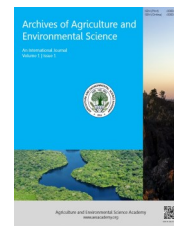




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Food insecurity in rural Nigeria during the lean season: Causes and coping strategies

Jabo, Muhammad Sani Muhammad^{1,2*} Ismail Mohamed Mansor², Shamsudin, Mad. Nasir² and Abdullah, Amin Mahir² Abdullahi Yakubu Abbas¹

¹Department of Agricultural Economics, Usmanu Danfodiyo University, Sokoto P.M.B 2346, Sokoto, NIGERIA

²Department of Agribusiness and Information Systems, University Putra Malaysia, 43400, Serdang, Selangor, MALAYSIA

*Corresponding author's E-mail: sani.jabo@yahoo.com

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ABSTRACT

This study used a national representative sample of 3380 household from the general household survey-panel (GHS-Panel) to examine the causes and coping strategies among the rural households in Nigeria. The post-planting survey visit, which is the first round of its kind in Nigeria was carried out in (August-October, 2010), it was done immediately after planting season to collect information on land preparation, input and labour utilization. The results shown that soaring food prices and drought together constituted the highest causes of household food insecurity with about (42%) according to the household responses. The cumulative food insecurity strategy index (CSI) is an inverse function approach, which means that an increase in the use of coping strategies indicate a decrease in food security. The results reveal that, households within the age category of greater than or equals to 71 years are having the highest CSI (71.1%). While the least food insecure are the household heads within the age cohort of 31-40 years with only 25.7 % CSI. Poverty alleviation programs and encouraging sustainable non-farm income generating activities among the rural households would have positive impact on the food security situation in rural Nigeria.

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INTRODUCTION

Despite the global abundance of food, food related crises continue to occur in many countries (Adeniyi and Ojo, 2013). It was asserted that, for every five seconds a child dies of hunger, in each year about 6 million children are also dying of hunger (FAO, 2012). The population of global food insecure stood at 1 billion today, this could be due to lack of food affordability, unavailability or because they are too unhealthy to make use of it or in some cases interaction of the above (Burke and Lobell, 2010). More recently, Food and Agriculture Organization, FAO (2012) reported that nearly 870 million people were suffering from chronic undernourishment between 2010 and 2012 majority whom are living in developing countries. Progress is made in the fight against global hunger in different parts of the world including Nigeria, but the problem still persist especially in SSA and South Asia. The figure of people living with chronic hunger dropped from 870 people between 2010 to 2012 to about 868 million

people in 2013 (FAO/IFAD and WFP, 2013). These global statistics of hunger and undernourishment is still alarming, hence eradication of hunger remains the major global challenge facing both developed and developing countries, but the task is enormous in developing world.

According to FAO (2012) reports, the African continent is having about 35% of its population malnourished. Furthermore, the UN World Food Program (WFP) reported that 19 out of 53 countries of Africa face serious hunger problems because of failure of these countries domestic supplies to cater for their domestic needs. This trend of food insecurity in Africa is worrisome as the head counts of food insecure people are actually on increase in Sub-Saharan Africa (SSA). Nigeria being an important country in Africa, it considered food security today as fundamental to its development policies in Nigeria. Nigeria as in the case of many developing countries is face with a major challenge of feeding its ever-increasing human population, which currently stood at 167 million. According to United Nations Development Program USDA (2011) with this

rapid population growth rate, Nigerian population is expected to double from 158 million in 2010 to 389 million by 2050. It was asserted that out of 1.1 billion forecasted SSA populations by 2050, Nigeria would account for 20% of the total (UNDP, 2011).

Coping strategies are the deliberate actions adopted by households to deal with food insufficiency. Coping strategies are seen by Corbett (1988) as the response of the household decision makers against the recurrent food shortages and famine. The coping strategy can be in the form of fallback or adaptive mechanism, the fallback measures are meant to deal with a short-term food insecurity situation at a particular household level. While the adaptive measure dealt with long-term measures to mitigate of food insecurity in the household. The short-term measure of food shortages can be analyzed through cumulative food insecurity strategy index (CSI). The CSI provides a direct indicator of food insufficiency and vulnerability of being food insecure and deliberate actions that household, adopt to mitigate recurrent food insufficiency (Maxwell, 1995). The coping strategies in most communities could include dietary changes, reduction or rationing consumption, altering household composition and intra-household food distribution, depletion of stores; increase in borrowing to smoothing food consumption. Other measures include scavenging on wild fruits, nuts and animals; labour migration on short-term basis; sales or mortgaging of assets and in some more extreme situations households resort to stealing or abandoning of children (Frankenberger, 1992 ; Maxwell, 1995 and Corbett, 1998). Sometimes urban households migrate to rural areas or to other urban centres in what is known as distress migration. In examining the pattern in coping strategies, the following case studies were reviewed: Watts, (1983) studied 1970s Sahelian drought induce food crisis in northern Nigeria and reported that response to the food crisis in this part of Nigeria serial rather than arbitrary. Ten most common coping strategies with the respect to crisis intensity were observed. It included: Collect famine food, borrow grain from kin (*duck* in Sokoto Hausa dialect), sale of labour power (migration), engage in dry season farming (migration), sale of small livestock (small ruminant), borrow money or grain from merchants or money lender, sale of domestic assets, pledge farmland (*jingina*), sale farmland and migrate out permanently.

In recent study that analyzed the drought and flood generated food shortages among rural household in Northern Ghana, Nimoh *et al.* (2012) found that 8 prominent coping strategies to be engagement in non-farm activities, sale of livestock/ poultry, engage in dry season crop production, receiving remittances from relatives, contribution by other household members, limit the portion/size of meals, reduce the number of meals for adult/day and consumption of less expensive/preferred food. Disaggregating the coping strategies into long-term and short-term, Nimoh *et al.* (2012) identified rearing of livestock and poultry to emerge as the most commonly used strategies followed by the weaving of a basket/hat. Shariff and Khor (2008) investigated into the food insecurity and coping strategies adopted by poor

rural households in Malaysia, based on the focus group discussion and interview two groups of expenditure/income and food related coping strategies were identified based on the order of most to least important. The expenditure and income related coping strategies include: reducing daily/monthly spending, use savings, borrow money, sell valuable materials (jewellery, land etc), have a second job, reduce spending on children's education, get cheaper treatments for illnesses, get medical treatment only when the situation get worse and stay in current place.

In a related study, Goni (2011) also identified 10 coping strategies to food shortages in the three agro-ecological zones of Borno state, Nigeria. The most important among the responses adopted to cope with food crisis is borrowing money and food items from friends and relatives, followed by consuming foods that are cheap and less preferred, selling assets to buy food, household head and other adult children travel out of the area in search for jobs, cut the quantity of meal consume by adults, children less than 16 years of age engage in economic activities, cut down the quantity of meal consume by children, reducing the frequency of eating by children and children stop attending school. Furthermore, Idrisa *et al.* (2008) revealed that households in Jere Local Government Area of Borno state, Nigeria resorted eating once a day, allowing children to eat first, eating wild fruits, selling off assets, buying food on credit and picking off left over food at social functions as the main coping strategies for food insecurity. The majority of the households resorted to allowing children to eat first and buying food on credit as the most commonly used in response to food shortages.

Not all the coping strategies will be adopted at the same time; some coping strategies may precede others depending on their significance and time or duration of the crisis. For example, peasant and pastoralist respond differently to food insecurity, the pastorals are less willing to dispose their livestock, while the arable farmers are more willing to part with their animals in the times of need. The sale of livestock to pastoralist may have more damaging consequences for future herd production against crop producers who held livestock just like other liquid assets as a store of wealth (Corbett, 1988).

Why it is so important to study hunger coping strategies? Despite the fact that people in different parts of the world are faced with varying degree of hunger and starvation and hence adopt different strategies to mitigate the situations they find themselves. The analysis of strategies adopted to deal with food shortages at household level usually provides an alternative measure of food insecurity (Maxwell, 1998). Babu and Sanyel (2009) argued that for sound policies and programs targeting food security improvement, an understanding of factors that cause malnutrition, knowledge of pathways in which these factors affect vulnerable groups and households awareness of policy options available to reduce the impact of these factors on hunger and malnutrition are important. This is very important for policy makers and donor agencies for baseline assessment of food security situations

A considerable amount of literature has been published on

a variety of strategies to cope with food insufficiency in different countries. For example (Corbett, 1988; Maxwell, 1995; Oldewage-Theron, Dicks, and Napier, 2006 and Nimoth *et al.*, 2012). These studies in most cases viewed coping strategies in economic, social-anthropological and medical perspectives. This study examines coping strategies based on the mixture of economic and social perspectives. Most of the studies also were centered on a particular region of a country and dwelled much on strategies rather than causes of the situation. Strategies to minimize the impact of food insecurity, especially in the entire rural Nigeria have not adequately been studied or in fact neglected. The difficulty with which to identify the general pattern in household behaviour due to different causes, the kind of household affected and strategies lead to the neglect in the studies on household food insecurity coping strategies (Corbett, 1988). Clearly, missing in these studies is this study is the study that links causes and coping strategies using a new alternative food security measures (CSI). This neglect may have serious consequences on the effective policies on food security, especially which has to do with famine early warning systems and food aid programs. This paper, therefore, examined the causes, seasonal pattern and coping strategies of food insecurity among rural households in Nigeria with a view of drawing policy implications.

MATERIALS AND METHODS

Eight item coping strategy to household food insecurity were identified from the 2010 post-planting General Household Survey-panel data set. Based on the total of 3275 household heads responses and focused group discussion with key informants in the respective communities, weights were also allocated to each of the identified coping strategies. The households were asked to rank each coping strategy based on its perceived severity and relative importance. Based on the frequency of the responses on a particular strategy and its ranking, a cumulative food security index CSI was developed for each coping strategy. Researchers and donor agencies have tested and trusted the CSI to be an effective tool for assessing food security. For instance, World food Program (WFP) found CSI to be an effective and fast way of assessing food security in eight African countries. Senefeld and Polsky (2006) regards CSI to be effective and accurate quantitative measure of food insecurity among households in Zimbabwe, it can also be used to assess the impact of various food aid during the emergencies. Some recent alternative approaches in measuring food security include: interaction approach, coping strategy approach and scaling approach (Babu and Sanyal, 2009). CSI is an inverse function approach, which means that an increase in the use of coping strategies indicate a decrease in food security. Likewise, the decrease in the food security results in an increase in the severity of coping strategies.

RESULTS AND DISCUSSION

The CSI is an inverse function approach, which means that an increase in the use of coping strategies indicate a

decrease in food security. Likewise, the decrease in the food security results in an increase in the severity of coping strategies. Table 1 depicts the result of the coping strategies cumulative index of household coping strategies based on ordinal ranking assigned to each strategy. CSI was used in this study to measure the frequency and severity of coping strategies among rural households due to short falls in food supply. The weights were assigned based on the frequency and perceived severity of the food insecurity coping strategy adopted by households when faced with food shortages.

The results reveal that, households within the age category of greater than or equals to 71 years are having the highest CSI (71.1%). This implies that, these households severely heated by food shortages. While the least food insecure are the household heads within the age cohort of 31-40 years with only 25.7 % CSI. This implies that, food insecurity increased with the age of the household in both post-planting and post-harvest periods. Furthermore, high indices of food insecurity were recorded in post-planting season. This finding is in line with earlier documented studies (Idrisa *et al.*, 2008; Ihab *et al.*, 2012; Maxwell, 1995, 1998 and Corbett, 1998), these scholars converged on the fact that, depending on the severity of the food crisis, the affected households adopt combination of a variety of mechanisms to mitigate the effects of such food shortages. These strategies include least severe ones such as relying on less preferred food to more severe and difficult measures like skipping meal for the whole day. As the food insecurity becomes severe, the higher the CSI of coping strategies adopted (Table 1).

Causes of food insecurity: Figure 2 presents the common causes of food insecurity in rural Nigeria. Food insecurity has varied causes in different parts of the world, the interpretation and causes of food insecurity in this study as in the case of earlier studies should be done with care owing to the subjective nature of the responses. As noted, high food prices, drought, lack of farm inputs and small farm size were rated as the most important causes of food insecurity among farming households. Other factors of lesser importance in explaining food insecurity are pest and diseases, flood, lack of food in the market and high transportation cost. Soaring food prices and drought together constituted the highest causes of household food insecurity with about (42%) according to the household responses.

This study corroborates, recent literature that has revealed new factors influencing the stability of food supply, to include climate change and inter-annual variability, erosion of environmental services affecting the agro ecosystem and global ecosystem resilience (Akinyele, 2009). Corbett (1988) reported that drought is often cited as a common cause of famine in Africa, although it is usually one of the many factors. For example, Cutler (1986) found drought to trigger off food insecurity among the vulnerable and refugee households in Sudan. Watts' (1983) attributed 1973/1974 food crisis in Northern Nigeria to the early 1970s Sahelian drought. The finding also agrees with a recent report by Nimoth (2012) that found the frequent occurrence of drought during cropping

season as the most important challenge of food security in the northern Ghana.

Figure 2 displays the dietary diversity among the surveyed households. It shows that dietary diversity was found to be higher among the children between the ages of 6 to 59

months, while adults have a less diverse diet. Likewise, men consume least diverse diet as compare to women and children. This is expected, as it is usual practice in times of food insufficiency among the rural households for male to compromise their food for children and women to eat.

Table 1. Household food security coping strategies and cumulative food security index.

Age	Season	Rely on less preferred food	Limit variety of foods eaten	Limit portion at mealtimes	Reduce number of meals in a day	Restrict consumption by adults	Borrow food or rely on help	Skipping meal at night	Skipping meal for the whole day	CSI
21-30	1	2.1	3.6	7.3	6.9	10.2	4.6	6.2	3.2	44.1
	2									
31-40	1	1.6	2.5	6.5	2.1	4.6	3.4	3.0	2	25.7
	2									
41-50	1	2.30	5.5	6.1	6.8	8.5	3.2	5.2	4.2	41.8
	2									
51-60	1	3.5	6.3	8.7	9.0	11.8	5.0	9.0	2.0	55.3
	2									
61-70	1	5.6	7.4	8.8	10.0	12.3	13.0	7.7	3.8	68.6
	2									
≥70	1	6.5	7.0	7.7	11.1	11.0	14.5	8.0	5.3	71.1
	2									
All group	1	2.5	4.6	9.0	9.2	11.6	6.6	7.0	4.4	54.9
	2									

Frequency scoring: Never(zero times per week); Rarely (1-2 times per week); Sometimes (3-4 times per week); More frequently (5-6 times per week); Most frequently (7 times/ week); Cumulative index: Sum of percentage scores of individual coping strategy (N=3275); Times severity weighting is based on the ordinal ranking by households.

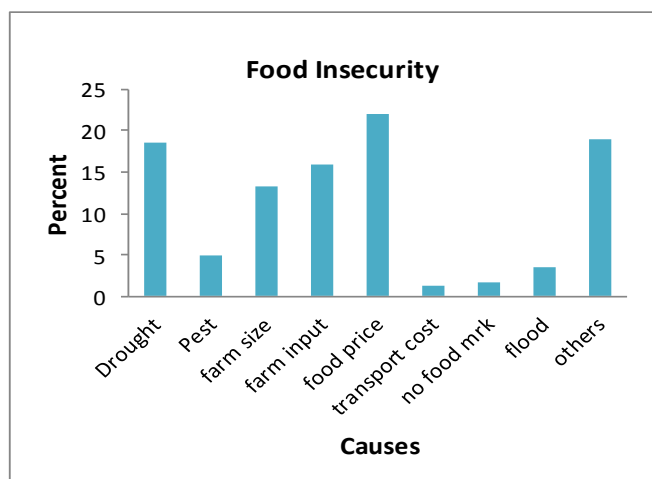


Figure 1. Causes of food insecurity among the rural households.

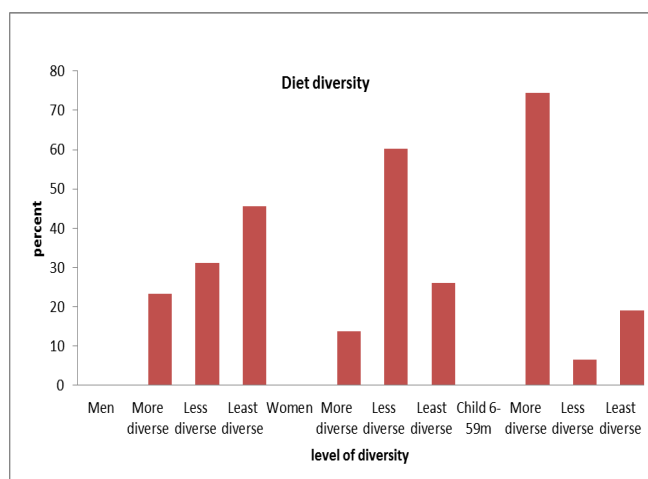


Figure 2. Diet diversity among the households based on age and gender.

Conclusions

The paper assessed the causes of food insecurity and coping strategies among the household in rural Nigeria. Results indicated that high food prices, drought, lack of farm inputs and small farm size were rated as the most important causes of food insecurity among farming households. Relying on less preferred food, limiting variety of foods eaten, limiting the portion at mealtimes and reducing the number of meals in a day are the less

severe short-term coping strategies. The most severe short-term coping strategies are restricting consumption by adults, borrowing food or rely on help, skipping meal at night and skipping meal for the whole day. The study also concludes that dietary diversity was higher among the children between the ages of 6 to 59 months compared to adults; the men also consumed least diverse diet compare to women and children. Poverty alleviation programs and encouraging sustainable non-farm income generating

activities among the rural households would help in improving the food security situation in rural Nigeria.

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REFERENCES

- Adeniyi, O.R. and Ojo, O. (2013). Food Security Status of Rural Farming Households in Iwo, Ayedire and Ayedaade Local Government Areas of Osun State, South-Western Nigeria. *African Journal Of Food, Nutrition and Development*, 13(5): 8209-8223.
- Babu, S. (2009). Chapter Twelve Persistent Food Insecurity from Policy Failures in Malawi (7-2) by Suresh Babu and Prabuddha Sanyal. *Case Studies in Food Policy for Developing Countries: Domestic Policies for Markets, Production, and Environment*, 2:149.
- Burke, M., and Lobell, D. (2010). Climate Change and Food Security: An overview. In D. Lobell & M. Burke (Eds.), (Vol. 37, p. 18). Dordrecht: Springer Netherlands.
- Corbett, J. (1988). Famine and household coping strategies. *World Development*, 16(9): 1099-1112. doi:10.1016/0305-750X(88)90112-X.
- Cutler, P. (1986). The response to drought of Beja famine refugees in Sudan. *Disasters*, 10(3):
- FAO. (2012). *The State of Food Insecurity in the World 2012 Key messages*. (W. and I. 2012. FAO, Ed.) Rome: FAO, WFP and IFAD. 2012. pp: 65.
- FAO/IFAD and WFP. (2013). *The State of Food Insecurity in the World The multiple dimensions of food security* Rome, Italy: F.A.O. pp: 56.
- Frankenberger, T. R. and S. M. (1992). *Household food security: concepts, Indicators, Measurement*.
- Goni, M. (2011). *Household Food Security Situation, Determinants and Coping Strategies in Borno State, Nigeria*. A PhD Thesis Submitted to Usmanu Danfodiyo University, Sokoto.
- Idrisa, Y. L., Gwary, M. M., and Shehu, H. (2008). Analysis of food security status among farming households In Jere Local Government of Borno State, Nigeria. *Journal of Tropical Agriculture, Food, Environment and Extension*, 7(3): 199-205.
- Ihab, A. N., Rohana, A. J., Manan, W. M. W., Suriati, W. N. W., and Zalilah, M. S. (2012). Association of household food insecurity and adverse health outcomes among mothers in low-income households: A cross-sectional study of a rural sample in Malaysia. *International Journal of Collaborative Research on Internal Medicine & Public Health*, 4(12): 1971-1987.
- Maxwell, D.G. (1995). *Measuring Food Security: The Frequency and Severity of Coping Strategies* pp: 33.
- Maxwell, S. (1998). National Food Security Planning: First Thought from Sudan, Paper Presented to Workshop on Food Security in Sudan. Sessex, Brighton.
- Nimoh, F., Samuel, A., and Yeboah, R. (2012). Seasonal food shortages and coping strategies adopted by rural households in Northern Ghana. *Journal of Development and Agricultural Economics*, 4(3): 62–70. doi:10.5897/JDAE11.044.
- Oldewage-Theron, W. H., Dicks, E. G., and Napier, C. E. (2006). Poverty, household food insecurity and nutrition: coping strategies in an informal settlement in the Vaal Triangle, South Africa. *Public Health*, 120(9): 795–804. doi:10.1016/j.puhe.2006.02.009.
- Senefeld, S., and Polsky, K. (2006). Chronically Ill Households , Food Security , and Coping Strategies in Rural Zimbabwe. Aid Poverty and Hunger: Challenges and responses. Washington, D.C. 20433, U.S.A.: IFPRI. pp: 129-139.
- Shariff, Z. M., and Khor, G. L. (2008). Household food insecurity and coping strategies in a poor rural community in Malaysia. *Nutrition Research and Practice*, 2(1): 26-34.
- USDA. (2011). *Agricultural Finance and Development* pp: 12.
- Watts, M. (1983). *Silent Violence: Food, Famine and Peasantry in Northern Nigeria*. California: Berkeley: Univ. Calif. Press.