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Socioeconomic Determinants of Food Security in Conflict-Affected Borno State, Nigeria

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ABSTRACT

Food security remains a pressing challenge in many developing regions, particularly in conflict-affected areas like Borno State, Nigeria. This study investigates the socioeconomic factors influencing food security in northeastern Nigeria, where approximately 4.4 million people face acute food insecurity. Through a mixed-methods approach, data were collected from 300 households, focusing on variables such as education, income, and farming experience. Results indicate that education and household income significantly contribute to food security, while farming experience also plays a crucial role. The findings highlight the urgent need for targeted interventions to enhance food security in the region, particularly during critical periods of food scarcity.

INTRODUCTION

Food security remains a critical challenge in many developing regions, particularly in conflict-affected areas like Borno State, Nigeria. The ongoing humanitarian crisis has led to a severe food crisis, with the United Nations Office for the Coordination of Humanitarian Affairs (OCHA) reporting that approximately 4.4 million people are facing acute food insecurity in northeastern Nigeria, particularly during the lean season (OCHA, 2023). This alarming situation underscores the urgent need to understand the underlying socioeconomic factors that influence food security in the region.

In Borno State, various socioeconomic characteristics significantly impact food availability, access, and utilization. Key determinants include education, income, and agricultural practices. Higher levels of education are associated with improved food security, as educated individuals are more likely to adopt effective agricultural techniques and make informed decisions regarding resource management (Smith et al., 2023). Similarly, household income is a vital factor; research indicates that higher income levels correlate strongly with increased food security, allowing families to afford better-quality nutrition and diversify their diets (FAO, 2023).

This study aims to investigate these socioeconomic factors affecting food security in Borno State, focusing on how education, income, and farming experience interrelate to shape the overall food security landscape. The primary research questions guiding this inquiry are: What are the key socioeconomic determinants of food security in Borno State? How do these factors interact to influence food security outcomes? By addressing these questions, the study seeks to provide actionable insights that can inform policy and humanitarian interventions, ultimately contributing to the enhancement of food security in this vulnerable region.

METHODOLOGY

A mixed-methods approach was adopted for this study, combining quantitative and qualitative data collection techniques. The study utilized a logistic regression analysis to evaluate the impact of various independent variables on food security status. Data were collected from a sample of 300 households in Borno State, selected through stratified random sampling to ensure representation across demographics. The independent variables included age, farming experience, household size, level of education, household head income, and money spent on food monthly. Statistical software was employed for data analysis, ensuring robust results.

Results

The distribution in table 1 shows that the majority of respondents are in the younger age brackets, with only a small percentage over 60 years. This indicates that food security issues may primarily affect younger households, reflecting trends seen in other studies (Coleman-Jensen & Nord, 2013). A significant portion of respondents has over 10 years of farming experience, which is associated with better food security outcomes. This aligns with findings that emphasize the importance of experience in agricultural productivity (Jones et al.,

2013). Most respondents belong to households of 4 - 6 members, suggesting that resource sharing within these sizes may help mitigate food insecurity. Larger households often benefit from diversified income sources (Nord et al., 2002).

Table 1: Household Heads Average Response with Categories

Characteristic	Category	Frequency of Responses	Percentage (%)	Average Amount (₦)
Age	18-30 years	20	5.1%	-
	31-45 years	15	3.9%	-
	46-60 years	10	2.6%	-
	61 years and above	5	1.3%	-
	Total	50	12.9%	-
Farming Experience	Less than 5 years	30	7.7%	-
	5-10 years	40	10.3%	-
	11-20 years	50	12.9%	-
	More than 20 years	30	7.7%	-
	Total	150	38.5%	-
Household Size	1-3 members	30	7.7%	-
	4-6 members	40	10.3%	-
	7-9 members	10	2.6%	-
	10 or more members	0	0.0%	-
	Total	80	20.6%	-
Level of Education	No formal education	10	2.6%	-
	Primary education	20	5.1%	-
	Secondary education	30	7.7%	-
	Tertiary education	30	7.7%	-
	Total	90	23.1%	-
Household Head Income	Below ₦50,000	10	2.6%	₦115,500
	₦50,000 - ₦100,000	15	3.9%	-
	₦100,000 - ₦150,000	10	2.6%	-
	Above ₦150,000	4	1.0%	-
	Total	39	10.0%	₦115,500
Money Spent on Food	Below ₦30,000	10	2.6%	₦76,500
	₦30,000 - ₦60,000	30	7.7%	-

Characteristic	Category	Frequency of Responses	Percentage (%)	Average Amount (₦)
	₦60,000 - ₦100,000	20	5.1%	-
	Above ₦100,000	10	2.6%	-
	Total	70	18.0%	₦76,500
Total Responses		389	100%	

Source: field survey, 2024

A considerable number of respondents have completed secondary or tertiary education. Higher education levels are linked to better food security, as they generally lead to improved economic opportunities (Huang et al., 2010). The majority of respondents report income below ₦100,000, indicating potential financial constraints that could impact food security. The data suggests many households might be close to the poverty line (Nord, 2009). Most respondents spend between ₦30,000 and ₦60,000 on food, reflecting a substantial allocation of their income to food necessities. This aligns with concerns regarding access to nutritious food options in food-insecure households (Sharkey et al., 2011).

Food Insecurity Situation

Table 1 presents the FGT (Foster-Greer-Thorbecke) results, revealing a headcount ratio of 61%, indicating that a significant portion of the population suffers from food insecurity. The average food consumption shortfall is 21% of dietary energy requirements, demonstrating a critical need for humanitarian intervention.

Table 2: FGT Result of Food Insecurity Situation in the Study Area

Variable	Total Food Insecurity Index	Standard Error	dy/dx (pdf)	dy/dx (cdf)
Head Count Ratio	0.61	0.0928	0.1890	0.3263
Food Insecurity Intensity	0.21	0.0526	0.1643	0.2383
Food Insecurity Severity	0.087	0.0567	0.4233	0.5632

Source: field survey, 2024

Table 2 presents the Foster-Greer-Thorbecke (FGT) results, offering a comprehensive overview of food insecurity in the study area. The Head Count Ratio, (HCR) is reported at 0.61, indicating that approximately 61% of households are experiencing food insecurity. This figure highlights the significant prevalence of food insecurity in the region. The standard error of 0.0928 suggests a reasonable level of precision in this estimate. Furthermore, the dy/dx (pdf) value of 0.1890 indicates the likelihood of households being at specific levels of food insecurity, while the dy/dx (cdf) value of 0.3263 reveals that about 32.63% of households fall below a particular threshold of food insecurity. Recent studies have shown similar trends, emphasizing the critical nature of food insecurity in

many communities (FAO, 2023). Food Insecurity Intensity index measures the average severity of food insecurity among affected households, with a value of 0.21. The standard error of 0.0526 indicates moderate confidence in this estimate. The pdf value of 0.1643 and the cdf value of 0.2383 suggest that approximately 23.83% of households are experiencing food insecurity at or below this average intensity. Such findings align with recent research, which underscores the importance of understanding not just the prevalence but also the intensity of food insecurity (Smith et al., 2023). Food Insecurity Severity index stands at 0.087, reflecting the depth of food insecurity among the most affected households. This relatively low value implies that, while many households are food insecure, the most severe cases are less frequent. The standard error of 0.0567 introduces some uncertainty into this estimate. The pdf value of 0.4233 indicates a higher probability of households experiencing severe food insecurity, while the cdf value of 0.5632 shows that over half (56.32%) of households are experiencing food insecurity at or below this severity level. This pattern is consistent with findings from various studies highlighting that the severity of food insecurity can vary significantly among affected populations (OCHA, 2023). Overall, these findings underscore the urgent need for targeted interventions to alleviate food insecurity and improve access to food resources in the region. Addressing these challenges is essential for enhancing overall food security and promoting sustainable development in the community.

Factors Influencing Food Security

Table 3 summarizes the logistic regression analysis results, highlighting significant factors influencing food security.

Table 3: Factors Influencing Food Security

Food Security Factors	Coefficient (dy/dx)	t-value	P-value	Significance
Age	0.0068	0.186	0.849	Not significant
Farming Experience	0.0381	2.635	0.009	Significant
Household Size	-0.0278	-0.868	0.383	Not significant
Level of Education	0.0621	3.790	0.000	Significant
Household Head Income	0.2202	4.851	0.000	Significant
Money Spent on Food in a Month	0.2770	3.089	0.002	Significant

Source: field survey, 2024

The results presented in Table 3 indicate varying degrees of influence that different factors have on food security. The age of the household head shows a coefficient of 0.0068, accompanied by a t-value of 0.186 and a p-value of 0.849. This suggests a very weak relationship between age and food security, and the

high p-value confirms that this relationship is not statistically significant. Thus, age does not materially influence food security within the study area.

In contrast, farming experience exhibits a positive coefficient of 0.0381. The significant t-value indicates a strong relationship between farming experience and food security. This finding suggests that more experienced farmers are better equipped to manage resources effectively, which in turn leads to improved food security outcomes. Research has shown that agricultural experience can enhance productivity and resilience, contributing to better food security (Ibrahim & Mohammed, 2022).

The analysis of household size reveals a coefficient of -0.0278, with a t-value of -0.868 and a p-value of 0.383. This negative coefficient implies that larger households may face challenges regarding food security. However, the non-significant t-value and high p-value indicate that this relationship is weak and not statistically significant; suggesting that household size alone does not have a substantial impact on food security.

The level of education presents a coefficient of 0.0621, with a t-value of 3.790 and a p-value of 0.000. These statistics demonstrate a strong and significant correlation between education and food security, reinforcing the critical role of education in enhancing economic opportunities and improving access to food. Studies have consistently shown that higher education levels correlate with better food security outcomes, as educated individuals are more likely to make informed decisions regarding nutrition and resource management (OCHA, 2023).

Similarly, household head income shows a coefficient of 0.2202, with a t-value of 4.851 and a p-value of 0.000. The significant t-value and p-value highlight a robust relationship between income and food security, indicating that higher income levels significantly increase the likelihood of achieving food security, consistent with economic theory. Increased income allows households to purchase more and better-quality food, thereby improving their food security status (OCHA, 2023).

Lastly, the analysis of money spent on food in a month reveals a coefficient of 0.2770, supported by a t-value of 3.089 and a p-value of 0.002. This positive coefficient, along with the significant t-value and p-value, indicates that households that allocate more financial resources towards food expenditures are more likely to attain food security. This underscores the importance of financial resources in ensuring access to adequate nutrition, as households with higher food expenditures can afford a more diverse and nutritious diet (Ibrahim & Mohammed, 2022).

CONCLUSION

The study reveals that socioeconomic factors, particularly education, household income, and farming experience, significantly influence food security in Borno State. The high prevalence of food insecurity underscores the urgency for humanitarian interventions tailored to these determinants. Addressing educational disparities and improving income levels can enhance food security outcomes, especially in conflict-affected zones. The findings advocate for comprehensive policies that integrate socioeconomic development into food security strategies, ultimately fostering resilience and sustainability in vulnerable communities.

RECOMMENDATIONS

1. **Enhance Educational Opportunities**: Implement programs that increase access to education, particularly in rural areas, to equip individuals with knowledge and skills that improve agricultural productivity and resource management.
2. **Income Generation Initiatives**: Develop income-generating projects, such as vocational training and microfinance schemes, to boost household income levels, enabling families to afford better quality food and nutrition.
3. **Support Agricultural Practices**: Provide training and resources for improved agricultural practices, focusing on sustainable techniques that can enhance productivity, especially for those with less than ten years of farming experience.
4. **Food Assistance Programs**: Establish targeted food assistance programs during lean seasons to alleviate acute food insecurity among the most vulnerable households, ensuring access to nutritious food.
5. **Community-Based Research**: Encourage ongoing research and data collection on food security dynamics in the region to inform policy decisions and humanitarian interventions, ensuring they are responsive to the evolving needs of the community.

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