FOOD INSECURITY IN NIGERIA: IMPLICATIONS ON POVERTY REDUCTION

By

Abdulmalik Iyabo B.

Department of Economics, Kwara State College of Education, Ilorin.

E-mail:-iyaboabdulmalik76@gmail.com Phone:- 08037247228

Abstract

Despite an increase in food production in Nigeria, majority of the people, especially the rural Nigerians, are still not food secured. Therefore, this paper examines the factors responsible for food insecurity in Nigeria and its implications on poverty reduction. Vector Auto regression model along with its devices: Impulse Response Functions and the Variance Decomposition Device were used. The study found that food insecurity is determined by domestic food production and per capita income. It is, therefore, suggested that, to alleviate poverty in Nigeria, there should be self-reliance in food and strict control on food imports.

Keywords: Food insecurity, Hunger, Malnutrition, Poverty

Jel. Classification: I31, I32

1.0 Introduction

In countries with a high rate of undernourishment, a comparably high proportion of the population struggles to survive on less than US $1 per day (Christine,1999). Hence, hunger and malnutrition are serious problems for many people in most developing countries. Malnutrition results from absence of specific nutrients in a diet. Malnutrition and hunger are said to be closely related to poverty, as such, poverty leads to hunger. More so, hunger deprives people of their strengths and skills to carryout productive work (Obasi, 1997).

When the food deficit is very high, people's diet tends to be deficient in protein, vitamins and carbohydrate-rich staple foods such as rice, cassava and maize that provide energy. The food situation in Nigeria has led to a tremendous increase in the price of food over the years with a decrease in the living standard of many families. Food deficit of Nigeria fell gradually from 75 Kcal per person per day in 1997 to 42 Kcal per person in 2016 (USAID,2011). A nation of weak and sick people cannot be productive. Therefore, provision of adequate food is required at all times for its teeming population. This means that a nation must be food secured, a family must be food secured and an individual must be food secured (Arosanyin, 2006).

Despite the advances that have been made in the huge, but growing body of knowledge on the poverty reduction in Nigeria (Okuneye, 2001; Ogwumike, 2000; Obadan, 1996; Aderibigbe, 2001), no concrete attempt has been made in Nigeria to relate food insecurity and poverty reduction. Yet, the two are closely linked in an inseparable manner. Therefore, the main objective of this study is to examine the factors that influence food insecurity in Nigeria and its implications on poverty reduction in Nigeria.

2.0 Review of Related Literatures

2.1 Conceptual Review

2.1.1 Food Insecurity and Poverty Reduction

One of the common features of food insecurity is poverty. Food insecurity is closely related to poverty in such a way that one enforces the other. Food insecurity refers to shortage in per capita daily calorie intake below the minimum of 2400 K/Pd per capita daily calorie intake recommended by FAO and WHO for maintaining the human body (Siamwalla& Valdes, 1994). Otaha (2013) defined food insecurity as "a condition of lacking the resources to acquire a nutritionally adequate diet".

Poverty arises when there is lack of the means to satisfy critical needs. According to Encyclopedia Americana (1989), poverty can be seen from two different perspectives: (i) "Moneylessness", which means shortage of cash to satisfy human basic needs such as nutrition, rest, warmth and body care; and (ii) "Powerlessness", which refers to people whose lives are controlled by other persons. Poverty is categorized into absolute and relative. Absolute poverty is defined as the inability to obtain the minimum necessities for the maintenance of physical efficiency while relative poverty refers to the ability to attain a given minimum contemporary standard of living (Omobolanle& Ayodele, 2013). Poverty can also be grouped into temporary and chronic poverty. Temporary poverty is a short-term poverty. It arises from theft, drought, war, flood and fire. Chronic poverty is a long-term poverty used to describe the average life in a society. This kind of poverty may be transmitted from one generation to another and it is very persistent (Ogwumike, 1995). According to Olarinde and Kuponiyi, (2005), the most frequently used measurements of poverty are headcount index, poverty gap index and the squared poverty gap.

Most countries with widespread of food insecurity are assessed according to three indicators: low average levels of calorie consumption, large fluctuations and large numbers of absolute poor. Food insecurity leads to under nutrition, poor health, low productivity and low income (Adekoya, 2009). In addition, food insecurity leads to human suffering, misallocation of scarce resources, and inefficient or ineffective income earning decisions.

According to FAO (1996), poverty can be reduced through the following approaches.

(i) Basic Need Approach: This calls for the provision of basic needs such as food, shelter, water sanitation, health care, basic education and transportation.

(ii) Economic Growth Approach: This approach focuses on capital stock, and human capital such as education, health, nutrition and housing needs of labour.

(iii) Rural Development Approach: This approach sees the rural sector as an important sector in terms of poverty reduction

2.1.2 Causes of Poverty in the Sub-Saharan African Countries

Sub-Saharan African countries are noted for the prevalence of absolute poverty in all its characteristic features. The main causes of poverty in the Sub-Saharan African includes: unemployment, inadequate loan facilities, lack of transportation, environmental degradation, inadequate access to the means of supporting rural development in poor regions and participation by the poor in the designing of developmental programmes (ljaiya& Bello, 2001). Therefore, poverty contributes to many crimes in the society. The increasing rate of crimes such as armed robbery, advanced fee fraud (419), corruption, prostitution, nepotism, drug trafficking, cultism and other social vices strongly correlates with the rate of poverty in the society.

2.1.3 Food Insecurity Situation in Nigeria

Food security is one of the targets of Sustainable Development Goals (SDGs) in improving the wellbeing of the people in Nigeria. Local production or importation or both are the two main sources of food for any nation. The lack of self-sufficiency in local food production and comparative cost advantage usually provide justification for food importation with the ultimate goal of making the nation food secured (Arosanyin, 2006).

Nigeria, an exporter of food in the 1960s, became a net importer of food in the 1970s due to the inconsistencies in government agricultural policies. The country continues to depend on food imports to support domestically produced food supply. The implication of the high food import bills is that substantial proportions of the much needed foreign exchange meant for importing capital for development purposes were spent on food importation. This has made the country to be vulnerable to economic shocks, which in the long run, lead to food insecurity. According to Babatunde and Qaim (2005), "Nigerian citizen are hungry and the cost of meeting basic food needs is prohibitive", thus, there is danger of food insecurity in Nigeria due to increasing cost of food stuffs. They opined that the problem of hunger and malnutrition in the country are more severe now than ever before. "The percentage of Nigerian households that are food insecure" continued Babatunde and Qaim (2005), "has increased from 18% in 1995 to over 40% in 2005". This finding supports the earlier studies of Egbuna (2001) and Francis and

Musa (2020) that Nigeria is food insecure because population is greater than domestic aggregate production, which makes demand side to be higher than the supply side. To address food insecurity problem in Nigeria, government introduces programmes such as National Special Programme on Food Security, FADAMA (Wetland farming) and the National Poverty Eradication Programme (NAPEP), etc.

2.2 Theoretical Background

The cause of food insecurity in underdeveloped countries is explained by Population-Driven Theory. This model is based on the Malthusian work. According to this approach, the cause of food insecurity was a tendency for population to outstrip resources particularly land, over a long period of time. Population pressure pushed production into more labour-intensive techniques and eroded the surplus that would be needed to fund innovation and growth. Malthus's model is an example of a model with one *variable* and one *parameter*. In the model, the variable is the population and the parameter are the population growth rate. Malthusian population model is given as:

$$X(i+1) = (1+r)X(i)$$

Where $X(i)$ = the population size during time period i

r = the population growth rate per unit time

A model in this form is said to be a difference equation model.

2.5 Empirical Review

The nexus between food insecurity and poverty reduction has received considerable attentions in the literature. Alaimo (1998) examined the health effects of food insufficiency for children using the National Health and Nutrition Examination Survey (NHANES Ill). The study showed that food-insufficient children are more likely to be in fair or poor health. Clover (2003), Smith (2007), Swaminathan (2008) and Craig & James (2015) examined the food security in developed and developing countries and discovered that growing global food production could help to enhance GDP per capita, increase purchasing power and access to food.

Eempirical studies from Nigeria on the relationship between food insecurity and poverty reduction include the findings of Obasi (1997), Egbuna (2001), Hassan and Shola (2006), Arosanyin (2006), Oshodi and Oloni (2006), Eneta (2008), Omotor (2009), Oriola (2009), Abubakar (2013), Oni and Fashogbon (2013), Otaha (2013), Emmanuel, Otu and Odey (2017), Ahmed and Waibel (2019) and Lamidi (2019).

Obasi (1997) used Ordinary Least Square Method to examine the factors that influence food insecurity in Nigeria for the period of 1976 to 1994. The result showed that domestic food production is the main variable explaining food insecurity in Nigeria. He concluded that 87. 21 % of the Nigerian food problem would be solved by promoting domestic food production. Studies by Okunmedewa, Olomola and Adubi (1999) revealed that the risk of food security was more felt by wage earners, particularly in urban areas, which, thus, resulted in their dependence on less nutritious food items. Hassan and Shola (2006) examined the relationship between food insecurity and the National Question in Nigeria. He observed that food production has been on the increase, but the increase has not been proportional to the demand for food, and, thus, constitutes a major threat to the security of the nation.

Arosanyin (2006) emphasized the roles of transportation in making food available to the final consumer, once it is accepted that production of any food item is not complete until it gets to the final consumers. He concluded that an efficient transportation system is a core element in Nigeria's quest for food security. Oshodi and Oloni (2006) used the Vector Autoregression model (VAR) to examine the impact of agricultural food policy on food security in Nigeria from 1970 to 2003. They found that agricultural food policy contributes both directly and indirectly to food security with environmental factors playing a more significant role. Their study, therefore, recommends that agricultural food policy should target environmental supported programmes such as provision of virile irrigation programmes and construction of rain silos.

Food and nutrition situation in Nigeria was studied by Omotor (2009). It was observed that more Nigerians live below the poverty line and are food insecure. The study suggests that agriculture deserves all necessary support to raise its output. Also, in 2009, Oriola examined the relationship between irrigation system, food production and poverty. The study showed that natural endowment, soil and water resources of the nation for productive agriculture and irrigation technology as remedy to vagaries of water as militating factors against adequate food production.

Abubakar (2013) carried out an empirical analysis of household security in Gombe, using household expenditure and consumption surveys containing both objective (quantitative) and subjective (qualitative) data. The outcome showed that on average, less than 50% of the household could afford to consume the minimum dietary requirement of 2400 Kcal. Analysis of factors of food insecurity with a sustainable livelihood approach in rural Nigeria using nation-wide cross-sectional data of Nigerian Living Standard Survey (NLSS) was done by Oni and Fashogbon (2013). The result revealed that, on the whole, farming is the predominant livelihood activity.

Emmanuel, Otu and Odey (2017) examined the implication of food insecurity, poverty and hunger on national security. It was discovered that reinstalling peace and security in Nigeria can only be achieved through careful identification and proper address of casual factors.Lamidi (2019) demonstrates that higher risks of severe food insecurity occurs among households with children and those with elderly persons living with a disability. The study also shows that financial support from friends, relatives, and money lenders were associated with higher, rather than lower risks of food insecurity. Ahmed and Waibel (2019) showed that homestead aquaculture increases household food consumption, improves dietary diversity, generates additional income and stimulates higher fish consumption from home production.

The empirical research in this study differs from the earlier ones, since none of the linear work has attempted the link between food insecurity and poverty, except Obasi's (1997) work. However, this study is also different from Obasi (1997) on the basis of methodology that was used. This study used Vector Autoregression model while Obasi (1997) adopted Ordinary Least Square Method.

Vector Autoregression model is employed for this study because of its ability to characterize the dynamic structure of the model as well as its ability to avoid restrictions associated with different economic theories. In addition, the model is employed for this study because of its ability to characterize the dynamic structure of the model as well as its ability to avoid restrictions associated with different economic theories.

3.0 Methodology

To specify the model where the determinants of food insecurity are being assessed, the study adapted the model of Obasi (1997), which is expressed as follows:

$$DFC_t = f(PCI_t, DOF_t, IMF_t, EXE_t) \quad (3.1)$$

Where:

DFC_t= deficits in per capita daily calorie intake.

PCI_t = per capita income.

DOF_t= total domestic output of food proxied by total output of staple food crops.

IMF_t= Food imports.

EXE_t= Export earnings.

As gathered from the existing literature: Egbuna (2001), Obasi (1997), Hazell (1989) and Odusola (1997), a decrease (or increase) in the domestic output of food, per capita income, food imports and export earnings is expected to result in an increase (or decrease) in food insecurity. Augmented Dickey Fuller statistics is used for testing the stationarity of the variable. This test is based on the estimation of the regression equation.

$$\Delta y_t = ¢ y_{t-1} + \sum_{i=1}^{k} ¢_1 \Delta Y_{t-1} + £ \quad (3.2)$$

This is to test for the negativity of ∂. If then egative value of ∂ is greater than the critical value from the ADF table, the hypotheses: $H_0 : \partial = 0 H_1 : \partial < 0$

For an 'n' variable, VAR system can be written as:

$$A(l)\ Y_t = A + U_t \quad (3.3)$$

$$A(L) = L - A,\ L - A_2L^2 \ldots\ldots\ldots\ldots Aml^m \quad (3.4)$$

Where Y_t is an n x L (vector of macroeconomic variables), A is an n x 1 (vector of constraints) and U_t is an n x L (vector of random variables), each of which is serially uncorrelated with constraint variance and zero mean. Equation 3.4 is an n x n matrix of normalized polynomial in the lag operation $L(L^{kyt} = Y_t - K)$ with the first entry of each polynomial on A's being unity. Given that the error term (U_t) in the above model are serially correlated, an Ordinary Least Square (OLS) is used to estimate the model.

3.1 Measurements and Sources of Data

Annual time series data of 35 years are used in this study from 1981-2015. Food insecurity is measured by deficits in per capita daily calorie intake, and it is expressed as a function of total domestic output of food, export earnings, per capita income and food imports. Total domestic output of food is also proxied by the total output of staple food crops.

4.0 Result of Findings

Table 4.1 illustrates the stationary test for all the time series using the Augmented Dickey Fuller (ADF). The reported t- statistics, when compared with the critical values, indicates that all the variables are integrated of order one. This means that all the variables are stationary at the first difference.

Table 4.1: Unit Root Test Statistics

Variables	**ADF at level**	**ADF of 1st difference**	**Order of Integration**
DFC	-2.063774	-5.625648	1
PCI	-1.390997	-3.644486	1
DOF	0.806173	-3.857798	1
IMF	1.019993	-3.953265	1
EXE	-2.534385	-6.225188	1

Source: Author's computation

1% = -3.6422 5% = -2.9558 10% = -2.6164

Table 4.2 shows that the estimates of individual coefficients in VAR do not have a straight forward interpretation, a glance at the table generally shows that most of the t-values are significant and have high R-squares. This signifies that all variables are endogenously determined within the system, except for deficits in per capita daily calorie that is exogenously determined than other variables in the model because of a relatively low R-square.

Table 4.2: Vector Auto-Regression estimates

Variables	LOG (DFC)	LOG (PCI)	LOG (DOF)	LOG (IMF)	LOG (EXE)
LOG (DFC (-1)	0.603055	0.026645	-0.048600	-0.371477	-0.979059

	2.92480	0.73427	-0.67339	1.95850	-2.05350
LOG (DFC(-2))	0.04159	0.013690	0.056919	-0.093713	-0.022942
	0.20436	0.38343	0.80155	-0.50215	-0.04890
LOG (PCI (-1))	0.926765	0.620283	0.199897	0.037249	3.017081
	0.87986	3.34612	0.54219	0.03844	1.23873
LOG (PCI(-2))	-0.414686	0.318712	-1.199214	1.383622	1.331547
	-0.34061	1.48745	-2.81403	1.23539	0.47297
LOG (DOF(-1))	0.215106	-0.010862	0.516562	0.005752	2.130643
	-0.40703	-0.11678	2.79249	0.01183	1.74353
LOG (DOF(-2))	-0.201985	0.174281	0.046579	0.271231	0.123467
	-0.42690	2.09298	0.28125	0.62316	0.11285
LOG (IMF (-1))	-0.028587	0.000215	-0.071724	0.307887	0.197134
	-0.13754	0.00588	-0.98589	1.61032	0.41018
LOG (IMF (-2))	0.068248	-0.034840	0.063581	0.606299	0.654090
	0.37429	-1.08567	0.99619	3.61457	0.55132
LOG (EXE(-1))	-0.024622	-0.007982	0.071099	0.127253	-0.018618
	-0.22860	-0.42106	1.88586	1.28431	-0.07475
LOG (EXE (-2))	0.134242	0.000767	0.032709	-0.102419	-0.252003
	1.25750	0.04083	0.87535	-1.04292	-1.02087
C	1.129071	-0.368069	0.697272	1.051466	2.319536
	1.23429	-2.28630	2.17769	1.24952	1.09659
R-Square	0.706347	0.978437	0.984355	0.895195	0.919981
Adj.R-Squared	0.572868	0.968635	0.977243	0.847556	0.883609
Akaike A/c	1.207780	-0.891703	1.040833	-2.266854	2.884309
Schwarz Sc.	1.706616	-0.392868	1.539668	-1.706616	3.383145

Source: Author's Computation, 2019.

4.3 Result of Impulse Response Functions (IRFS)

It displays the impulse response functions which are essentially the dynamic multiplier that measures what happens to a variable overtime, if other variables changes.

Table 4.3Response of LOG (DFC)

Period	**LOG (DFC)**	**LOG (PCI)**	**LOG (DOF)**	**LOG(IMF)**	**LOG(EXE)**

1	0.317150	0.000000	0.000000	0.000000	0.000000
2	0.210611	0.049453	-0.031230	-0.014114	-0.014816
3	0.144007	0.028402	-0.027688	0.037815	0.056276
4	0.084324	0.066024	-0.005200	0.014329	0.021862
5	0.059913	0.099308	-0.007314	0.024035	-0.003407
6	0.054064	0.098295	0.008785	0.009496	0.003451
7	0.054462	0.112864	0.034287	-0.002155	-9.93E-05
8	0.058274	0.110504	0.048531	-0.011898	0.010871
9	0.061772	0.098487	0.064962	-0.018775	0.019183
10	0.061367	0.085181	0.074048	-0.023170	0.026408

Table 4.3 illustrates the response of Log (DFC). It shows that deficit in per capita daily calories response to a shock in itself, while other variables do not react in the first year. On the overall, per capita income responds positively to a positive shock in DFC, although the response decline overtime. This confirms Okunmadewa et al., (1999) findings that there is a positive relationship between DFC and per capita income.

4.4 Result of Variance Decomposition

Table 4.4: Variance decomposition of LOG (DFC)

Period	LOG(DFC)	LOG (PCI)	LOG (DOF)	LOG (IMF)	LOG (EXE)
1	100.0000	0.000000	0.000000	0.000000	0.000000
2	97.41927	1.643763	0.655526	0.133900	0.147541
3	94.30250	1.851154	0.991482	0.927305	1.927559
4	91.97345	4.051482	0.941594	0.976479	2.059996
5	87.33219	8.651896	0.902367	1.194357	1.919192
6	83.50212	12.63720	0.884666	1.165356	1.810655
7	78.69540	17.21578	1.327750	1.082406	1.678662
8	74.31486	20.84786	2.173633	1.060117	1.603526
9	70.62493	23.02907	3.597034	1.118582	1.630383
10	67.56149	24.13759	5.290927	1.236904	1.773089

Table 4.4 shows that at the initial period, deficit in per capita daily calorie explains 100% variation in itself. Its contribution, therefore, reduced in the second year when per capita income, domestic output of food, food import and export earnings contribute to its variability. By the tenth year, DFC declined to 67.5% with income and

domestic output of food explaining 24% and 5% of the variance in DFC, while food import and export earnings collectively explained 3%. This means that PCI contributed and has the highest proportion of variation in DFC.

5.0 Discussion of Result and Implication of Findings

The outcome of the analysis indicates that domestic output of food and per capita income are the only variables that are significant and inversely related to food insecurity. It shows that about 98% of the Nigerian food problems would be solved by promoting domestic food production and better income for consumers and producers, which will to a great extent, alleviate poverty in the country. This supports the findings of Braun et al., (1992), Odusola (1997), Okunmadewa et al. (1999) and Egbuna (2001). Another discovery from this research is that food imports play a negligible role in controlling food insecurity in the country, The policy implication is that an increase in the standard of living of the people would be achieved if the national resources committed to food import are used for a better source of national food security, namely, domestic food production. Therefore, food importations should be strictly controlled and the private sector should also be encouraged to invest in food production. This calls for incentives, which will make farming a more profitable venture without gender bias.

The study also revealed that export earnings do not have a significant effect on food insecurity in the country. This might be explained by the Nigeria's balance of payments problem over the years, whereby export earnings no longer cover the payments for imports. Therefore, the inclusion of food imports and exports earnings in the food insecurity model would only bring a negligible improvement, since they are not statistically significant. However, the overall implications of these variables ($DOf_t$and PC_t) for poverty reduction is that self-reliance in food will alleviate poverty by increasing the incomes of the majority of Nigerians who live in poverty without any significant losses sustained by others.

6.0 Conclusion and Recommendations

The study examined food insecurity and its implications on poverty reduction. It has been discovered that domestic food production and per capita income are the only variables that are statistically significant and inversely related to food insecurity. This means that self-reliance in food production and improvement in the incomes of both the consumers and the producers are the best policy for the nation, if food security and poverty reduction must be attained. Other policies that are needed for achieving food security and poverty reduction include:

- Food production policies should include women, if there must be increase in output, increase in incomes and poverty reduction.
- Price support scheme for the staple food crops and improvement in transportation, marketing and storage facilities would go a long way in addressing the situation.
- Food importations should be strictly controlled and the private sector should be encouraged to invest in local food production.
- Government policies, which improve the social conditions of the farmers, *ceteris paribus*, will raise their productivity. This calls for direct government intervention in providing subsidized health care delivery services in the rural areas, as a well as other social-economic infrastructures which the farmers lack.

References

Abubakar, M. S. (2013). An empirical analysis of households' food security in Gombe State, Nigeria. A thesis submitted to the department of Economics, ABU, 2013.

Aderibigbe, T. O. (2001). The Role of the financial sector in poverty reduction.*CBN Economics and Financial Review, 39 (4), 43-46.*

Adekoya, A. E. (2009). Food insecurity and coping strategies among farming households in Oyo State, Nigeria. *Journal of Food Agriculture and Environment, 7(3&4): 187-191.*

Ahmed, B. N. (2019). The role of homestead fish ponds for household nutrition security in Bangladesh. *Food Security, 11, 835-854.*

Alaimo, K. (1998). Food insufficiency exist in the United States: Results from the third National Health and Examination Survey (NHANESIII). *American Journal of public health 88(3), 419-426.*

Alli, A. (2005). Livelihood and food security in rural Banglesh: The role of social capital. PhD thesis Wageningen University, the Netherlands.

Arosayin, G. T. (2006). Transportation in Nigeria's food security agenda. *Ilorin Journal of Business and Social Science, in collaboration with vantage publisher limited 2006, 182 -205.*

Ayantoye, K., Yusuf, S.A., Omonona, B.T. and Amao, J.O. (2011). Food insecurity dynamic and its correlates among rural households in South Western Nigeria.*International Journal of Agricultural Economics and Rural Development* 4(1): 43-55.

Babatunde, R. O., and Qaim, M.(2010). Impact of off-farm income on food security and nutrition in Nigeria. *Food Policy*, 35: 303-311.

Central Bank of Nigeria(1999). Economics and Financial Review 31(2) June.

Christine, M. O. (1999). *Food insecurity; A New measure of Nutritional Well-being. The Journal of Nutrition Vol. 120 (November 1990 supplement) 120(6), 1575-1576.*

Clover, J. (2003). Food security in Sub - Saharan Africa. African security review 12(5-15).

Craig, G. & James, P. Z. (2015). Food insecurity and Health Outcomes. Applied Economic Perspectives and Policy, 40(1), 119-135.

Dickey, D. A. & Fuller, M. W. (1979). *Distribution of the estimators for autoregressive time series. A unit root journal of the American statistical Association, 74 (7), (427-431).*

Egbuna, E. N. (2001). Food security in Nigeria; The challenges and way forward: in Natural Resources use, the Environmental and Sustainable Development. Selected papers presented in the 2001: National Economic Society Annual Conference, Ibadan; 307-325.

Encyclopedia Americana (1989). Poverty connecticut and Groiler Inc 22 (4), 495-496.

Enete, A. A. andAchike, A. I.(2008).Urban agriculture and urban food insecurity/ poverty in Nigeria: The Case of Ohafia, South-East Nigeria

Food and Agricultural Organization (FAO) (1996). "Socio-political and economic environment for food security" Food and Agricultural Organization of the United Nation, and Food summit, 1, section 1.4.

Francis, D. and Musa, A.O. (2020). Micro health insurance and poverty alleviation in Nigeria: Empirical Evidence from Lagos state.

Hassan, S. A. & Shola, J. O. (2006). Food insecurity and the National Question in Nigeria, *Ilorin Journal of Business and Social Science in collaboration with vantage publisher limited 2006, 156-181.*

Hazell, P. B. R. (1989). Challenging patterns of variability in word cereal production. In variability in Grain yield, Jock R. Anderson and B.R. Hazell, eds. Baltimore and London. The johns Hopkins University Press for International Food Policy Research Institute.

Ijaiya, G. T. & Bello, R. A. (2001). Health care financing and poverty reduction in Nigeria. A Publication of Department of Business Admin. 2001, 2(1), 93-103.

Lamidi, E. O. (2019). Household composition and experiences of food insecurity in Nigeria:

The role of social capital, education, and time use. Food Security, 11. 201-218.

Obadan, M. (1996). Poverty reduction in Nigeria: The way forward. *CBN Economics and Financial Review 39 (4), 75-92*.

Obasi, O. U. (1997). Departments of food security in Nigeria. Nigerian Economic Society, Selected papers for the 1997 Annual Conference, 269-279.

Odusola, A. F. (1997). Poverty in Nigeria; An Eclectic Appraisal Proceedings NES 1997, Annual conference proceedings, 121-139.

Ogwumike, F. O. (1995) "TheEffects of Macro Level Government Policieson Rural Development and Poverty Alleviation in Nigeria*" Ibadan Journal of the Social Sciences, 1(1), 85-101*.

Ogwumike, F. O. (2000). Poverty dynamics in Nigeria. *CBN Economics and Financial Review, 37 (2), 75-93.*

Okuneye, P. A. (2001). Rural poverty assessment and control in Africa. An invited specialization course paper presented at the United Nations IDEP, Dakar,
Senegal, 19-22 June.

Okunmadewa, F., Olomola, A. and Adubi, B. (1999). Trade liberalization and food security situation analysis in Nigeria.

Olarinde, L.O. and Kuponiyi, F.A. (2005). "Rural livelihoods and food consumption patterns among households in Oyo State, Nigeria: Implications for food security and poverty in a deregulated economy". *Journal of Social Sciences, 11(2): 127-132.*

Oni, O. A., Salman., K. K. and Idowu, B. O. (2011). "Social capital dimension and food security of farming households in Ogun State, Nigeria." *Journal of American Science*, 7(8): 776-783
Omobolanle, A. O. and Ayodele, E. F. (2013): Food poverty and livelihoods issues in Rural Nigeria

Omonona, B.T. and Agoi, G. A.(2007). "An analysis of food security situation among Nigerian households: Evidence from Lagos State, Nigeria". *Journal of Central European Agriculture 8(3): 397-406.*
Oriola, E. (2009). A framework for food security and poverty reduction in Nigeria.
Osabohien, R., Afolabi, A. and Godwin, A. (2018). An econometric analysis of food security and agricultural credit in Nigeria.
Oshodi, A. F. and Oloni, E.F.(2006). Agricultural food policy and food security in Nigeria. Geo- studies forum.
Otaha, I. J.(2013). Food insecurity in Nigeria: Way forward. An international multidisciplinary *Journal,Ethiopia, 7(4), serial No. 31, 26-35.*
Siamwalla, A. and Valdes, A. (1994). Food security in developing countries: International issues". Washington DC: IFPRI.
Smith, C. L. (2007). Measuring food security using household expenditure survey. 147
Swaminathan, M. S. (2008). Food security and climatic change.
USAID (2011). Promoting Food Security in Sub-Saharan Africa. *The Journal Outlook on Agriculture vol. 27*.