5%, \*significant at 10% and hh = Household.*

Table 5 showed the regression results of the determinants of yam consumption in the study area and semi log function was chosen as the lead equation. The F-value was 27.207 and significant at 1%. The coefficient of multiple determination ( $R^2$ ) for semi log function was 0.578 which implied 57.8% of the variation in the yam consumption was accounted for by the independent variables: age of household head, gender, household size, marital status, education level and income.

The coefficients of age of household head, household size, education level and income were 117.574, 331.031, 68.409 and 850.811 at 5%, 10%, 10% and 1% significant level respectively.

This implies that age of household head, household size, education level and income had direct relationship with yam consumption in the study area. Hence, an increase in age of household head, household size, education level and income will increase the yam consumption by households. This result is equally consistent with the views of Kotler and Keller (2007), who observed that consumption patterns and taste in food are often shaped by the family life cycle, and the number, age and gender of people in the household and occupation (income).

**Comparism monthly expenditure pattern on rice and garri, rice and yam, and garri and yam**

Distribution of households according to their monthly expenditure pattern on rice and garri, rice and yam, and garri and yam is presented in Table 6

**Table 6: Compare the monthly expenditure pattern on rice and garri, rice and yam, and garri and yam**

<b>Variables Pair</b>	<b>Mean (₦)</b>	<b>Standard deviation</b>	<b>Std. Error mean</b>	<b>z</b>
<b>Monthly expenditure on rice and garri</b>	1346.03***	1477.09990	131.59052	10.229
<b>Monthly expenditure on rice and yam</b>	1668.25***	1142.86663	101.81465	16.385
<b>Monthly expenditure on garri and yam</b>	322.22***	951.03219	84.72468	3.803

*Source: field survey 2019. \*\*\*= significant at 1%.*

Table 6 above showed the comparison of monthly expenditure of household on rice and garri, rice and yam, and garri and yam. The mean of household expenditure pattern on rice and garri was ₦1346.03 and it was significant at 1%. This implies that there is a significant difference in the household expenditure pattern on rice and garri. The mean of household expenditure pattern on rice and yam, and garri and yam were ₦1668.25 and ₦322.22 respectively, and were significant at 1%. This implies that there is a significant difference in the household expenditure pattern on rice and yam as well as on garri and yam.

**CONCLUSION**

The households in the study area spend more of the amount they budgeted monthly on rice and less of it on garri and yam. From the empirical results, the determinants of rice consumption were age of the household heads, household size, education level and income. For garri consumption were age of the household heads, household size, and income. For yam consumption were age of the household heads, household size, education and income. There is a significant difference in the expenditure pattern of rice, garri and yam.



## **RECOMMENDATIONS**

The study recommended the following:

- i. Households should make extra-budget monthly for rice consumption and maintain their monthly for garri and yam consumption.
- ii. The study recommended policymakers should give consideration to age of household head, gender, household size, marital status, education level and income when formulating policy for the consumption of rice, garri and yam in the study area.
- iii. Government should provide subsidies to farmers for the production of rice, garri and yam, and also encourage them to join cooperative society.

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