

Does Social Safety Nets Program Improve Food Security Status of Households?

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ARTICLE INFO

Received: 📅 June 03, 2024

Published: 📅 June 13, 2024

Citation: Ashagidigbi Waheed M, Fale Oluwasomiji O, Tejidini Salaudeen A and Michael Ugbedejo M. Does Social Safety Nets Program Improve Food Security Status of Households?. Biomed J Sci & Tech Res 57(1)-2024. BJSTR.MS.ID.008938.

ABSTRACT

Food insecurity is a global challenge confronting household, specifically those residing in African sub-continent. However, social safety-nets have been identified as a measure of reducing food insecurity and poverty among households, particularly during the pandemic. The study examined the effect of social safety nets on food security status of households. The data used was from secondary source, that is, COVID-19 National Longitudinal Phone Survey (COVID-19 NLPS) collected from a nationally representative sample of 1,950 households by the National Bureau of Statistics in conjunction with World Bank. Descriptive statistics, dietary diversity score and Tobit regression model were the analytical tools employed. The study revealed that less than six percent of the rural population were captured under the program, with food voucher being the most prominent safety net program in Nigeria. Households consume less eggs, milk and fruits. Food insecurity is most prevalent in the rural sector and northeast zone of the country. Social safety nets measure has a positive effect on the food security status of households in Nigeria. Food policy measures targeted at households in rural areas and northeast zone are key in enhancing food security. Expansion of the coverage of the social safety nets program specifically among the residents in rural sector and northeast zone is of great importance if Nigeria would meet the Sustainable Development Goal (SDG) 2 of ending hunger among her populace.

Keywords: COVID 19 Pandemic; Social Safety Nets; Dietary Diversity; Nutrition; Food Voucher

Introduction

A country can be said to be enjoying food security when people's fear of not having enough to eat is removed and the most vulnerable group, namely women and children, in the marginal area have access to adequate quality of food they want. Helen [1] asserted that food is useful in maintaining political stability and ensuring peace among people, while food insecurity can result in poor health and reduced performance of adults and children. Food security is defined as access to food resources by each individual at all times for a healthy and active life World Bank [2]. Food demand in Nigeria has generally grown faster than either food production or total supply. Anyanwu [3] reported that the rate of increase in food production of 2.5% per annum does not keep pace with the annual population growth rate of 2.8% per annum. Fakiyesi [4] also maintained that Nigeria's domestic

food supply has been far short of the need of the population, specifically among the rural populace. Given the high cost of social services, nutritional level and purchasing capacity tend to deteriorate as a relatively large proportion of households' income goes to meeting the social services (Olayemi [5]). Furthermore, African poor have common characteristics of facing the most severe difficulties in relation to production of food and access to food market, which make them most vulnerable to food security crisis Ali [6]. In 2017, the Food and Agriculture Organization (FAO) declared that about 7.1 million people in Nigeria are facing acute food insecurity and in need of urgent lifesaving and livelihood protection (Food and Agriculture Organization [7]).

Quite a number of literatures agreed to domestic food production as the solution to food crisis (Ojo [8-13]). However, meeting the food needs of vulnerable households requires building long-term resil-

ience to contribute to sustainable global food and nutrition security (UN HLT [14]). In averting global food crisis, the demand for the adoption of social safety net interventions has been on the increase (WHO-ILO, [15]). Through the implementation of this program, the worst impact of the crisis such as widespread hunger, malnutrition, poverty, unemployment, and children dropping out of schools, could be prevented or at least reduced. Thus, the need to examine the effect of social safety net program on households' food security status in Nigeria is germane.

Methodology

The study area is Nigeria. The dataset used was from secondary sources collected by the National Bureau of Statistics in conjunction with the World Bank. In order to track the impacts of the Covid-19 pandemic, the National Bureau of Statistics implemented the Nigeria COVID-19 National Longitudinal Phone Survey (COVID-19 NLPS) on a nationally representative sample of 1,950 households. COVID-19 NLPS households were drawn from the 5,000 sample of households interviewed in 2018/2019 for Wave 4 of the General Household Survey Panel (GHS-Panel). The sample drawn was representative covering the two sectors and six zones in Nigeria. The extensive information collected in the GHS-Panel just over a year prior to the pandemic provides a rich set of background information on COVID-19 NLPS households, which can be leveraged to assess the differential impacts of the pandemic in the country. The baseline of this survey was conducted between April 20 and May 11, 2020, and coincided with a federally mandated lockdown that was initiated on March 30, 2020. Descriptive statistics (frequency percentage, mean and median), household dietary diversity score and Tobit regression model were the analytical tools used in addressing the objectives of the study. Descriptive statistics were adopted to describe the socioeconomic characteristics of households and the types of social safety nets available to them. Household dietary diversity score was adopted to assess the variety and quality of food consumed by a household over a specific period, typically within 7-day period in order to determine the food security status of the respondents (Oyetunde Usman [16,17]).

It serves as an indicator of dietary adequacy and the probability of households meeting nutrient requirements. Household Dietary diversity score serves as an important indicator of food quality and is typically determined by calculating the sum of unique food items consumed out of the 12 selected food groups within a 7-day period. Various approaches exist to measure dietary diversity, which depend on factors such as the types of food groups considered, the level of aggregation, and the duration of the assessment period. The household dietary diversity index was estimated by dividing the household dietary diversity score by the total number of selected food groups. Any household that consumes 0.67 or more of the 12-selected food groups are regarded as food secure, while household that consumes less than 0.67 of the 12 selected food items are considered food insecure (Ashagidighi, et al. [18]). Tobit regression model (Tobin [19])

was adopted to determine effect of social safety net on food security status of households in Nigeria.

$$Y^* = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \dots + \beta_{11} X_{11} + U_i$$

Where: $Y = 0$ if $Y^* < 0.67$ ($Y = 0$ if household is food insecure)

$Y = Y^*$ if $Y^* \geq 0.67$ (if household is food secure)

Y^* = household dietary diversity score (dependent variable)

The explanatory variables are:

X_1 = Sex of household head (1 = male, 0 = female)

X_2 = Age of household head (Years)

X_3 = Household size

X_4 = Household Income (N)

X_5 = Marital Status (1= married, 0 = otherwise)

X_6 = Social Safety-net Index

Zones

X_8 = North Central/

X_8 = North West

X_9 = South East

X_{10} = South-south

X_{11} = South West

Sector

X_{12} = (Rural = 1, Urban= 0).

Results and Discussion

As revealed in Table 1, the majority of the households are still in their active age range, indicating that they would be energetic and productive in providing for their needs and that of the households. As expected, eight out of every 10 household heads are male respondents. This is due to the fact that oftentimes; male is the breadwinner within the households in African subcontinent. Likewise, about three-quarters of the household heads are married, while others are either single, separated, divorced or widowed. This depicts that the heads are responsible for taking up responsibility of caring for their family members. The mean household size of six implies that the size of the household is moderate to relatively large. Oftentimes, household heads engage their wards in agricultural activities, which reduces their cost of operations and boosts their profit. The annual average income of the households was N329, 240.3. In addition, about three-quarters of the total respondents have one form of formal education and are literate. Access to formal education as a form of human capital development could enhance the households' access to social safety nets and improve their consciousness in consuming nutritious

foods for an active and healthy life. As depicted in Table 2, less than 10% of households have access to social safety nets. The percentage is low compared to the teeming poor population that ought to have access to such food security and poverty reducing programs. Further-

ance to this, 11% of households in the urban sector have the ability to access the safety nets programs, while less than six per cent were able to access the program in the rural area of Nigeria.

Table 1: Socioeconomic Characteristics of the Respondents.

Variables	Frequency	Percentage
Age (Years)	4977	
<20	21	0.42
21-65	4,140	83.18
>65	816	16.40
Mean	49.76	
Gender		
Male	3,975	79.87
Female	1,002	20.13
Marital Status		
Married	3,666	73.66
Divorced	50	1.00
Separated	139	2.79
Widowed	851	17.10
Never Married	271	5.45
Household Size		
1-3	1,181	23.73
4-6	1,872	37.61
>6	1,924	38.66
Mean	6	
Ever attended School		
Yes	3,824	76.83
No	1,153	23.17
Can Read and Write		
Yes	3,624	72.81
No	1,353	27.19
Household Income (N)		
0 -100,000	2,502	50.27
100,001 - 1000,000	2,112	42.43
>1,000,000	363	7.30
Mean	329,240.3	

Table 2: Access of Households to Social Safety-nets Program.

Access	Nigeria		Rural		Urban	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Yes	467	9.38	88	5.52	379	11.20
No	4,510	90.62	1,505	94.48	3,005	88.80

The disparity in the rural and urban figures calls for concern as majority of food insecure households reside in the rural areas. Access to social safety nets is important as it helps vulnerable households be protected against livelihoods risks, maintain an adequate level of food consumption and improve food security (Devereux et al. 2008). Across the six geopolitical zones of Nigeria, northwest (19.45%) and northeast (13.20%) zones have the highest populations of households that access social safety nets, while southwest zone has the least (2.79%). This is understandable as the zones with the highest percentage of food insecurity and poor people abound in the northeast and northwest zones of the country Table 3. This may be connected to the insurgency witnessed in the northeast and banditry experienced in the northwest which greatly hindered the agricultural and economic activities of the residents within the zones. As shown in Table 4, the types of social safety nets accessed by the households were cash transfer, food voucher and scholarship. Seven out of 10 households that accessed safety nets received food vouchers, while about a quarter received cash transfer. About three of every 10 households received scholarships. Undoubtedly, food voucher was the most common social safety measures received by households in Nigeria during this period, which coincide with the Covid 19 pandemic. This is to ensure that households have adequate access to food during this period as the majority of households were on lockdown and could not engage in agricultural and economic activities.

Table 3: Distribution of Households based on Types of Social Protection Received.

Types of Social Protection Received	Frequency	Percentage
Cash Transfer		
Yes	122	24.85
Food Voucher		
Yes	355	72.30
Scholarship		
Yes	14	2.85

Table 4: Consumption of Food Groups by Households in Nigeria.

Food Groups	Frequency	Percentage
Cereals		
Yes	4,927	99.00
No	50	1.00
Roots and Tubers		
Yes	3,991	80.19
No	986	19.81
Vegetables		
Yes	4,814	96.72
No	163	3.28
Fruits		
Yes	3,032	60.92
No	1,945	39.08

Meat		
Yes	2,925	58.77
No	2,052	41.23
Eggs		
Yes	1,352	27.16
No	3,625	72.84
Fish		
Yes	3,525	70.83
No	1,452	29.17
Legumes/nuts		
Yes	4,316	86.72
No	661	13.28
Milk		
Yes	2,336	46.94
No	2,641	53.06
Fats and oils		
Yes	4,688	94.19
No	289	5.81
Confectionaries		
Yes	3,675	73.84
No	1,302	26.16
Condiments/Beverages		
Yes	4,788	96.20
No	189	3.80

However, cash transfers and vouchers may be conditional or unconditional, universal or targeted to specific groups (FAO, [20]). The food groups consumed by households in Nigeria were highlighted in Table 5. Cereals, vegetables, fats and oils, legumes and roots and tubers were the most consumed food groups by households (Omotayo, [21]). However, the majority of households consume less eggs and milk, similarly, a significant percentage of the households did not consume meat and fruits (Ashagidigbi et al, 2022). These identified food groups are not only high in nutritional value but are also required for a healthy and active life. There is an urgent need for advocacy and awareness programs that will sensitize the populace on the nutritional and health benefits associated with consumption of these food groups. Additionally, food policy measures probably in the form of food price subsidy should be implemented. This is to ensure affordability of the food groups by households in Nigeria. Table 6 x-rays the food security status of households in Nigeria using Dietary Diversity Score approach. In Nigeria, about a quarter of the population is food insecure. In the urban sector, 14% are food insecure, while three out of 10 respondents are food insecure in rural sector of the country. Likewise, the dietary diversity score of rural and urban sectors follows similar trend as their percentages. The finding resonates with that of Ashagidigbi, et al. [22] where there is a considerable margin between rural and urban food insecurity status.

Table 5: Food Security Status of Households in Nigeria.

Food Security	Nigeria		Rural		Urban	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Food Secure	3,735	75.05	2,369	70.01	1,366	85.75
Food Insecure	1,242	24.95	227	29.99	1,015	14.25
Mean (DDS)	0.7430		0.7119		0.8087	

Note: DDS: Dietary Diversity Score.

Table 6: Effect of Social Safety nets on Food Security Status of Households in Nigeria.

Variables	Coefficient	Z
Sex	.0479463	2.56***
Age	-.00018	-0.53
Education	-.0744004	-5.72***
Household size	.0053498	3.54***
Income	1.33e-08	3.61***
Marital Status	.0784357	4.53***
Rural sector	-.0955633	-8.62***
Social safety nets Index	.0912	1.49
Northcentral	.1208881	6.90***
Northwest	.0432359	2.47***
Southeast	.2617996	14.62***
South-south	.2465483	14.03***
Southwest	.1578187	8.32***
Constant	2.153966	51.33***

The urban-rural disparity in the percentage of food insecure households should be of priority to policy makers in Nigeria. There is the need to narrow the food insecurity gap between urban and rural sectors by executing food policy measures (food price subsidy and food voucher) that would ease the food insecurity burden of the rural populace. The food insecurity status of households across the six zones in Nigeria revealed that the incidence of food insecurity is low in the southern divide of the country. However, about 45% and 40% of the households in northeast and northwest zones are food deprived. This is in conformity with the submission of (Olayemi [17,20,23]) where food insecurity is mostly prevalent in the northern divide of the country, especially in the northeast zone Table 7. Zone specific food policy measure is of great necessity for households in these two zones to ensure the attainment of Sustainable Development Goal (SDG) 2 of ending hunger. The result of the Tobit regression analysis in Table 8 shows that sex, formal education, rural sector, household size, income, and marital status significantly influenced food security status of households. Similarly, all the five zones significantly influenced food security status relative to the base (northeast). The result of the analysis shows that household gender/sex is significant and positively influence food security status of households in Nigeria. That is, being a male gender would lead to 4.79% increase in food security status of the households in Nigeria.

Table 7: Percentage of Food Secure Households across Zones in Nigeria.

Zones	Food Secure (%)	Food Insecure (%)	Mean
Northcentral	72.99	27.01	0.7219
Northeast	55.45	44.55	0.6385
Northwest	60.02	39.98	0.6714
Southeast	91.26	8.74	0.8262
South-south	89.94	10.06	0.8225
Southwest	81.21	18.79	0.7802

Table 8: Percentage of Population with Access to Social Safety-nets Program.

Zones	Yes (%)	No (%)
Northcentral	6.04	93.96
Northeast	13.20	86.80
Northwest	19.45	80.55
Southeast	6.43	93.57
South-south	8.22	91.78
Southwest	2.79	97.21

This implies that male-headed households are more food secure relative to their female counterpart (Ashagidigbi, et al. [17]). This is expected, as male respondents are usually in control of assets and productive resources within the households. The finding aligns with that of FAO [24] who established that female-headed households have higher dependency ratios, which hinder household capacity to allocate labor to on-farm or other income generating activities, thus worsening their food insecurity status. The result shows that formal education negatively influence food security status of the households in Nigeria. A unit increase in years of schooling of households led to a 7.44% decrease in food security status of the households. This may probably be due to the fact that majority of households in Nigeria resides in agrarian rural areas, where formal education is usually low and not a significant requirement in practicing agriculture. Household size has positive and significant effect on the food security status of the households in Nigeria. An additional member to a household would lead to 0.053% increase in food security status of farming household in Nigeria (Ashagidigbi et al, [17]). This implies that household with larger size are often food secure probably due to the engagement of their wards as family labour in agricultural activities, which cuts down on the cost of production, thereby increasing their profit and food security status. Furthermore, income positively influences food security status of the household in Nigeria.

Household income refers to the sum of earnings within the household from both off-farm and on farm sources (Babatunde, et al. [25]). That is, 1% increase in household income would increase food security status of the households in Nigeria by 1.33e-06%. An indication that households with higher income would be able to diversify their diets and able to consume the nutritious foods as they desire due to their possession of purchasing power of varieties of food items. Household marital status positively influences food security status of the farming household in Nigeria. Household heads being married increased the food security status of the households by 7.84%. This implies that households that are married are more food secure relative to the unmarried respondents (Ashagidigbi, et al. [26]). Marriage is an indication that a respondent is ready to be responsible in taking up the food, financial and domestic needs of his household. Food security status of households that reside in north-central, northwest, southeast, south-south, and southwest zones increased by .1208, .043, .261, .246 and .157 respectively, relative to the base. In order words, food security status among residents in the mentioned zones is much higher relative to those residing in the northeast zone (Ashagidigbi, et al. [21]). Residents in northeast zones are bedeviled with Boko Haram insurgency, which impacted negatively on their agricultural, economic and social life. Though social safety net has no significant effect on households' food security, its effect is however positive.

The insignificant effect might be due to the very low proportion of households that benefitted from the safety nets program. It is noteworthy that if a significant percentage of the population were

captured under the safety nets program, the positive effect on food security would have been substantial. It is recommended that the government should expand the reach of the social safety nets program to capture more vulnerable households, in order to guarantee its significant impact on households' food security. This is germane as social safety nets alleviate liquidity constraints for smallholders, boost demands for farm products, foster income-generating strategies, and create multiplier effects throughout the local economy (Devereux, et al. [27]). In conclusion, it is evident in the study that proportion of households benefitting from the social safety nets program is low. Households consume less nutritious food such as eggs, milk and fruits, which are necessary for an active and healthy life. Food security status is low in rural areas relative to urban sector, and among residents in the northeast and northwest zones relative to other zones. It is pertinent that there should be advocacy and sensitization of Nigerian households on the consumption of nutritious foods such as egg, milk and fruits to ensure healthy living. Furthermore, food policy measure specifically for rural dwellers and residents of northeast and northwest zones is of great priority as there is still high prevalence of food insecurity among households in these sectors and zones.

Lastly, the positive influence of social safety nets program on household food security status would be significant if government can endeavor to significantly expand the coverage of households benefitting from the program in Nigeria. This will justify the use of the social safety nets program as one of the measures in achieving SDG2.

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ISSN: 2574-1241

DOI: 10.26717/BJSTR.2024.57.008938

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