Effect of Food Price Volatility on Household Food Security in Jos-North Local Government Area of Plateau State, Nigeria

[1]k.I.Okeke-Agulu And G. M. Ojeifo
Department of Agricultural Extension and Management, Federal College of Forestry, PMB 2019 JOS.
Corresponding Author: k.I.Okeke-Agulu

***Abstract**:This study investigated the effect of Food price volatility on food security status of households in Jos-North Local Government Area of Plateau State, Nigeria. Multi-stage sampling procedure was used to select 120 households from six wards of the Local Government Area. Primary data were collected through the use of questionnaires and data gotten were analysed using both descriptive and inferential statistics. Results revealed that 59% of the Respondents were males, 53.6% of the Respondents were educated up to tertiary level, and having a mean age of 39 years. The study also shows that the households have mean household sizes of 6 persons. The respondents also overwhelmingly (81.4%) perceived that the general prices of Food materials were unstable (Volatile). Result also showed that 72% of the respondents spend 30-60% of their income on food while 14% spend more than 61% of their income on food. The analysis of the various food prices within a 24 months period indicated that, food prices were generally unstable. Results show that, Household Size, Income, Food Price Volatility Perception, and number of Income streams were statistically significant factors in determining how food secure a household in the study area was. The study concluded that most of the households were Food Insecure. The study recommends that more efforts be focused on advancing policies that will improve household livelihoods, while at the same time regulating prices through a variety of non-stifling policies.Concerted effort must be made to put in place adequate storage facilities as to reduce post-harvest losses hence reducing seasonal fluctuations.*

***Keywords:**Price Volatility, Food security, Food security index, Coefficient of Price Volatility, Food expenditure.*

I. Introduction

"Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life" (World Food Summit, 1996). The World Food Programme (WFP) estimates that over 100 million people are threatened with starvation worldwide due to food scarcity, rising commodity prices and poverty. Achieving food security in its totality continues to be a challenge not only for the developing nations, but also for the developed world (Chikaireand Nnadi, 2011). Significant advancements have been made in reducing hunger through intensifying staple food production, integrating people and the environment, expanding the role of markets, finding alternatives to major cereals, reforming economy-wide policies, and improving food quality and human nutrition in the past few decades as agricultural development played a central role as a driver of rural poverty reduction (Chikaire and Nnadi, 2011). However, recent trends of slowing agricultural productivity growth and the marginalization of poor farmers as markets evolve have challenged conventional strategies for achieving poverty reduction.

The current state of global food security raises serious concerns as the number of hungry people has surpassed 1 billion people (Chikaire and Nnadi, 2011). The forces challenging food security include population growth, demographic changes, high and volatile food prices, land and water constraints, under-developed agricultural sector, climate change, sustainable economic growth, war and civil strife, macroeconomic imbalances in trade, natural resource constraints, poor human resources base, gender inequality, inadequate education, poor healthcare, natural disasters, such as flood and locust infestation and the absence of good governance among others (Mwaniki, 2005; Matemilola and Elegbede, 2017). Meeting the challenge of global food security will require both short-term and long-term responses to raise productivity, growth and strengthen the supply side of global agriculture. Investment in innovation is thus critical to the enhancement of agricultural productivity and long-term challenge of sustainable development. Food availability, stability, access, and utilization are essential for thewell-being and productivity of all people.

According to the Food and Agriculture Organisation (FAO, 2011), the root cause of food insecurity in developing countries is the inability of people to gain access to food due to poverty. While the rest of the world

---

has made significant progress towards poverty alleviation, Africa and in particular sub-Saharan Africa, continues to lag behind. The difference lies in the magnitude of the problem in terms of its severity and proportion of the population affected. In developed nations, the problem is alleviated by providing targeted food security interventions, including food aid in the form of direct food relief, food stamps, or indirectly through subsidized food production.

There is a persistent manifestation of hunger and poverty in many parts of Nigeria, particularly in the rural areas. This situation is usually worsened by the problem of food insecurity. The Food and Agriculture Organization (FAO, 2002), observed that this condition arises when people lack sustainable physical or economic access to enough safe, nutritious and socially acceptable food for a healthy and productive life. Nwajuiba (2013) noted that food insecurity situation could be chronic, seasonal, or temporal. It could occur at the household, regional or even at the national level. He posited that the majority of the undernourished people reside in developing economies, including Nigeria. To overcome food insecurity challenges, there is therefore the need for adequate food availability and food accessibility.

Regrettably, despite the huge investment by Nigerian government in food production through various agricultural programmes in the past, the dream of achieving food security for all citizens remains a mirage (Akanni, 2014). In March 2017, FAO declared that about 7.1 million people in Nigeria are facing acute food insecurity and in need of urgent lifesaving and livelihood protection. This pronouncement runs counter to general expectations as the same FAO had initially indicated that food availability is generally satisfactory in Nigeria. The implication of this is that, there are repeated cases of social, psychological and behavioral breakdown in the polity. These often arise from individuals' feelings of alienation/marginalization, stress, helplessness, anxiety, reduced household income and general frustration among others. It has however been noted that food insecurity in Nigeria had often been linked to poverty,corruption,environmental degradation, barriers to trade, and commerce and low level of education, among others (Idiku*et al.*,2012).

The role of macro-economic factors in food security seems to be well acknowledged internationally. Rocha (2006) viewed food insecurity from the perspective of market failure and postulated that the solution requires an interdisciplinary approach especially from agriculture and economics. In the same vein Kargbor (2005) recommends a marriage of agricultural and economic policies in ensuring food security. He sees price shock as a major factor in food insecurity and emphasized the impact of macro-economic factors on the agricultural sector. It is thus apparent that food insecurity is not a single factor phenomenon, it is multi-factorial. It reflects not only the condition of the economy as a whole but also the nation's politics of resource allocation and use (Mamadou, 2002). The current food insecurity in Nigeria is not solely a result of food availability decline; rather it also has to do with economic accessibility (Nwalie, 2017).

According to Nwalie (2017), there exists a generally held notion that food insecurity is basically a function of Food availability. This has skewed focus of food security research as the emphasis over the years had been on increased productivity. However, recent works have shown that, low level of employment opportunities, high cost of living, and poor economic infrastructure and other micro and macroeconomic factors among others are likely to predispose households to a large extent to food insecurity. One of such is Price instability or Volatility.

There is persistent instability of consumer prices for most agricultural commodities in Nigeria (Akanni, 2014). This is occasioned by factors such as seasonality, input price changes, production and marketing technologies and consumer taste, among others. The market price variations often affect the level of consumer demand and food security status of the households. Generally, food prices in Nigeria exhibit some behaviour through time. Olukosi and Isitor (1990) and Okuneye (2008) noted that such behavior included seasonal patterns of change, yearly variations, trends and cycles, and so on. But of all these changes, seasonal price changes stand out as the most distinct feature of agricultural commodities. It is common to see highly reduced market prices of food crops particularly during harvest time and skyrocketed prices during off seasons. This scenario is quite common with food grains and vegetables. These price variations often determine the level of access and consumption of these food crops by households.

Price Volatility of Agricultural commodities has been an issue of growing interest for Agricultural economists as it creates uncertainty about future prices, leading to high risks in the market due to Farmers' inability to forecast prices and thus resulting into welfare losses for market participants which in this case includes supplying and consuming households. Therefore, there is a need to assess with accuracy the effect of Food price volatility on households'food security in order to help identify and reduce the level of Food insecurity in our communities.

II.   Methodology

The study was carried out in Jos-North Local Government Area of Plateau State, North Central Nigeria. It is a metropolitan environment that hosts the state capital.It is the hub of most commercial activities in the state, boasting of markets like Terminus, FarinGada, and Chobe among other numerous business and socialization spots.

Multi-stage sampling technique was employed in the selection of households in the study area. In the first stage, Gwom district, which is the only district in Jos-North Local Government Area was selected. The second stage involved the selection of six (6) wards out of the fourteen wards in the Local Government Area for the study. They included; Gangare, Tudun Wada, JentaAdamu, Apata, Vanderpuye, and Sarkin Arab. In the third stage, the sample frame for each of the selected wards was collected from the Jos office of National Population Commission.The final stage involved a random selection ofhousehold from each of the 6 wards to obtain the total sample size of 120 households used for the study. The number of respondents in each ward was based on the proportion of their population in the Local Government Area.

Primary data were then collected from the respondents using structured questionnaire schedules designed in line with the study objectives; and partly from secondary data obtained from the National Bureau of Statistics (NBS), Jos Plateau state.

Method of Data Analysis

The data collected were subjected to both descriptive and inferential statistics. Descriptive Statistics such as Percentages, Arithmetic mean, Frequency distribution, and Tables were used to describe the socioeconomic characteristics of the Households, the Coefficient of Price Volatility index was used to determine price volatility,Food security Index was used to estimate Food security status of the households while binary logit regression model was used to ascertain the relationship between food price volatility and household food security in the study area.

Model Specification
Determination of Coefficient of Price Volatility
The coefficient of price volatility is achieved by calculating the coefficient of variation on the level of prices using period-over-period prices. This is given by

$$CV = \frac{standard\ deviation\ of\ prices}{mean\ price}$$

$$CV = \frac{\sqrt{\frac{\sum_{i=1}^{n}(P_i - \bar{P})^2}{n}}}{\bar{P}}$$

Where; CV = coefficient of price volatility.

$\bar{P}$ = Mean Price

P_i = Price of ith food category

Food Security Index (FSI)
The food security index was used to determine the food security status of various households in the study area. The households were classified into food secure and food insecure households using the food security index. According to OmononaandAgoi (2007), the food security index is given as:

$$Fi = \frac{per\ capita\ food\ expenditure\ \ for\ the\ ith\ house\ hold}{\frac{2}{3}\ mean\ per\ capita\ food\ expenditure\ \ of\ all\ house\ holds}$$

Where; Fi = food security index

When;Fi< 1 = ith household is food insecure

Fi ≥ 1 = ith household is food secure

RelationshipBetween Food Price Volatility and Household Food Security in the Study Area. (Logit Regression Model)

The relationship between food security Status (FS), and food price volatility of the households, as well as other socioeconomic characteristics under consideration were determined using the logit (Logistic) regression model as applied by Omononaand Agoi(2007).
It is expressed as:
Ln (*i*) = ln(P*i*/1− P*i*) = Z*i*……………………………………(1)
From the general model as specified in (1) above,
Z*i* = β0 + β*i* X*i* + µ*i*
Where i = 1, 2, 3 … 10. The equation (1) above can thus be rewritten as;
Ln (*i*) = ln(P*i*/1− P*i*) = β0+β*i*X*i* + µ*i*

The explicit Logit model is expressed as:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots + \beta_n X_n + \mu$$

Where; Y = Food security status (0 if food insecure and 1 if food secure).

X_1 = Gender of Household head (Male or Female).

X_2 = Household Size (numbers).

X_3 = Household income (naira).

X_4 = Perception of price volatility (stable, moderate, or unstable).

X_5 = Number of income streams.

X_6 = Educational level of Household head (years).

X_7 = Age of Respondent (years).

X_8 = Occupation of Household head.

μ = Error term.

β_0 = Constant term i.e. the value of Y when all independent variables equal zero.

$\beta_1 - \beta_8$ = Coefficients to be estimated.

III. Results And Discussion

1. Socio-Economic Characteristics of Respondents.

The socio-economic characteristics of the respondents such as age, gender, level of education, Household size, income and occupation are presented in table 1.The majority (59%) of the respondents were males, while 41% were female. This almost equal representation of both gender types is reflective of the metropolitan nature of the study area, thus there is no conformity to the traditional system where household consumption decisions are majorly made by male household heads. The level of education of the respondents was diverse with most of them (54%) having attended or passed through a tertiary institution. Additionally, about 29% of the others completed their Secondary school education, with the remainder of the respondents being sparsely distributed among other categories.

The prevalent occupation among the Respondents was Trading (40%), followed by Civil Service (30%).The result also indicates that 40% of the Respondents had only one (1) source of income, while the remaining 60% had more than one income stream with 27% of the respondents having at least three (3) sources of income. Fifty-eight percent(58%) of the Respondents do not receive any help in form of; subsidies, loans, thrifts, or consumer cooperatives, in the purchase of their food stuff(s). This is further aggravated by surmising that only about 25% of those reached have access to more than one form of assistance in purchasing food.

Table1 also indicates that an overwhelming majority (94%) of the respondents are net food buyers, who consume more food than they produce. This phenomenon is predominant in urban societies where, as a result of a myriad of factors subsistence agriculture is not prevalent, especially among the working class.The respondents captured were of various age categories as expected from a heterogeneous population. However, it is noteworthy that a vast majority (81%) of the respondents were within the ages of 20 to 50 years, thus being in their active and productive years, with the mean age being 39 years. Other results showed that about 59% of the respondents had household sizes of 1 to5 persons, 32% had between 6 – 10 persons while the mean household size was 6 persons.

The estimated income level of the respondents using the expenditure approachshowsthat 69% earn below ₦100,000 monthly with only 7% earning above ₦150,000 every month. This numbers becomes increasingly alarming when income per capita is taken into consideration; which shows the average to be at a little below ₦6,800 monthly and ₦227 per day.This is well below the one dollar, ninety cents ($1.90) per day poverty standard. Thus, the majority of the respondents could be said to be from the low income bracket. This finding corroboratesOpara and Johnson (2019) in "*Household Food Security among different wealth groups within Uyo metropolis in Southern Nigeria.*", which suggested income to be low among Uyo households.

Table 1: Socioeconomic characteristic distribution of the Respondents.

Gender	Frequency	Percentage (%)
Male	57	59
Female	40	41
Level of Education		
No Formal Education	12	12.4
Primary	6	6.2
Secondary	27	27.8
Tertiary	52	53.6
Occupation		
Artisan	18	18.6
Civil Servants	28	28.9
Farmer	3	3.1
Trading	39	40.2
Others	9	9.3

Income Streams		
One	39	40
Two	32	33
Three	16	17
Four	10	10
Forms of Food Purchase Assistance		
None	56	58
One	16	17
Two	15	15
Three	10	10
Quantity of Food Purchased (%)		
< 20	6	6
20 – 60	44	45
> 60	47	49
Age (Years)		
≤ 20	2	2
21 – 30	27	28
31 – 40	29	30
41 – 50	22	23
51 – 60	15	15
> 60	2	2
Mean	**39**	
Household Size		
1 – 5	57	59
6 – 10	31	32
> 10	9	9
Mean	**6**	
Income (₦1000)		
< 100	67	69
100 – 150	23	24
> 150	7	7

2Food Expenditure to Income Ratio of the Respondents.

The proportion of the total income utilized by the households for food is outlined in table 2. Unsurprisingly, about 86% of the Respondents used over 30% of their income on food alone. This fact combined with the knowledge that the majority of the respondents have to purchase their food i.e. are Net Food Buyers, and also factoring the income bracket might make one lean towards concluding that a majority or at least 50% of the Respondents are living in poverty.

Table 2: Food Expenditure to Income Ratio Distribution of the Respondents.

FEI Ratio (%)	Frequency	Percentage (%)
≤ 30	14	14
31 – 60	69	72
> 60	14	14

Source: Field Survey, 2018.
* FEI Ratio: Food Expenditure to Income Ratio

3Food Price Volatility Perception by the Respondents.

The results indicate that there is a strong perception about the volatility of food prices, with over 81% of the Respondents affirming that the prices of food stuff in the study area was generally unstable. This perception while valid is however subjective, but since it is likely to affect the consumption decisions made, it can be very instructive.

Table 3: Food Price Volatility Perception Distribution of the Respondents.

FPV Perception*	Frequency	Percentage (%)
Very Stable	1	1.0
Stable	4	4.1
Moderate	13	13.4
Unstable	42	43.3
Very Unstable	37	38.1

Source: Field Survey, 2018.
* FPV Perception: Food Price Volatility Perception

4 Volatility in Food Prices in Plateau State between January 2017 and December 2018.

The results showed that the coefficient of **price volatility of Roots and Tubers** in the study area was 10.67% within a period of just 2 years; this indicates a fairly serious fluctuation rate, if taken in isolation, but gets dire with the realisation that the period under consideration is just 24 months. The food group, while not the

major source of energy to a large proportion of the population, is often combined with cereals as major energy sources. Thus, foods like Yam, Potatoes (*Solanumtuberosum*), Cassava, Cocoyam, sweet potatoes, etc., constitute a large part of staple foods consumed in typical Nigerian households.

The Coefficient of **Price Volatility for Grains and Cereals** was estimated as 4.34% over the period under consideration, with a fairly stable movement in food prices attained over the last nine (9) months of data capture. However, this semblance of stability is once again undermined by the importance of the food group to Households, as Grains like Maize, Cow pea, Millet, Wheat, etc., constitute the largest share of household food consumption, hence a little fluctuation in prices will go a long way to either increase or decrease the quantity, as well as quality of the food accessible to these households.

Meat and meat products, Fish and fish products etc., were found to have about 4.90% rate of fluctuation about their mean prices. The price trend also shows a steady increase in the average prices, though this could be explained by the changes in the foreign exchange markets as some of the foods under consideration are not commercially produced locally.
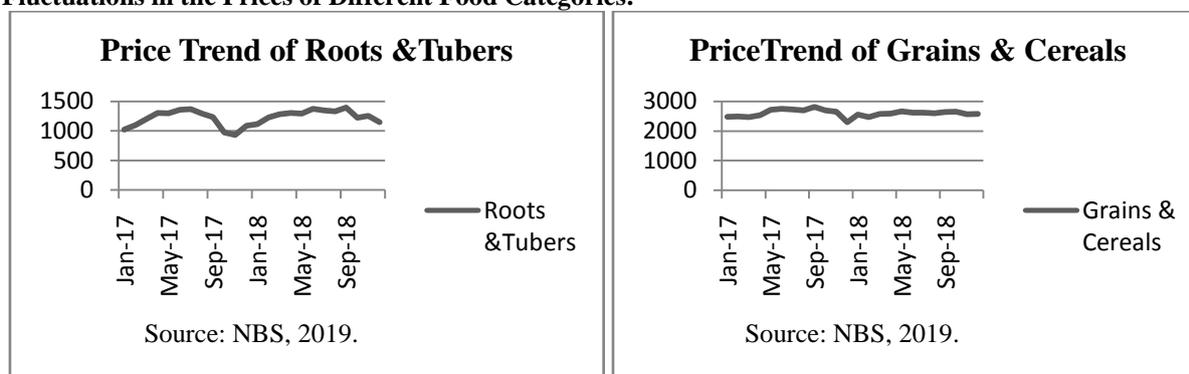
Oil based foods as shown by the trends in prices is very prone to price shocks, as characterised by the hugely unstable nature of its prices aptly represented by its coefficient of price volatility given as 11.80%, which for an essential commodity like food is deemed too high. This is because not only will suppliers be unable to stock in large quantities for fear of large drops, buyers will also be unable to rely on previous market purchases when planning their expenditure, thus leaving both in a level of uncertainty.
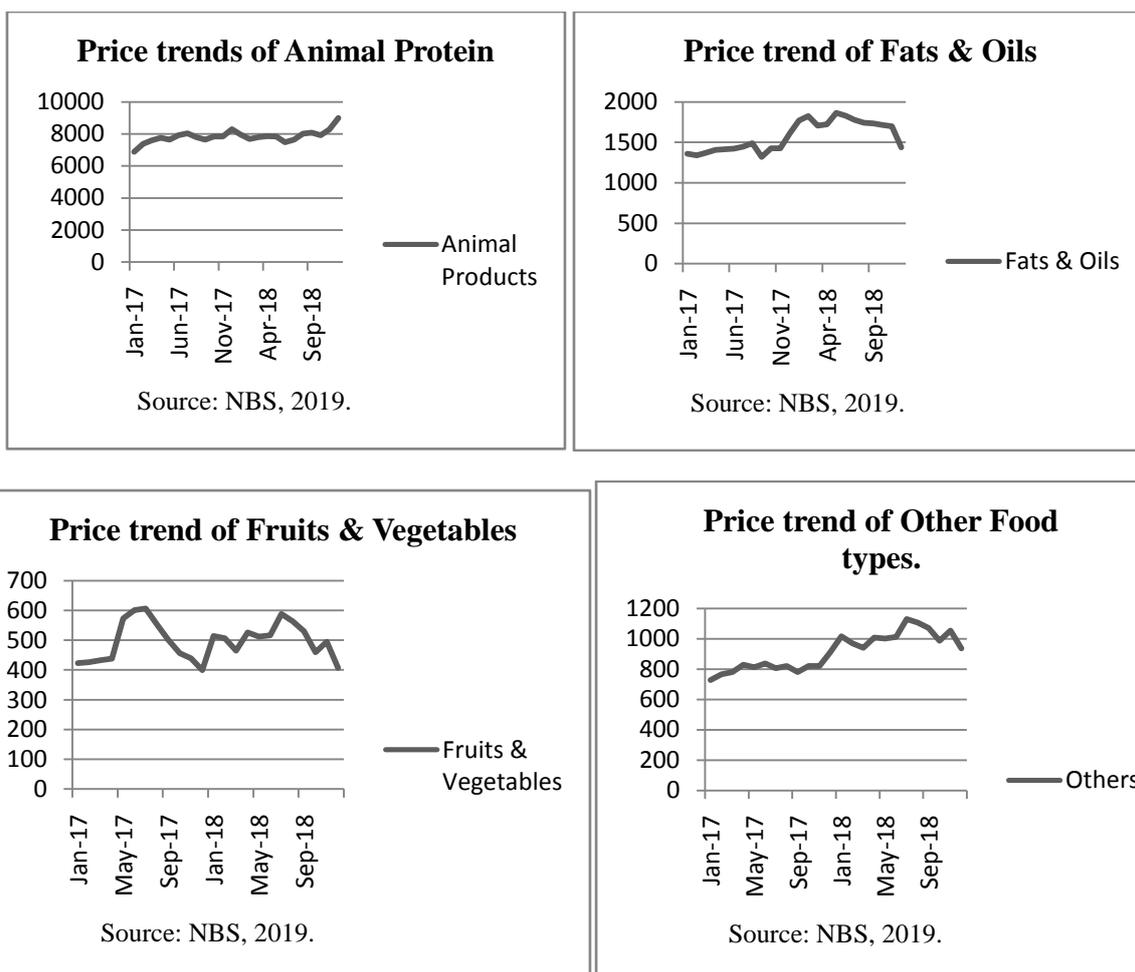
Fruits and Vegetables constitute a major factor in the determination of a household's dietary diversity and ultimately, health. It is the part of food which concerns of "meeting dietary requirement" is hinged on. The food group has simply been seen to have several health benefits to man. However, seasonality as well as inadequate storage are major factors why prices for this all important food group are rarely stable, as characterised by the coefficient of price volatility of 12.64% over a period of two years. Thus, a high level of fluctuation is seen occurring with the prices dropping in seasons and spiking during off-seasons.

Other food types outside the aforementioned were in processed forms. These include, Bread, Confectioneries, Spices, and Beverages etc. The coefficient of price volatility for this food type was 13.10% which is to be expected considering the nature of the goods being in their processed form thus, the shocks experienced by the economy as a whole would have affected it.

The verdict having compared the various Food categories and their prices as well as volatility of said prices, is not too far from the general perception by the Respondents, as though Food prices are not highly volatile numerically, their very nature as pertaining to essential goods make even the slightest changes bring about large offsets in the Respondents' real income. This is because, low income earners are far more susceptible to price changes than their more prosperous counterparts, because of the effect of price shocks on purchasing power, since Food consumption is largely considered to be price inelastic for the rich (FAO, 2011).

Fluctuations in the Prices of Different Food Categories.

Price Trend of Roots &Tubers

Source: NBS, 2019.

PriceTrend of Grains & Cereals

Source: NBS, 2019.

Price trends of Animal Protein

Source: NBS, 2019.

Price trend of Fats & Oils

Source: NBS, 2019.

Price trend of Fruits & Vegetables

Source: NBS, 2019.

Price trend of Other Food types.

Source: NBS, 2019.

5Food Security Status of the Respondents.

The Results of the Food Security Index (FSI), showed that about 73% of the Respondents were Food insecure. It is very instructive to note that the basis upon which this conclusion is being drawn, that is FSI, focuses only on the economic access to Food, while not necessarily covering issues like safety of food, dietary requirements, frequency of food availability, and other related factors as given by the World Food Summit (1996). Thus one can reasonably conclude, that a closer look at these households' lifestyles will reveal even more, so called food secure families, who do not meet the cut.

Table 4: Household Food Security Status Distribution of the Respondents.

Food Security Status	Frequency	Percentage(%)
Food Insecure	71	73
Food Secure	26	27
Total	**97**	**100**

Source: Field Survey, 2018.

6Factors Affecting the Food Security Status of Respondents.

The Results from the Logistic regression as shown in table 5 show the factors considered significant in determining the probability of a household being food secure. The Pseudo R^2 value was given as 0.5670, indicating the fitness of the model to the data to be about 57%. Household Size, Income, Food Price Volatility Perception, and number of Income streams were found to be significant factors in determining the likelihood of a household being food secured, while Gender, Level of Education, Age, as well as occupation were found to be statistically insignificant.

The size of household units was found to be significant at 1% probability levels, thus implying that there is a negative relationship between the number of members constituting a household, and the household food security status. Thus an increase in household size is likely to decrease the probability of a household being Food secure. This is not particularly surprising as researchers even from the days of the Malthusian theory, have advocated a form of control of Population to reduce hunger.

Household Income was also found to be significant at 1% level of probability, thus implying a positive relationship in the disposable income and the Food Security Status of a household. Once again, this is pretty straight forward as households with more income at their disposal will naturally have a larger household Food expenditure than ones with lower budget for food, *ceteris paribus.*

The Respondents' perception on Food Price Volatility was also found to be significant at 10% level of probability, thus signifying a positive relationship with Household Food Security. The households that are more likely to be food secure in the study area are those conscious of the instability in food prices. The implication of this is that the more households perceives the prices of food as volatile or unstable, the better they are able to make contingency plans to mitigate against the negative effects of such and thus they remain Food Secure.

The last statistically significant factor in the model was the number of income streams available to a household, which was also found to be significant at 1% probability levels, thus indicating a positive relationship with Household Food Security. The implication of this is that household heads with additional income streams will be better off with more disposable incomes to acquire food, hence be more food secured.

Table 5: Logistic Regression Results.

Variable	Coefficient	Standard Error	Wald
Constant	-1.7640	2.25810	-0.7811
Gender	0.2204	0.6617	0.3330
Household Size	-1.2149	0.3300	-3.6815***
Income	0.00005	0.00001	5.0000***
FPV	1.7526	0.9904	3.1315***
Income Streams	-0.6900	0.3718	3.4450***
Educational Level	-0.0689	0.0528	-1.3049
Age	0.2166	0.2989	0.1109
Occupation	-0.1541	00.2464	0.3908
Log likelihood: 64.19			
χ^2:47.8690			
Nagelkerke R^2: 0.5670			

***, represents 1% Probability level.

IV.   Conclusion And Recommendations
Findings of this study have concluded that the income of most of the households in the study area was relatively low and consequently, most were Food Insecure. Additionally, the prices of food in the study area were adjudged to be generally unstable, thus in tandem with the perception of most respondents sampled. Volatility of food prices was found to have a relationship with the Food security status of the households.Hence, it is recommended that:

Governments and Policy Makers: Two categories of policies and programmes as advised by the Committee for food security (CFS)can be contemplated at the national level to solve the volatility problem in relation to food security. The first aims at stabilizing price, while the second aims at reducing the impact of price volatility on incomes and purchasing power. Thus steps could be taken to anticipate and successfully reduce the impact of price shocks through policies involving subsidies, market quotas to prevent glut etc. Concerted effort must be made to put in place adequate storage facilitiesas to reduce post-harvest losses hence reducing seasonal fluctuations.

Household Heads should endeavour to produce at least half (50%) of their food consumption requirement to reduce the effect of food price volatility on their food purchases.

Further research should be carried out on a much more diverse population be observed and a longer time series used for better understanding of the nature and effect of the phenomenon of price volatility, and how it affects food security.

References
[1].   Akanni, K.A. (2014). Agricultural Price Policy, Consumer Demand and Implications for Household Food Security in Nigeria.*InternationalJournal of Food and Agricultural Economics* Vol. 2 No. 1, 121-132
[2].   Chikaire, J., and Nnadi, F. (2011).Agricultural Innovation Strategies for Sustainable Food Security in Africa.*International Journal of tropical agriculture and food systems* 5 (2): 153-161
[3].   Committee on World Food Security.(2011). Price volatility and food security.The High Level Panel of Experts on Food Security and Nutrition, July 2011. High Level Panel of Experts on Food Security and Nutrition, Rome, 2011.
[4].   Farayibi, A. (2016). Perspectives on the Nigerian Economic recession. Centre for Allied Research and Economic Development.Retrievedfrom
        https://www.researchgate.net/publication/310322305_Perspectives_on_the_Nigerian_Economic_Recession on 27th June 2018.
[5].   Food and Agriculture Organization (1996). Rome Declaration on World Food Security and World Food Summit Plan of action. Rome, 13-17 November 1996. Retrievedfrom www.Food And Agriculture Organisation.org/docrep/003/w3613e/w3613e00.html
[6].   Food and Agriculture Organization, (2002).The State of food security in the world.4th edition.Rome, Italy.Pp.17-21.

[7].   Food and Agriculture Organization (2008). Briefing paper: Hunger on the rise soaring prices add 75 million people to global hunger rolls. FAO Newsroom, retrieved from www.Food And Agriculture Organisation.org/newsroom/.../en/hungerfigs.pdf on February, 18th, 2012.

[8].   Food and Agriculture Organisation eds. (2009).*The State of Food Insecurity in the World 2009. Economic Crises: Impacts and Lessons Learned*. Rome, Italy: FAO.

[9].   Food and Agriculture Organisation. (2011). The State of Food Insecurity in the World 2011. How does international price volatility affect domestic economies and food security? http://www.fao.org/3/i2330e/i2330e.pdf Retrieved on 27th June 2018.

[10].   Food and Agriculture Organization (2017) Food Security and Nutrition Situation in Sahel and West Africa.Retrieved from relief web.int/report/Nigeria/food-security-and-nutrition-situation-in-sahel-and-west-africa-current-march-may-.

[11].   Idiku, F. O., Angba, A. O., andUshie,M.E. (2012).Food Insecurity Challenges And Sustainable Agricultural Development in Nigeria.OIDA. *International Journal of Sustainable Development*. 5 (10), 25-30.

[12].   International Food Policy Research Institute (2017). Global Hunger Index 2016.Washington: International Food and Policy Research Institute. retrieved fromwww.ifpri.org/publication/2016-global-hunger-index.

[13].   Iorlamen, T.R., Abu, G.A., and Lawal, W. (2014). Assessment of expenditure on food among urban households and it's implication for food security: Evidence from Benue State, Nigeria.

[14].   Kargbo, J. (2005). Impacts of Monetary and Macroeconomic factors on Food Prices in West Africa. Agrekon,44 (2). 205-224.

[15].   Matemilola, S. and Elegbede, I. (2017).The Challenges of Food Security in Nigeria.*Open Access Library Journal,* 4: e4185.

[16].   Malthus, T. R. (1798). An Essay on the Principle of Population.Chapter 1, p. 13 in Oxford World's Classics reprint.

[17].   Mwaniki, A. (2005). Achieving food security in Africa.Challenges and issues, Cornell University, USA.

[18].   National Bureau of Statistics (2012).Nigeria Poverty Profile 2010. Abuja: National Bureau Statistics.

[19].   Nwajuiba, C. (2013). Agriculture and Food security challenges. Agriculture and Food Security. Pp.45- 53

[20].   Nwalie, M. (2017).The paradox of food insecurity in Nigeria (2011-2017) University of Port Harcourt, Rivers State Nigeria.*African Journal of Agriculture and Food Security* ISSN: 2375-1177 Vol. 5 (5), 202-208

[21].   Olukosi, J., and S.U.Isitor (1990). Introduction to Agricultural Marketing and Price: Principles and Applications. Living Books Series. GUPublications, Abuja, FCT, Nigeria. Pp.61-66.

[22].   Omonona, B.T., and Agoi, G.A. (2007).An Analysis of Food Security Situation among Nigeria Households: Evidence from Lagos State, Nigeria. J. of Central European Agriculture 2007; 8 (3): 397-406.

[23].   Opara, D.C., and Johnson, O.E. (2019). Household Food Security among different wealth groups within Uyo metropolis in Southern Nigeria. *Journal of Food Security, Vol. 7, no. 1*: 1-7.

[24].   Rocha, C. (2006).Food Insecurity as Market Failure: A Contribution from Economics. Retrieved from https://www.researchgate.net/publication/233290948_Food_Insecurity_as_Market_Failure_A_Contribution_from_Economics

[25].   World Food Summit (1996).Rome Declaration, United Nations Food and Agriculture Organisation. Retrieved from http://www.fao.org/3/w3548e/w3548e00.htm