

## DETERMINANTS OF THE FOOD SECURITY STATUS OF FARMING HOUSEHOLDS IN LAGELU LOCAL GOVERNMENT AREA OF OYO STATE, NIGERIA

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### Abstract

The paper measured food security status among farming households in Lagelu Local Government area Oyo State, Nigeria. The complexity of the issue of food security makes it more imperative for such study as it will contribute to the already existing literature on food security. Well-structured questionnaire was used to source information from 120 randomly selected farming households. Descriptive statistics, and regression analysis were used to analyze the data. About 66.7% of the households were food insecure. The factors influencing food security status were gender, age, level of education, marital status and primary occupation of the respondents. The study recommends that Government should endeavor to empower the rural households through empowerment and intervention programmes in order to assist them in income generation. The respondents in the study area should try as much as possible to adopt suitable birth control methods to control the large household sizes and imbibe in income generation and diversification.

**Keywords:** Farming Households, Food Security Index, Livelihood, Nigeria

### Introduction

The survival of human on Earth requires the basic need of food which is any edible substance consisting of nutritive components which, when consumed, sustains life, generates energy and provides growth, maintenance and health of the body (Aboaba et al. 2020). FAO et al. (2015) define food security as a condition where all people at all times have physical, social and economic access to sufficient, safe, and nutritious food to meet their dietary needs and food preferences for an active and healthy life. Aboaba et al. 2020 noted that food insecurity on the other hand arises when there is uncertainty or restricted availability of nutritionally adequate and safe foods in socially acceptable ways.

The three basic components of food security policies, and programs in developing countries are availability (i.e., having sufficient quantities of appropriate food available), accessibility (having adequate income or other resources to access food), and utilization/consumption (having adequate dietary intake and the ability to absorb and use nutrients in the body) Food insecurity is a common problem among the low-income households in developing countries of the world (Adeagbo, 2012).

Food insecurity is a condition whereby not all people had physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food

preferences for an active and healthy life (FAO, 2012). Food insecurity is a major problem facing the world as FAO (2017) estimated that almost 1 billion people are chronically malnourished and food insecure around the world. Most of these people are found in developing countries, especially in Asia and Africa. According to African Food Security Briefs (AFSB, 2011), approximately one-third of the people in sub-Saharan Africa are undernourished. Shala and Stacey (2012) found out that the average amount of food available per person per day in the region was 1,300 calories, compared to the worldwide average of 2,700 calories.

The Global Food Security Index (GFSI) of the Economist Intelligence Unit ranked Nigeria 80th among 105 countries in terms of food affordability, availability and quality. According to the Index, Nigeria recorded weak scores in the areas of public expenditure on agricultural research and development (0.0); presence of food safety net programs (0.0); gross domestic product per capita (3.0); proportion of population under the global poverty line (9.6); food consumption as a share of household expenditure (9.6); and protein quality (12.8) (Ahmed et al. 2015). As rightly observed by Matemilola and Elegbede (2017), the determinants food insecurity in Nigeria include insufficient food production, gender inequality, inefficient policies, corruption, conflict, civil insecurity, climate change, natural disasters, low technology for processing and poor storage facilities.

Nigeria's economy is mainly driven by agriculture and its resources which provide opportunity for expansion for all spheres of the economy. However, the farming households who are the bedrock of agricultural production are found to be the most affected by food insecurity and poverty in Africa (Mohammed et al. 2016). Adewuyi and Hayatu (2011) is of opinion that there is a strong linkage between poverty and malnutrition because most of the people with little or no access to rich nourishing food are rural dwellers who engage in subsistence farming which provides little income for the farmers. Olayiwola et al. (2017) noted that food expenditure forms a large share of the spending of rural households, making them relatively more vulnerable to the impacts of food price inflation. They went further to state that food shortages are likely to be more prevalent in low-income households than the rich households are.

With the population in agriculture in Nigeria and the diverse resources, one may expect that agricultural households are devoid of food insecurity issues. Ironically, agricultural households are most hit by prevailing food insecurity issues despite being producers of food (Kuku-Shittu et al. 2013; Ogunniyi et al. 2016; Ogunniyi et al. 2018). This trickles to the nation at large being the world's largest producer of cassava, cowpea, and yam, and yet food-deficit depends largely on the importation of cereals, grains, fish, and livestock products (IFAD 2012).

Various composite indices have since been developed to measure Food Security incorporating all the dimensions of food security. Popular among these are the Aggregate Household Food Security Index (AHFSI) by the United Nation's Food and Agricultural Organisation (FAO) and the Food Security Index (FSI) of the United States Agency for International Development (USAID). Food security exists at both the macro and micro levels. National Food Security (NFS), the macro dimension, is possession by a nation of the capacity to procure enough food through production or imports to feed its population. This is a necessary condition but not a sufficient condition for Household Food Security and Individual Food Security since food availability on a national scale does not preclude the lack of adequate access to such food by many of the inhabitants due to weak markets, poor infrastructure and information system, and inequality in resource and income distribution (Adebayo, 2010).

The concept of food security cannot be over-emphasized in any economy. In view of this, it is imperative to conduct research on food security status to come up with strategies to reduce the effect of food insecurity in Nigeria. Against this background, the main objective of the study is to examine food security status in the study area and also determine the factors influencing it. Therefore, this study will contribute to the literature on food security through determination of the food security status of households and factors

affecting it. The specific objectives are to:

- i. describe the socio-economic characteristics of the households;
- ii. determine the food security status of the households;
- iii. analyze factors influencing food security status of the households.

## **Materials and Methods**

### **Study Area**

The study was carried out in Lagelu Local Government Area of Oyo state. It is one of the 33 Local Governments councils in Oyo State with its headquarters at Iyana-Offa. The study area was purposively selected as suitable for the study on poverty and food security following Akinniran and Abidogun, (2015). It is in the Eastern part of Ibadan, the capital of Oyo State. It shares boundary with Iwo Local Government in the North and Egbeda Local Government in the west. It is also bounded in the south by Ibadan North East Local Government and Akinyele Local Government. Lagelu Local Government covers a total area of 416 square kilometers and consists of 14 political wards of over 80 towns and 567 villages while 55% of these settlements are rural in nature with a projected total population of 208,100 (NBS, 2016; NPC, 2016)

It consists of multi-ethnic groups of people dominated by the Yorubas. Others include Urhobos, Itsekiris, Igbos, Hausa-Fulanis and foreigners from other parts of the world. The local government area is partly agrarian. Quarrying and lumbering is also dominant in the area. The rainfall pattern and humidity of the Local Government area include wetland, plain, highland and periodic rainfall as it applies in other parts of the Southwestern, Nigeria.

### **Source and Type of Data**

Primary data were used for this study. The primary data were obtained with the aid of well-structured questionnaire and unstructured interview. The questionnaire was structured to capture data on gender, income, expenditure, household size, consumption, occupation, and other socio-demographic variables of the households.

### **Data Collection and Sampling Techniques**

A multistage sampling procedure was employed in selecting the households in the study area. The first stage was random selection of six wards out of the fourteen wards in the Local Government Area. The second stage was the purposive selection of Ogunsina, Olode, Sagbe, Sagbe, Ogunremi, and Oyedeji villages known for farming from each ward. The last stage involved random selection of twenty farming household heads from each of the villages selected in stage two. This gave a sample size of one hundred and twenty (120) respondents used for study.

### **Analytical Techniques and Models**

The study employed analytical tools based on the stated objectives. They include descriptive statistics, food security index and logit regression model.

## Determinants of the Food Security Status of Farming Households

Nigeria's economy is mainly driven by agriculture and its resources which provide opportunity for expansion for all spheres of the economy. However, the farming households who are the bedrock of agricultural

$F_i = \text{monthly per capita food expenditure for the household}$

$\text{monthly } 2/3 \text{ means per capita food expenditure of all household}$

Where  $F_i$  = food security index  
 $F_i > 1$  = food secure household  
 $F_i < 1$  = food insecure household

A food secure household is whose per capita monthly food expenditure is above or is equal to two-third of the mean per capita food expenditure of all households in the study sample. On the other hand, a food insecure household is whose per capita food expenditure falls below two-third of the means monthly per capita food expenditure (Omonona and Agoi, 2007).

**Logit Regression Model:** Logit regression was used to analyze the factors influencing food security status of the households.

$$Pr[Y_1 = 1/X_1] = \frac{1}{1 + \exp[-\beta_0 - \beta_1 X_1]}$$

$Pr[Y_1 = 0/X_1] = 1 - Pr[Y_1 = 1/X_1]$

It is a logit model because

$Pr[Y_1 = 1/X_1] = F[B_0 + B_1 X_1]$

Explicitly, this model can be linearized as:

$F_i = b_0 + b_1 X_1 + b_2 X_2 + b_3 X_3 + b_4 X_4 + b_5 X_5 + b_6 X_6 + u_i$

$F_i = 1$  if house head is food secure, 0 if otherwise

$X_i$  are explanatory variables and  $B_i$  are the parameters.

The logit model computes the maximum likelihood estimates of  $b_i$  given the non-linear probability distribution of the random error  $u_i$

The explanatory variables were defined as follows:

$X_1$  = Age of household head (years)

$X_2$  = Sex (dummy = 1 if female, 0 otherwise)

$X_3$  = Marital Status of household (single = 1, married = 2, divorced = 3)

$X_4$  = Level of education (years)

$X_5$  = Primary occupation (farmers = 1, artisans = 2, traders = 3, civil servants = 4)

$X_6$  = Farming experience (years)

The six independent variables were selected subject to avoid of multicollinearity and spurious results.

## Results

### Socio-Economic Characteristics of the Households Head

Table 1 presents socio-economic characteristics of household head. It showed that majority (60.0%) of the household head were between 41 and 60 years of age, while few (34.1%) were within 20-40 years of age. The age distribution also reveals that the mean age was 48 years and it implies that older people head the household and may be regressive in income generation. This may negatively influence the food security level of the household as income tends to decrease with an increase in age. More than half (52.5%) of the household heads were male and majority (77.5%) of them were married. This indicates that the food security level of the household has tendency to be positively affected as the male has higher ability to work and earn more income than female.

Majority (96.6%) of the household had above 4 persons with mean average household size of 5.0 persons. This implies that the large size of the household might be negatively affecting the level of food security since the household will be spending more due to high number of high number of dependants. Majority (70%) of the household heads are educated above secondary education. More than half (54.2%) of the household heads were farmers, few (29.2%) were civil servants, and rest (16.7%) were traders and artisan. More than half (54.2%) of the household heads had farmland size of 1-3 hectares, with average farmland size of 1.6 hectares implies that most of the respondents are smallholder farmers which may affect the income generation negatively. Majority (97.5%) of the household heads were subsistence farmer with an average of 9 years of farming years' experience.

The results on Table 1 also showed that less than half (37.5%) of the household heads spent N16,000 - N20,000 on food on monthly basis, followed by few (20.2%) of the household heads that spent N11,000 - N15,000. The average mean spending on food was N17,800. The implication of this small amount on food spending on monthly basis has negative effects on food security status of the household. Majority (85.2%) of the household spent less than N20,000 as school fees per term and few (15.8%) of the households pay above N20,000 as school fees per term. The mean school fees per term was N15,000 implies that the children are attending the schools with low school fees.

**Table 1: Socio-Economic Characteristics of the Household Heads**

<b>Characteristics</b>	<b>Frequency</b>	<b>Percentage (%)</b>
<b>Age (Years)</b>		
20-40	41	34.1
41- 60	72	60.0
>60	7	5.8
Mean = 48		
<b>Sex</b>		
Male	63	52.5
Female	57	47.5
<b>Marital Status</b>		
Single	19	15.8
Married	93	77.5
Divorced	8	6.7
<b>Household Size</b>		
1-3	15	12.5
4-6	58	48.3
>7	47	39.2
Mean = 5		
<b>Level of Education</b>		
Adult literacy Education	11	9.2
Primary Education	10	8.3
Secondary Education	15	12.5
Tertiary Education	84	70.0
<b>Primary Occupation</b>		
Farmers	65	54.24
Artisan	5	4.2
Traders	15	12.5
Civil servant	35	29.2
<b>Farm Size (Hectares)</b>		
1-3	68	56.7
4-6	30	25
>7	22	18.3
Mean = 1.6 hectares		
<b>Farm Type</b>		
Subsistence	117	97.5
Mechanized	3	2.5
<b>Farming Experience (Years)</b>		
1-10	25	20.8
11-20	38	31.7
>20	57	47.5
Mean = 9 years		
<b>Food Expenses</b>		
1,000-5,000	8	6.7
6,000-10,000	21	17.5
11,000-15,000	27	22.5
16,000-20,000	45	37.5
Above 20,000	19	15.8
Mean = ₦17,800		
<b>School Fees Expenses</b>		
1,000-5,000	8	6.7
6,000-10,000	21	17.5
11,000-15,000	27	22.5
16,000-20,000	45	37.5
Above 20,000	19	15.8
Mean = ₦15,000		

Source: Field Survey Data, 2019

## *Determinants of the Food Security Status of Farming Households*

### **Income Distribution of the Households Head**

Table 2 shows the income distribution in the study area. More than half (51.7%) of the household head earned between N20,000 and N30,000 as average monthly income, few (15.8%) respondents earned between

N31,000 and N40,000 as average monthly income, few (11.7%) earned between N41,000 and N50,000 as income while very few (4.2%) earned above N80,000 as an average monthly income. The average monthly income of all the respondents was N29,700.

**Table 2: Average Monthly Income Distribution of the Households.**

	Frequency	Percentage
20,000-30,000	62	51.7
31,000-40,000	19	15.8
41,000-50,000	14	11.7
51,000-60,000	12	10
61,000-70,000	7	5.8
Over 80,000	5	4.2
Mean = N29,700		
Total	120	100

Source: Field survey Data, 2019

### **Food Security status of the household**

Table 3 presents the food security status of farming households in study area. Majority (66.7%) of the

households in the study area were food insecure while (33.3) of the rural households were food secure in the study area.

**Table 3: Distribution of farming households according to their food security status**

Food security status	Frequency	Percentage
Food secure	40	33.3
Food insecure	80	66.7
Total	120	100

Source: Field survey Data, 2019.

### **Determinants of food security in the study area:**

Table 4 presents the influence of socio-economics characteristics on food security status among the households. Table 4 shows that the socio-economics

characteristics (age, gender, marital status, level of education, primary occupation, types of farming) are potent predictors of food security status in the study area.

**Table 4: Relative Effect of the Socio-economics Characteristics of the Food Security Status among Farming Households**

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	T	Sig.
(Constant)	51.269	15.826		3.239	.002
Age	.068	.178	.206	3.058	.004
Gender	.048	.472	.298	3.828	.002
Marital Status	.250	.596	.292	3.626	.005
Level of education	.595	.436	.237	3.111	.001
Primary Occupation	.985	.962	.214	3.023	.002
Types of farming	.114	.317	.105	3.049	.020

Source: Field Survey Data, 2019.

**Table 5: Summary of Regression of the Joint Contribution of Independent Variable to the Prediction of Food Security Status of the Household**

R =.635

R Square =.564

Adjusted R square =.489

Std.Error of the Estimate = 7.44047

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	749.737	2	374.868	6.771	.002
	Residual	6477.188	117	55.361		
	Total	7226.925	119			

Source: Field Survey Data, 2019.

### Discussion

More than half (52.5%) of the household heads were male and majority (77.5%) of them were married which implied that there were more male than female household heads in Lagelu Local Government area of Oyo State as confirmed by the previous studies such as Olayiwola et al. (2017), and Mohammed et al. (2014). Majority of these respondents were married indicates that they might have family responsibilities to bear which may worsen their poverty level. Majority (70%) of the household heads are educated above secondary education which implied that majority of the respondents are educated. This high level of education was supported by Bogale and Shimelis (2009) which showed that an educated person has the ability to think critically with regards to maintaining a certain standard of living because they have the necessary knowledge and information. Household heads that have attained a minimum of primary education have an advantage with agricultural production than those with no formal education (Bogale and Shimelis, 2009). As further shown in the findings, majority of the rural dwellers were predominantly farmers, while a good number of them were civil servants; and some of them also engaged in other activities like trading and artisanship.

The results showed that less than half (37.5%) of the household heads spent N16,000 - N20,000 on food on monthly basis, followed by few (20.2%) of the household heads that spent N11,000 - N15,000. The average monthly income of all the respondents was N29,700. This implies that majority of the dwellers of the local government area are low income earner. This low average monthly income will predispose the respondents in the study area to food insecure as their income may be insufficient to procure all the food items needed by the entire household in the right quantity and quality.

Majority (97.5%) of the household heads were subsistence farmer with an average farmland size of 1.6 hectares. This implies that farming household may find it difficult to cross over poverty line due to meagre income generated from their subsistence farming operation. This finding is supported by Arene and Anyeaji (2010) and Oni and Fashogbon (2013) who

found that rural Nigeria is characterized by small-scale. Majority (66.7%) of the households in the study area were food insecure while (33.3) of the rural households were food secured. The findings also showed that the households that were food insecure were more than those that were food secure.

The factors that influence food security status among the farming households in Lagelu Local Government Area include age, gender, marital status, level of education, primary occupation and types of farming system. People in their active age have potential of income diversification and increase in income compare to the older people. Male has a potential of higher income generation than the female which implies that there is likelihood of male-headed household to be food secure than the female-headed. Married people are likely to be food insecure unlike single person as married people have more financial obligations than the single person. High level of education has positive effect on food security as illiterate are likely to be poor due to their low level of knowledge in income management and diversification. Primary occupation is crucial as one of the determining factors of food security. Civil servants with a regular flow of income are likely to be more food secure unlike peasant farmers that their incomes are meagre.

The study showed that both socio economic and demographic variables jointly predicted food security status among the households in Lagelu. This, therefore, implies that there was a significant combined effect of the independent variables on the dependent variable.

### Conclusion

Arising from the findings of this study and conclusion drawn that both socio economic status and demographic variables jointly predicted food security status among the households in Lagelu Local Government. The study recommends that Government should endeavor to empower the rural households through empowerment and intervention programmes in order to assist them in income generation and subsequently increase food security and sustainable livelihood among them. Also, the respondents in the study area should try as much as possible to adopt

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