



**INFLUENCE OF SOCIO-ECONOMIC FACTORS ON MONTHLY FOOD
EXPENDITURE PATTERN AMONG HOUSEHOLDS IN NASARAWA STATE,
NIGERIA**

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ABSTRACT

The study examined the influence of socio-economic factors on food expenditure patterns among households in Nasarawa State of Nigeria. In order to achieve this, 180 respondents were randomly selected from three Senatorial zones of Nasarawa State. Data were collected through a structured questionnaire and analyzed using descriptive statistics, and logistic regression model. The results of the descriptive statistics revealed heterogeneity in consumption and expenditure patterns across households. The result revealed that 87.8% are male and 85% of them are married and 15.0% are single. The minimum monthly income of household heads was ₦27,000.00 and the maximum was ₦500,000.00. The mean monthly income was ₦100,361.93 and the mean monthly expenditure was ₦43,785.00. The logistic results revealed that sex, age, and highest educational level, sources of income and number of wage earners have no statistical significant influence while cooperative membership had negative effect on expenditure at $p < 0.01$. The results revealed that there is statistically significant influence of monthly income, household size and cooperative membership on total food expenditure among households at probability level of $p < 0.001$, $p < 0.01$ and $p < 0.01$ respectively. The study identified challenges to food consumption to include high prices of food (97.2%), inadequate income (87.8%), poor food utilization/wastage (54.4%) and large household size (31.1%). It was concluded that most of the households spent more than their monthly income on food. It was recommended that people and traditional stakeholders in the State should intensify efforts in maintaining peace and tranquility, and develop spirit of tolerance among them in order to boost food crop production. This will reduce herders/farmers crises.

Key words: Expenditure, Food, Household, Income and Pattern

INTRODUCTION

Food is a basic human need and the major source of nutrients needed for human existence. Every human being needs a minimum amount of it for existence and a balance diet to maintain sound health (Umar *et al.*, 2018). Food is the basic necessity of any living being, to survive and to sustain. Food is a basic means of sustenance and when taken in the right quality and quantity, it allows for a healthy and productive life (Elum *et al.*, 2021). Food is fuel to human existence, and in the evolution of human settlements, food— its production, availability, demand and supply — and food systems have steered the development, expansion and decline of human settlements (Mahak, 2021). Similarly, food is necessary for human existence and when a household's income is not sufficient to offset expenditure on food consumables, such household may face a critical diet problem, which is mostly because of insufficient food supply, poor income, and lack of adequate education on food selection (Aborisade and Carpio, 2017). It is imperative to create and enforce legal entitlements and obligations to ensure that every person is assured physical, economic and social access to adequate food with dignity as is necessary to lead an active and healthy life.

In another development, almost one in seven people around the world are chronically hungry, with insufficient food to be healthy and lead active lives. This is despite the fact that enough food exists for all of the world's people. For instance, it is common knowledge that



poor/smallholder farmers are unable to secure adequate number of resources needed for optimal production and as a result, suffer low productivity, low income, increased hunger and malnutrition (Elum *et al.*, 2021). Indeed, agricultural policies, the prices of certain food commodities such as meat and grains and economic development hugely impact food security, but demographic trends also play a tremendous role in household food consumption.

While, the world currently produces enough food to feed everyone, over a billion men, women and children go to bed hungry every night (WFP, 2023). Similarly, as at 2010, a total of 925 million suffered from chronic hunger: 578 million people in the Asia Pacific region, 239 million in Sub-Saharan Africa, 53 million in Latin America, 37 million in North and North East Africa, and just a little over 19 million in the developed countries (Shah, 2013). In addition, the world today is experiencing a major food crisis, with over 200 million people facing emergency and famine conditions (GRFC, 2023). In addition, it was also reported that over a quarter of a billion people are facing acute hunger, with economic shocks and the Ukraine war contributing to the increase.

Furthermore, the grouping together of foods with similar nutrient density and nutrient content makes it possible to choose from a wide variety of alternatives if certain seasonal foods become scarce or money is short. In developing the consumption pattern report for Nigeria, 122 food items have been classified into 15 major groups based on the Nigerian food basket and 132 non-food items have been classified into 10 major groups (NBS, 2019). The groupings suggested for Nigeria and other African countries with similar socio-economic settings, geography, and eating patterns include: (i) milk and milk products (ii) meats, fish, nuts, and beans (iii) cereals and grains (iv) roots, starchy fruits, and tubers (v) fruits and vegetables. In view of that, households make chooses among these food groups for their living and sustenance.

Expenditure is the amount of money spent on purchasing any goods or services during a particular period of time and it also refers to payments made or liabilities incurred in exchange for goods or services. Consumption expenditure could be considered as the amount that household spend on purchasing goods and services for consumption. Again, food expenditure pattern varies among communities, countries and households. The poverty level of a household may likely depict the kinds of food they consumed and because of this; a particular household may consume the cheapest and commonly available food around with low nutrient contents thereby, affecting their vulnerability to food deficiency diseases. Sometimes people consume what they eat because there is no any alternative to what they find around them and more importantly, People need to eat good balance diet in order to live strong, active and healthy and to sustain growth in life.

However, current financial crisis seems to have affected consumer's attitudes in many countries including Nasarawa State and Nigeria at large. The economic uncertainty and insecurity have led consumers to take decisions minimizing their cost, even for basic needs, such as food quantity and quality (Ioannis, 2014). In a period of inflation and unemployment, consumers are more likely to change the composition of their expenditures (Francisco *et al.*, 2013; Liu *et al.*, 2013); therefore there is a strong shift towards consumption for cheaper products with lower nutritional value. An understanding of household consumption behaviour is important in household income and expenditure planning in Nigeria. According to Umar *et al.* (2018) and Ihedoiha *et al.* (2018), the proportion of expenditure spent on food is inversely related to total income of an individual. Household food consumption pattern in Nigeria has been undergoing dramatic changes over the last few years.

Furthermore, on the national level, per-capita growth of production of major foods in Nigeria has not been sufficient to satisfy the demands of an increasing population. Common staples in most Nigerian homes are insufficient and do not provide a balanced diet, as such,

malnutrition is prevalent in most homes (Ike *et al.*, 2015). In addition, providing food, both in good quality to meet the increasing food demand for the growing population in Africa is a tremendous concern of national government and development partners (Iorlamen *et al.*, 2014).

In addition, the consumption pattern of a household is a combination of qualities, quantities, acts and tendencies characterizing a community or a human group's use of resources for survival, comfort and enjoyment (NBS, 2019). Household budget surveys across Africa consistently show basic foods to be the main consumption expenditure item in rural and many urban communities. The proportion of household expenditure on food is usually very significant and can be used in assessing general household consumption (Babalola *et al.*, 2014).

Similarly, food consumption has been a subject of research all over the world. It is especially meaningful in developing countries of the world where food expenditures account for a relatively large share of household income. Food consumption patterns were defined as repeated arrangements observed in food consumption by a population group. They are embedded in types and quantities of foods and their combinations into different dishes or meals. Food consumption patterns depend on several factors such as personal preference, habit, availability, economy, convenience, social relations, ethnic heritage, religion, tradition, culture and nutritional requirements (Ihedioha *et al.*, 2018).

MATERIALS AND METHODS

The Study Area

Nasarawa State is one of the six States created on October 1, 1996 by the late General Sani Abacha Administration. It has a land area of 12,000 square kilometers which was excised from the defunct Plateau State. The State is structured into thirteen (13) Local Government Areas (LGAs). Nasarawa State is located in the North Central zone of the country. It lies between latitudes 7° 45' and 9° 25' North of the equator and longitude 7° and 9° 37' East of the Greenwich Meridian and shares common boundaries with Benue State to the South, Kogi State to the West, the Federal Capital Territory (FCT), Abuja, to the North- West, Kaduna and Plateau States to the North – East, and Taraba State to the South – East (Nasarawa State, 2017).

Sampling Technique and Sample Size

A multi-stage sampling technique was used in selecting the respondents. Nasarawa State is made of three (3) Senatorial zones, namely; South, North and West Senatorial zones. Two (2) local government areas each were randomly selected from the three (3) Senatorial zones in the State which made a total of six (6) local government areas, namely; Lafia, Obi, Nasarawa-Eggon, Akwanga, Kokona, and Karu. Six villages or communities (6) were randomly selected from each of the local government areas, which made up of thirty six (36) villages. Furthermore, five (5) households were randomly selected from each village or community, making a total of 180 households for this study.

Methods of Data Analysis

Data collected were analyzed using descriptive statistics such as frequency, percentage, mean and standard deviation. Logistic model was used to determine the socio-economic factors that influence food expenditure.

Logistic regression model.

$$\text{Logit } [pi] = \text{Ln} \left(\frac{pi}{1-pi} \right) = \beta_0 + \beta_1 X_1 \dots\dots\dots + \beta_n X_n + e \quad \dots(1)$$

The unknown parameters β_i are usually estimated by maximum likelihood.

Where,

$\ln$ = natural logarithm;

β_0 = constant;

β_i X_i = vector of variables such as gender, age, monthly income, household size, cooperative membership, sources of income and number of wage earners.

e = error term.

The implicit form of the logistic regression model is express as:

$$Y = f(X_1 + X_2 + X_3 + X_4 + X_5 + X_6 + X_7 + X_8 + e) \quad \dots(2)$$

However, the explicit form is expressed as:

$$Y = \left(\frac{p}{1-p} \right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + e \quad \dots(3)$$

Where:

Y = Total Expenditure on food by i^{th} respondents (₦)

X_1 = Sex of Household head (male = 1, female = 2)

X_2 = Age of household head (years)

X_3 = Highest educational level of household head (years)

X_4 = Monthly Income (₦)

X_5 = Household size (number)

X_6 = Membership of Cooperative Association (member = 1, otherwise = 0)

X_7 = Sources of income (number) ($> 1 = 1$, $< 1 = 0$)

X_8 = Number of wage earners.

β_0 = constant term

$\beta_1 - \beta_8$ = coefficients of independent variables

e = error term.

RESULTS AND DISCUSSION

Age, household size, experience, monthly income and wage earners of respondents

Table 1 revealed the minimum age of the respondent was 30 years and the maximum was 70 years with the mean of 48 years. This finding was in agreement with Moses *et al.* (2015) who found that majority of consumers who preferred fish were between the ages of 41 – 50 years. Table 1 show that the minimum number of persons in each household was 1 and the maximum was 15 with a mean number of 6 persons. Table 1 shows that the year of experience ranged between 3 and 40 years with mean experience of 20 years. The result in Table 1 revealed that the minimum income of the respondents in the study area was ₦27,000 per month and a maximum of ₦500, 000.00 with a mean of ₦100, 361.93. Consumer's income is one of the basic determinants of the quality and quantity of commodities demanded by consumers. Generally, people with higher disposable income spend more money on superior and more goods than those with lower income (Oyinbo, 2014). However, Abdulrahman *et al.* (2017) opined that differences in income levels predispose households to different consumption patterns. Result in Table 1 shows that the minimum wage earner per household were 1 and maximum were 4 persons. The implication is that, the higher the number of wage earners in a household, the more money that they will have to meets their needs, though it might not be food according to Engel's law of expenditure, which states that the proportion of expenditure spent on food is inversely related to total income (Babalola *et al.*, 2014).

Table 1: Age, household size, experience, monthly income and wage earners of respondents

Variable (n=180)	Minimum	Maximum	Mean	Std. Deviation
Age	30	70	47.5	9.11348
Household size	1	15	6.4	2.81779
Experience	3	40	20.4	8.87918
Monthly Income	27,000.00	500,000	100,361.93	74,860.271
Wage Earners	1	4	1.6	0.78463

Source: Field survey (2022)

Distribution of respondents according to sex, marital status, educational level and occupation

Result in Table 2 showed that majorities (95%) of the household heads were literate and 5.0% of the sampled respondents had no formal education. The more educated the household head is, the more likely they will ensure proper managing of the available income. Similarly, education is a major element of opportunities and empowerment that can have positive effects on households' food expenditure. Educational qualification of household heads stimulates their consumption expenditure. This implies that households where the head has more educational level 60 spend more on food than their less educated counterparts. This result is supported by the finding of Aminu *et al.* (2014).

Table 2 also revealed that majority (45.6%) of the sampled household heads were civil servants, 30% of the households were businessmen and women and while 13.3% and 11.1% constituted farmers and artisan respectively. For instance, occupational status has been widely noted to have some effect on expenditure patterns (Salo *et al.*, 2021). Result in Table 2 revealed that majority (71.1%) of the respondents affirmed that they belonged to one cooperative society or the other while 28.9% did not belong to any cooperative. A cooperative is an autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly-owned and democratically controlled enterprise. Based on this result, it implies that people that belong to cooperative have better access to credit and other welfare package.

Table 2: Distribution of respondents according to sex, marital status, educational level and occupation

Variable (n = 180)	Frequency	Percentage
Sex (Household head):		
Male	158	87.8
Female	22	12.2
Marital Status:		
Married	153	85.0
Single	27	15.0
Highest Educational level:		
Non-formal education	09	5.0
Primary	19	10.6
Secondary	43	23.9
Tertiary	109	60.6
Occupation:		
Civil servant	82	45.6
Business	54	30.0
Farming	24	13.3
Artisan	20	11.1
Membership of cooperative:		
Members	128	71.1
None member	52	28.9

Source: Field Survey (2022)

Socio-economic variables influencing food monthly expenditure

The analysis of logistic regression of socio-economic variables influencing food expenditure patterns among households are represented in Table 3. The results revealed that sex, age, highest educational level, sources of income and number of wage earners in households have no statistical significant influence while cooperative membership by households had a negative but significant at $p < 0.1$ effect on the expenditure. The result further showed that there was statistically significant influence of monthly income and household size on total food expenditure among household heads at probability level of $p < 0.001$ and $p < 0.1$, respectively. This finding revealed that highest educational level of the household head registered no significant effect on household food consumption expenditure.

The result in Table 3 showed that cooperative membership had negative coefficient and significant at $p < 0.1$. This implies that as cooperative membership increased, the household's chances of consuming variety of food items decreased. However, Propensity Score Matching (PSM) used by a similar study revealed that cooperative membership and credit access were expected to increase the food security of rural households by approximately 1,446 and 1,496 kilocalories per person per day respectively (Ayodeji *et al.*, 2020). Monthly income is the gross countable income received or projected to be received during the month or the monthly equivalent. When there is more money or anticipation of income, more goods are purchased by households. This implies that as the income of households increases, the greater the chances of consuming more varieties of food. Table 3 revealed that income was one of the strong determinant factors on food expenditure in Nasarawa State at $p < 0.001$. It is clear from the foregoing that monthly income, household size and cooperative membership are good motivation for high food expenditure among households in the study area.

Table 3: Socio-economic variables influencing food monthly expenditure

Variables (n = 180)	β -coefficient	Standard error	Wald statistics	Sig. p-value	Odd multiplier (Exp β)
Constant	- 6.124	1.861	10.831	.001***	.002
Sex (β_1)	.344	.725	.224	.636 ^{NS}	1.410
Age (β_2)	-.004	.039	.010	.922 ^{NS}	.996
Highest education (β_3)	.061	.061	.972	.324 ^{NS}	1.062
Monthly income (β_4)	.000	.000	21.185	.000***	1.000
Household size (β_5)	.354	.132	7.196	.007**	1.424
Coop. membership (β_6)	-1.932	.716	7.272	.007**	.145
Sources of income (β_7)	.156	.457	.117	.732 ^{NS}	1.169
No. of wage earners (β_8)	-.552	.426	1.679	.195 ^{NS}	.576
-2Log likelihood	118.128				
Nagelkerke R ²	0.678				

Source: Field survey (2022). Note: * = $p < 0.05$, ** = $p < 0.1$, *** = $p < 0.001$.

Distribution of respondents based on constraints to food consumption

Table 4 reveals the various challenges confronting food consumption in the study area. The highest (96.1%) challenge was high prices of food items in the study area which was followed by low income among the households (88.9%). Other challenges included; high cost of children school fees (81.1%), high cost of social services (71.1%), high cost of transportation (61.7%) and insecurity (communal crisis) (56.7%). In recent past, most communities, particularly southern senatorial zone in the state experienced communal and herders-farmer crisis that affected food supply and consumption. The bulk of these incidents have been in the middle-belt and the reason being that most of the communities, particularly in Nasarawa and Benue states survive on farming activities. The implication of these conflicts in all these communities is that economic activities including production of food is often threatened, resulting in wide spread hunger and malnutrition, loss of lives, displacement, distrust, destruction of properties (Okoli *et al.*, 2013, Adams *et al.*, 2017). The herdsman and farmers conflicts have a negative implication for food security in Nigeria.

Table 4: Distribution of respondents based on constraints to food consumption

Response (n = 180)	*Frequency	Percentage
High prices of food items	173	96.1
Poverty/Low income	160	88.9
High cost of children school fees	146	81.1
High cost of social services	128	71.1
High cost of transportation	111	61.7
Others (crisis, insecurity, etc)	102	56.7

Source: Field survey (2022) * = Multiple choice was allowed



CONCLUSION AND RECOMMENDATIONS

The consumption patterns of a country depict the aggregate demand for goods and services in the country and also depict the level of welfare and poverty that a nation is experiencing. Again, it was discovered that food expenditure is very much influenced by the income as a crucial social- economic factor. Food is a necessity while non-food items are luxury. It is believed that the nature and patterns of purchase and consumption of foods by an individual/household reflects wealth, income and lifestyle and cultural and social factors. The major constraints to food expenditure by the respondents were high prices of food items, low income, high cost of social services and high cost of transportation amongst others. It was recommended therefore, that policy directed at increasing income level of workers should be given paramount attention so as to enhance their food purchasing power, reduce food insecurity and reduce poverty relative to food as well as making them have a higher standard of living.

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