



Determinants of Food Security of Internally Displaced Farming Households in Maiduguri Borno State, Nigeria

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Abstract

This study examines the determinants of food security status of Internally Displaced farming households in Maiduguri, Borno state, Nigeria. Primary and secondary data were used for this study. The study used logit regression and the data obtained using survey. In explaining the determinants of food security among the respondents, the Binary Logit regression model used provided results of the parameter estimates of these variables. The variables that were found have positive significantly effects on food insecurity status including; age, household size, educational status, households size' income level, farm size and cooperation membership. On the contrary, the result revealed that child dependency ratio and gender of household's head were all significant at 5% and have negative effects to displaced farming household's food security in the study area. The study concluded that a unit increase in the coefficient of these variables (age, household size, educational status, households' size' income level, farm size and cooperation membership) would increase the possibility of food security among displaced farmer's household. Therefore, the study recommended that credit facilities should be provided to displace farmers by the Bank of Agricultural at a low interest rate in order to enhancing their farm income and farming ability which could expand scale of operation in the study area. The study further recommended that Internally Displaced farmers should be encouraged by government and non-government organizations to join farmers association (cooperative membership) in order to enable them to benefit from government subsidies on Agriculture inputs and information that could help in boosting farming thereby leading to decreases in food insecurity.

Keywords: *food security, internally displaced, farming households, Maiduguri, food insecurity.*

Background to the Study

Thousands of people are internally displaced every year globally due to armed conflict. They were forced to flee their homes in search of protection; some find refuge with families and friends, but most are crowded into camps provided by government and nongovernmental organization (NGOs). They may face problems such as mental stress, hunger, disease and among others. The concept of internally displaced persons, does not have a legal definition, is not as elusive as related terms such as refugees, migrants etc. The 1992 report of the Secretary-General of the United Nations is the most widely used definition of Internally Displaced Persons. According to this report Internally Displaced Persons are; 'persons who have been forced to flee their homes suddenly or unexpectedly in large numbers, as a result of armed conflict, internal strife, systematic violations of human rights and natural or man-made disasters who are within the territory of their own country. Conflicts drives the dramatic increase in the number of forcibly displaced people from 40 million people in 2011 to almost 66 million in 2016 (United Nation, 2018).

Rural areas are bearing the brunt of these conflicts, and rural populations are most severely affected. Globally, it has been estimated that the number of people displaced annually by conflict and violence has increased since 2003, on the average, global report on internal displacement puts the figure at about 5.2 million persons displaced annually due to insurgency, political instability and terrorist activities of groups such as ISIS and Boko Haram, particularly in the Middle East and Sub-Saharan Africa (Ojo and Adebayo, 2020). The global estimate of Internally displaced persons (IDPs) due to conflict was 40.8 million. The report further added that three-quarter of these IDPs reside in ten countries of the world, and five of these are in Sub-Saharan Africa. Protracted conflicts around the world have been a main cause of a rise in global hunger in recent years. Forced movements of people and food insecurity may also fuel conflicts (Norwegian Refugee Council, 2016).

However, the impacts of this vicious circle are obvious, the causes can be complex and how conflict creates food insecurity, and when conflict and food insecurity drive people to abandon their livelihoods and migrate differ from place to place. Where do we begin to prevent and mitigate these complex problems? Responses should start from a clear understanding of the root causes underlying conflicts, movements of people, and persistent food crises. While humanitarian aid is essential in the short-term to prevent food crises and famines. Food insecurity affects the lives of millions of people across the world and is increasingly concentrated in conflict-affected regions. Globally, 60 percent of the 815 million undernourished individuals and 79 percent of the 155 million stunted children live in countries affected by violent conflict (FAO, 2021). Nigeria recorded an additional 1.55 million food insecure people, including 669 000 people facing an emergency situation (phase 4). New estimates for Togo indicated some 280 000 people facing a crisis (up from less than 4 000 people). The small coastal country particularly suffered from the impacts of Nigeria's border closure and the effects of Covid-19-related protection measures (FAO, 2020).

In Nigeria, the number of internally displaced persons that suffers food crises is on the increase because of Boko Haram insurgency in the North-east and Fulani Herdsmen attack in North-central Nigeria. Of the total figure of IDPs recorded by International Organization for Migration (IOM), Nigeria accounts for about 2,191,193. Out of this figure, about 13.33 per cent were displaced due to communal clashes, 0.99 per cent by natural disasters and 85.68 per cent because of insurgency attacks by Islamists. The conflict in the northeast of Nigeria persists and continues to induce widespread displacement and disruption of livelihoods as well as optimal functionality of markets and therefore food insecurity emerges. The protracted nature of the ongoing conflict in the northeast, which is almost a decade long now, coupled with recent displacements attributed to attacks by Non-State. Armed Groups (NSAGs) in December 2018 and January 2019, continues to draw the attention of the humanitarian community, government and donors to the northeast states of Borno, Adamawa and Yobe (BAY) States, which remains epicenter of the ongoing crisis in the northeast and particularly given the recent deterioration in the security situation (International Organization for Migration, 2021).

Borno State being the epicenter of the Boko haram insurgency in north-east Nigeria, many fled their rural areas of origin to urban centres in search of security and humanitarian assistance. Hence, the IDP population in urban centres increased significantly and camps were established, mainly in the LGAs (Maiduguri, Jere and Konduga). As the insurgency intensified over time, more IDPs relocated to the camps around the urban centers of Borno State. This according State Emergency Management Board (2023), there are 2,730,000 million, internally displaced persons in Borno State. It is against this background, the purpose of this study is to attempt to shed more light by examining determinants of food security status among internally displaced farming households in Maiduguri Borno State, Nigeria.

Most of these internally displaced persons (IDPs) are rural dwellers who came from rural areas where they depended solely on agriculture activities to sustain their lives for food and another livelihood needs. However, as the population of these IDPs increased in the various camps within and outside Maiduguri, the food demand also increased as Malthus theory of population stated. Even though the government and the NGOs are striving hard to assist these IDPs, but yet their food security is questionable, because of the prevailing situation in the camps.

In Nigeria, there are scanty literature that seeks to analysis the determinants food security status of displaced farming households in Maiduguri Borno State. Although, there were some studies such as Wakil¹, Gadzama and Lawan¹ (2019) and Multafu & Dawayo (2020) which applied food security index (FSI) and household food insecurity assess scale (HFIAS) techniques respectively in measuring food security status of the internally displaced persons and highlighted that IDPs were found food insecure. However, both studies failed to applied cost of calorie intake technique in measuring the food security status among IDPs. Cost of calorie intake technique is one of the best modern method applying in measuring food

security status (FAO, 2020). Therefore, this work will fill the gap by applying cost of calorie intake technique in measuring food security status of the displaced farmers living in internally displaced persons' camp in Maiduguri Borno state, Nigeria.

Literature Review

Conceptual Issues

Food

Anderson (2009), viewed food as a basic need and necessity of life that must be given top priority amongst every other developmental issue. Food intake in appropriate proportion and good nutritive value is key for a productive and healthy living, hence the need for food security. Food security is deemed to exist when all people have consistent access to safe, quality and adequate food resources to meet their dietary requirement and food preferences for a healthy and active life. Food insecurity, the converse situation is said to exist when there is uncertainty in the ability to acquire nutritionally adequate and safe foods in socially acceptable ways (Gillespie et al., 2001). Its importance is seen in the fact that it is a basic means of sustenance and adequate food intake. The importance of food is also shown in the fact that it accounts for a substantial part of a typical Nigerian household budget (Omonona & Agori, 2007).

Food Security

According to FAO (2002), food security as a situation that exist when all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life. This definition means that food insecurity exists when people do not have access to enough and appropriate foods (Barrett, 2001). No matter the definition of food security, there are four distinctive variables central to the attainment of food security. These variables are: food availability, accessibility, utilization and stability of access food. Availability, accessibility and utilization are hierarchical in nature. Food availability is necessary but not sufficient for food accessibility and access is necessary but not sufficient for utilization. In a larger sense, two broad groups of factors determine food security. These are supply side factors and demand side factors. The supply-side factors are those that determine food supply or food availability. In other words, they are determinants of physical access to food at national, household and intra-household levels. The demand side factors, ascertain the level of access that households and individuals have to available food. Therefore, they are determinants of economic access to food or determinants of entitlement to available food (Omonona & Agoi, 2007).

The WHO (2019) states that there are three pillars that determine food security: food availability, food access, and food use and misuse. According to FAO (2006) added a fourth pillar: the stability of the first three dimensions of food security over time. In 2009, the World Summit on Food Security stated that the "four pillars of food security are availability, access, utilization, and stability" (FAO, 2009).

Availability: Food availability relates to the supply of food through production, distribution, and exchange (FAO, 2009). Food production is determined by a variety of factors including land ownership and use; soil management, crop selection, breeding and management; livestock breeding and management; and harvesting (WHO, 2019). Crop production can be affected by changes in rainfall and temperatures. The use of land, water, and energy to grow food often competes with other uses, which can affect food production. Land used for agriculture can be used for urbanization or lost to desertification, salinization, and soil erosion due to unsustainable agricultural practices (Brklacich, 2005). Crop production is not required for a country to achieve food security. Nations don't have to have the natural resources required to produce crops in order to achieve food security, as seen in the examples of Japan and Singapore (Pravhat, 2017).

Since food consumers outnumber producers in every country, food must be distributed to different regions or nations (Pravhat, 2017). Food distribution involves the storage, processing, transport, packaging, and marketing of food (FOA, 2020). Food-chain infrastructure and storage technologies on farms can also affect the amount of food wasted in the distribution process. Poor transport infrastructure can increase the price of supplying water and fertilizer as well as the price of moving food to national and global markets (Brklacich, 2005). Around the world, few individuals or households are continuously self-reliant for food. This creates the need for a bartering, exchange, or cash economy to acquire food. The exchange of food requires efficient trading systems and market institutions, which can affect food security. Per capita world food supplies are more than adequate to provide food security to all, and thus food accessibility is a greater barrier to achieving food security (Pravhat, 2017).

Access: Food access refers to the affordability and allocation of food, as well as the preferences of individuals and households. The UN Committee on Economic, Social, and Cultural Rights noted that the causes of hunger and malnutrition are often not a scarcity of food but an inability to access available food, usually due to poverty (World Bank, 2008). Poverty can limit access to food, and can also increase how vulnerable an individual or household is to food price spikes. Access depends on whether the household has enough income to purchase food at prevailing prices or has sufficient land and other resources to grow its own food. Households with enough resources can overcome unstable harvests and local food shortages and maintain their access to food (Pravhat, 2017).

There are two distinct types of access to food: direct access, in which a household produces food using human and material resources, and economic access, in which a household purchases food produced elsewhere (WHO, 2019). The assets of a household, including income, land, products of labour, inheritances, and gifts can determine a household's access to food. However, the ability to access sufficient food may not lead to the purchase of food over other materials and services. Demographics and education levels of members of the household as well as the gender of the household head determine the preferences of the household, which influences the type of food that are purchased (Luther, 1999). A

household's access to enough and nutritious food may not assure adequate food intake of all household members, as intra-household food allocation may not sufficiently meet the requirements of each member of the household. The USDA adds that access to food must be available in socially acceptable ways, without, for example, resorting to emergency food supplies, scavenging, stealing, or other coping strategies (UN, 2010).

Utilization; The next pillar of food security is food utilization, which refers to the metabolism of food by individuals (Pravhat, 2017). Once food is obtained by a household, a variety of factors affect the quantity and quality of food that reaches members of the household. In order to achieve food security, the food ingested must be safe and must be enough to meet the physiological requirements of each individual. Food safety affects food utilization and can be affected by the preparation, processing, and cooking of food in the community and household (WHO, 2019). Nutritional values of the household determine food choices, and whether food meets cultural preferences is important to utilization in terms of psychological and social well-being (Berdegue, Escobar and Reardon 2019). Access to healthcare is another determinant of food utilization, since the health of individuals controls how the food is metabolized. For example, intestinal parasites can take nutrients from the body and decrease food utilization (Pravhat, 2017). Sanitation can also decrease the occurrence and spread of diseases that can affect food utilization (Ruel, 2018). Education about nutrition and food preparation can affect food utilization and improve this pillar of food security (Pravhat, 2017).

Stability: Food stability refers to the ability to obtain food over time. Food insecurity can be transitory, seasonal, or chronic. In transitory food insecurity, food may be unavailable during certain periods of time. At the food production level, natural disasters and drought result in crop failure and decreased food availability. Civil conflicts can also decrease access to food. Instability in markets resulting in food-price spikes can cause transitory food insecurity. Other factors that can temporarily cause food insecurity are loss of employment or productivity, which can be caused by illness. Seasonal food insecurity can result from the regular pattern of growing seasons in food production (WHO, 2019). Chronic (or permanent) food insecurity is defined as the long-term, persistent lack of adequate food. In this case, households are constantly at risk of being unable to acquire food to meet the needs of all members. Chronic and transitory food insecurity is linked, since the reoccurrence of transitory food security can make households more vulnerable to chronic food insecurity (WHO, 2019).

Empirical Literature

Determinants of Food Security of Displaced Farming Households

Oluyole *et. Al.*, (2009) in the study he examined the food security status of cocoa farming households of Ondo state, Nigeria. Descriptive statistic and food security index techniques were employed to establish the food security status of households. The findings show that food insecurity incidence decreases with increase in the level of education. Food insecurity incidence is relatively low for those engaged in professional occupation and among the

highest of traders. Food insecurity incidence may likely decrease among the professionals due to increase capacity to earn steady income which improved their living standard. However, high food insecurity incidence among traders may be due to low educational status, seasonal nature of business, market failure and so on. Also, food insecurity incidence increases with increase in household size. This ranges between 0.27 and 1.00 for those households made up of 1-4 and greater than 12 members respectively. There is a decline in food insecurity incidence as income increases from 0.41 for low income group to 0.20 for the high-income group. On the basis of dependence ratio, food insecurity incidence with increase in dependence ratio, the increase is from 0.30 with low dependence to 0.50 for households with greater than one dependency ratio.

Okuneye (2021) categorized factors affecting food security at the household level into supply-side factors, demand-side factors and stability of access to food. Household food and non-food production variability represents the supply factors while household economic asset, household income variability and quality of human capital within the households represent the demand factors. The degree of producer and consumer price variability, household food storage and inventory practices represent the stability of access to food. These factors positively affect the level of food security in the study area. In addition, Gupta, Singh & Murt (2009) examined food security in the Lake Chad Area of Borno State, Nigeria. He reported that factors influencing household food security positively include stock of home-produced food and number of income earners in the household. This implies that these factors increase the incidence of food security in the study area. The household size positively influenced the availability of manpower needed in the farm which in turn increased the stock of own-produced food. Increased income also invariably increased economic access to food. In a similar study, Nghiem (2010) in a study of household food security in Vihiga district of Kenya found that household income, savings behavior and nutrition awareness positively influenced food security while number of adults, ethnicity negatively influence household food security. Increased number of adults indicates that more food will be required to meet household's nutritional need. Also, some particular food items may be forbidden and even the choice of off-farm activities households could engage in may vary among ethnic groups.

Furthermore, a study carried out by Omotesho *et al.* (2008) identified the determinants of food security among rural households in Kwara State, Nigeria. The main tools of analysis for this study include descriptive statistics and logistic regression model. The study observed that farm size of the households, gross farm income, total non-farm income and household size are the significant determinants and positively affect rural household food security in the study area. Kale (2012) also stressed that farmland size, ox ownership, fertilizer application, education level of household heads and per capita production significantly and positively determine households' food security, while household size though significant but negatively affects food security status in the study area.

Babatunde *et al.* (2007b) investigated the relative importance of supply-side and demand-side factors of household food security through a logistic regression analysis applied to data collected from 247 sample households in Southern Ethiopia. Among these factors, technological adoption, farming system, farm size, and land quality are supply-side factors while household size, per capita aggregate production, and access to market are demand-side factors. These factors positively determine household food security status. Among the nine factors included in the model, seven were identified as statistically significant determinants of household food security. These include technological adoption, farming system, farm size, land quality, household size, per capita aggregate production and access to market. In line with Omotosho *et al.* (2008), household size negatively affects food security status among households. Based on the magnitude of their partial effects on the probability of food security, supply-side factors are more powerful than the demand-side factors in determining household food security in the study area.

Demi (2013) observed that degree of food insecurity among farming households: Evidence from the Central Region of Ghana". A multistage sampling technique was used to select the respondents that were interviewed using a structured questionnaire. In all 240 households were interviewed for the study (i.e., 120 farming households in each of the Forest Communities and Coastal Communities). Data was obtained from 1690 individuals for the analysis. The empirical results reveal that majority of the farmers were food insecure. The food insecurity gap which measures the depth of food insecurity was estimated at 0.26. This result implies food insecure households required an additional 26% of calorie intake to meet their daily calorie requirements. The months of April and May are the periods in which households experience severe food shortage.

Young *et al.* (2001) revealed that drought, food security and famine Coping with food insecurity and famine, the work finds that the most effective way to protect communities against food insecurity and famine resulting from drought is to strengthen these mitigation strategies in advance, especially those that enable them to preserve their productive assets, such as animals, seeds and tools. Despite this, many external interventions are in response to drought. Moreover, they often come at a late stage, when communities are in crisis and may already be destitute, having been forced to dispose of productive assets. Typical interventions in such circumstances are to provide food, seeds, fertilizer, animals and agricultural equipment to replace what has been used or sold, and to lend money. Where a crisis has become acute, with widespread starvation and migration, aid agencies' interventions focus on emergency response, especially feeding and health care. Food-for-work and cash-for-work schemes are also common responses.

Ibok, (2014) found that majority of urban households in Nigeria are faced with serious food insecurity problems appears erroneous. In this study 98.16% of urban food crop farming households were not food secure, only 1.84% were food secure. To cope with this high level of food insecurity, allowing their children to eat first, occasionally eating fruits and buying food on credit were the coping strategies adopted by household heads in the study area. The study

also shows that that staple food crops especially yam, cassava, rice and maize play a crucial role in the food security drive of urban households.

Theoretical Framework

The Malthusian theory of population have succeeded in explaining the food insecurity situation especially in developing countries like Nigeria where there are constraints to technological progress and international trade and at the same time the growth in food production is not encouraging. The manifestation of food insecurity in Nigeria can however be justified on the basis of frequent food importation indices of the country. World Bank, the International Monetary Organization and others that encouraged and pressurized African countries in general and Nigeria in particular into dropping government subsidies for fertilizer, improved seed and other input as a requirement to get aid from them. This is really the act of economic sabotage and hypocrisy on the part of these neo-liberal institutions who are promoting government intervention in their economies and at the same time advising other countries especially Africa countries and particularly Nigeria to withdraw government subsidies in all basic provisions including agricultural production. Owing to the adoption of these neo-liberal policies, Nigeria is now the net importer of food today despite the abundant natural and human resources in the country.

Methodology

Source of Data

This study adopted both primary and secondary data. Primary data has been generated from the IDPs living in the three camps mentioned earlier through a well-structured questionnaire administered to the respondents while secondary data were generated from relevant literatures and publications of government agencies, national/international organizations such as: CBN, NPC, and UN.

Sampling Procedure

Multi stage sampling technique which involves two stages; the first stage involved random selection of three camps (Bakasi, Dalori and Teachers' Village) out of the 9 IDPs official camps, (NYSC, Bakassi, EYN, Teachers' Village, Garba Buzu, Federal Training Center, Wulari Community, Dalori and Tashan Kano Stadium) in Maiduguri Borno State, Nigeria. These three camps comprise almost all the ethnic groups around the state. The second stage involves random selection of 200 households from Bakasi camp and 125 households from each of Dalori and Teachers' Village Internally Displaced Persons (IDPs)'Camps out of 7,017, 1,655 and 1,548 households respectively.

Population of the Study

The population of this study consist of the entire households in the three camps that consist 10,220 People. The people inhabitants are from kukawa, Guzamala, New Marte, Monguno, Baga, Damasak, Bama, Konduga, Gwoza (Borno State Emergency Management Agency, 2020).

Sample Size

In order to select an appropriate sample size Yamani (1967) provide formula to calculate sample size. The formula has been used to calculate the sample sizes in various research works. The formula is given as follows:

$$n = \frac{N}{1 + N(e)^2} \text{-----} 1$$

Where:

n=the sample size

N=population size

E=level of precision

Substituting the figure as;

N=10,220, e=0.05, n=?

$n = 10,220 / 1 + 10,220(0.0025)$

$n = 10,220 / 1 + 25.55$

$n = 10,220 / 26.55$

$n = 384.934$, approximately 385.

Logit Model

Based on the household food security index (Z), the Logit model as applied by Babatunde *et al.* (2007); Amaza, *et al.* (2008), Oluyole *et al.* (2009) and Ahmed (2015) was used to identify the determinants of food insecurity status of the Displaced Farmers' households. The model measured the parameters of the conditional probability of being food secure/insecure and the effect of marginal changes in the explanatory variables on the food security/insecurity status. In the Logit model, the data on the dependent variable (food security status) is bivariate, that is, food secure and food insecure households. The model assumes that being food secure is a continuous status. The model expresses households' food security status as a function of linear combination of observable explanatory variables, some unknown parameters and an error term (e).

The implicit form of the model is expressed as:

$$Y_i = g(I_i) \text{-----} (2)$$

$$I_i = b_0 + \sum_{j=1}^m b_j X_{ji} + e \text{-----} 3$$

Where,

Y_i is the observed response for the its observation (i.e., the binary variable, $Y_i = 1$ for a food secure household and $Y_i = 0$ for a food insecure household);

I_i is an underlying and unobserved stimulus index for the i^{th} observation for each household; if $I_i^* > I_i$ the household is observed to be food secure, if $I_i^* < I_i$ the household is observed to be food insecure;

g is the functional relationship between the field observations (Y_i);

(I_i^*) the stimulus index determines the probability of being food secure;
 (I_i) the stimulus index determines the probability of being food insecure;
b is coefficient of explanatory variables; and
X represents the explanatory variables

The Logit model assumes that the underlying stimulus index (I_i^*) is a random variable, which predicts the probability of being food secure. The empirical model used for determining factors that influenced food security status among displaced farming households.

$$1 - P_i = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + b_8X_8 + b_9X_9 + b_{10}X_{10} + b_{11}X_{11} + b_{12}X_{12} + b_{13}X_{13} + b_{14}X_{14} + b_{15}X_{15} + b_{16}X_{16} + e \quad 4$$

Where;

P = probability of an i^{th} household being food secure stands for dummy (**D** = 1, food secure; **D** = 0, food insecure)

X_i = vector of explanatory variables which are defined as:

X₁ = Age of household head (AGE) in years;

X₂ = Income of household (HHINC) in Naira;

X₃ = Farm size of a household (FARMSZ) in hectares;

X₄ = Household size (HHSZ);

X₅ = Co-operative membership; (COOP) **D** = 1, if yes; **D** = 0, otherwise;

X₆ = Level of education (EDUC) in years;

X₇ = Sex of household head (SEX) **D** = 1 for male, **D** = 0 for female;

X₈ = Household assets (HHAAT) in Naira

X₉ = Child dependency ratio (CDR);

X₁₀ = Diet Diversity (DD) in HDDS scores **D** = 1, high diet diversity (6-12); **D** = 0, low diet diversity (0-5).

Head Count Ratio

This is the simplest and the common measure of food insecurity. Food security can therefore be expressed in a single index by inference.

$$H = Q/N \quad 5$$

Where;

H = Head count ratio

Q = is the number of food insecure and

N = is the total sample population

This gives the proportion of the population with income below the food security line while the population on and above the food security line are food secure households.

Aggregate Food Gap (G)

This is sometimes referred to as income gap or food expenditure deficit. It signifies the amount of food the insecure households would need to meet their minimum food requirement.

$$G = Z - X \quad 6$$

Where;

G = Aggregate food gap

Z = cost of buying the minimum calorie intake (food security line);

X = adult equivalent food expenditure (in Naira)

This simply gives the difference between the costs of buying the minimum calorie intake which is also the food security line for households and the adult equivalent food expenditure.

Household Dietary Diversity Score (HDDS)

Dietary diversity was employed as a qualitative measure of food consumption in the study area. It reflected households' access to a wide variety of foods included in the HDDS following the methodology developed by USAID's Food and Nutrition Technical Assistance (FANTA) project, and adapted by FAO's nutrition division (FAO, 2020). Dietary diversity was measured by summing the number of foods or food groups consumed over a reference period. The HDDS which ranged between 0-12 was used to measure household's dietary diversity and also ranked accordingly into high dietary diversity (6-12) and low dietary diversity (0-5) (FAO, 2008b). HDDS indicator for sample population was also measured by the sum of HDDS of households divided by the total number of households. Twelve (12) food groups included in the HDDS were: Cereals; roots and tubers; Vegetables; Fruit; Meat, poultry, offal; Eggs; Fish and sea foods; Legumes, nuts and seeds; Milk and milk products; Oils and Fat; Sugar/honey; condiments; and Beverages (FAO, 2007). These food groups were used to identify food intake quality of the households. The number of different food groups consumed was calculated rather than the number of different foods.

Data Presentation, Result and Discussion**Determinants of Food Security Status of the Respondents****Table 1:** Result of Binary logit Regression Model

Variable	Coefficient	S. error	T. value	Significant	Exp. (B)
AGE	-.2494839	.0278731	-8.95***	0.000	-.1946744
HHINC	.3647451	.1802131	2.02**	0.043	-.0115339
HHSZ	-.1631979	.0610479	-2.67***	0.008	.2828497
FARMSZ	.6951203	.1629153	4.27***	0.000	-.3758123
FARMEXP	.2565260	.1506598	.956	0.338	.3898305
COOPER	.2792951	.0836628	3.34***	0.001	-.115319
EDU	.2161706	.1049572	2.06**	0.039	-.0104582
GEND	-.6868091	.2391961	-2.87***	0.004	.1.155625
HHAST	.1272957	.0426657	2.98***	0.003	-.043398
FARMEN	.01291	.0808984	0.16	0.873	-.456478
OCC	.0389677	.2051949	0.19	0.849	-.3632069
CDR	-.2208905	.0669586	-3.30***	0.001	.352127
EXTAG	.0275649	.3071759	0.09	0.928	-.6296186
DIET DIV.	-.361411	.0794022	4.55***	-.5175472	-.2052748
CONS	-1.104755	.5693954	-1.94**	0.053	-2.224412

Source: field survey 2021 *** Significant at 5% and ** Significant at 1%.

Age

Table 1, shows that the coefficient of years/age of respondents is statistically significant at 1% level and has a negative relationship with households' food security. Specifically, the probability of being food secure is decreased by -.2495 for households whose heads had older age. However, the results are similar with that of Babatunde et al, (2007) reported that the likelihood of food insecurity decreases with an increase in age because older people have better experience in subsistence agriculture and are able to accumulate better wealth.

Household Income (HHINC)

Table 1, shows that the coefficient of household income variable was found to be significant at 1% level and shows a positive relationship on households' food security status. This indicates that the lower the household income, the higher the probability that the household would be food insecure. This agrees with the *a priori* expectation and the possible explanation is that income determines purchasing power of the household at the prevailing prices. This finding from this study confirmed previous works of Omotesho *et al.* (2008) where the study identified gross farm income was major determinants and had significant positively effects on food security among rural households in Kwara State.

Households Size (HHSZ)

The findings in Table 1 further revealed that the coefficient of household size (X4) was found to be significant at 5% and shows negative relationship with households' food security status. This implies that there is an indirect relationship between household size and food security status. In other words, an increase in family size would lead to a decrease in households' food security status, this implies that a member increase in household size increases the probability of household being food insecure by .1632. This result agrees with Ibok (2014) who found that an increase in one family member increases the chances of a household becoming food insecure by indirectly reducing income per head, increasing expenditure per head, and increasing per capita food consumption. This may be attributed to the fact that household size exerts more pressure on consumption than it contributes to production,

Farm Size (FARMSZ)

Table 1 shows that regression coefficient of farm size variable was positive as expected in the *A priori* and significant at 5% level. Farmland holding is a basic asset. This indicates that households with larger farm sizes are likely to produce more food and possibility of increased production translates to more income and improves food security than those with smaller farm sizes and vice versa. The farm output may likely be insufficient to support the food requirements and households have to buy food when what they produced from their own land is exhausted. It is expected optimum use of the limited resource and available modern agricultural practices will ensure food security in households. Omotesho *et al.* (2008) also supported that farm size was one of major key determinants of food security which had statistically positive impact on household food security in the study area.

Cooperative Membership (COOP)

Table 1 shows that coefficient for cooperative membership was positive and also significant at

5% level indicating that the food security status of households increased with cooperative membership. Active participation in cooperative activities tend to attract benefits in terms of helping members in mobilizing resources within society for agricultural operations and marketing, access to inputs (essential manufactured goods) at cheaper rates, enables members take advantage of economies of scale in production, processing and marketing of agricultural produce. Also, it assists in the training and education of members in modern agricultural practices and use of agricultural inputs. It is expected that as the level of participation increases, the probability of being food secure increases.

Education Level (EDU)

Table 1 shows that coefficient of years of formal education is statistically significant at 1% level and has a positive relationship with households' food security, the probability of being food secure is decreased by -.2162 for households whose heads had lower level of formal education. This suggests that, increase in years of formal education increases the likelihood of households to be food secured and vice versa. This is as expected, since the level of education should positively affect the income earning capacity and level of efficiency in managing the household's food resources. This finding from this study confirmed previous works of Oluyole *et. Al.*, (2009) that food insecurity incidence decreases with increase in the level of education due to increase capacity to earn steady income which improved their living standard in the study area.

Gender (GEND)

Table 1 shows that coefficient of gender was significant at 5% and showed a negative relationship with household's food security status. Culturally, provision of household needs and general welfare are responsibilities accorded men. Male household heads are not limited to job opportunities in their immediate environment whereas, child bearing and home keeping may increase food insecurity among female household heads. Consequently, households headed by females may likely have high probability of being food insecure in the study area.

Household Assets (HHAST)

Table 1 shows that as expected *in the priori*, a positive relationship existed between food security level and household assets and was significant at 5% level. Ownership of consumer durable and productive assets may likely increase households' food security status. Households can liquidate assets which makes money available to buy food during emergencies, hence improving food security. Common assets among farming households include; land, motor vehicles, radio/television sets bicycle, handsets, etc. It is believed that the more endowed households are the more food secure they will be.

Child Dependency Ratio (CDR)

The result on table 1 shows the coefficient of child dependency ratio is negatively related to households' food security status as expected and was statistically insignificant at 5% level. The classification of households by child dependency ratio in the study of food security is

important because as child dependency ratio increases food security among households decreases and vice versa. This is plausible as high child dependency ratio results in increased households' food requirements, probable reduction in quantity and quality of food, heavy dependence on available households' income, hence high probability of food insecurity.

Diet Diversity (DD)

The table 1 shows the coefficient of this variable is significant at 5% with a positive sign as expected. This is an indication of both physical and economic access to required food items. Table 4.9 indicates that food diversity in the urban area may likely depend on income level. Households therefore, access available food items at the prevailing market prices. Food diversity result shows that about 33%, 68% and 82% have high food diversity indexes among low, medium and high-income households respectively in the urban area. This implies that the extent of households' food diversity intake is also an indication of their food security status.

Conclusion

The Logit model was applied to examine the determinants of food security status in the IDPs' camp. The regression variables that were significant at 5% level and positively related to food security in the IDPs camps; were, farm size, cooperative membership while level of formal education and income level, is also positive and significant at 1%. This implies that a unit increase in the coefficient of these variables would increase the possibility of food security in displaced farmers' households. On the contrary, the result revealed that child dependency ratio and gender of household's head were all significant at 5% and negatively related to displaced farming household's food security.

Recommendations

The study recommended that credit facilities should be provided to displace farmers by the Bank of Agricultural at a low interest rate in order to enhancing their farm income and farming ability which could expand scale of operation in the study area. The study further recommended that Internally Displaced farmers should be encouraged by government and non-government organizations to join farmers association (cooperative membership) in order to enable them to benefit from government subsidies on Agriculture inputs and information that could help in boosting farming thereby leading to decreases in food insecurity. Finally, the study recommended that Government should provide adequate access to farm land and also increase farm size for farming activities to displaced farmers in order to enhance their farming ability.

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